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THE TREATMENT OF LEPROSY.

WITH ESPECIAL REFERENCE TO SOME NEW CHAULMOOGRA OIL DE-RIVATIVES.

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Leprosy not an incurable disease.

From a careful review of the medical literature upon the subject for the past decade or two, one can not avoid the conviction that there has arisen a new confidence in the curability of leprosy. Unna delivered an address upon "La Pathologie et la Thérapeutique de la Lèpre," in which he declares that the time has happily gone by when, according to common opinion, leprosy was considered incurable, and when every physician who would not permit himself to be tyrannized by that disheartening dogma was met only by a charitable smile. He declared that leprosy was making its way on the same ground as tuberculosis and that it was only the persistent, faithful work of a few physicians who were not satisfied with that easy-going doctrine that had brought about the hopeful change.¹

Unna's dicta and opinions have been respected and frequently quoted by writers upon the subject the world over. It is a significant fact that at the Second International Conference on Leprosy, held in Bergen, Norway, in 1909, at which this Station was represented by its Director, the late lamented Surg. Donald H. Currie, United States Public Health Service, that body declared by formal resolution that "The clinical study of leprosy induces the belief that it is not incurable."² So many successful results are to-day being obtained in the treatment of the disease in various parts of the world, that the statement still occasionally seen that leprosy is incurable is, to say the least, an anachronism.

This paper will recite briefly the methods of treatment we have found useful.

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¹Les temps sont heureusement passés, où, d'après l'opinion universelle, la lèpre était incurable, où chaque médecin qui ne se laissait pas tyranniser par ce dogme désolant ne recueillait qu'un sourire charitable. La lèpre a fait, en cela, le même chemin que la tuberculose. Ce n'ont été que les bons succès de quelques médecins, qui ne se contentaient pas de ce "dogme de commodité," qui y ont produit un changement. -XV Congrès International de Médecine: Lisbonne, 1906, Section VIII, Dermatologie et Syphiligraphie, 2 me fascicule, p. 310.

^{*}Public Health Reports; Vol. XXIV, No. 38, p. 1357.

General Measures in Treatment of Leprosy.

As a prerequisite to, and combined with, specific medication, especial importance is placed upon the general welfare of the patients. The food is of good quality, ample, well-cooked, and well-served in cheery dining rooms. In the dormitories, the patients care for their own rooms and are held to account for neatness and cleanliness both in person and in surroundings. Idleness is discouraged and meditative moping is not permitted. The adult males find occupation and diversion in vegetable and flower gardening, care of the live stock, repairs and painting, upkeep of lawns, etc., and the women busy themselves with the usual activities of home life, except the cooking and serving of meals. The younger boys and girls attend school a few hours daily under a teacher patient, and behave during the rest of the time precisely as do children everywhere. The entire community plays tennis, baseball, volley ball, basket ball, croquet, billiards, etc., and in the evenings, dances and movies in the Assembly Hall are of frequent occurrence. The patients have their own stringed orchestra and singing club and every few weeks stage a play or a concert with costumes of their own design and making. There is a spirit of good cheer and hopefulness, each one determined to achieve a cure. Cases which improve to the point where the clinical signs have disappeared and the bacillus can no longer be demonstrated are recommended for parole by the physician in charge. A board of three physicians is appointed by the board of health and this board passes on the advisability of allowing the patient to go out, as no longer a menace to the public health. Paroled patients are required to report at stated intervals. The care received, the spectacle of fellow patients being paroled, and the general atmosphere of the hospital lead to a high state of morale; such effects on physiological tone as may be due to mental condition are highly favorable.

On the arrival of new patients at the hospital, after their official examination and formal admission, our first care is to give them a thorough examination to learn what they need to improve their general condition. For instance, those who seem to be badly nourished and anemic are immediately put upon some standard tonic, such as a tablet of iron, arsenious acid, and strychnine. We find that they quickly respond to the improved surroundings, good care, and treatment, by improved appetite, gain in weight, etc. We believe this puts them in a better state to receive and assimilate the remedies directed specifically to the cure of the disease. Others, again, enter with scabies, which is promptly relieved by sulphur ointment applied in the usual way. Ulcers respond kindly to appropriate treatment and heal in a few weeks. Briefly, our object is to put and maintain every patient in as good general health as possible. Of the long list of drugs and remedies used especially against leprosy by various authorities we have nothing derogatory to state. The writers have great faith in strychnine, recommended by Dyer and Hopkins of New Orleans, as we certainly have had good results from its constant use, especially in nerve cases. Arsenious acid, gurjun oil, and several others of the old-time remedies, so far as tried, have maintained their good reputation in our hands, and we believe have done good.

The Use of Chaulmoogra Oil.

The remedy to which we pin our faith as superior to all others is chaulmoogra oil. For many years it was used in Hawaii in its crude state, with results very similar to those obtained elsewhere. To the majority of patients it is nauseating and offensive to the stomach even when taken in slowly increasing doses by capsules, and its use has to be discontinued for a time, to be begun later at a diminished dose. Given intramuscularly it is painful and slow of absorption.

Many attempts at its modification have met with more or less success according to reports from various sources, and one report which has attracted especial attention is that of Dr. Victor G. Heiser, surgeon, United States Public Health Service, director of health for the Philippine Islands, published in 1914.³ Although the report covers but 12 cases, it is mentioned in this connection because it seems to have been the starting point of an awakened interest and especial effort in the Orient, where the treatment was tried with favorable results in various missionary hospitals in India and China. The Heiser formula is as follows:

Chaulmoogra oilcc	60
Camphorated oilcc	60
Resorcingrams	4
Mix and dissolve with the aid of heat on a water bath and then filte	er.

It is used intramuscularly and "the injections are usually made at weekly intervals in ascending doses. The initial dose is 1 cc., and this is increased to the point of tolerance."

A review of the earlier literature covering the use of chaulmoogra oil may be found in United States Public Health Service Bulletin No. 75, January, 1916, by Surg. G. W. McCoy and Acting Asst. Surg. Harry T. Hollmann. Their summary of this review is as follows:

"Our personal experience leads us to the conclusion that most writers have reached—that the oil is helpful to many cases of leprosy, perhaps the majority.

"The hypodermic method of administration, while not free from disagreeable complications, seems to have given good results, and, in view of the nature of the disease, ought to be given a further trial. "We are sure that the use of chaulmoogra oil as at present practiced is not the solution of the problem of the therapeutics of leprosy."

The use of injections of mixtures containing crude chaulmoogra oil along the lines reported by Heiser had given sufficiently encouraging results to stimulate further investigation, and was continued at the Kalihi Hospital in the period following the work reported in Bulletin 75.

A mixture of the following composition was employed:

Formula No. 1.		
Chaulmoogra oil	cc	500
Olive oil	cc	500
Camphor	grams	5
Guaiacol	do	10

This method of treatment was employed on many patients with generally favorable results. In most cases the oil was given by mouth as well as by the intramuscular route. The amount of oil which could be tolerated in this way varied considerably with individuals. The practice was to increase the dosage until the limit of tolerance was approximately reached. Lugol's solution, which was frequently administered, was likewise varied in doses, beginning with small amounts and gradually working the dosage up until the patient was receiving substantial quantities of iodine in this form.

This combination of intramuscular and oral administration was beneficial in the majority of cases, and in a number of them resulted in the patient's becoming apparently bacteriologically negative and being paroled from the hospital. A report covering 12 of these paroled cases is given by Hollmann.⁴ In the great majority of cases which became bacteriologically negative, there has been no reappearance of the disease.

The results obtained by Heiser, and by the various members of the staff of the Leprosy Investigation Station here in Honolulu, gave one of us (A. L. D.) good reason to believe that in chaulmoogra oil there were one or more active principles which had a specific action in leprosy. It seemed clear that this active agent is much more effective when introduced into the body hypodermically or intramuscularly than when taken by mouth. Nevertheless the action of the injected mixtures of the crude oil is slow, the injections are painful, and the material is usually slowly absorbed. Further progress in the development of the treatment of leprosy by use of chaulmoogra oil appeared to depend upon chemical and clinical investigations directed to the isolation of the active principle and its more efficient application. There were, therefore, problems, both chemical and physiological, requiring the application of experimental methods. There was, however, the broader problem of the development of the best system of medical treatment for leprosy, which involves not only these scientific aspects of the problem, but also the most advantageous application of any other agencies likely to lead to a more rapid and complete mastery of the disease.

CHAULMOOGRA OIL DERIVATIVES.

Chaulmoogra oil is one of the few members of the group of fatty oils which are believed to have distinct physiological effects outside of their nutritive value. The fatty oils are of great physiological importance, but, heretofore, chiefly in relation to nutrition and the general metabolism of the body. In a series of papers from the Wellcome Research Laboratory, by Power and his collaborators,⁵ the constitution of chaulmoogra oil and some of the closely related oils was elucidated. They discovered a new series of fatty acids represented by two members-chaulmoogric acid, CisH22O2, and hydnocarpic acid, C₁₈H₂₈O₂. These acids differ from any other known fatty acids in that they rotate the plane of polarized light to a notable degree—chaulmoogric acid $[a]_{p} = +62.1^{\circ}$ and hydnocarpic acid $[a]_{\rm p} = +68^{\circ}$. The studies on their constitution indicated that each of these acids contains a five-carbon-ring nucleus. Both of these acids were isolated from chaulmoogra oil derived from the seeds of Taraktogenos kurzii, and also from the oil of closely related species belonging to the genus Hydnocarpus. Power and his coworkers did not concern themselves with the therapeutic use of chaulmoogra oil.

It would appear possible that the distinctive action of chaulmoogra oil, as heretofore reported, may be due either to the glycerides of the unique fatty acids of chaulmoogra oil or to the presence of some other oil-soluble constituent not a glyceride. The first step in the attempt to identify the active agents would be the separating of chaulmoogra oil into fractions and the use of these fractions on groups of lepers. The separating of the glyceride mixtures which make up the various vegetable fatty oils is very difficult; the fatty acids obtained by the decomposition of the glycerides are somewhat more readily separated.

Sir Leonard Rogers, in his experiments using the intravenous injections of the sodium salts of the acids derived from chaulmoogra oil, made use of fractions, separated by Ghosh.⁶ The data presented

⁵ Power and Gornall, The Constituents of Chaulmoogra Sceds: Jour. Chem. Soc. LXXXV, p. 838 (1904); Power and Gornall, The Constitution of Chaulmoogric Acid: Jour. Chem. Soc. LXXXV, p. 851 (1904); Power and Barrowcliff, The Constituents of the Seeds of Hydnocarpus Wightiana and of Hydnocarpus Anthelmintica—Isolation of a Homologue of Chaulmoogric Acid: Jour. Chem. Soc. LXXXVII, p. 884 (1905); Barrowcliff and Power, The Constitution of Chaulmoogric and Hydnocarpic Acids: Jour. Chem. Soc. XCI, p. 557 (1907).

[•] Sudhamoy Ghosh, M. SC. (Cal.), D. SC. (Edin.), F. C. S. (London), Report of a Chemical Investigation of Chaulmoogra Oil in Connection with Leprosy Treatment: Indian Jour. Med. Research, IV, p. 691 (1916).

by Ghosh showed clearly that he was dealing with mixtures of fatty acids, and probably very complicated mixtures. The separation of the constituent fatty acids from the mixed product derived from the saponification of chaulmoogra oil by means of fractional crystallization is a tedious and complicated task, and Ghosh did not meet with much success.

It is quite clear from the results heretofore published that although there is a therapeutic agent (or agents) in chaulmoogra oil of marked value in leprosy, none of the attempts to isolate or identify this agent has led to conclusive results.

A recent publication of Sir Leonard Rogers⁷ describes the use of "gynocardate of soda" and "morrhuate of soda." His term "morrhuate of soda" refers to the sodium soaps of the fatty acids of codliver oil, and he reports excellent results from the intravenous and hypodermic injections of this material. The fatty acids of cod-liver oil are of a peculiar and unusual type, although not of the chaulmoogric series. If the results of Rogers are confirmed, it will appear that the fatty acids of cod-liver oil are also useful in leprosy. Although it may be, as suggested by Rogers, that "other unsaturated fatty acids may also be expected to yield effective preparations against the acid-fast bacilli of both leprosy and tuberculosis," it seems to us unlikely that this is a property common to all unsaturated fatty acids. For example, oleic acid, which is unsaturated to the same extent as chaulmoogric acid, is a common body constituent, and it would therefore be rather improbable that weekly injections of, say. 5 cc. of a 3 per cent solution of sodium oleate, amounting to 0.15 gram dry material, would have any such effect in leprosy as has been reported following the use of even smaller quantities of the sodium soaps of the fatty acids of chaulmoogra oil. Obviously a wide and important field for chemical and physiological investigation has been opened by this work of Sir Leonard Rogers and our own work here.

As an initial step, the fatty acids of chaulmoogra oil were separated into four fractions in the chemical laboratory of the College of Hawaii. One of these fractions was chaulmoogric acid, and the other three were mixtures of acids having somewhat different properties. These fatty acid fractions are solids, and therefore unavailable directly for hypodermic or intramuscular injections. One of the first problems was to find a suitable form of material for injection which would allow rapid absorption into the circulation. It was found that the ethyl esters of the fatty acids were thin fluid oils lending themselves readily to intramuscular injections and were readily absorbed.

⁷ Paper read before the Medical Section of The Asiatic Society of Bengal, Mar. 12, 1919, by Sir Leonard Rogers, M. D., F. R. C. P., F. R. C. S., Lieutenant Colonel, I. M. S.

The four fractions originally tried out, and designated, respectively, "A," "B," "C," and "D," were of the following character:

Fraction "A": The ethyl ester of chaulmoogric acid.

Fraction "B": The ethyl esters of the other fatty acids readily separating on cooling the alcoholic solution of the mixed fatty acids of chaulmoogra oil, doubtless containing considerable of "A".

Fraction "C": The ethyl esters of the fatty acids remaining in the mother liquor from the separation of the acids in "A" and "B" and yielding lead salts readily soluble in ether.

Fraction "D": Ethyl esters of the fatty acids accompanying "C" in the alcoholic separation, but yielding lead salts not readily soluble in ether.

The early results of the use of these fractions "A," "B," "C," and "D," together with some details of the methods of their preparation, are given by Hollmann and Dean.⁸

The results published and a continuation of the same lines of work lead to the general conclusion that the therapeutic agent in chaulmoogra oil is able to survive the chemical treatments involved in the making of these preparations and is itself distributed through all four of the fractions. The differences in results, using the different fractions, are not sufficient to warrant any final conclusions regarding their relative efficiency; patients receiving each of the fractions have shown marked improvement, have become bacterially negative, and have been paroled. It is impossible, however, to draw definite conclusions from this work because of the fact that all patients who received the injections also regularly received chaulmoogra oil by mouth in substantial quantities. We can not say, therefore, whether the beneficial action in any particular case is due to the material injected or to the combined action of the material injected and that taken by mouth. The general observation that chaulmoogra oil taken by mouth has a beneficial but not decisive action lends color to the belief that the most important factor in the improvement of the various cases is the injected material. As a series of experiments intended to develop the best method for leprosy treatment the plan followed was satisfactory, but it is not satisfactory as a method of demonstrating the relative efficiency of different fractions of the oil.

DISTILLED ESTERS.

As already indicated, the processes which resulted in the fractions "A," "B," "C," and "D" are of such a character as to make it improbable that any other material except fatty acids would survive them and be distributed in all four of these fractions. Still further evidence on this point was gained by a different system of fraction-

ation. In this case the mixed fatty acids derived from the saponification of chaulmoogra oil were converted into ethyl esters by heating with absolute alcohol in the presence of dry hydrochlorio acid gas, giving a mixture of the ethyl esters of all the acids present This acid mixture was distilled in vacuo at a in the crude oil. pressure of 30 to 34 mm. The distillate was cut into three fractions of different boiling ranges, designated "E," "F," and "G." These distilled esters are colorless liquids. At the time the first work of this character was done no apparatus was available to provide higher vacua and allow satisfactory distillations. The fractions "E," "F," and "G" were used for intramuscular injections in a number of patients, beginning in January, 1919, and in some cases extending until about the 1st of July of that year. It was found that all the cases receiving each one of the fractions "E," "F," and "G" showed improvement-some of them quite rapid-indicating that the methods employed in their production had not resulted in the destruction of the therapeutic agent or agents.

The same uncertainty surrounds the interpretation of these results as exists in the cases receiving fractions "A," "B," "C," and "D," since all were getting chaulmoogra oil in capsules three times daily in addition to the weekly injections. We can say, however, that whatever virtue resides in the use of chaulmoogra oil derivatives injected intramuscularly in combination with the oral administration, that virtue is probably not lost or segregated to an appreciable extent by any of the chemical or physical conditions to which these various preparations have been exposed.

The use of vacuum distillations as a means of separating the esters of the fatty acids and the fatty acids themselves is receiving extensive application in the chemical investigations now in progress.

