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THE DIAGNOSIS AND TREATMENT OF SYPHILIS AND GONORRHEA.

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1. A STATEMENT FOR HEALTH OFFICERS, PUBLIC HEALTH NURSES, AND OTHER PERSONS INTERESTED IN PUBLIC HEALTH.

The diagnosis and treatment of syphilis and gonorrhea is a medical problem, but the *control of the spread* of these diseases is a public health problem demanding the cooperation of health officers, nurses, social workers, and all other persons and agencies interested in the health of the public, as well as the physicians. In order to cooperate intelligently with the medical profession, the lay social worker must understand the principles of diagnosis and treatment of syphilis and gonorrhea.

Frequently before medical advice and treatment are sought, the social worker comes in intimate contact not only with the venereally infected person but with the family of the carrier as well. To the social worker is given the opportunity to educate the patient to seek proper treatment and to expect a continuance of treatment long after the symptoms of disease have disappeared.

The danger of transmitting syphilitic and gonorrheal infection through the marital relation, through illicit sexual intercourse, and, extragenitally, through intimate contact, is generally recognized by all who have any knowledge of venereal diseases; but the importance of early diagnosis and treatment in the eradication of syphilis and gonorrhea is not appreciated so generally. While a knowledge of the general principles of venereal-disease control is essential, the lay social worker must know the exact methods of diagnosis and treatment as well, and must make the facts known to the persons with whom he comes in contact if he is to give the most effective aid to the medical profession. With this thought in mind, the following statement has been prepared.

Syphilis.

The presence of a genital, or a suspicious extragenital, sore which refuses to heal promptly, indicates the necessity for a thorough and prolonged examination, whether the sore possesses the physical appearance of a typical chance or not. During the first three weeks

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of the existence of a suspected sore the microscopical examination is the only method we have for determining accurately the presence of syphilitic infection. If any antiseptic has been applied to the suspected chancre, this examination is deferred until after the sore has been cleansed with saline solution and a saline dressing applied for at least 24 hours. The social worker must advise patients not to undertake any treatment either by systemic remedies or by medicinal applications to the sore until after a positive diagnosis has been made by finding the germ of syphilis. If the sore is free of antiseptics, serum is squeezed out, and this specimen is examined immediately with the oil immersion lens of a microscope, illuminated through a dark-field condenser. If the chancre is less than three weeks old, and if the technique has been carried out properly, the organisms causing the sore should be discovered by this method: but the discovery may require many examinations. Even though many dark-field examinations be negative, the diagnosis of syphilis should not be excluded until at least three Wassermann reactions shall have been negative.

Soon after the sore appears, small glands in the vicinity become enlarged, and it is possible for the physician to obtain a pure culture of the syphilitic organism, if it is present, by drawing into a small syringe a few drops of the serum from one of these swollen glands. This is not a very painful procedure and is particularly useful when the diagnosis has been made more difficult by treatment of the sore with caustics or strong germicides.

In those sections of the country where physicians do not have access to a microscope illuminated with a dark-field condenser, the patient is sent to one of the many laboratories or clinics where this microscopical examination is made.

The organisms causing syphilis tend to disappear from the sore after the third week of its existence, and the microscopical examination becomes less satisfactory; but, if the infection is syphilitic, the Wassermann reaction becomes weakly positive during the third week: after that time it usually gives a strong positive reaction. The blood of a person infected with syphilis reacts to certain substances differently from the manner in which the blood of a normal individual reacts; the test for this reaction is called the Wassermann test, and the degree of reaction is indicated by the terms plus one, plus two, plus three, or plus four. Plus four may be considered as the minimum strength of reaction which, when obtained repeatedly, is considered diagnostic of syphilis in the absence of other signs. On account of practical difficulties, reactions stronger than plus four are reported by the same sign, even though they be many times this strength. Lesser degrees of reaction are considered doubtful and have little value when there is no other evidence of syphilis. A single negative is evidence

but not proof of the absence of the disease. A series of negative reactions continued over a period of years, unaccompanied by positive clinical symptoms of the disease, is commonly accepted as proof that the disease has been cured or that it did not exist.