THE ADMINISTRATION OF THE ETHYL ESTERS.

The intramuscular injections are given once a week, Wednesday being known as "Injection Day." An adequate supply of injection material, together with syringes, needles, etc., is previously subjected to about 15 pounds of steam pressure for from a half to one hour in the autoclave. Other methods of sterilization would doubtless answer equally as well; for instance, an ordinary kitchen double boiler ought to serve every purpose, especially when only a few patients are to be treated. The patients, instead of dreading what must be a rather painful performance, make a gala day event of it and fill the hour with laughter, noise, and chatter on the lawn outside while awaiting their turns.

The site chosen by us for the injection is the upper and outer quadrant of the gluteal region, alternating sides weekly. One of the patients, who is called the "painter," applies tincture of iodine to

a spot the size of a silver dollar. The syringe used is an ordinary 20-cc. all-glass model, and the needle selected is a No. 20, although with the thin and limpid ethyl esters a smaller size would undoubtedly serve. Sterile needles, one for each patient, are in readiness; the material is poured from the flask into a sterile beaker, a patient assistant stands on one side with a previously prepared basin of cotton pledgets, and on the other side is the clerk, usually the laboratory assistant, record book in hand, to enter opposite the name in a properly ruled, dated column the number of cubic centimeters given each patient on that day. A syringe full of the material is drawn up from the beaker, then, with a small spring forceps, a needle is picked up from the large Petri dish containing them and placed on the stem of the syringe. The patients are taught to step lively, and one by one they quickly enter from the preparation room, the needle is passed its whole length to reach the musculature, and the proposed dose is gently administered. The instant the needle is withdrawn the assistant claps a pledget of cotton over the puncture, and the patient's own hand is applied to retain it with a gentle pressure for a few minutes in the preparation room. Bv the time the operator has removed and discarded the used needle and replaced it by a clean one the next patient is in position. We can thus easily administer from 75 to 100 injections in an hour or two and do it well. Employing 1 cc. as the initial dose, it is our custom at every second or third injection to increase the dose by 1 cc. until we reach a maximum of from 3 to 5 cc., according to the age or weight of the patient.

A phenomenon noted by many other observers in using chaulmoogra oil injections occurs with us also; in a few instances, immediately following the injection, the patient is seized with a violent fit of coughing. It quickly begins to subside, however, and in less than five minutes has entirely disappeared, leaving no serious results.

As to effects, or so-called "reactions" following our injections, there is a considerable diversity of reports. Some claim that during the following 24 hours they experience creeping sensations of chilliness at times, that they are rather out of sorts and feverish; with an indifferent appetite, etc.; others say they do not notice any such symptoms; while all admit a soreness for a day or two, deep under the point of injection. In a few instances we have taken the morning and evening temperature of all the patients on injection day and the day following, with the result that not 3 per cent of the number showed any rise whatever, either on the evening of injection day or morning or evening of the day following. The rise of temperature in those who did show any appreciable rise did not exceed one degree; from which it may be inferred that the constitutional symptoms following our injections are practically nil. While some have reported from other sources rather frequent abscess formation as derogatory to intramuscular injection of chaulmoogra oil, we are happy to report more favorable results, as in 4,892 deep injections administered from October 1, 1918, to the present writing (January, 1920), we have had but one case of resulting abscess.

COMBINED IODINE IN TREATMENT.

For a number of years iodine has been employed in the treatments, chiefly in the form of Lugol's solution. Since the fatty acids of chaulmoogra oil are for the most part unsaturated acids and therefore capable of adding iodine to form iodine compounds, it seemed possible to utilize this property to introduce iodine into the body either through the skin, by injection, or by way of the mouth. Iodine combined in this way has none of the irritating action of free iodine. We have been employing treatments since February, 1919, in which combined iodine has been used.

In the period between February 5 and March 12, 1919, nine newly received patients were placed in a group to receive injections of a preparation consisting of the mixed ethyl esters of chaulmoogra oil carrying 4 per cent of combined iodine. Subsequently, the percentage of iodine has been varied between 2 and 8 per cent.

In addition to the weekly injections, these patients received capsules three times per day, containing the mixed fatty acids of chaulmoogra oil carrying 5 per cent of combined iodine. The fatty acids were used instead of the oil itself because hydrolysis of the glycerides to fatty acids is the normal digestive process which precedes fat absorption. We were therefore using a predigested oil. We can see no advantage in the use of the sodium salts, as practiced by Rogers, since these soaps would be reconverted into the fatty acids by the hydrochloric acid of the stomach. Between May 14 and June 4, 1919, two additional patients were placed on this treatment. About the last of June it became necessary to ship a considerable number of patients to Molokai on account of the crowded condition at Kalihi. This unfortunately caused the loss of 4 of our 11 patients in this experiment. The remaining 7 have all been paroled. Since the cases sent to Molokai were the less promising ones, they would not have been fit for parole in November, and might, perhaps, never have become bacteriologically negative.

"STANDARD TREATMENT."

Because of the excellent progress which patients were making on the treatment just described it was decided to adopt this as the standard routine practice, placing on this treatment all patients who were received, unless they were to be in some group for special

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investigation. As already indicated, we have done some shifting about with the proportions of iodine employed, and the standard treatment now consists in weekly injections of a preparation which consists of the mixed ethyl esters of the acids of chaulmoogra oil with 2 per cent of iodine in chemical combination. The amount used starts at 1 cc. and is gradually increased to a maximum of 4 or 5 cc. for adults.

Three times each day, an hour and a half after meals, the patient receives capsules containing the fatty acids of chaulmoogra oil with $2\frac{1}{2}$ per cent of iodine chemically combined. The dosage for the first 15 days is $\frac{1}{6}$ gram per 100 pounds of body weight three times daily; for the second half of the first month, $\frac{1}{3}$ gram per 100 pounds; for the first half of the second month, $\frac{2}{3}$ gram per 100 pounds; and after that, 1 gram per 100 pounds of body weight. This means, for example, that a 150-pound man would get $1\frac{1}{4}$ grams per dose or $4\frac{1}{2}$ grams per day.

In addition to this treatment, the patients also receive such other medical care as may be indicated in each case.

TREATMENT BY INJECTIONS ONLY.

It has already been pointed out that the injection of various preparations has been accompanied by the oral administration of crude chaulmoogra oil or its derivatives. The experiences of others, as set forth in the literature of leprosy, as well as our own observations, point to the conclusion that the oil which passes through the digestive tract plays a minor part in the improvement noted. Much larger quantities are taken by the mouth than by injection; yet, when the injections are not employed, the recovery is slow, uncertain, and incomplete.

In administering treatment on a large scale, great economy of material would be effected by using injections only, and the whole treatment simplified. In order to test the efficacy of the injection feature of our standard treatment without the feature of oral administration of the iodized fatty acids, a group of 10 patients who had recently been admitted to the hospital, and had never received more than very small amounts of chaulmoogra oil, were placed on treatment by injection only. A small dosage of strychnine was given, partly for its tonic effect and partly for the psychological value of having "something to take," like the others. It is too soon to draw final conclusions, but the results to date are very encouraging. Perhaps these patients are not improving quite as rapidly as those on the regular treatment, but they are certainly improving.

ACCESSORY TREATMENTS.

Although experience indicates that the chief factor in the good results we have attained is the intramuscular use of chaulmoogra derivatives, aided by those taken orally, it is nevertheless advantageous to make use of any adjuvant measures which have proved of value. It has been shown that aqueous solutions do not penetrate the sound skin, whereas oily ones enter to greater or less depths.

Iodine liniment.—We have tried the superficial application of a "green oil" consisting of the ethyl esters of chaulmoogra oil, carrying combined iodine amounting to from 10 to 25 per cent by weight. This oil penetrates well, especially when aided by brisk massage. Definite and convincing data covering its value are not available, but it is in considerable demand by the patients, who are given 50 cc. vials and allowed to apply the oil three times daily.

Ointments.—For old and sluggish ulcers as well as for chronic eczematous looking spots and areas which need stimulating, we employ the ointment of ammoniated mercury of the United States Pharmacopœia, which we modify by mixing it with ointment of zinc oxide in equal parts when we desire to render it milder, or, on the other hand, if we have a lesion which requires something stronger, we rub into our ointment of ammoniated mercury a dash of finely powdered salicylic acid, much or little, as the appearance of the lesion seems to indicate. Patients coming in with open sores or ulcers are expected to have them all healed in a few weeks' time, and they seldom disappoint us.

Trichloracetic acid.--While we never use the actual cautery as employed by Unna, we have had excellent results from painting nodules with pure trichloracetic acid, which immediately produces a considerable escharotic action; the skin turns white and there is more or less smarting and burning for a few moments. By the time the effects of the acid treatment have passed off, usually one or two weeks, the nodule is a little softer and a little smaller and the patient is anxious for another application. There is one serious drawback to the use of the acid, noticed also in the case of carbon dioxide snow used here some years ago, and that is its interference with the pigmentation of the part to which it is applied. In some cases the skin is hyperpigmented and in others, hypopigmented. The former is illustrated in the case of a young woman still with us who over a year ago had decided thickenings over each malar region. Several applications entirely cleared up the infiltrations on the cheeks, but, unfortunately, left two unsightly areas, each the size of a silver dollar, almost entirely black. After several weeks, however, they began to fade and now, after many months, they are barely visible. On the other hand, a young man, paroled over a year ago, the lobes

of whose cars were similarly treated, has a distinct loss of pigment and it shows no sign of returning.

Nodular injections.-We have been cautiously trying the injection of material which we have employed intramuscularly directly into the leprous nodules. Of course, it is understood that this and the preceding methods are applicable only when the nodules are few: for instance, we have a few patients whose stay with us has been prolonged by the lingering nodular enlargement of the lobe of one or both ears, their other lesions having disappeared. With aseptic precaution, we slowly instil a very few drops in various parts of the nodule, employing for the purpose an ordinary all-glass hypodermic syringe with the same technique as in our intramuscular injections; that is, slipping on a clean sterile needle for each injection. It is evidently rather painful and is followed usually by a considerable swelling which soon subsides, however, leaving the nodule appreciably softer and smaller. We think better progress is being made by the injections than by the external application of the trichloracetic acid. Both are good and each has its use. For a very superficial, hard, nodular area the acid is preferable.

Heliotherapy.-Another accessory treatment used, rather crudely, however, at this hospital, is heliotherapy, or the employment of sun baths. We have had some remarkable cures of ulcerations, including the plantar pedis variety, in presenting them to the direct rays of the sun. but whether it is a case of post hoc or propter hoc, it is not easy to say. A patient enters the hospital and is found to have an ulcer as large as a silver dollar on the sole of one foot, extending nearly or quite to the bones. He has been a laboring man, on his feet nearly the whole of every day. We discover it only by inspection, for he does not betray its presence by the slightest limp in his walk, for the foot is absolutely anesthetic. He is slightly anemic and is put upon our ferruginous tonic; he is put upon our standard treatment of injections and capsules; he is handed a pair of crutches and absolutely forbidden to put a pound of weight on the foot affected or touch it to the ground in moving about. He gets his ulcer washed out every day with a permanganate solution. He gets three good meals a day. a good elean bed to sleep in by night, and all the rest and relaxation he desires by day. That ulcer begins at once to heal, sun bath or no sun bath. The sun-bath measure, however, is very popular with They have more faith in it, perhaps, than has their our patients. medical attendant; but no matter, sunshine is abundant and inexpensive, and as yet untouched by the high cost of living. The one great thing is that the ulcers fill and close. The above is not a fanciful picture, but one of constant occurrence with us; and we are ready to admit that heliotherapy is a therapeutic aid of no inconsiderable value. In cases of rebellious plantar ulcers, however, especially with necrotic tissues, nothing approaches in efficacy the operation of Goodhue of Molokai in thorough ablation of the affected parts and allowing the wound to heal by granulation.

NEURAL LEPROSY.

Cases of leprosy of the nerve type are likely to be ignored at institutions so far as treatment is concerned, and attention is likely to be concentrated on nodular cases.

In view of our success during the past year with several instances of the neural type of leprosy, the conviction has forced itself upon us that it is highly important that all these cases should be brought in and subjected to the regular routine treatment for a course of several months at least, especially in the case of children or even of adults of more recent attack. We believe our remedies arrest the disease and prevent further destruction of hands and fingers, even when, as in long-standing cases, normal function can not be fully restored.

But during the past year we have done better than simply arrest the destructive process; we have had the great satisfaction of seeing marked improvement in a considerable number of these purely neural cases, and apparently a complete recovery in others. One young man who came in with a decidedly ataxic gait, unable to raise his body on his toes and with one hand so weak and deformed that he had been compelled to abandon the use of the typewriter a year before entering, so far improved before his parole that his disability in walking had not only disappeared but he became one of the leading tennis players and one of the swiftest runners in the compound. He has now returned to full and efficient clerical duty in an office. A woman with all fingers absorbed to less than half their original length, after a year's treatment, became able to write, to sew and knit, and to execute many movements and functions of which she had for years been deprived. We have had several cases of young men and boys who, on entering, were absolutely unable to button or unbutton their clothing and were compelled to accept the assistance of their fellow patients, but who, after a few months' treatment, became entirely independent and self-reliant in that respect. We have some young women and girls who entered with little and ring fingers partially crooked, who are now able voluntarily to straighten them after many months of inability to do so.

GENERAL RESULTS.

The number of patients during the period from October 1, 1918, to December 31, 1919, were as follows:

Number of patients, October 1, 1918	
New patients received	134
Total number of cases	186

Deaths	5
Transferred to Molokai	60
Sent to Orient	1
Paroled	48
Total deaths and departures	114
Number of patients, December 31, 1919	72

It will be noted that a little over 25 per cent of all patients who have been in the hospital in the period under review were paroled as apparently clinically and bacteriologically free from the disease, and of the total departures, 42 per cent were by the parole route. Many of those sent to Molokai were not sent because we regarded them as hopeless cases, but because the hospital was overcrowded.

CONCLUSIONS.

The following conclusions may be drawn from our recent experience in the treatment of leprosy:

1. The intramuscular injection of the ethyl esters of the fatty acids of chaulmoogra oil usually leads to a rapid improvement in the clinical symptoms of leprosy. In many cases the lesions disappear, except for scars and permanent injuries, and the leprosy bacillus can no longer be demonstrated.

2. When combined with iodine, the fatty acids of chaulmoogra. oil and their esters give good results; but there is no adequate experimental proof that this addition of iodine causes any increase in the effectiveness of the materials used.

3. All of the available evidence obtained from the use of fractions of the fatty acids of chaulmoogra oil indicates that the therapeutic action is due to one or more of the fatty acids of the oil or to some as yet unidentified substance associated therewith. The various methods of fractionation heretofore employed have failed to demonstrate the active agent.

4. Although conclusive evidence is not at hand, it is probable that the oral administration of chaulmoogra oil derivatives is of minor importance compared with the injections.

5. In treating leprosy, it is important to make use of all auxiliary agencies to build up and maintain bodily vigor.

6. Hypodermic injections of the ethyl esters into leprous nodules are followed by marked swelling with ultimate recession of the lesions. This is a valuable auxiliary treatment for especially resistant lesions.

Summary.

It has been sufficiently established that chaulmoogra oil contains one or more agents which exert a marked therapeutic action in many cases of leprosy. We can not say as yet that the disease is cured, since we have no test adequate to establish such a verdict. Whether or not the apparent cures are real and permanent, it is evident that we have a valuable agent at our disposal in the control of the disease.

ON THE POSSIBILITIES OF USING MOSQUITO TRAPS IN ANTIMALARIA WORK.

By C. W. METZ, Carnegie Institution of Washington, Collaborating Biologist, United States Public Health Service.

It appears to the writer that the eradication or control of malaria in the United States is rapidly becoming, if it has not already become, essentially a rural problem, centering around the relatively isolated farmhouse. Here the operations of draining and oiling that are practicable and efficient in urban districts can not be applied on any adequate scale under present economic conditions. Screening is likewise subject to grave practical disadvantages as a wholesale measure, partly because the effective use of screens would necessitate as a prerequisite the rebuilding of a good proportion of the houses to be protected. On the other hand, if elimination of malaria be attempted through treatment of the human host, equal practical difficulties are encountered. To what, then, can we look for any hopeful line of attack on this problem ?

One possibility suggests itself when one considers the fact that the focal point of the danger is the farmhouse itself. It seems safe to say that the malaria plasmodia are transmitted from man to mosquito and from mosquito to man mainly indoors or about the house. This means that, in general, the only dangerous mosquitoes are those in or near dwellings. Consequently, if some method could be devised for eradicating or materially reducing the number of these it ought to prove an effective agent in lessening malaria transmission.