The blood Wassermann reaction may remain strongly positive throughout the entire course of the disease, or during the latent and final stages the blood may give only a weakly positive or even negative reaction. In suspected syphilis, when the blood Wassermann gives only a weakly positive or negative reaction, the diagnosis may be confirmed by a Wassermann test of the spinal fluid, for the spinal fluid frequently remains positive long after the blood is negative. Because the spinal fluid may remain positive after the blood is negative, the patient whose treatment has been completed and who is being tested for cure, should not be discharged until a negative spinal Wassermann reaction has been obtained.

Throughout the various stages of the disease, patients infected with syphilis show characteristic symptoms, and, although the disease can be diagnosed only by a trained physician, the more common of these symptoms should be recognized by the health nurse or social worker. After the organisms have disappeared from the chancre and the blood Wassermann has become positive, a rash usually appears upon the body, the spots turning from a pink to a characteristic copper The rash is a result of the presence of a generalized infection color. which may be the cause of headache, fever, and depression as well. Although only an experienced physician can differentiate between a syphilitic rash and that caused by many other infections or agents. there is one manifestation of the disease which usually coexists with the rash which the health nurse and particularly the dentist should learn to recognize. During the secondary stage of the disease, ulcers usually appear on the lips or in the mouth or throat. These "mucous patches" frequently present a flat, raised surface, gravish or translucent in color, surrounded by a narrow and inflamed border. Since the syphilitic organisms abound in these patches and are liberated from them in sufficient numbers to make the saliva highly infectious. it is obvious that the person in this condition should be warned of his infectiousness, urged to seek medical diagnosis and treatment, and cautioned to guard against transmitting the infection until rendered noninfectious by proper antisyphilitic treatment. These lesions are practically painless, remain in the mouth for considerable periods, and have a characteristic appearance; therefore the school nurse, the general nurse, and the dentist, who make frequent examinations of the mouth, should discover many of these cases which otherwise would be missed.

If the disease follows the typical course, the secondary symptoms disappear and apparently the organisms become very much reduced in number. The disease then enters upon a latent stage, of variable duration, during which the patient may present no symptoms of the disease and appear to be in good health. The late manifestations of syphilis are generally recognized by those interested in public health and by the educated public as well. During the latent stage, the disease reappears most frequently as a gumma, or as a nervous derangement: but the variations in the character of late syphilis are so great that they can not be discussed here. The gumma is a tumor-like growth which replaces normal tissue, breaks down, decays, and, if it disappears, is replaced by scar tissues. The gumma may attack the skin and bones, with consequent disfigurements, or it may attack the circulatory system or any of the vital organs. If death occurs it results usually through the failure of the affected organ to function. The disease may manifest itself by paralysis of the brain, the spinal cord, or the sensory nerves, resulting in paresis (general paralysis of the insane), locomotor ataxia, atrophy of the optic nerve, etc.

When cases of syphilis in the late stages, or children with hereditary syphilis are discovered, the health nurse or social worker may be of the greatest assistance in the campaign to control syphilis by urging the families of such cases and persons with whom the patients have come in intimate contact to undergo a medical examination. Because cases of late syphilis usually are considered to be only slightly infectious, if at all, the fact is forgotten that they must have passed through one or more infectious stages to reach the condition in which they are found and that during this infectious period they probably have transmitted the disease to persons with whom they have come in contact.

TREATMENT OF SYPHILIS.

The treatment of syphilis always includes both arsphenamine or neoarsphenamine and mercury; the iodides are of value particularly in the later stages, but many physicians are now using them early in the course of the disease. As soon as the disease has been diagnosed definitely as syphilis, but never before this time, vigorous treatment should be begun. Except under unusual conditions, the initial treatment includes at least 16 doses of arsphenamine and a proportionate number of mercury injections or inunctions. The frequency of administration, the amount of drugs to be used, and the number of courses needed to cure can be determined only by the physician administering the treatment, because the treatment varies with the condition of the patient and the stage of the disease.

It is essential that social workers warn patients with whom they come in contact to abstain from drinking alcoholic beverages immediately before or after treatment with arsphenamine. Patients should be taught to appear for arsphenamine injections with an empty stomach and not to eat again for at least three hours after the injection. When patients follow these rules one of the frequent causes of reactions from this drug is removed.