Obviously the simplest manner of doing this would be by means of traps or poison, provided they were effective. In all probability both have been tried many times in the past, for the method is too simple and easy not to have received attention from tormented sufferers or others; but the fact remains that no practical exterminator has resulted. This may be because the habits of Anopheles are not such as to make them sufficiently susceptible to baits or traps, or it may be because the subject has not received adequate consideration. I venture to believe the latter, or at least to believe that the matter merits further attention and study, especially from the viewpoint of the biology of the mosquito.

With these features in mind a few preliminary observations and experiments were undertaken in 1918, but they were discontinued early in 1919 and I have been unable to resume them since. Although they merely scratched the surface of the problem, they gave certain results that seem to be of sufficient interest to warrant publication in the hope that others may test their possibilities further.

The observations were concerned primarily with determining what things, if any, served to attract adult Anopheles ("things" being meant to include anything, animate or inanimate, that seemed practicable). Observations were not carried on very extensively for they soon led to experiments that absorbed attention up to the time the work was discontinued, and only the latter need be considered here. The experiments were confined to the question of traps and bait, rather than to poison, since the primary object at first was to ascertain what would attract the mosquitoes. The various fruitless experiments need not be reviewed, and attention will be confined here to one aspect of the work.

It has been observed in connection with other experiments that Anopheles are strongly attracted by pigs, and with this fact as a starting point experiments were undertaken in the hope that use could be made either of the pigs themselves or of some artificial substitute that would prove equally attractive. The experiments were relatively crude and not extensive, but the results are at least suggestive of further possibilities.

Without going into details, it may be stated briefly that traps of various sorts were constructed in which live pigs were kept. These were, essentially, small pig-pens. After various trials the type represented in the accompanying photographs was found to combine the essential features (for experimental purposes), namely, sufficient stability to prevent destruction by the pig, a satisfactory apparatus for facilitating the entrance but preventing the escape of the mosquitoes, and a practicable size and weight.¹

The record of two of these traps may be outlined in detail. They were set up at the Coronet Phosphate Mines, near Plant City, Fla. Owing to the enlightened management of the company operating these mines, there was little or no malaria there, but the locality had many advantages for experimental work. 'Not the least of these was owing to the hearty cooperation of Mr. Greene, the manager of the plant, to whom I am deeply indebted for the many facilities placed at my disposal and for the actual construction of much of the apparatus used.

The source of Anopheles was a cypress swamp near the plant. This was not a prolific breeding place, but it served to supply Ano-

¹ These traps were about 3 feet wide, 3 feet high, and 5 feet long, with no floor, a small door in one end and an entrance way for the mosquitces along both sides and the rear. The latter was made of screen, the width being about 8 inches at the outside and tapering to a slit about 1 inch wide through which the mosquitces entered the cage.

pheles in fair numbers to the dwellings and outbuildings around the plant. Before the traps were installed it was an easy matter to catch from four or five to a dozen or more Anopheles in practically any privy near the swamp. The traps were placed somewhat less than a quarter of a mile apart—one near the swamp, the other away from it. The weather was for the most part warm, so that the mosquitoes were usually flying about and biting freely, although it was the winter season, when they were least numerous.²

The results are indicated by the following extracts from my notebook. Trap No. 1 was an old and inferior type of trap, located near the swamp; No. 2 was the type represented in the accompanying photographs; and No. 3 was the same type, used to replace No. 1. After each count the mosquitoes were killed or removed from the traps.

January 25, 1919. Traps exposed five days; weather mild.

Nos. 1 and 2 combined: 40 Anopheles (both crucians and quadrimaculatus).³ January 29. Weather mild.

No. 1: 32 Anopheles (both species).4

No. 2: 13 Anopheles (both species).

45 (total)

February 1. Weather mild; nights of January 29 and 30 cool.

No. 1: 24 Anopheles (both species).

No. 2: 17 Anopheles (both species).

41 (total)

Examination of four privies near the traps revealed a total of only five Anopheles. February 7. After five days of almost steady rain.

No. 1: 17 Anopheles (both species).

No. 2: 30 Anopheles (both species).

47 (total)

Examination of four privies and underneath one house (the best places near the traps) revealed only two Anopheles.

February 11. After three days of cold weather.

No. 1: Pigs had escaped; no Anopheles.

No. 2: 3 Anopheles.

February 14. After heavy rain, weather warm.

No. 1: No pigs.

No. 2: 8 Anopheles, 2 Culex.

Nearby privy, 3 Anopheles,

February 25. (After absence to Wilmington conference). Weather warm. Mr. Le Prince present.

No. 3: 24 Anopheles (both species).

No. 2: 52 Anopheles (both species).

76 (total)

Two privies near by contained only one Anopheles.

* No Anopheles punctipennis were found in this region and they probably do not occur here.

² In this region (30 miles east of Tampa) Anopheles are active and apparently bite freely at all seasons.

[•] The exact proportions of the two species was not determined, for it was not always possible to identify the species before the specimen was killed. Apparently the attraction of the traps was equally effective on both species.

Public Health Reports, Vol. 35, No. 34, August 20, 1920.



Fig. 1.—Front view of pigpen mosquito trap. When in use, the sides of the trap were banked with dirt to close the openings at the bottom.



Fig. 2.—Rear view of the same type of trap, showing the entrance-way for the mosquitoes along the side and end.



Fig. 3.—Trap turned on its side to show the interior. Note the troughlike entrance-way with the narrow opening through which the mosquitoes enter.

Superficial examination of the building around the plant during the course of these experiments indicated pretty clearly that Anopheles were becoming more and more scarce in them, and it seems safe to say that while the traps were both in operation most of the Anopheles in the immediate neighborhood at any one time were in the traps.

Meager as these data are, they serve to demonstrate two things: First, that Anopheles react sufficiently to some stimuli to be enticed into traps, and, second, that under the conditions of the present experiment the use of traps served to keep near-by buildings practically free from Anopheles. One dwelling was included in this area, and it seemed to be as free from Anopheles as the privies and other buildings.

Numerous defects are evident in this particular type of trap or any trap involving the use of live animals that would have to be cared for,⁵ and it is not suggested that such a trap provides any solution of the problem. On the other hand, if, for instance, a chemical substance could be substituted for the pig, the way would seem to be opened for the perfection of an effective trap. Once the practicable attractive agent were discovered, ingenuity would soon evolve an inexpensive and convenient (as well as "fool-proof") type of trap or else an effective poison.

Numerous attempts were made to secure such an attracting substance. A great many chemicals and compounds were tried, including the fatty acids, caproic, butyric, and propionic, but much of the early work was done with traps that probably would not have been suitable even if the bait had proved attractive. This fact, together with the brevity of the experiments, makes it seem best not to prejudice the case against any of the things used by enumerating them.

The problem, I believe, morits careful attention from the biologist and biochemist, and I commend it to any who have the opportunity to conduct such an investigation. It does not seem ultravisionary to imagine that careful study of the sensory reactions of Anopheles, combined with chemical analyses and experiments, would suffice to detect the particular stimuli to which Anopheles respond, and to synthesize substances that would produce these stimuli satisfactorily for the purpose. In making this statement I am fully aware of the idiosyncrasies of Anopheles, the differences between the habits of the respective species, and the influence of different environments on anopheline reactions, all of which present difficulties—but not, I believe, insuperable ones.

⁵ Lacking any better method, however, it might be suggested that a type of pigpen trap suitable for use in special cases could be constructed with a swinging door, hinged at the top, through which the pigs could pass in and out at will. The Anopheles, after having fed, seem content to remain in the traps and apparently make little effort to escape through cracks, etc., especially if these are down near the ground.

DEATHS DURING WEEK ENDED AUG. 7, 1920.

[From the "Weekly Health Index," Aug. 10, 1920, issued by the Bureau of the Census, Department of Commerce.]

Deaths from all causes in certain large cities of the United States during the week ended Aug. 7, 1920, infant mortality (per cent), annual death rate, and comparison with corresponding week of preceding years.

	Population Jan. 1,	Week en 7, 1	ded Aug. 1920.	Average	Per cen unde	it of deaths r 1 year.
City.	1920, sub- ject to revision.	Total deaths.	Death rate.1	death rate per 1,000.3	Week ended Aug. 7, 1920.	Previous year or years. ³
Akron, Ohio	208, 435	25	8.8	* 11. 2	17.1	• 11. 9
Albany, N. Y.	113,344	27	12.4	C 18.0	~ 14.8	C 15.4
Baltimore Md	200,010	211	15.0	A 18.5	20.7	A 26.7
Birmingham, Ala	178, 270	47	13.7	A 17.9	14.9	A 17.4
Boston, Mass	747,923	152		A 14.2	19.7	A 22. 2
Buffalo. N. Y.	505,875	107	11.0	C 12.3	15.9	C 25.4
Cambridge, Mass	109,456	22	10.5	A 13.6	18.6	A 21.7
Cincinneti Obio	2,701,212	518 107	10.0	A 15.6	20.8	A 23.0
Cleveland. Ohio.	796,836	139	9.1	Č 9.1	17.3	C 42.3
Columbus, Ohio	237,031	56	12.3	C 11.8	7.1	C 17.0
Dayton, Ohio	153,830	25 50	8.5	C 9.6	16.0	C 14. 3
Detroit. Mich.	993,739	181	9.5	A 10. 4	17.7	
Fall River, Mass	120,485	81	13.4	C 10.4	32.3	C 45.8
Grand Rapids, Mich	137,634	18	6.9	C 5.4	22.2	C 21. 4
Indianapolis. Ind	814.194	71	11.8	C 11.8	12.7	C 12.9
Kansas City, Kans	101,078	24	12.4		29.2	
Kansas City, Mo.	4 313,785	75	12.5	C 11.8	9.3	C 9.9
Louisville, Ky	234, 891	140	9.8	C 11. 1	1a.7 22.7	C 6.0
Lowell, Mass	112,479	30	13.9	A 19.0	26.7	A 35.8
Memphis, Tenn	162,351	53	17.0	C 15.9	15.1	C 22. 4
Minneanolis, Minn	457,147	80 76	9.1	C 10.3	22. ə 19. 7	A 21.5 C 13.5
Nashville, Tenn	118, 342	3 Ŏ	13.2	Č 14.6	33.3	Č 21. 2
Newark, N. J.	414,216	84	10.6	C 10.0	10.7	C 19.0
New Haven, Conn	162, 390	83 ∡9	14.2	A 15.7 C 7.5	01. 0 24. 5	A 48.9 C 8.7
New Orleans, La.	387, 219	103	13.9	Ă 18.6	9.7	Ă 14.8
New York, N. Y.	5,621,151	1,080	10.0	C 10>2	22.6	C 19. 9
Noriolk, va. Oakland Calif	216 361	28	12.6	A 0.5	21.4	A 12 3
Omaha, Nebr	191,601	21	5.7	C 8.5	38.1	C 16. 1
Philadeiphia, Pa	1, 923, 158	392	11.2	*17.1	17.6	23.8
Puttspurgn, Pa.	258 288	143	12.7	C 13.0	30. I 16 3	C 9 6
Providence, R. I	4 263, 613	46	9.1	Č 6.7	23.9	C 20.6
Richmond, Va	4 160, 719	61	19.8	C 15.6	19.7	C 12.5
Rochester, N. I	295,850	170	10.9	C 9.8	21. U 19. 4	C 5.1
St. Paul, Minn	234, 595	43	9.6	Č 9.2	20.9	Č 12. 2
San Francisco, Calif	508,410	118	12.1	C 11.6	7.6	C 8.9
Scattle, Wash	310,002 104,904	21 21	10.5	A (.8) C 5 5	7.8	C 18 2
Springfield, Mass.	129, 338	23	9.3		26.1	
Byracuse, N. Y.	171,647	41	12.5	C 12.9	22.0	C 16.7
Arenton N J	243,109	50 49	21.0	A 14.0	10.U 18.9	A 17.1 A 26.9
Washington, D. C.	437, 571	103	12.3	A 13.6	21.4	A 17.0
Worocster, Mass	179,754	31	9.0	C 11.4	3.2	C 23. 1
Youngstown Ohio	100,226	30	8, 3 11, 9		18.8	•••••
- vungovv maj variteretereteretereteretereteretereterete	102,000					

Annual rates per 1,000 population.
"A" indicates data for the corresponding week of the years 1913 to 1917, inclusive. "C" indicates data for the corresponding week of the year 1919.
"Data are based on statistics of 1915, 1916, and 1917.
Population estimated as of July 1, 1918.

Summary of information received by telegraph from industrial insurance companies for week ended Aug. 7, 1920.

Policies in force	24, 500, 273
Number of death claims	3, 568
Death claims per 1,000 policies in force, annual rate	7.6

PREVALENCE OF DISEASE.

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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 STATE SUMMARIES.

Telegraphic Reports for Week Ended Aug. 14, 1920.

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

ALABAMA. C	ases.	DELAWARE. C	'ases.
Diphtheria	. 15	Diphther's	. 3
Hookworm	. 3	Malaria	. 1
Malaria	. 18	Measles	. 4
Measles	. 3	Ecarlet fever	. 5
Scarlet fever	. 9	Typhoid fever.	. 2
Smallpox	. 6	Whooping cough	. 1
Tuberculosis (pulmonary)	. 11		
Typhoid fever	. 66	FLORIDA.	
2) p2010 10 0		Diphther's	. 5
ARKANSAS.		Influenza	. 18
Chicken pox	. 2	Malaria	. 31
Diphtheria	. 7	Pneumon'a	. 16
Hookworm	. 9	Scarlet fever	. 1
Influenza	. 2	Typhoid fever	. 15
Malaria	. 302		
Measles	. 7	GEOBGIA.	
Pellagra	. 14	Conjunctivit's (acute infectious)	. 2
Scarlet fever	. 13	Diphther'a	. 16
Smallpox	. 3	Dysentery (bac llary)	. 9
Trachoma	. 5	Hookworm	. 30
Tuberculosis	. 28	Influenza.	15
Typhoid fever	. 42	Malar's	214
Whooping cough	47	Measles.	6
		Mumps	1
CALIFORNIA.		Paratypho'd fever.	1
Carabraminal maningitis:		Pneumon'a.	2
Leng Baach	1	Scarlet fever.	3
	1	Sept'c sore throat	2
Oakland	1	Smallpox.	3
		Tuberculos's (pulmonary).	10
	1	Typho'd fever.	53
Lepiosy-Los Angeles		Whooping cough	13
Deliamuelitie	, 1		
Les Apgeles	1	ILLINOIS.	
Dos Aligenes	, <u>1</u>	Carabrashinal maningities	
Vallaia		Leokson County Lovon Townshin	
Vallejo		Tackson County-Devan Township	-
Mampox.	11	Diphthorio:	. 1
Litutt	20	Chicogo	07
Duration Illy	. 20	Southaring	97
T on Approlog	14	Trauango	. 31
Lus Allgeles	, 14	Draumonia	. D
poster mg	21		43
	(19)	79)	

ILLINOIS—Continued.	Cases.
Pollomyelitis:	
Brookfield	1
Chicago	4
Scarlet fever:	
Chicago	24
Scattering	12
Smallpox:	
Freeport	7
Scattering	14
Typhoid fever	18

INDIANA.

Cerebrospinal meningitis:	
Grant County	1
Orange County	1
Measles.	9
Scarlet fever	41
Smallpox	43
Typhoid fever	19

IOWA.

Cerebrospinal meningitis-Bedford	1
Chicken pox	3
Diphtheria	28
Measles	34
Pneumonia	2
Scarlet fever	10
Smallpox:	
Doon	7
Scattering	16
Tuberculosis (pulmonary)	7
Typhoid fever	8
Whooping cough	35

KANSAS.

Chicken pox	- 4
Diphtheria	15
Dysentery (bacillary)	1
German measles	1
Influenza	1
Malaria	1
Measles	12
Mumps	4
Ophthalmia neonatorum	1
Pneumonia	2
Scarlet fever	30
Smallpox	28
Trachoma	4
Tuberculos.s	37
Typhoid lever	38

LOUISIANA.

Anthrax	3
Diphther:a	5
Malaria.	139
Measles	7
Scarlet fever	7
Smallpox	12
Tuberculosis	18
Typhold fever	52
Whooping cough	8
· · · · · · · · · · · · · · · · · · ·	

MAINE.

Chicken pox	3	Scarlet fe
Diphther.a	12	Smallpox
German measles	5	Typhoid
¹ Wee	k end	led Friday.

MAI	NE-Continued.	Cases.
Measles		
Mumps		
Pneumonia		2
Ecarlet fever.		. 3
Sept's sore throat		2
Smellpox.		2
Tuterculos's		31
Typhold fever.		9
Wheoping cough		12

MARYLAND.1

Cerebrospinal meningitis	2
Chicken pox	4
Diphtheria	18
Dysentery	22
Lethargic encephalitis	3
Malaria	3
Measles	13
Mumps	2
Ophthalmia neonatorum	2
Paratyphoid fever	1
Pneumonia	11
Poliom velitis.	1
Scarlet fever	13
Smallpox	ĩ
Tuberculosis	-
Typhoid fever	20
Whooning cough	40
	-

MASSACHUSETTS.

Cerebrospinal meningitis	. 1
Chicken pox	18
Conjunctivitis (suppurative)	10
Diphtheria	90
Dysentery	1
German measles.	5
Influenza	4
Malaria	3
Measles	127
Mumps	22
Ophthalmia neonatorum	38
Pneumonia (lobar)	16
Poliomyelitis	16
Scarlet fever	57
Tetanus	2
Trachoma	3
Tuberculosis (all forms)	169
Typhoid fever	25
Whooping cough	144

MINNESOTA.

MISSISSIPPI.

Cerebrospinal meningitis	
Diphtheria	
Influenza	
Ecarlet fever	1
Emallpox	1
Typhoid fever	4

MONTANA.

1	Scarlet fever	10
	Smallpox	8
I	Typhoid fever	6

NEBRASKA. Cases. Cerebrospinal meningitis--Wahoo..... 1 Chicken pox..... 1 Measles: Knox County..... 11 Saunders County...... 42 Scattering 7 2 Mumps..... 1 Poliomyelitis-Norfolk..... Scarlet fever..... 5 Smallpox: Scotts Bluff..... 7 NEW JERSEY.

Pneumonia	17
Smallpox—Rutherford.	

NEW MEXICO.

Diphtheria	- 7
Malaria	8
Scarlet fever	2
Tuberculosis	114
Typhoid fever	7
Whooping cough	20

NEW YORK.

(Exclusive of New York City.)

Cerebrospinal meningitis:	
Mount Vernon	1
Port Chester	1
Diphtheria	106
Influenza	2
Measles	285
Ophthalmia neonatorum	1
Pneumonia (all forms)	67
Poliomyelitis:	
Millerton	1
Attica	1
Scarlet fever	66
Smallpox	2
Trachoma	2
Typhoid fever	40
Whooping cough	284

NORTH CAROLINA.

Cerebrospinal meningitis	1
Chicken pox	7
Diphtheria	30
German measles	1
Measles	29
Scarlet fever	31
Septic sore throat	5
Smallpox	23
Typhoid fever	96
Whooping cough	165

SOUTH DAKOTA.

Anthrax	1
Chicken pox	1
Diphtheria	10
Measles	8
Ecarlet fever	4
Smallpox	2
Trachoma	1

SOUTH DAKOTA-continued. C	ases.
Tuberculosis	. 4
Typhoid fever	3
Whooping cough	2
······································	
TEXAS.	
Diphtheria:	
María	15
Ecattering	6
Dysentery	2
Malaria	31
Measles	11
Paratyphoid fever	11
Pellagra	4
Plague (bubonic):	
Galveston	1
Beeumont	- i
Praumonio	
Delieumelitia Educaneed	
Constant for an	1
ccarlet lever	
Emalipox	18
Tuberculosis	25
Typhoid fever:	
Dallas	10
Scattering	5
Typhus fever—El Paso	1
Whooping cough	39
VIBGINIA.	
Smallpox—Tazewell County	1
	•
WASHINGTON.	
Chicken pox	6
Diphtheria	7
Measles	10
Mumps	4
Scarlet fever	4
Emallpox	48
Tuberculosis	2
Typhoid fever	7
Whooping cough	19
	12
WEST VIRGINIA.	
Diphtheria	7
Measles	7
Scarlet fever	7
Smallpox	2
Typhoid fever	4
WISCONSIN.	
Corobrogninol meninoitie	
Cerebrospinai meningitis	1
Chicken pox	6
	20
Measles	3
Scarlet fever	11
Smallpox	12
Tuberculosis	15
Typhoid fever	1
Whooping cough	28
Scattering:	-
Cerebrospinal meningitis	1
Chieken pox	12
Dinhtheria	14
Magelas	12
Poliomuolitie	11
	4
Coarlet lever	35
smallpox	38
Tuberculosis	12
Typhoid fever	5
Wheeping cough	73

Kentucky Report for Week Ended Aug. 7, 1920.

Ca	Ses.	l G	136 5 .
Chicken pox	4	Septic sore throat	1
Diphtheria	13	Smallpox	. 10
Dysentery	8	Tonsillitis	. 2
Influenze	5	Trachoma	6
Malaria	2	Tuberculosis	38
Measles	7	Typhoid fever	88
Pneumonia	5	Whooping cough.	23
Scarlet fever	14		

Summary of Cases Reported Monthly by States.

Tables showing by counties the reported cases of cerebrospinal meningitis, influenza, malaria, pellagra, poliomyelitis, smallpox, and typhoid fever are published under the names of these diseases. (See names of these and other diseases in the table of contents.) The following monthly State reports include only those which were received during the current week. These reports appear each week as received.

State.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Pollomyektis.	Boarlet fever.	Smallpor.	Typhoid fever.
1920. Alabama (July) Colorado (June) District of Columbia (June) District of Columbia (June) Maryland (July) Massachusetts (July) North Carolina (July) Rhode Island (June)	2 14 1 8	33 2 41 34 18 92 471 15 57 67	1 10 13 1	149 13 14	53 22 621 50 309 2,095 39 221 303	13	2 1 2 17 4	57 1 101 500 233 433 3399 111 422 58	75 3 238 13 10 8 4 112 155	182 31 18 7 14 98 104 6 393 6

ACTINOMYCOSIS.

Massachusetts-July, 1920.

During the month of July, 1920, one case of actinomycosis was reported in Massachusetts.

CEREBROSPINAL MENINGITIS.

State Reports for July, 1920.

(8	reported.
Maryland: Baltimore County— Fulletrion. Massachusetts—Continu Norfolk County— Bellingham (town Plymouth County— Plymouth County— Plymouth (town Suffolk County— Plymouth (town Suffolk County— Fall Rivér. Massachusetts: Bristol County— Fall Rivér. 1 Massachusetts: Bristol County— Fall Rivér. 1 Beston. Revere. Massachusetts: Bristol County— Fall Rivér. 1 Beston. 1 Beston. Revere. Muckolls County— Lawrence. 1 Middlesex County— Lowell. 1 Middlesen. 1 Total. 1 Total. 1 Total. 1 Middlesen. 1 Total. 1 Total. 1 Middlesen. 1 Total. 1 Total. 1 Total. 1 Middlesen. 1 Total. 1 Braiden. 1	ied. 7n)

CEREBROSPINAL MENINGITIS—Continued.

City Reports for Week Ended July 31, 1920.

The column headed "Average cases" gives the average number of cases reported during the corresponding weak of provious years for which data are available. The years used are 1915 to 1919, inclusive, but in many instances the information is not available for the full five years. In these cases the average includes from ine to four years.

	Aver-		1920	These	Aver-	1920	
Place.	age cases.	Cases.	Deaths.	reace.	age cases.	Cases.	Deaths
Arkansas: North Little Rock California: Los Angeles. Riverside San Francisco. Santa Cruz Connecticat: New Britain. Illinois: Chicago. Kentucky: Louisville. Baltimore. Massachusetts: Boston. Lowell Maiden. Michigan: Detroit	0 (¹) (³) (¹)	1 1 1 1 1 1 1 1 1 2 2 1 2		Missonri: Kansas City Anaconda New Jersey: East Orange Newark Passaic New York: New York: New York: Pennsylvania: Pritsburgh Rhode Island: Providence Texas: Dallas. Wisconsin: Milwankee	(1) (1) (1) (1) (1) (1) (1) (1) (2)	1 1 1 1 1 1 1 1 1	1

Average less than 1.

DIPHTHERIA.

See Telegraphic weekly reports from States, p. 1979; Monthly summaries by States, p. 1982; and Weekly reports from cities, p. 1995.

INFLUENZA.

Maryland Report for July, 1929.

Place.	New cases reported.	Place.	New cases reported.
Baltimore. Alleggny County: Cumberland. Baltimore County: Catonsville. Galvert County: Owings, R. D.	2 2 4 1	Prince Georges County: Brandhville Total	1110

City Reports for Week Ended July 31, 1920.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alabama: Birmingham Massachuseits: Boston Loweli Missouri: Kansas City New Jersey: Jersey City Newark	5 1 1 1	1 1 1	New York: Jamestown New York Ohio: Cleveland Columbus. Pennswivania: Philadelphia	2 1 1	6 1 1

LETHARGIC ENCEPHALITIS.

Maryland and Oregon-July, 1920.

During the month of July, 1920, five cases of lethargic encephalitis were reported in Maryland. During the week ended July 31, 1920, one case was reported at Portland, Oreg.

MALARIA.

State Reports for July, 1920.

Place.	New cases reported.	Place.	New cases reported.
Alabama: Barbour County Builer County Builer County Colbert County Chert County Henry County Henry County Houston County Jefferson County Lauderdale County Marings County Marings County Marings County Marings County Morgan County Pike County Burnter County Tailadega County Washington County Wilcox County Wilcox County Total Maryland: Charles County Port Tobacco, R. D Bottom, R. D Waldorf, R. D Beantown, R. D	1 28 83 3 1 14 6 2 16 6 1 58 1 1 1 1 1 8 2 1 1 2 1 1 2 1 1 1 2 1 1 1 1	Maryland—Continued. Somerset County— Crisfield. Talbot County— St. Michaels. Wicomice County— Salisbury Worcester County— Pocomoke. Total. Massachusetts: Bristol County— Fall River. Manfield (town). Essex County— Haverhill. Lawrence. Middlesex County— Marlboro. Norfolk County— Dedham (town) Plymouth County— Brockton Suffolk County— Boston. Worcester County— Northbridge (town)	1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

City Reports for Week Ended July 31, 1920.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alabama: Birmingham. Arkansas: Little Rock California: Los Angeles Georgia: Atlanta Brunswick Rome Savannah Louisiana: Alexandria	1 3 2 1 3 1 5 19	1	Massachusetts: Lawrence New York: Hudson North Carolina: Wilmington Ohio: Akron South Carolina: Charleston Texas: Beaumont Dallas	1 1 1 26	

MEASLES.

See Telegraphic weekly reports from States, p. 1979; Monthly summaries by States, p. 1982; and Weekly reports from cities, p. 1995.

PELLAGRA.

Alabama and Massachusetts-July, 1920.

Place.	New cases reported.	Place.	New cases reported.
Alabama: Autauga County. Butler County. Dallas County. Lowndes County. Macon County. Mobile County. Sumter County. Total.	1 1 6 2 1 1 1 13	Massachusetts: Essex County— Danvers (town) Hampshire County— Northampton (town) Norfolk County— Wrentham (town) Total	2

City Reports for Week Ended July 31, 1920.

Piace.	Cases.	Deaths.	Place.	Cases.	Deaths.
Georgia: Savannah Massachusetts: Lyna. New York: New York		1	Texas: Beeumont Waco Virginie: Richmond		111

PLAGUE.

Human Cases of Plague Reported.

Place.	Period covered.	Cases.	Deaths.	Remarks.
California: Alameda County	Apr. 19, 1920	1	1	Diagnosis con-
Florida: Pensacola	June 2 to Aug. 9, 1920	7	4	mmed Apr. 20.
Do Hawaii: Kalopa	Aug. 10–16 Mar. 22, 1920	1		
Louisiana: New Orleans	Oct. 29 to Dec. 31, 1919 Jan. 1 to Aug. 9, 1920	12	4	
Do Texas: Boumont	Aug. 10-16	0 12		
Do Galveston	Aug. 10-16 June 16 to Aug. 9, 1920	0	4	
Port Arthur	July 7, 1920	1	1	From Galveston.

Plague-Infected Rodents.

- Place.	Period covered.	Rodents found plague infected.
California: Ground squirrels (Citellus beecheyi) A lameda County	1920.	28
Contra Costa County	A pr. 18 to July 10	40
Monterey County	June 13 to July 10.	3
San Mateo County	do	3
San Joaquin County Santa Clara County	Apr. 18 to July 10 Apr. 14 to July 10	12
Santa Cruz County	May 9 to July 10	25 1
Stanislaus County	May 30 to July 10	ź

PLAGUE—Continued.

Plague-Infected Rodents-Continued.

Place.	Period covered.	Rodents found plague infected.
Florida: Pensacola Do	June 28 to Aug. 9 Aug. 10-16	26 3
Louisiana: New Orleans	1919. Nov. 1 to Dec. 31	276
New Orleans	1920. Jan. 1 to Aug. 9 Aug. 10-16	285 0
Texas: Beaumont. Do. Galveston.	July 1 to Aug. 9 Aug. 10-16 June 21 to Aug. 9 Aug 10-16	114 7 47

Rodents Examined for Plague Infection.

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Place.	· Period covered.	Rodents exam- ined.	Found infected.
Louisiana: New Orleans Mus norvegicus. Mus rattus. Mus alexandrinus. Wood rats. Miscellaneous. Putrid.	Week ended July 31 do do do do do do	2, 995 324 363 12 2 170	

PNEUMONIA (ALL FORMS).

City Reports for Week Ended July 31, 1920.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alabama: Birmingham Arizona: Tucson California: Borkeley Fresno Long Beach Los Angeles Oakland Sacramento San Diego San Diego		1 1 2 1 	Illinois—Continued. Chicago. Elgin. Peoria. Indiana: East Chicago. Gary. Indianapolis. La Fayette. Marion. Richmond. Iowa: Buylington	45	23 1 1 2 2 2 2 4 1 1 1
Santa Barbara Stockton		0 1 1	Fort Dodge Kansas:	•••••	i
Colorado: Denver		5	Wichita Kentucky:	1	2
Connecticut: Bridgeport		2	Louisville Louisiana:	•••••	4
New Haven District of Columbia: Washington	•••••	1	New Orleans Maryland: Baltimore		5
Georgia: Atlanta Illinois:		4	Cumberland Massachusetts:		
Alton Bloomington Chicago Heights	1	1 1 2	Bockton Chelses	7	11 2 1

PNEUMONIA (ALL FORMS)—Continued.

City Reports for Week Ended July 31, 1920-Continued.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Massachusetts-Continued.		,	New York-Continued.		
Danvers	-	រ រំ	Now Vork		
Gardner		5	Olean		1 1
Нојуоке		1	Bort Chester		1 +
Lawrence		1 1	Boobostor		1 1
Lowell			Rohonostody		1 1
Lynn			Brinney		·····
Malden	4	1 1	Bylacuse	1 7	3
Methuen		1	Troy	1 1	
Newton	1	1 +	Watertown.	1 1	
Southbridge		1 1	North Carolina:		
Waltham	1		Greensooro		
Worcester		2	winnington		į 1
Michigan:			Ohio:		
Detroit	10	1 7	Akron	2	
Kalamazoo	1	1	Cincinnati	2	1
Pontiac	1		Cleveland	1 4	[8
Port Huron		1	Columbus		i 1
Trave: se City	1		Piqua	1	· ī
Minnesota:			Springfield		
Dubuth		1	· Tiffin		ī
Minneapolis	1	1	Toledo		Ī
Gr Poul	-	ī	Zanesville		1 î
Miccouri.	•••••	_	Oregon:		-
Kampon City	4	1	Portland		
Kanses City	-	•	Penneylyania	•••••	4
Montana:		9	Philodelphia	94	10
Butte	•••••	~	Rhode Island	• 41	10
Neoraska:			Nowport		
Omana	• • • • • • • • • • •	T	Drowidoneo	•••••	1
New Jersev:		•	South Caroline	•••••	0
Atlantic City	1	X X	Charleston		
Englewood	2	Z	Cillariestoli	•••••	2
Hackensack			Tennessee:		
Hoboken		1	Nasuville	••••••	1
Jersey City	1	•••••	Texas:		-
Newark	20	3	El Paso		3
Orange	1		Galveston		1
Paterson	2		Utah:		
Trenton	1		Salt Lake City		2
West New York		3	Virginia:		
New York:			Petersburg		1
Albany.	1		Portsmouth		1
Binghamton	ī		Richmond		8
Buffalo		1	Wisconsin:		•
Fimiro	i		Milwaukee		2
Tamostown	il		Superior		Ŧ
	- 1		<i>,</i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		. •
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POLIOMYELITIS (INFANTILE PARALYSIS).

State Reports for June and July, 1920.

Place.	New cases reported.	Place.	New cases reported.
Alabama (July): Crenshaw County Jefferson County Total Colorado (June): Garfield County Maryland (July): Baltimore Washington County		Massachusetts (July)—Continued. Norfolk County— Dedham (town) Medfield (town) Suffolk County— Boston Chelsea. Worcester County— Rutland (town) Total	1 1 1 7 1 1 1 17
Total Massachusetts (July): Essex County— Lynn Middesex County— Maiden Newton	2 2 1 1 1	Norib Carolina (July): Bertie County Brunswick County McDowell County Swain County Total	1

POLIOMYELITIS (INFANTILE PARALYSIS)—Continued.

City Reports for Week Ended July 31, 1920.