The person who is suspected of being infected with syphilis should be warned that the early stages are the most infectious and that the danger of infection is very great until at least two weeks of vigorous treatment has been administered. The patient should be warned that during its early stages the disease may be spread not only through sexual intercourse but also through contact with the secretions from the mouth and skin. As long as the suspicion lasts, or until the physician advises that sufficient treatment has been given to render that disease practically noninfectious, the patient should refrain from kissing other persons, from coming into intimate contact with them, and from using toilet articles, eating utensils, or the like, which are used by other persons.

The successful treatment of syphilis requires a minimum of two or more thorough courses with arsphenamine and mercury, with a rest period of a month or two between these courses of treatment. After the symptoms have disappeared, it is difficult to persuade the patient that further treatment is necessary. Here the social worker who comes in intimate contact with the patient and his family can be of great assistance; for such a person must be convinced of the necessity for sufficient treatment. Syphilis is essentially a recurrent disease. If insufficient treatment is given, the number of cases are negligible in which the disease does not recur, frequently with increased virulence.

Gonorrhea.

To gain a comprehensive idea of the diagnosis and treatment of gonorrhea, it is necessary to consider the disease in both the male and the female.

DIAGNOSIS OF GONORRHEA IN THE MALE.

When an acute discharge of pus occurs in the male urethra, the inflammation is caused most frequently by the gonococcus; but since other agents occasionally produce this condition, a microscopic examination of a smear from the discharge is made in the physician's office or at a neighboring laboratory. If this smear shows the presence of the characteristic coffee-bean-shaped diplococci within the pus cells as well as outside them, the picture indicates the presence of gonococci, and treatment for gonorrhea should be begun. In the later stages of the disease, or when other organisms are present, a complicated staining method may be required. In this case the smear usually is sent either to the State hygienic laboratory or to any local laboratory which is equipped for this more involved staining method, The social worker coming in contact with a suspected case of gonorrhea should instruct the patient to appear at his doctor's office or at a free clinic, retaining his urine in order that the physician may have him pass it into two glasses; for by this test the seat of the infection usually can be determined. If the urine in the first glass is cloudy with pus and that in the second glass is clear, the infection is located in the forepart of the urethra; but when the urine in the second glass resembles that in the first, the inflammation has reached the posterior urethra, that part located within the body. If the urine is not clouded with pus but contains shreds of cast-off cells, it indicates that the disease has passed from the acute to the chronic stage.

TREATMENT OF GONORRHEA IN THE MALE.

Usually no symptoms of gonorrheal infection appear until several days after it occurs, then for two or three days a thin mucous discharge appears from the urethra. After this time the discharge may turn to a creamy yellow pus, and the disease may reach a very painful During the height of the inflammation, treatment should stage. consist of rest in bed when possible. As soon as the tenderness begins to subside, treatment with germicidal solutions may be employed. Many agents are used, and the number and frequency of application vary with the different agents. Acriflavine, one of the dye products. when administered daily is retained in the urethra for five minutes. Argyrol or protargol, silver derivatives, or permanganate of potash may be used several times daily. Only a physician experienced in the treatment can determine the strength to be used, the frequency of application, and the length of time that the treatment should be continued; but the social worker can be of great assistance in urging the patient to continue treatment until cure is complete, in warning him against quacks and self-medication, in educating him to follow directions, and in encouraging faith in the treatment which is being administered.

Proper hygiene is as essential to the cure of gonorrhea as is proper treatment. The social worker must influence the patient to abstain from drinking alcoholic beverages, from eating highly seasoned food, from indulging in sexual intercourse, and from exposing himself to exhausting experiences. The necessity for observing the rules of hygiene is impressed upon the patient by the physician, but the social worker can give more time to this educational work than can be allotted to it in a clinic or a busy office

When improperly treated (or untreated), the disease may pass into a chronic stage in about six weeks. The successful treatment of chronic gonorrhea requires both experience and skill upon the part of the physician and the constant cooperation of the social worker. To insure success in treatment it may be necessary for the physician to locate the source of trouble by visual inspection through a urethrascope, and to treat the disease through this instrument. The cure of chronic gonorrhea may require a year or more of treatment, which sometimes may demand the services of a skilled specialist. The social worker can be of greatest assistance to the specialist in urging such patients to persist in their efforts to obtain a cure.