The column headed "Average cases" gives the average number of cases reported during the corresponding week of previous years for which data are available. The years used are 1915 to 1919, inclusive, but in many instances the information is not available for the full five years. In these cases the average includes from one to four years.

Place Aver		1920		Place.	Aver-	1920	
age cases.	age Cases.	Cases.	Deaths.		age cases.	Cases.	Deaths.
Connecticut: Waterbury Ilinois: La Salle. Louisiana: New Orleans Maryland: Baltimore Massachusetts: Boston Chelsea Lawrence Malden Minneapolis	(¹) 2 1 (¹) 0 0	1 3 1 8 1 1 1 1	1	New York: New York. Ohio: Cleveland Pennsylvania: Philadelphia Rhode Island: Providence Virginia: Norfolk. West Virginia: Wheeling Wisconsin: Fond du Lac	1 4 (¹) 0 0 (¹)	5 1 2 1 1 1 1	2

¹ Average less than 1.

RABIES IN ANIMALS.

Detroit, Mich.-Week Ended July 31, 1920.

During the week ended July 31, 1920, one case of rabies in animals was reported at Detroit, Mich.

SCARLET FEVER.

See Telegraphic weekly reports from States, p. 1979; Monthly summaries by States, p. 1982; and Weekly reports from cities, p. 1995.

SMALLPOX.

State Reports for June and July, 1920-Vaccination Histories.

	1		\\	Vaccination 1	history of cas	3es.
Place.	New cases reported.	Deaths.	Vaccinated within 7 years preceding attack.	Last vaccinated more than 7 years preceding attack.	Never success- fully vaccinated.	History not ob- tained or uncertain.
Colorado (June):	1					
Adams County	5	1	1		2	2
Alamosa County	2		1		1	
Boulder County	4				3	1
Chaffee County	1		1			
Delta County	21		•••••••			21
Denver	87		4	•••••	82	1
El Paso County	15	• • • • • • • • • • • •	1	• • • • • • • • • • • • • • •	12	2
Huarfone County	1 4	• • • • • • • • • • • •	• • • • • • • • • • • • • • •	•••••	ļ	•••••
Larimar County	1 1	•••••	•••••	•••••	- 9	
Las Animas County	1 4	•••••	•••••		••••••	11
Mesa County	17		••••••		1	
Montezuma County	5		•••••			. 14
Otero County	· 2				2	

SMALLPOX-Continued.

State Reports for June and July, 1920-Vaccination Histories-Continued.

		1	\ \	accination h	istory of cas	P S.
Place.	New cases reported.	Deaths.	Vaccinated within 7 years preceding attack.	Last vaccinated more than 7 years preceding attack.	Never success- iully vaccinated.	History not ob- tained or uncertain.
Colorado (June)—Continued. Phillips County Prowers County Pueblo County Weld County	10 3 7 39		2		8 2 2 25	1 5 11
Total	238		13		151	74
District of Columbia (June)	13				13	
District of Columbia (July)	10				10	
Maryland (July): Baltimore Charles County	1				1	
Garrett County— Crellin. Wicomico County—	2				2	
Salisbury	4	·····			4	
Total	8				8	
Massachusetts (July): Hampden County— Chicopee. Middlesex County— Lowell.	3			1	2 1	
Total	4			1	3	••••••

State Reports for July, 1920.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alabama: Antauga County Baldwin County Etowah County Jefferson County Limestone County Mobile County Mobile County Motigomery County Montgomery County Total Arizona: Graham County Maricopa County	12 12 12 25 25 24 13 13 13 75		Nebraska-Continued. Hamilton County Johnson County Kearney County. Kanco County. Lancaster County. Lincoln County. Merherson County. Nemaha County. Nemaha County. Sheridan County. Sheridan County. Thayer County. Wayne County. York County.	13 5 1 1 1 4 2 1 8 3 3 1 1 2 25 1	
Total	3		Total	112	
Nebraska: Adams County Banner County Box Butte County Burt County Clay County Clay County Custer County Deuel County Douglas County Franklin County Franklin County	4. 2 3 2 1 2 1 1 1 1 5 7 1		North Carolina: Alamanee County. Alexander County. Bancombe County. Clay County. Columbus County. Columbus County. Craven County. Currituek County. Davidson County. Borsyth County.	1 1 4 1 1 1 1 1 2 9	

SMALLPOX-Continued.

State Reports for July, 1920-Continued.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
North Carolina—Continued. Gates County. Granville County. Halifax County. Harnett County. Hore County. Jackson County. Jackson County. Johnson County. Lincoln County. McDowell County. McDiellenburg. Nash County. Orange County. Pasquetank County. Pender County.	2 3 1 5 2 1 1 6 4 1 1 2 9 3 5 1		North Carolina—Continued. Pitt County Rockingham County Rowan County Scotland County Stotes County Waire County Waren County Waren County Washington County Wilson County Total	12 10 2 2 1 1 2 1 7 6 4 9 1 2 11 155	

City Reports for Week Ended July 31, 1920.

The column headed "Average cases" gives the average number of cases reported during the corresponding week of previous years for which data are available. The years used are 1915 to 1919, inclusive, but in many instances the information is not available for the full five years. In these cases the average includes from one to four years.

	Aver-	:	1920		Aver-	19)20
Place.	ago Cases.	Cases.	Deaths.	Place.	age rases.	Cases.	Deaths.
Alabama: Birmingham. Mobile California: Berkeley. Los Angeles. Oakiand Biscramento. Santa Cruz. Colorado: Denver. Pueblo. District of Columbia: Washington. Georgia: Atlanta. Idako: Boise. Illinois: East St. Louis. Galeeburg. Peoria. Rock Island. Indiana: Bedford. Elkhart. Fort Wayne. Hammond. Huntington. South Bend. Iowa: Devenport. Deven.		1 1 1 3 10 5 1 7 1 1 4 5 1 1 1 1 3 3 1 1 1 1 7 2 1 1 5 5		Massachusetts: Chicopee Michigan: Battle Creek Detroit Grand Rapids Fort Huron Minneapolls St. Battle Creek Duluth Minneapolls St. Stillwater Winona Missouri: Kansas City St. Louis Montana: Billings Nebraska: Lincoln Omaha Nevada: Reno New York: North Carolina: Rocky Mount Winston-Salem Ohio: Akron Cincinnati. Stand Nevand	0 (1) 3 (1) 1 6 2 0 (1) 2 2 2 1 2 3 0 0 (1) 3 0 (1) 3 (1) 3 3 0 0 (1) 3 5 5	1 13221 199913 331222 1522 111 54223	
Kansas: Leavenworth Parsons. Louisiana: Lake Charles	⁽¹⁾ 0	113		Piqua. Springfield Steubenville. Oklahoma: Oklahoma City	(¹⁾ 0 3	2 1 1	

¹Average less than 1.

SMALLPOX—Continued.

City Reports for Week Ended July 31, 1920-Continued.

Place. An a cas	Aver-	1920			Aver-	1920	
	age Cases.	Cases.	Deaths.	Place.	age cases.	Cases.	Deaths
Oregon: Portland Pennsylvania: Pittsburgh South Carolina: Charleston Columbia Texas: Fort Worth Virginia: Roanoke Washington: Bollingham Everett	7 (¹) (¹) 0 1 1 (¹) 0	6 1 1 1 1 1 1 1	······	Washington—Continued. Scattle Spokane Yakima West Virginia: Bluefield Moundsville Wisconsin: Kenosha Milwaukee Oshkosh Sheboygan Superior Wausau	6 5 2 0 0 3 0 0 2 0	12 5 4 2 1 3 8 1 2 4 2	

¹ Average less than 1.

TETANUS.

City Reports for Week Ended July 31, 1920.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
California: Los Angeles	1 1 1 	1 1 1 1 1 1 1 1	Missouri: Jefferson City St. Louis Nebraska: Omaha New York: New York: New York Pennsylvania: Philadelphia Texas: Dallas	2 1 1 - 1	1

TUBERCULOSIS.

See Telegraphic weekly reports from States, p. 1979, and Weekly reports from cities, p. 1995.

TYPHOID FEVER.

State Reports for June and July, 1920.

Place.	New cases reported.	Place.	New cases reported.
Alabama (July): Autauça County. Baldwin County. Babour County. Bibout County. Bilount County. Bullock County. Calhoun County. Chilton County. Chilton County. Clarke County. Coffee County. Confee County. Confee County. Conter County. Conecuh County. Conecuh County. Conecuh County.	1 2 3 4 1 7 4 3 3 1 4 5 2 1	Alabama (July)—Continued. Covington County Crenshaw County Etowah County Fayette County Geneva County Henry County Houston County Jefferson County Lamar County Lauderdale County Limestone County Lowndes County Macon County Madison County	6 1 2 2 4 4 2 2 34 1 1 1 1 1 2 0 6
1781°203			

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TYPHOID FEVER-Continued.

State Reports for June and July, 1920-Continued.

Bien	New cases	Place	New cases
I Daro.	reported.		reported.
Alabama (July)-Continued.		Maryland (July)-Continued.	
Marengo County	14	Frederick County-Continued.	
Marion County	15	Buckeystown B D	1 1
Monroe County	3	Jefferson, R. D.	1 1
Montgomery County	i õ	Garrett County-	
Morgan County	i	Selbysport	ĺĺ
Pike County	4	Vindex	l ĩ
Sumter County	2	Howard County-	
Talladega County	6	Elk Ridge	1
Tallapoosa County	1	Kent County—	.
Tuscaloosa County	15	Sassafras	1
Walker County		Millington	1 1
Wilcox County		Monsgomery County-	
winston county		Sandy Springs P D	÷
Total	182	Dawconville R D	1
± 0004		Bethesda	1 1
Arizona (July):		Washington Sanatorium	i
Cochise County	1	Boyd. R. D.	l'î
Gila County	1	Prince Georges County-	-
Graham County	1	Hyattsville	1
Greenlee County	3	Somerset County-	-
Maricopa County	5	Dames Quarter	1
Pima County	15	Hopewell	1
Y avapai County	5	Wenona	1
Madal V	21	Westover	1
1004		Marillisco	2
Colorado (Tuno):		Taibot County-	
Alamosa County	. 3	Cordova P D	
< Aranahoe County	i i	Washington County-	1
Archuleta County	ī	Semirity	2
Denver.	2	Hancock	1
Huerfano County	ī	Hagerstown.	î
Mesa County.	1	Hagerstown, R. D.	ī
Montezuma County	· 4	Wicomico County-	-
Pueblo County	5	Mount Hermon, R. D.	1
		Worcester County-	
Total	18	Berlin, R. D.	2
District of Columbia (June)	7	Pocomoke City	1
District of Columbia (July)	<u>14</u>	Total	98
		Massachusetts (July):	
Maryland (July):		Barnstable County-	
Baltimore	33	Barnstable (town)	1
Allegany County—		Harwich (town)	1
Cumberland	6	Berkshire County-	
Luke	I	Adams (town)	1
Allegany Hospital	1	Pittsheld	1
Kleier, R. D.	·	Bristol County-	
Petersee Station		Fairbayan (town)	+
Baltimore County-	-	Fall Diver	10
Buxton	1	New Bedford	
Ellicott City, R. D	i	Taunton	2
Cockeysville	ī	Essex County-	-
Calvert County-	-	Beverly	2
Bowens	1	Gloucester	$\overline{2}$
Caroline County-	1	Lawrence	3
Greensboro	1	Lynn	4
Carroll County-		Franklin County-	
Linweod, R. D	1	Buckland (town)	1
Union Bridge, R. D	5	Orance (town)	1
Finksburg, R. D.	1	Hampden County-	-
Asbestos	1	Sprin field	3
Charles County-		Westherd (town)	1
Bendiowii, K. D.	L L	Hampsaire County-	-
Mt Vietoria P D	2	Middleear County	1
Dorchester County	-	A rlington (town)	1
Crocheron	1	Cambridge	5
Reliance	i	Concord (town)	1
Secretary	i II	Lowell	â
Frederick County-	- 11	Malden	Ă
Blue Ridge Sammit	1	Somer ville	3
Burkittsville, R. D	ī	Waltham.	ž
Frederick, R. D	1 //	Woburn.	1

TYPHOID FEVER—Continued.

State Reports for June and July, 1920-Continued.

Place. reported. Place. reported. Massachusetts (July)Continued. Greene County. 10 Brockine (town). 1 11 Handra County. 11 Proboro (town). 12 Brockton 2 Handra County. 11 Brockton 2 Handras County. 11 Brockton 2 Baston 11 Boston 11 Boston 12 Boston 14 Johnston County. 1 Boston 14 Johnston County. 1 Britchburg. 1 Johnston County. 1 Jackson County. 1 Jackson County. 1 Johnston County. 1 Johnston County. 2 Morester County. 1 Jackson County. 2 Morester County. 1 Johnston County. 1 Johnston County. 2 Morester County. 1 Johnston County. 2 Morester County. 1 Barace County. 1 Johnston County. 2 Johnston County. <t< th=""><th>71</th><th>New cases</th><th></th><th>New cases</th></t<>	71	New cases		New cases
Massachusetts (July)-Continued. Brockline (Lown).North Carolina (July)-Continued. Greene County.10Brockton11Foxboro (Lown).21Brockton21Brockton21Brockton11Brockton11Brockton11Bassachusett County-21Bufolk County-11Beston11Beston11Beston11Beston21Beston21Beston21Beston21Beston21Beston21Beston21Beston21Beston21Beston21Beston21Beston11Beston11Beston11Beston21Beston21Beston21Beston21Anson County21Anson County3Alamane County3Alamane County3Beston County3Alamane County3Alamane County3Beston County3Beston County3Beston County3Beston County3Beston County3Beston County <td< th=""><th>Place.</th><th>reported.</th><th>Place.</th><th>reported.</th></td<>	Place.	reported.	Place.	reported.
Nortoit County	Massachusetts (July)—Continued.		North Carolina (July)-Continued.	
Brookline (town) 1 Guilford County 1 Plymouth County 2 Hainfax County 11 Hanover (town) 2 Hainfax County 12 Hanover (town) 1 Harnett County 12 Hincham (town) 1 Henderson County 2 Hanover (town) 1 Henderson County 2 Hanover (town) 1 Henderson County 2 Hanover (town) 1 Henderson County 2 Boston 14 Johnston County 3 Boston 1 Lenoit County 3 Worcester County 1 Lenoit County 3 Bitchburg 2 Martin County 6 Nothanzyce County 1 Northampton County 6 North Carolina (July): 1 Pasquotank County 14 Seward County 1 Pasquotank County 14 North Carolina (July): 3 Robeson County 12 Yok County 3 Robeson County	Norfolk County-		Greene County	10
Forbore (town)	Brookline (town)	1 1	Guilford County	14
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Chatewise CountyChatewise County3Cherokee County3Washing County2Chowan County1Wikes County2Chowan County1Wikes County2Coumberland County4Yancey County1Davie County5Total393Duplin County20Providence4Forsyth County11Gaston County12Gaston County13Washing County14Gaston County15Total393Duplin County11Bristol County12Rhode Island (June):4Frank lin County13Warren (town)11Grates County1Granville County1Total3West Warwick (town)1Granville County1Total1Granville County1Total1Granville County1Total1Granville County1Total1Total1Total1Total1Total1Total1Total1Total1Total1Total1Total1Total1Total1Total1Total1TotalTotal1<	Catewho County	10	Washington County	2 9
Cherokee County.3Wayne County.2Chowan County.1Wilkes County.2Chowan County.1Wilkes County.3Cleveland County.2Wilson County.18Columbus County.2Wilson County.18Cumberland County.4Yancey County.1Davidson County.4Yancey County.1Davidson County.5Total.393Duplin County.11Durham County.1Providence.Edgecombe County.9Providence.Forsyth County.13Warren (town).1Gates County.3West Warwick (town).1Graham County.1Total.6	Chethem County	10	Watango County	ŝ
Chowan County.1Wilkes County.3Clowan County.2Wilkes County.3Columbus County.2Wilkes County.18Counbus County.4Yancey County.12Davie County.5Total.333Duplin County.20Rhode Island (June):4Durham County.9Providence.4Frank lin County.17Bristol County.4Gates County.13Warren (town).1Graham County.31Total.Graham County.17Warren (town).1Graham County.13Warren (town).1Graham County.7Total.1	Cherokee County	3	Wayne County	2
Cleveland County.2Wilson County.18Columabus County.8Yadkin County.2Cumberland County.4Yancey County.2Davidson County.5Total.393Duplin County.11Durham County.20Fdgecombe County.9Forsyth County.13Gaston County.13Grabam County.22Grabam County.13West Warwick (town).1Granville County.7Total.3Granville County.6	Chowan County.	ĭ	Wilkes County	3
Columbus County.8Yadkin County.2Cumberland County.4Yancey County.1Davidson County.3Total.393Davie County.11Duplin County.20Edgecombe County.20Forsyth County.9Forsyth County.17Brash County.13Gates County.3Gates County.3Graham County.1Graham County.7Total.3Gates County.6	Cleveland County	2	Wilson County	18
Cumberland County4Yancey County1Davidson County3Total.333Davie County5Total.333Duplin County11Durham County20Rhode Island (June):4Durham County9Providence.4Forsyth County17Bristol County4Gaston County13Warren (town)1Gates County31Graham County1Total.1Granville County66	Columbus County	8	Yadkin County	2
Davidson County. 3 Davie County. 5 Duplin County. 1 Durham County. 20 Forsyth County. 9 Frank lin County. 17 Gaston County. 22 Grabam County. 3 Granwille County. 1 Granwille County. 1 Granwille County. 1 Granwille County. 1 Total. 393 Marren (town). 1 Kent County. 1 Granwille County. 1 Total. 6	Cumberland County	4	Yancey County	1
Davie County	Davidson County	3		
Duplin County 1 Durham County 20 Barson County 9 Porsyth County 17 Frank lin County 17 Gaston County 13 Warren (town) 1 Gaston County 22 Grabam County 3 Grabam County 1 Grabam County 1 Granville County 7 Total 2 6	Davie County	5	Total	393
Durham County	Duplin County	1		
Eagecome county	Durnam County	20	Rhode Island (June):	-
Forsy in county 17 Bission county 1 Frank lin County 13 Warren (town) 1 Gaston County 22 Kent County 1 Grabam County	Eagecombe County	.9	Frovidence.	4
Gaston County	Forsy in County	17	Warron (torm)	
Gates County 22 Kent County 1 Graham County 1 West Warwick (town) 1 Granville County 7 Tctal 6	Gaston County	13	Warren (LOWII)	1
Graham County	Gates County	44	West Werwick (town)	
Granville County	Graham County	, <u>,</u>	14 COL 11 OR WICK (FOWL)	1
	Granville County	7	Tctal	A
		· I		v

TYPHOID FEVER-Continued.