In testing for cure, the examination, which is made after all treatment has been stopped for a week, should reveal no discharge from either the prostate or the urethra. The urine examined in the two glasses should be clear or should contain no pus cells or gonococci. Should any germs be found, they are examined by a skilled observer, using Gram's method of staining. An irritating injection of silver nitrate is sometimes employed, and should a discharge be obtained it must show no gonococci. The complement fixation reaction and the provocative injection of vaccines are used frequently as supplementary tests of cure.

DIAGNOSIS OF GONORRHEA IN THE FEMALE.

In the early or acute stage, gonorrhea in the female usually produces an abundant discharge of pus, in which the gonococci can be found by a microscopical examination. The acute stage is of relatively short duration, and the disease soon passes into the chronic stage, when frequently it is impossible to obtain smears which show satisfactorily the presence of gonococci. If the chronic stage is suspected, the examination is made one to three days immediately after the cessation of the menstrual flow. During the previous week no treatment is given, and the patient is instructed to appear for examination without having urinated or washed the organs within six hours prior to the examination. Under these conditions it is possible for the physician to examine the organs to discover discharges and to search the various pockets in the genital organs for inflamed areas and for pus. The diagnosis of gonorrhea in women is difficult, and the public health nurse who visits an infected woman can do much to aid the physician in preparing her for examination.

TREATMENT OF GONORRHEA IN THE FEMALE.

Success in treatment requires hospital care, and only in the very early stages is there much hope for complete cure. When the disease has passed into the chronic stage it is difficult to treat and cure is rarely accomplished except after destructive operations or the climacteric. The important field of the social worker lies in inducing infected women to seek proper hospital care, for ambulatory treatment, douching, and the like are of little value. The treatment of acute gonorrhea includes frequent cleansing of the sex organs with mild antiseptics and the use of hot sitz baths several times daily. The surface of all these organs must be swabbed carefully with an effective germicide and cleansed with sterile water. This treatment is continued for at least a week after all discharges and local signs of inflammation have disappeared and smears fail to indicate gonococci. In the chronic stage the centers of infection have to be discovered in order to apply intensive local treatment. While major surgical interference is rarely indicated in acute complications which occur during this stage, the infection may form pus pockets in the tubes which later may necessitate an operation. Infection of both tubes is a frequent cause of sterility.

Children born of women infected with gonorrhea are always in danger of blindness from an infection of the eyes, which may be prevented by the application of a germicidal solution to the eyes at birth as required by law. The infringement of this State law by midwives or others should be noted carefully by health workers and all violations should be reported. Mothers should be instructed to observe their children's eyes and to go immediately to a physician when any inflammation appears.

II. TECHNICAL NOTES ON THE DIAGNOSIS AND TREATMENT OF SYPHILIS IN THE PRIMARY AND SECONDARY STAGES.

SUPPLEMENTING "A MANUAL OF TREATMENT OF THE VENEREAL DISEASES," REVISED BY THE UNITED STATES PUBLIC HEALTH SERVICE, FOR CIVILIAN PHYSICIANS.

The diagnosis and treatment of venereal disease is covered thoroughly in " Λ Manual of Treatment of the Venereal Diseases," prepared originally for the use of the Medical Department of the Army, but later revised for the use of civilian physicians. The physicians in any State in which the department of health does not supply these manuals may buy them from the United States Public Health Service for 25 cents a copy.¹

At the recent Institute on Venereal Disease Control held in Washington, D. C., the diagnosis and treatment of syphilis and gonorrhea were discussed by recognized leaders in syphilology and urology in the United States. At this meeting, methods in the treatment of syphilis, slightly at variance with the outline indicated in the manual, were brought forward, and these should be made known to the physicians who were not present. This supplement to the manual has been prepared in order to emphasize the main factors in the diagnosis and treatment of syphilis in the primary and secondary stages, and to indicate the public facilities which are available for the assistance of the physician in diagnosing and treating this disease.

¹ A copy of this manual was sent to each physician in New Jersey who indicated an interest in the subject, and upon request a copy will be sent by the Bureau of Venereal Disease Control, State Department of Health, Trenton, N. J., to any other physician.

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Early diagnosis of syphilis is important; for the earlier the treatment is begun, the better are the prospects of cure. As the Wassermann reaction usually does not become strongly positive until the fourth week after the appearance of the chancre, a clinical diagnosis can be corroborated before that time only by a microscopic examination of the serum from the lesion or adjacent lymph nodes. In diagnosing primary syphilis, the physical characteristics of the initial lesion should not be relied upon when unsupported by laboratory evidence, because the so-called pathognomonic physical appearance of a chancre is not a reliable guide. A true chancre may be so atypical that suspicion is aroused only by the location of the sore, or it may be obscured completely in a double infection.