City Reports for Week Ended July 31, 1920.

The column headed "Average cases" gives the average number of cases reported during the corresponding week of previous years for which data are available. The years used are 1915 to 1919, inclusive, but in many instances the information is not available for the full five years. In these cases the average includes from one to four years.

Blass	Aver-	1	920	Plan	Aver-	1	920
riace.	age cases.	Cases.	Deaths.	Place.	cases.	Cases.	Deaths.
Alabama: Birmingham Mobile Arizona: Tucson Arkansas:	25 1	1		Massachusetts—Contd. Lowell. Malden. Somerville. Springfield.	() () () () () () () () () () () () () (2 1 1	1
Fort Smith Little Rock California:	4	1		Michigan: Detroit	14	1 6	12
Berkeley Los Angeles Oakland. Redlands	(¹⁾ 4 (¹⁾ 0	1 7 1 2	·····i ·····i	Grand Rapids Minnesota: Duluth Minneapolis	1 (¹) 2	4	1
Sacramento San Francisco Colorado: Denver	() 3 1	3 	1	St. Paul Winona Missouri: Kansas City	(¹⁾ 0 1	13 1 2	
Trinidad Connecticut: New Haven		1 5 1		St. Louis Springfield Montana: Great Falls	8 0 1	7 1	
District of Columbia: Washington Georgia:	8	1	2	Missoula Nebraska: Lincoln Nevada:	0	1	1
Athens Atlanta Rome Savannah	4 1 1	5 2 4 1	······ ······ 1	Reno New Jersey: Englewood Hoboken	2 0 0	1 1	·····i
Illinois: Chicago: East St. Louis Evanston	9 1 0		2	New Brunswick New York: Albany Bingbamton	0 (1) (1)	1 3 1	•••••
Kankakee Peoria Indiana: Elkhart	0	2 1 2		Buffalo Elmira Lockport New York	3 1 0 38	1 1 29	1
Gary Hammond Indianapolis Terre Haute	1 1 1	1 4 1	1	North Tonawanda Rochester Syracuse North Carolina:	1 2 (1)	1 1 1	1 1
Iowa: Davenport Kansas: Hutchinson	(¹) 4	1 1		Charlotte Durham Raleigh Rocky Mount	15 1 0	2 3 1	• • • • • • • • • • • • • • • • • • •
Kansas City Topeka Wichita Kentucky:	1 0 4	3 3 1	i	Wilmington Winston-Salem Ohio: Akron		4	1
Louisville Paducah Louisiana: Alexandria	10 1	1 1 1		Cleveland Columbus Dayton Findlay	5 5 2	4 1 1	· · · · · · · · · · · · · · · · · · ·
Baton Rouge New Orleans Maine: Portland	1 9 2	1 3 2	1	Ironton New Philadelphia Piqua. Oklaboma:	2 (1)		1
Maryland: Baltimore Massachusetts: Attleboro	19	16 1		Muskogee Oklahoma City Pennsylvania: Bradford	04	2 1 4	2
Beverly. Boston. Brookline. Combridge	0	1 6 1		Erie. Philadelphia. Pittsburgh. Beeding	(¹) 13 4	2 7 3	1
Chelsea Fall River Lawrence	(¹) 2 1	10 1 1	i	Shenandoah West Chester York	(¹)	1 1 3	· · · · · · · · · · · · · · · · · · ·

¹ Average less than 1.

TYPHOID FEVER—Continued.

City Reports for Week Ended July 31, 1920-Continued.

	Aver-	1	920		Aver-	1920		
Place.	age Cases.	Cases.	Deaths.	aths. riace. age cases.		Cases.	Deaths.	
South Carolina: Charleston Columbia South Dakota: Sioux Falls Tennessee: Knoxville Texas: Corpus Christi Dallas Fort Worth Galveston Utah: Salt Lake City Virginia: Norfolk Petersburg	52 06 11 10 2 7 3	3 1 13 2 10 3 1 1 1 1	1 1 1 	Virginia—Continued. Portsmouth Richmond Roanoke Washington: Seattle West Virginia: Charleston Fairmont Morgantown Wisronsin: Beloit Kenosha Milwaukee Oshkosh	3 8 1 7 5 0 (1) 1 0	2 1 3 1 5 1 1 2 1 2 1 2	· 2	

¹ Average less than 1.

TYPHUS FEVER.

El Paso, Tex.

On August 10, 1920, one case of typhus fever was reported in El Paso, Tex.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City Reports for Week Ended July 31, 1920.

	Popula- tion as of	Total	Diph	theria.	Me	asles.	Sca fev	viet ver.	Tu cul	ber- Jsis.
City.	(estimated by U.S. Census Bureau).	from all causes.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cas IS.	Deaths.
Aberdeen, S. Dak Adams, Mass. Akron, Ohio. Alameda, Calif. Albany, N. Y. Alexandria, Ia. Alleanor, N. Y. Alexandria, Va. Allentown, Pa. Allentown, Mass. Atlento, Ga. Atlenta, Ga. Altenta, Ga. Aurora, Till	15, 926 14, 406 93, 604 28, 433 106, 632 17, 959 17, 529 17, 529 17, 529 17, 529 17, 529 17, 529 16, 531 13, 365 23, 783 10, 631 15, 041 13, 073 14, 629 11, 504 16, 783 18, 319 196, 144 53, 515 19, 776 19, 776 19, 677 34, 795	4 3 34 9 3 7 5 5 5 8 0 0 6 4 4 4 4 4 11 5 0 10			2 1 16 1 1 1 1 3 1 1 1 1 1 1 1 				1 3 4 1 2 1 1 1 1 1 1 	1
Baltimore, Md Bangor, Me	594, 637 26, 958	203	13 4		21			•••••	$32 \\ 1$	16

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS-Continued.

City Reports for Week Ended July 31, 1920-Continued.

	Popula- tion as of July 1, 1917	Total deaths	Dipl	htheria	. Me	asles.	Sci fe	arlet ver.	Tucu	ıber- losis.
City.	(estimated by U. S. Census Bureau).	from all causes.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Barberton, Ohio	14, 187	6								
Battle Creek. Mich	30, 159	3	l i		i		1		1	1
Bayonne, N. J.	72,204	· · · · · · · · · · · · ·	2		····-				i	
Beaumont Tex	10,437	3 16	····;	• • • • • • • •			····;·		·····	· ·····
Bedford, Ind.	10,613	2					····			1
Bellingham, Wash	34,362	• • • • • • • • •			1					
Benton Harbor. Mich	18,547	3				•••••			1	·····;
Berkeley, Calif	60, 427	13	$\hat{2}$		1		2		2	l
Berlin, N. H.	13,892	3					1			
Beverly, Mass.	22, 128	4						•••••		
Billings, Mont.	13, 123	4			1		1		· · · · ·	
Birmingham, Ala	54,854 189 716	12	5		12	• • • • • •	•••••	•••••	7	1
Bloomfield, N. J.	19,013	2			<u>9</u>				2	
Bloomington, Ill	27,462	3	••••;•						4	····-
Boise, Idaho	35,951	3	1		3			•••••	•••••	
Boston, Mass	767,813	164	29	2	18	1	15		49	22
Brazil Ind	¹ 14,544 10 472	••••••	•••••	• • • • • •	8	•••••				
Bridgeport, Conn	124,724	23	5	1		·····i	4		1	A
Bristol, Conn	16, 318	2	· · · · <u>·</u> ·	·····					ī	.
Brookline, Mass	09, 152 33, 526	13	2		····· 9	•••••			•••••	1
Buffalo, N. Y.	475,781	102	· · · · • •	1					•••••	7
Burlington, Iowa	25,144	····· <u>·</u> ·	•••••		•••••		1			
Butler, Pa.	21,802	5	1		1		1	•••••	•••••	•••••
Butte, Mont.	44,057	11			1				2	2
Cairo III	10, 158	2	• • • • • •		• • • • • •			•••••	•••••	
Cambridge, Mass	114,293	23	2	····i	14		····i		3	1
Canton, Ill.	13,674	2	•••••		•••••				· · · · · ·	
Cape Girardeau. Mo	02,000	9	•••••	•••••	•••••		3	•••••	1	
Charleston, S. C	61,041	20							 	•••••
Charleston, W. Va	31,060	·····	• • • • • •		. 1	• • • • • • •	••••••••			
Chelsea, Mass.	48,405	5	2		3		1		2	•••••
Cheyenne, Wyo	1 11, 320	5	····,·					1		
Chicago Heights, III	22,863	460		•••••		•••••		•••••	150	
Chicopee, Mass	29,950	9	3						153	03
Chillicothe, Ohio	15,625	i			••••••					
Cleveland, Ohio	692,259	141	24	•••••	11		20	•••••	17	7
Clinton, Mass.	1 13,075	1		····-	2				ĩ	
Colorado Springs, Colo	18,331	19	•••••		1	•••••	•••••	•••••		
Columbus, Ohio.	220,135	36	1	1			5		6	3
Concord, N. H.	22,858	7			1					•••••
Council Bluffs, Iowa	31,838	5	•••••	•••••	••••• •			•••••	•••••	•••••
Covington, Ky	59,623	19			i .					1
Cumberland Md	26,773	6	••••;•	•••••	•••••••••••	••••• •		•••••		
Dallas, Tex.	129,738	42	4	····i	5				1	1
Danvers, Mass.	10,037								î	ĩ
Davenport, Iowa	32,969	9 .	····;·	····· ·	····· ·	· • • • • •	••••• •	····. ·	•••••	•••••
Dayton, Ohio	128,939	27	i		i .	· · · · · · · · · · · · · · · · · · ·	4		•••••	•••••
Decatur, Ill.	41, 483	- 11 .			····· .		i .			i
Denver, Colo.	268.439	77	12	····;- ·	····		2.	·····	•••••	
Detroit, Mich.	619, 648	195	43	7	3		23	2	31	13
Jover, N. H	13, 276	4 ¹ .	·····	· · · · · · · · · ·	· • • • • • • • • • • • • • • • • • • •	l.	·····!.	ī.!.		ĩ

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

City Reports for Week Ended July 31, 1920-Continued.

	Popula- tion as of July 1, 1917	Total deaths	Dipł	ntheria	. Mea	sles.	Sci fe	arlet ver.	Tu cul	iber- losis.
City.	(estimated by U. S. Census Bureau).	from all causes.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Du Bois Pa	14,994	`	2		1					
Duluth, Minn	97,077	9	2		. 2		4			1
Durham, N. C.	26,160	1 7		• •••••					1	2
East Chicago, Ind	30,280	1	····i		4		1 i	1	····i	
East Orange, N. J.	43, 761	2	1		5		Ī		<u>-</u>	
East Providence, R. I	18, 485		2		. 1					• • • • • • •
East St. Louis, Ill	- 77,312	12	····;·	• • • • • • •	1					• •••••
Elgin III	28, 562	5	l i		1 î		1			
Elizabeth, N. J	88, 839	21	Ī		2		7		. 6	1
Elkhart, Ind.	22, 273	9					3			·····;
Elmira, N. I	58, 212 69 149	48	3		1				-	9
Elwood. Ind	111,028	2								
Englewood, N. J	12,603	4							····	
Erie, Pa	76, 592		3		8	•••••	4		1	
Evanston. III	29, 304	8	3		1					
Everett, Mass	40, 160	8								1
Everett, Wash	37, 205				1	•••••		•••••		
Fall River Mess	10,111	· · · · · · · · · · · · · · · · · · ·	2		5		2	•••••	5	3
Findlay, Ohio.	1 14, 858	2			1 i					
Flint, Mich	57, 386	21	2				3			
Fond du Lac, Wis	21,486	•••••	1			•••••	•••••	•••••		
Fort Scott Kans	10.564	1	• • • • • •						1	
Fort Smith, Ark	29, 390						2			
Fort Wayne, Ind	78,014	15	2				8	• • • • • •		2
Fort Worth, Tex	109,597	31	3		• • • • • •		4	••••	•••••	
Framingham, Mass	14, 149	8			1		1			
Freeport, Ill	19,844	5						•••••		
Fremont, Nebr	10,080	3					•••••	••••	· · · • • • •	
Fresno Calif	36 314	7	4							
Galesburg, Ill.	24, 620	2			2					
Galveston, Tex	42,650	12								
Gardner, Mass	17,534	10			3	•••••		••••	• 2	1
Geneva. N. Y.	13, 915	5								
Grand Rapids, Mich	152, 861	23	9		4				6	'
Great Falls, Mont.	1 13, 948	4	1		1	•••••	2	•••••	1	•••••
Greenfield. Mass	12,251	3	i							
Greensboro, N. C	20, 171	8								· · · · · <u>·</u>
Greenwich, Conn	19,594	8	12			• • • • • •	•••••	•••••	4	2
Hammond Ind	27 016	•	- 1	•••••	I		2		1	
Harnsburgh, Pa.	73, 276				7					
Harrison, N. J.	17, 345				2	· · · · · ·		• • • • • •	· · · · <u>.</u> ·	
Hartlord, Conn	112,851	24	3		3	•••••	•		- 1	1
Hazelton, Pa.	28,981				i					
Highland Park, Mich	33, 859	5				•				.
Hoboken, N. J.	78, 324	12	•••••			•••••	•••••	•••••		
Hudson, N. Y.	12, 838	3			í		2		1	•
Huntington, Ind	10,982	3			1					
Huntington, W. Va.	47,686	19	•••••		•••••	•••••	•••••	1	•••••	2
Indianapolis. Ind	21, 101		•••••		2	·····	5		5	8
Ironton, Ohio	14,079	8	*						ž	ĭ
Ironwood, Mich.	15,095	2	1		19		2	•••••	····;·	.
Ishneming Mich	16,710	•••••••	1			•••••	Z		1	·····i
Ithaca, N. Y	16.017	5							i	
Jacksonville, Ill.	15,506	8			1	·····!	···· <u>·</u> ·			
Jefferson City, Mo	37,431	8			10		Z			
· · · · · · · · · · · · · · · · · · ·										

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

City Reports for Week Ended July 31, 1920-Continued.