The dark-field examination of the chance.-When a patient appears for diagnosis with a genital lesion or other suspicious sore, the serum expressed from it should be examined with a microscope equipped with a dark-field condenser. If an antiseptic dressing has been applied to the sore, it must be removed, the lesion irrigated with physiologic sodium chloride solution, and a wet saline dressing applied for at least 24 hours before the examination is made. Tf the sore has not been treated with an antiseptic, or if the antiseptic has been removed as just described, the lesion should be cleansed by rubbing it with gauze wet with saline to remove surface organisms, such as Spirochaeta refringens. After drying, moderate squeezing will express serum from the sore, but care should be taken not to cause bleeding. A slide should be touched to this serum, and the specimen should be protected immediately with a cover glass and examined under the oil-immersion lens of a microscope illuminated through a dark-field condenser.

The Treponema pallidum appears as a brilliantly white spiral, in length from one to two times the diameter of a red blood corpuscle. The spiral contains from 10 to 20 close turns, which retain their shape well while the organism moves about with both a lateral and rotary motion. If a genital chancre has been cleansed properly, there will be usually no contamination by spirochaetes which might be confused with the pallidum. The organism most frequently confused in this examination is Spirochaeta refringens, which is obviously coarser than the pallidum, contains fewer and less regular turns, does not retain its shape when at rest, and darts about the field rapidly and erratically. The scrum from primary lesions on the lips and in the mouth is usually contaminated with Spirochaeta dentium, which further complicates the differential diagnosis. However, S. dentium is much smaller than T. pallidum, and the curves of the spiral are much more tightly rolled. The accompanying plate indicates diagrammatically the differences in these three organisms.

T. pallidum found in lymph nodes.—The nature of oral lesions can best be determined by examining the serum obtained from the neighboring enlarged lymph nodes. Several failures to find T. pallidum in the serum of any suspicious lesion should lead to the examination of the lymph nodes in the drainage area of the sore. Frequently these lymph nodes will be found to be indurated. In this case the skin surface should be sterilized with 70 per cent alcohol or tincture of iodine, the node confined between the thumb and finger, and the needle of a small syringe inserted through the capsule. A slight motion of the needle will macerate the lymphatic tissue, from which a few drops of serum usually can be aspirated into the barrel of the syringe. If no serum can be withdrawn by this method. the syringe should be disconnected from the needle, which is left in the node, and about one-half cubic centimeter of sterile saline solution should be drawn into the barrel and injected into the node. After a slight manipulation of the tissue some of the fluid may be aspirated into the syringe. The fluid should be examined immediately by the dark-field method. If the lesion is of syphilitic origin, repeated examination by either or both of these methods generally will demonstrate the presence of T. pallidum.

As there are many cases of primary syphilis in which repeated examinations by the dark field are negative, repeated negative Wassermann reactions must be obtained before the patient is discharged. Not less than three Wassermann reactions should be made; the first preferably during the fourth week of presence of the sore, the second during the sixth week, and the third during the twelfth. Opportunities for observation and help in differential microscopical diagnosis are open to physicians at many of the venereal disease clinics which are equipped for this examination and are conducting the examinations frequently.

The period when both the dark field and the Wassermann may be of value.—After the third week of the existence of the chancre, T. pallidum tends to disappear from the primary lesion; during the third week the blood usually shows a weakly positive Wassermann reaction; after that time, as a rule, the reaction is strongly positive. As the organisms may be discovered in the serum from the infected lymph nodes, frequently for some weeks after they have disappeared from the primary lesion, we may have the benefit of a strongly positive Wassermann reaction as well as a positive dark-field examination in corroborating our clinical diagnosis.

THE BLOOD WASSERMANN REACTION.

During the past five years there has been a marked increase in the number of laboratories which perform the Wassermann reaction, so that to-day few physicians are so situated that they can not avail themselves of this indispensable service in the diagnosis and treatment of syphilis. State hygienic laboratories and many county, city, hospital, and private laboratories perform the Wassermann test. The State hygienic laboratories furnish outfits for taking blood specimens, and make the test without any charge. While the use of the blood Wassermann reaction as an adjunct to clinical diagnosis is increasing, there still are reported to departments of health a very large proportion of cases in which syphilis is diagnosed without any laboratory evidence.