	Popula- tion as of July 1, 1917	Total deaths	Dipl	htheria	. Me	asles.	Sc. fe	arlet ver.	Tucu	ıber- losis.
City.	(estimated by U. S. Census Bureau).	from all causes	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Jersey City, N. J	312,557		. 9		1				. 12	
Kalamazoo, Mich	50, 408	15	ī		i (5	1
Kankakee, III	14,270	4		• • • • • • •	1		····;·	•••••	· ····;	•[•••••
Kansas City, Mo	305, 816	64	2	1	2		î		. 8	8
Kearny, N. J.	24, 325 10, 725			• •••••	. 11		1			1
Kenosha, Wis	32, 833		<u>i</u>		5		2			
Kewanee, Ill.	13,607	2	····;	· · · · · · ·			····;·			
Kokomo, Ind	21,929	3	1	.					1	
La Fayette, Ind	21,481	12	1		[1			
Lake Charles, La	14,930	6			····i		2	•••••	i	
Lancaster, Pa	51, 437		6		5				3	
La Salle, Ill	12,332	3				•••••	•••••	•••••		1
Lawrence, Mass.	102,923	23	2		11		4		7	5
Leavenworth, Kans	¹ 19, 363	3	<u>;</u> .		•••••			• • • • • •	····	
Leominster, Mass	20,947 21,365	2	1		· · · · · · · · · · · · · · · · · · ·			•••••		
Lexington, Ky	41,997	16			3				i	2
Lincoln, Nebr	46,957	9		•••••	1		····i	•••••		
Lockport, N. Y	20,028	3					î			
Logansport, Ind	21,338	7						• • • • • •	····a-	
Long Beach, Call.	29,103 38,266	9		•••••	34	•••••	2	•••••	2	
Los Angeles, Calif	535, 485	129	19		20		5		64	12
Louisville, Ky	240,808 114,366	· 37	2		4	•••••		•••••	5	6
Lynchburg, Va.	33,497	10			20 5			· · · · · · ·	1	
Lynn, Mass	104,534	16	2	1			2	•••••	2	3
Madison. Wis	48,299				····i	•••••		•••••	L	•••••
Malden, Mass	52, 243	5	2		ī		1		3	
Manchester, Conn	15,859	5 13		• • • • • •	•••••	•••••	•••••	•••••	•••••	•••••
Manitowoc, Wis	13,931						1			
Mankato, Minn	¹ 10, 365	2			1			• • • • • •	•••••;•	
Marion, Ind.	19,923	7	<u> </u>							•••••
Marquette, Mich	12,555	0			3					
Mason City, Iowa	12,984		1	•••••		•••••		•••••	•••••	•••••
Meadville, Pa	13,968	· · · · · · · · · ·			1		1			·····
Mediord, Mass	26,681	7	••••;••		10	•••••	• • • • • • • • • •	•••••	2	•••••
Methuen, Mass	14,320	5	1		2				····i	ï
Middletown, Ohio	16,384	2				•••••		•••••		•••••
Minneapolis, Minn	373,448	75	5		9		4		16	ğ
Mishawaka, Ind.	17,083	4								
Mobile, Ala	19,075 59,201	17		•••••	2	•••••	····i		3	•••••
Monmouth, Ill.	10,346	2								
Montgomery, Ala	27,087	14	1	•••••	•••••	••••• •	•••••	•••••		•••••
Morgantown, W. Va	14, 444	3			2					· · · · · · · ·
Moundsville, W. Va	13,410	3	•••••	•••••	••••••	••••• •	····· ·	•••••	1	•••••
Mount Carmel, Pa	20,709		ï		i i					· · · · · · · ·
Mount Vernon, N. Y.	37,991	5							2	
Muskogee, Okla.	47,173	Ð		····· ·	····i	····· ·	····i			••••
Nanticoké, Pa	23, 811				î l					
Newark, N. J.	118, 136 418, 789	49 83	10	••••• •		••••• •		•••••	20	4
New Bedford, Mass	121,622	25	2						ĩĩ	3

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS-Continued.

City Reports for Week Ended July 31, 1920-Continued.

	Popula- tion as of July 1, 1917	Total	Dipl	htheria	Me	asles.	Sca fev	arlet ver.	Tu cu	ıb er- losis.
City.	(estimated by U. S. Census Bureau).	from all causes.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
New Britain, Conn	55,385	12			2		2		4	8
New Brunswick, N. J	25,855			• •••••	. 1					.
Newcastle, Ind	14, 144	i i			.					
New Castle, Pa	41,915				1		2		····;	· ····;
New London, Conn	21,199		ı i						2	· · · · ·
New Orleans, La.	377,010	108	3	2	15		3		16	15
Newton, Mass	44,343	11	2		····i					1
New York, N. Y.	5,757,492	1,118	152	1 11	48	1	41	2	1 250	1 109
Norfolk. Va	38,400 91.148	•		· · · ·			1	•••••	2	
Norristown, Pa	31, 969				3					
North Adams, Mass.	22,019	2			•••••	•••••		•••••	•••••	
North Attleboro, Mass	11,248	ī								
North Little Rock, Pa	15,684	6	3		1	• • • • • •	•••••	•••••		·····;
North Tonawanda, N. Y	14,060	ĩ	1							
Norwich Conn	27,332	8	•••••		•••••		•••••		2	2
Oakland, Calif.	206, 405	38	i		1		····i		1	3
Oak Park, Ill	27,816	5	1		1					
Oklahoma City, Okla	97,588	21	····i		1		····i·	•••••	1	
Old Forge, Pa	15,479						ī		····-	
Omaha, Nebr	177,777	43			•••••		····i	•••••	•••••	
Orange, N. J.	33,636	5			i		···.•			
Oshkosh, Wis. Parkersburg, W. Va	36,549		•••••	• • • • • •	1		•••••	•••••	• • • • • •	
Parsons, Kans	15,952		1		····i				12	
Pasadena, Calif	49,620	13	•••••		8		•••••	•••••	4	
Paterson, N. J.	140, 512		6		7					
Pawtucket, R. I	60,666	10	•••••				•••••			1
Peoria, Ill.	72,184	15			2		····i			
Perth Amboy, N. J.	42,616	8	2			•••••			1	
Philadelphis, Pa.	1,735,514	360		3	38		18		59 59	
Phillipsburg, N. J.	15, 879	5								
Piqua, Ohio	14,275	2	•••••	• • • • • •	•••••		1		• • • • • •	· · · · · •
Pittsburgh, Pa.	- 586,193		12		\$8		16		22	
Plymouth. Mass.	39,678	6	•••••		7	••••• •	•••••	·····	1	•••••
Plymouth, Pa	19, 439 .								2	· · · · · · · ·
Pontiac, Mich Port Chester, N. Y.	18,006	13	3	•••••	····;· ·	••••• •			1	•••••
Port Huron, Mich	2 18, 863	8	3						i	·····
Portland, Me	64,720	13	2		15		·····	····· ·		1
Portsmouth, Va	40, 693	15			1				6	..
Pottstown, Pa Providence B I	16,987 .		1	•••••	1.	•••••				
Pueblo, Colo	56,084	15			2		2		····i	
Quincy, Ill.	36,832	12						·····		1
Racine, Wis.	47,465	61	i		2				4	••••• •
Rahway, N. J.	10,361	1			····				i	
Redlands, Calif	14,573	14					2			3 1
Reno, Nev.	15, 514	2								····•
Richmond, Va.	158, 702	73	3	·····			···;· ·	·····	12	
Riverside, Calif.	20, 496	4	3						ĩ	····•
Rochester, N. Y.	264, 714	19 55	21		5	····· ·	····2· ·		8	1 2
									-	-

¹ Pulmonary tuberculosis only.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS-Continued.

City Reports for Week Ended July 31, 1920-Continued.

· ·	Popula- tion as of July 1, 1917	Total	Dipł	ntheria	Mo	asles.	Ec. fe	arlet ver.	Tucul	iber- losis.
City.	(estimated by U. S. Census Bureau).	from all causes.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Rockford, Ill	56, 739	9	4					<u> </u>		2
Rock Island, Ill.	29,452	7							1	ī
Rocky Mount, N. C	12,673	. 4					····i			
Rome, N. Y	24, 259				. 9		<u>-</u> .		4	
Rutland, Vt	15,038	1 17		• • • • • • •	. 23	1	1		····	·····;
St. Cloud, Minn	12,013	1.0	5						•	
St. Joseph, Mo	86,498	34	2		<u>.</u> .		1			2
St. Louis, Mo	252,465	153	18				3	····;·	36	
Salem, Mass	49, 346	4		.	.		2	.	1	ī
Salem, Oreg.	21,274	-4	····;·	····;·	1		• • • • • • •	•••••	· · · · ; ·	•••••
San Bernardino, Calif	17,616	6	ಿ	2	8	1	• • • • • •	• • • • • • •	3	2
San Diego, Calif	56,412	20			1				5	3
Sandusky, Ohio	20,226	4			•••••			• • • • • • •		
San Francisco, Calif	471,023	106	7		····i		1	•••••	30	9
Santa Barbara, Calif	15,360	3			Ī				3	
Santa Cruz, Call	13, 839	3 6	1		1	•••••	1	• • • • • •		
Saugus, Mass	10, 210	š			1		1			
Sault Ste. Marie, Mich	14,130	1	2				4			·····
Schenectady, N. Y.	103, 774	20 7	1	• • • • • • •	13	1	•••••			2
Scranton, Pa	149, 541		4		ii ii				5	
Seattle, Wash	366,445	• • • • • • • •	5		5		2			•••••
Sioux City, Iowa	58, 568		•••••		•••••	• • • • •	2	• • • • • •	•••••	•••••
Sioux Falls, S. Dak	16,887	15	1							1
Somerville, Mass	88,618 70 967	16	• • • • • •		1		1		•••••	
Southbridge. Mass	14, 465	4						•••••	•••••	·····i
Spartanburg, S. C	21,985	8	2							2
Spokane, wasn	62 623		• • • • • •	• • • • • •	1		1	•••••	• • • • • •	•••••
Springfield, Mass	108,668	26			7		6	3	4	i
Springfield, Mo	41,169	11	•••••	•••••						1
Stamford, Conn	31, 810	29	····i	1	3		- 1	•••••	2	1
Steubenville, Ohio	28, 259	14			5					
Stillwater, Minn	1 10, 198	2	• • • • • •		•••••		• • • • • •		• • • • • •	
Superior, Wis	47, 167	6	5	····i	•••••					
Syracuse, N. Y	158, 559	38	5	1	24	·····!	4		3	1
Taunton, Mass	67, 361	10	2	• • • • • •	1	•••••	····;·	•••••	4	1
Tiffin, Ohio	12,962	6	1			!				1
Toledo, Ohio	202,010	56	2		3		12		6	10
Traverse City, Mich	14,090	1				i			i	····i
Trenton, N. J.	113,974	31	1						- 4	ī
Trinidad, Colo	14,413 .	14	5	•••••	•••••	•••••	•••••	•••••	•••••	•••••
Tueson, Ariz	17, 324	30				i				4
Vallejo, Calif	13,803	3	• • • • • •	• • • • • • • !	•••••	· · · · · · · · · · · · · · · · · · ·	•••••	•••••		1
Waco. Tex.	34.015	11		•••••	1	•••••	•••••	•••••	•••••	•••••
Waltham, Mass.	31,011	3	1							•••••
Washington, D. C	369,282	99	6	•••••	3	•••••	8	•••••	28	6
Watertown, Mass	15, 188	3	1		::::l		1		*	•••••
Watertown, N. Y	30, 404	ŏ	2				1			
Wasau, Wis	19,666	8	•••••	•••••	····	·····¦		•••••		•••••
West Chester, Pa	13,403		····i		1	i				•••••
Westfield, Mass	18, 769	1	Ī	1					1	•••••
West New York, N. J.	19,613	4			····;·¦	·····			3	2
	,				• •					

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS— Continued.

	Popula- tion as of July 1, 1917 (estimated by U. S. Census Bureau).	Total	Diphtheria.		Measles.		Scarlet fever.		Tu cul	ber- osis.
City.		ated from J. S. all sus causes au).	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
West Orange, N. J. Wheeling, W. Va. White Plains, N. Y. Wilchita, Kans. Wilkes-Barre, Pa. Williamsport, Pa. Williamsport	13,964 43,657 23,331 73,597 78,334 34,123 95,369 30,400 118,583 33,136 16,076 166,106 22,058	1 8 3 21 32 12 5 14 1 30	1 1 3 1 2 3		3 1 1 1 4		1 1 		1 5 2 1 4	1
Yonkers, N. Y. York, Pa. Zanesville, Ohio	103,066 52,770 31,320	15 6	8 1	·····	2 1	· · · · · · · · · · · · · · · · · · ·	1 	·····	2 2	1

City Reports for Week Ended July 31, 1920-Continued.

FOREIGN AND INSULAR.

CHINA.

Examination of Rats-Hongkong.¹

During the three-week period ended June 26, 1920, out of 6,423 rats taken at Hongkong, 4 were found to be plague infected.

CUBA.

Communicable Diseases-Habana.

Communicable diseases have been notified at Habana as follows:

Disaaca	July	21–31, 920.	Remain- ing under	Disease	July	7 21–31, 1920.	Remain- ing under	
Discase,	New cases.	Deaths.	July 31, 1920.	Discase.	New cases.	Deaths.	July 31, 1920.	
Cecebrospinal meningitis. Leprosy. Malaria Measles.	28 19	 1 3	1 11 138 22	Paratyphoid fever Scarlet fever Smallpox. Typhoid fever	1 0 0 47	0 0 0 6	0 9 21 396	
¹ From the inter	ior, 26.		² From a	broal, 1. From	the int	erior. 27.	a	

From the interior, 26.

GREAT BRITAIN.

Examination of Rats-Liverpool.

During the two weeks ended June 26, 1920, 291 rats were examined in the city and port of Liverpool; 2 rats were found to be plague infected. During the two weeks ended July 10, 1920, 396 rats were examined; 4 rats and 1 mouse were found to be plague infected. During the week ended July 17, 1920, 1 rat and 4 mice were found to be plague infected.

SPAIN.

Meningitis-Seville.

The following table gives the number of deaths from meningitis (all forms), by months, in Seville, Spain, from January to June, 1920. The population is said to be about 161,000.

Month.	Deaths.	Month.	Deaths.
January	40	April	31
February	46	May	36
March	29	June	52

¹ Public Health Reports, Apr. 24, 1920, p. 1032, and July 30, 1920, p. 1835. (2002)

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

Reports Received During Week Ended Aug. 20, 1920.¹

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China: Chungking Japan: Nagasaki Java:	June 20-July 3 June 28-July 18	31	963 13	
West Java— Batavia Philippine Islands: Manila	Apr. 30-June 3 June 20-26	6 2	2	
Siam: Bangkok	May 30-June 12	31	27	

PLAGUE.

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				A REAL PROPERTY AND ADDRESS OF THE OWNER OWNER OF THE OWNER OWN
Brazil: Bahia Porto Alegre	May 23-June 19 June 27-July 10	15	9	
Chile:			1	
Antofagasta	July 5-11	1		
China:	-			
Hongkong	June 6-26	44	33	•
Mexico:				
Tampico	July 26	3	2	Total to date.
Vera Cruz	July 19-25	2	2	
Peru:		_	_	
Truiillo	May 31-June 27	3	2	
Siam:		-	-	
Bangkok	May 30-June 5	1		
Straits Settlements		•		
Singanoro	May 23-Tune 5	1	1	
cingapore	Dray 20-5 une 5	-	-	
				· · ·

SMALLPOX,

A Igoria:		· ·	1	
Algeria:		1	1	
Algiona	T-1-1 10			
	July 1-10.	1 4		
Constantine		1 2		
D	ao	1 7		
Brazil:	- · · · ·			
Bahia	June 6-12	1		
Canada:				
Alberta-				
Calgary	July 25-31	3		From outside.
British Columbia—	-		1	
Vancouver	July 4-10	2		and the second
Ontario-	-			
Fort William.	July 25-31	1		
Hamilton	Aug. 1-7	i i		
North Bay	July 25-31	5		
Ottawa	do	5	•••••	•
Peterborough	June 13-July 31	10	1	
Prescott	Aug 1-7	10	•	Present at Cardinall
Toronto	Inter 25_21		••••••	Tresent at Caruman.
China	July 2.9-51	1	•••••	
Hongkong	Man 22 June 26			
Nanking	July 1 10	4	1	Description
Faunt.	July 4-10	•••••		Frevalent.
Alexandria	Tume 10, 04		_	
Creat Dritains	June 18-21	Э	2	
Cleaner	T-1-11 04			
Glasgow	July 11-21	34	13	
Greece:	36			
Saloniki	May 31-June 27	1	1	
Italy:				
Messina	May 10-16	!		In Province, 34 cases, 4 deaths,
Do	May 17-23	2		In Province, 44 cases, 6 deaths.
Do	May 21-30	2	1	In Province, 28 cases, 5 deaths.
Do	May 31-June 6	1		In Province, 22 cases, 3 deaths,
Do	June 7-13	.		In Province, 9 cases, 7 deaths,
Do	June 14-23	1		In Province, 13 cases, 0 deaths,
Do	June 21-27	í		In Province, 18 cases, 2 deaths
		- 1		······································

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

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

Reports Received During Week Ended Aug. 20, 1920-Continued.

SMA	LLP	OX-C	continued.	
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· Place.	Date.	Cases.	Deaths.	Remarks.
Itoly-Continued. Messin J. Do	June 23-July 4 July 5-11 July 9-15 June 23-July 4 July 22 May 6-27 June 4-10 July 30 June 23-July 4 July 2-R July 18-24 July 13-19	1 2 1 7 10 2 	1 2 	In Province, 6 cases, 2 deaths. In Province, 3 cases, 1 death. Present.
Constantinople	June 13-19	1		

TYPHUS FEVER.

	1 .	f .	1.	•
Algeria:				
Departments-				
A leiers.	July 1-10	4		
Constantine	do			Present.
Cran.	June 11-20.	44		
Do	July 1-10	26		
Chile:				
Anto'oreste	July 5-11			Do.
Valnaraisa	June 12_July 17		20	20
Great Britain.	sunc to sury me		20	
Dundoo	T.1. 4 10	1	1	
Crosso:	July 4-10			
Gloniki	Tuno 7 97	02		A mong rofugees from Bussie
	June 1-21	00		Among refugees from Kussia.
Java:				
west Java-				
Batavia	June 4-10	4	_ 1	•
Mexico:				
Nogales	Aug. 9	1		
San Luis Potosi	July 26-Aug. 1		1	
Tunis:	-			
Tunis	July 13-19	3		
	-			

YELLOW FEVER

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Brazil: Bahia Mexico: Do Vera Cruz Do Do Do Do Do Do	June 13-19. Reported July 30. Reported Aug. 4. July 19-25. July 26-Aug. 1 Aug. 2-9. Week of Aug. 14.	1 3 1 10 14		Confirmed. 3 suspicious cases, not confirmed. 1 suspicious case, not confirmed. 6 confirmed.
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CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from June 26 to Aug. 13, 1928.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China: Chungking	May 16-22		. 551	
Do	June 6-19		. 1, 210	Anr. 11-May 8 1020 Deaths
Bombay	May 29-June 12	76	37	5,612.
Madras	June 13-19	2	200	
Rangoon	May 2-June 5	10	7	
Saigon	Apr. 26-May 16	56	41	Report for May 9 not received.
Japan:	June 7-13	14	53	
Kobe	June 8		24	. Kobe, June 6-13, 34 cases. Moji, June 6-12, 19 cases. Kochi.
Nagasaki	June 21-27	7		June 6-12, 1 case. Hiroshima,
Usaka Taiwan Island	May 22-June 20	60	33	June 5-12, 6 cases.
Java: West Java	-		l	Apr. 23-May 13, 1920; Cases, 6;
Batavia	Apr. 29-May 13	6	2	deaths, 3.
Philippine Islands:	may 20-June 3		1	· · ·
Manila	May 9–15 June 6–26	1	1	
Provinces.	Mov 0 15			May 9-June 5, 1920: Cases, 11;
Cagayan	May 9-June 5	9	8	deatins, 9.
Do Laguna	June 13–26 June 20–26	$\frac{2}{1}$	1	
Rizal	June 13-19	1	•••••••••••••••••••••••••••••••••••••••	*
Russia.	Juic 10-20			Reported prevalent in southern
Sebastopol (district)	June 29			Reported increasing.
Siam: Bangkok	Apr. 25-May 29	496	308	
Turkey:	Dec 04			A - 1 - 4 - 7 - 1 -
Kaiseri	Dec. 22.	1	• • • • • • • • • • • • • • •	Do.
Karassi Mamuret-ul-Aziz	Jan. 3 Dec. 31	1	i	Do. Do.
Panderma	DecJan	16	6	
Smyrna	Dec. 22	3	2	Asiatic Turkey.

PLAGUE.¹

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				1
Brazil:				
Bahia	Apr. 25-May 22.	8	2	
Pernambuco	May 3-9	1	1	
British East Africa:	1		1	
Kisumu	Apr. 25-June 26	14	12	
Mombasa	Apr. 25-June 19.	88	74	
Nairobi	do	. 14	8	
Cevlon:				
Colombo	May 2 June 12	7	2	
Chile:			-	
Antofagasta	May 17-June 20	5	[
China:	Duty if vance 20			
Hongkong	Apr 4-Jude 5	1 46	37	
Fornt		10		Ton 1 Tune 20 1020+ Came 202.
Citios-	••••••			dotha 174
Alexandria	Turno 19 Turler 9	- e		ueatus, 174.
Suoz	May 12 June 9	1.0	0	7 oogoo maanaania
Drowinger	May 15-Juine 8	شد]	0	o cases, pheumonia.
Flovinces-	Man 17 June 7			
Assiout	May 15-June 5		4	
Fayoum	June a	1		
Garbien	do	1		
Keneh	May 18	1		
Mariut.	May 18-June 8	19	22	
Minieh	May 15	2	1	Septicemic.
Great Britain:				-
Liverpool	June 20-26	1	1	

Report of plague on U. S. S. Des Moines, in Public Health Rpts., Aug. 13, 1920, p. 1952, was an error.

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

Reports Received from June 26 to Aug. 13, 1920-Continued.

PLAGUE---Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Greece:				
Cavalla	July 22	1		
D0	July 29			•
Dante	July 22	2		
Piræus	June 29-July 9	4		Ann. 10 15
B1018				Apr. 18-May 29, 1920: Cases,
Bombay	Apr. 18-June 12	85	70	Surrounding territory, June 6-
Colontto	May 9 June 19		10	12. Cases, 100, ucatus, 01.
Vorachi	May 2-June 12	20	19	
Madras Presidenes	May 9-June 19		101	
Dangeon	Apr 95 June 19	234	101	
Raigoon	Mor 20 June 5	1 %	02	1
Tada China:	may so-sumes	1 1		
Indo-China:	35 10 10	· .		
	1 may 10-10		1 1	
Ttolm.	Julie /-13	•	I ⊥	
Cotonio	Tune 22 July 2			
Torret	Julie 22-July 5	3	- 4	
Fost Iowa	Apr 22 May 5	7	-	Ann 15 Mar 10 1000. Cases 6.
15a5t Java	Apr. 2.9-May 0	•		deaths & Sumahawa Desiden av
Varias:				deaths, o, Surabaya Residency.
Tampico	Tuna 95			
	Julie 20	1	••••••	•
Voro Crite	July 17		1	Mar 00 Tular 04 1000, Cases 40.
	Jule 14-20	11	4	May 29-July 24, 1920: Cases, 49;
D0	July 15-24	z		Mar 1 21 1000: Cares 48: deaths
	Mon 1 91		••••••	Mar. 1-31, 1920: Casts, 40; deaturs,
De	Mar. 1-31	8	3	29. Apr. 1-30, 1920: Cases, an; deaths 12. In scentral depart
Lime (sitr)	Mor. 1 21	9	4	uestis, 15. Il coastal ucparte
	Mar. 1-01	5	3	menus.
$\mathbf{D}0$	Apr. 1-30	4	4	
Lima (country)	Mar. 1-31	+	1	
Mollanda	ADF. 1-30	-1	••••••	
Doito	mar. 1-51	13	× ×	
rana		5	Z	
Solowar	Mon 1 21	2	••••••	
Do	Mar. 1-51	4	3	
San Dadra	Apr. 1-30	1		
Maniillo	Man 1 21	P	4	
	Mar. 1-31	37	2	
Siami	Арг. 1-13	•	ه	
Banghak	Apr 95 Mar 1			
Dangaok	Mor 0 90	3	ိ	
Straite Sattlemente:	may v-29	4	2	
Singapore	Apr 95 Mar 99	•		
Do	Inno 6.19		8	
9 mio.	June 0-12	3	3	
Boirnt	June 20			Branent
1,01, ut	June 00	••••	• • • • • • • • • • • •	T ICNCHI.

SMALLPOX.

May 11-June 30	28		City of Algiers, Apr. 1-30, 1920;
June 1-30	8		1 case.
May 11-June 30	84		
	•••		
May 2-31	6	8	
	-	-	
Apr. 25-May 22	3	4	
Mar. 29-May 2	57		
May 10-16	9		
Apr. 11-22	10	2	
Mar. 24-28.	1		
	_		
May 2-22.	2	1	
May 23-June 19	10	i 1	
	May 11-June 30 June 1-30 May 11-June 30 May 2-31 Apr. 25-May 22 Mar. 29-May 2 May 10-16. Apr. 11-22 Mar. 24-28 May 2-22 May 2-22 May 2-22 May 2-22 May 2-21 May	May 11-June 30 28 June 1-30	May 11-June 30 28 June 1-30

2006

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

Reports Received from June 26 to Aug. 13, 1920.

SMALLPOX-Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Canada:				
Alberta-	Tumo 2 0	Ι.		
Do	July 4-10	i		Patient taken from Vancouver
British Columbia				train.
Vancouver	. May 16-22	1		
Manitoba-	Mar 00 Tomor			
Winnipeg	. May 29-June 5	3		•
Gloucester	. May 31-June 26	5		
Nova Scotia-				
Halifax	. July 4-10	2		
Onterio-	. may 31-Julie 20	2		
Cornwall	. June 25-30	2		
Hamilton	. June 13–19	2		
Kingston	. May 31-June 19	4		
Do	July 11-17	1 2		
Ottawa	June 6-26	32		
Do	July 4-24	20		
Peterborough	Apr. 18-June 19	26		
Port Arthur	July 11-17	2		
Toronto	June 6_19	12		
Bo	June 26-July 24	17		
Quebec	_			
Montreal	June 13-19	1		,
Do	July 4-10	1		
Saskatchewan-	auto ar-suly o	-		
Moosejaw	June 26-30	1		
Regina	do	1		
Ceylon:	Mar Q June 5			
Chile:	may s-sume-s	-		
Antofagasta	May 17-23			One case in interior.
China:				
Amoy	. May 2-29 June 6-12	• • • • • • • • •	9	
Antung.	May 9-June 13		3	
Do	June 21-27	ĭ		
Chungking	May 2-June 5			Present.
FOCCOW	May 9-29.	••••••		Do.
Hongkong	Apr. 4-May 22	17	14	
Nanking	May 9-June 5	 		Do.
Tientsin	May 25-31	2		
D0	June 13-19	2		
Chosen:	May -13	1		
Chemulpo	Mar. 1-31	22	23	
Do	Apr. 1-May 31	37	11	
Fusan	Mar. 1-31		2	
Secol	Mar. 1-31	120	45	2 · · · · · · · · · · · · · · · · · · ·
Do	Apr. 1-May 31	196	23	
Colombia:				
Barranquilla	May 16-July 3	••••••		Epidemic.
Cuba:	may 31-July 17	•••••		Endemic.
Habana	July 4.	1		From steamship Frank Hennis,
				from Jamaica. Arrived Santi-
One had a she had				ago June 30, 1920.
Moravia	Feb. 1-28	69	1	
Egypt:		~		
Alexandria	May 14-June 17	47	17	
Do	June 25-July 8	7	1	
Port Said	Apr. 2-May 0	28	5	· ·
France:		10	'	
Brest	May 15-21	1		
Cette	June 24-30	•••••	1	
ГШВ.,	May 1-10	3)	••••••	
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CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER-Continued.

Reports Received from June 25 to Aug. 13, 1920-Continued.

SMALLPOX-Continued.

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Place.	Date.	Cases.	Deaths.	Remarks.
Germany				Feb. 22 - Mar. 27, 1920; Casos, 373.
Prussia Danzig	June 20-26	1		
Great Britain: Glasgow	May 25-June 26	136	22	
Do London	July 4-10 June 13-July 10	40 14	1	
Greece: Cavalla	Apr. 12-18	1		1
Saloniki	May 31-June 6	5		May 10-23; Destins, 4.
Do	May 31-June 6	6		Apr 11-May 8 1090: Deethe 5 590
Bombay	Apr. 26-June 12	87 96	35	May 9-15, 1920: Cases, 26; deaths,
Karachi	May 9-June 19	15 27	12	
Rangoon Indo-China:	Apr. 25-June 12	31	.13	
Saigon Do	May 10-16 June 7-13	7 5	2	
Italy: Genoa	May 17-23	12		In Province.
. Do Messina	June 14-20 May 9-June 27	15 59		Frovince, May 17-June 20: Cases,
Milan Naples	Mar. 1-Apr. 30 May 23-June 20	2 9 7	53	87; deaths, 16.
PalermoJapan:	May 11-July 8	21	1	
Kobe Do	May 9-June 6 June 14-27	73	23	
Taiwan Island Tokyo	Apr. 21-May 10	40 5	4	
Java: West Java Betervie	Any 16-May 5			Apr. 16-May 5, 1920: Cases, 53;
Do Do	May 28-June 3	36	6	ucaus, 10.
Funchal Malta	June 20-26 May 1-June 15	2	2	•
Manchuria: Mukden	May 2-8			Present.
Mexico: Guadalajara	May 1-31	1		
Mazatlan. Salina Cruz	May 19-25 June 1-30	5	1 3	
San Luis Potosi Do	May 31-June 6 July 5-11		1 2	
Newfoundland:	July 19-25		2	Demontral of Arms of them localities
Shoal Harbor	July 10-16	37	• • • • • • • • • • • • • • • • • • •	July 3-16: Present at 4 localities.
Lisbon	May 16-June 28		8	
Vladivostok	Jan. 1-Apr. 30	248	77	
Barcelona Do	May 21-June 10 June 18-July 1		6	
Valencia Do	May 23-June 26 July 4-17	15 6	82	
Vigo Do	May 31-June 26 July 13-24		4	
Geneva.	Мау 9-15	7		
Tunis: Tunis Turkay:	May 25-July 12	21	15	
Constantinople	May 16-June 12	6		
£0	amo to-amy a	=	••••••	

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

Reports Received from June 26 to Aug. 13, 1920-Continued.

TYPHUS FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.	
Algeria:					
Departments-	Man 11 Tuni 20		1	4	
Algiers	. May 11-June 30	20		•	
Oran	May 11_June 11	156		·	
Do	Tumo 21.30	62			
Anotria	• and 21-00			Feb 15-Mar 15 1990 Cases 60	
Vienna	Feb. 15-Mar. 15	20		1 CD. 10 ALG. 19, 1040. Cases, 00.	
Bolivia:			1	1	
La Paz	May 2-31		5	1	
Brazil:	1		1	•	
Ceara	Apr. 25-May 1		2		
Bulgaria:	-				
Šofia	June 20-25	2			
Chile:					
Caleta Coloso	May 10-16		Z		
Concepcion	Mar. 8-June 19		37		
Valparaiso	May 2-June 12		21		
Chosen:	35		1 .		
Seoul	Mar. 1-Apr. 30	4	1 1	· · · ·	
L cippile	T-1 00 00			Oursenantin a Otation	
Fornt.	Feb. 22-28	1		Quarantine Station.	
Alexandria	Ann 14 Tune 17	010	60		
Do	Tuno 25 Tuly 1	210	10		
Cairo	Apr 2-May 6	409	165		
Port Said	Apr Q May 6	494	100		
Germany	mpr. s-may o	•••••	•	Feb. 22-Mar 27, 1920; Cases, 23,	
Prussia-		••••		Among troops, 4: among per-	
Danzig.	June 20-26	1		sons from Poland, 8.	
Great Britain:					
Dublin	May 23-June 19	3	1		
Glasgow	May 30–June 5		1		
Greece:					
Saloniki	Apr. 12-June 6	151	8		
Hungary		••••••		Jan. 19–Feb. 29, 1920: Cases, 14.	
Itolar	Jan. 19-Feb. 29	7			
Catania	7				
Trigeta	May 18 22	3			
Do	June 12 July 2	19			
Janan:	Julie 15 July 5	14	-		
Nagasaki	May 25-30	1			
Do	June 21-27	î			
Java:		-			
West Java-			-		
Batavia	May 28-June 30	5	1		
Mexico:	-				
Chihuahua	May 31–June 6		1	- · ·	
San Luis Potosi	June 8–July 4			Present.	
rortugal:	A		·		
Giborio.	Apr. 4–June 12	- 11	4		
Vladivestek	Mar. 1. 21			Tom 1 Amm 20 1000 Closes 1 084	
* 1011 1 05 WK	тау 1-31	22	2	Jan. 1-Apr. 30, 1920: Uases, 1,205;	
Tunis:			1	ucours, 172	
Tunis	May 24-June 27	36	19		
Do	July 6-12		11		
Turkey:			1		
Constantinople	May 16-June 12.	27	I		
Do	June 19-July 3	7			
		1		•	

YELLOW FEVER.

Brazil: Babia	App 05 May 00				
Colombia	Apr. 23-May 22	3			
Buenaventura.	June 3.	1	1		
Mexico:		-	-		
Progresso	Aug. 2	1			
vera Cruz	June 22		2		
Do	July 1-Aug. 1	5		July 27, 1920:	40 cases, not con-
1				firmed.	

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

Reports Received from June 26 to Aug. 13, 1920-Continued.

YELLOW FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Peru. Callao. Catacaos. Do. La Huaca. Munuella. Paita. Do. Piura. Do. Piura. Salitral. Sullana. Do. Salitral. Sullana.	Apr. 1-30. Mar. 1-31. Apr. 1-30. Mar. 1-31. Apr. 1-30. Mar. 1-31. Mar. 1	1 14 2 9 5 37 12 81 14 14 1 4 2 9 1		Mar. 1-31, 1920: Cases, 128. Apr. 1-30, 1920; Cases, 64, At quarantine station. From S. S. Huallaga.
Sonsonate	May 22-June 24	49	17	

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