The interpretation of the blood Wassermann reaction .-- As the blood Wassermann reaction is indispensable as evidence of the presence or absence of syphilitic infection in most cases, and should be used in all cases except those of early primary syphilis, the value of the test must be appreciated and the interpretation understood by every physician if the test is to achieve the place which it deserves in the diagnosis of syphilis. By the third week of the existence of the chancre we begin to discover evidence, through the Wassermann reaction, of some chemical change taking place in the blood. As the disease progresses, the laboratory indicates the increase in the amount of chemical change in the blood by reporting the reaction as +, ++, +++, or ++++. Under this arbitrary standard, the number of plusses indicates roughly the varying degrees of change in the blood until the minimum amount of change is reached, which usually is considered pathognomonic of syphilis. This pathognomonic minimum amount of change is reported as plus 4. As the change increases beyond this point, no further measure of the increase is made, and so it is reported as plus 4 until. after proper treatment or the lapse of years, the evidence of chemical change disappears from the blood and it is reported as ++++, +++, ++, + or — (negative).

Sensitized and nonsensitized antigen.—As there are different standards in the amount of chemical change considered necessary to determine a doubtful reaction, many laboratories give an approximate evaluation of the Wassermann reaction which they perform, and this procedure should be adopted more generally. If the evaluation be not given, the type of antigen and method used should be stated; for in border-line cases a + + + + reaction frequently may be obtained, by the use of a cholesterinized antigen or "ice-box fixation," when only a weakly positive or negative result is obtained by the use of a less sensitive antigen such as alcoholic extract of syphilitic liver or plain beef heart, or by the use of higher temperatures for fixation.

Thus, strongly positive results with the less sensitive antigens are practically diagnostic of syphilis, but negative results with these antigens are frequently obtained in the latent stage of syphilis, and hence may be misleading. Therefore, patients in this stage should have the benefit of the reactions with the more sensitive antigen, which would show the presence of a very slight chemical change which, if missed might be the forerunner of a recurrence of syphilis. Theoretically, while weakly positive reactions with the less sensitive antigens would seem equal to strongly positive reactions with the cholesterinized antigens, they are not of equal diagnostic value, because, in practice, it has been found that weakly positive reactions are unreliable with all types of antigens.

The "ice-box fixation" method.—The sensitivity of the Wassermann reaction is increased not only by the type of antigen used but further by the time and temperature used for the first stage of the test. Many of our progressive laboratories have adopted the "icebox fixation" method, in which the first half of the test is performed at a low temperature for about four hours. This method increases the sensitivity of all antigens without an apparent relative increase in the number of false positives obtained. In a treated case the test for cure should include a Wassermann reaction made by this method.

As different standards exist, the same serum may be reported upon differently by different laboratories. This dissimilarity is used by some physicians to condemn the laboratory which appears to be at fault; but usually it is evidence merely of the use of different methods.

The judicious physician, instead of pitting one laboratory against another, will familiarize himself with the standards and procedure of one good laboratory, will assure himself of the proper interpretation of the reports, and generally will rely upon that one laboratory for diagnostic assistance. It is obvious that all specimens of a series of reactions used in determining the effect of treatment upon the blood of a patient should be performed by the same laboratory; for by this means only can analogous results be assured.

SUMMARY.

1. The results of the roughly quantitative test of the amount of chemical change in the blood serum caused by syphilitic infection are reported as -, +, ++, +++, or ++++.

2. When the change has reached a minimum considered as pathognomonic of syphilis, it is reported as plus 4. The sera of two cases, one primary and the other secondary, may both be reported as plus four, although the serum of the former may have just passed the stage during which it would have been reported as plus three, while on the other hand the serum of the latter may have reached a stage where logically it might be reported as 16 times plus 4.

3. Interpretation of sensitive blood Wasserman reactions in:

Thoroughly treated cases. ¹	Untreated cases.
findicates probable cure, if continually nega- tive for two years (suggested intervals 1-2- 	 practically excludes syphilis, except— (a) In primary syphilis (a negative is rare after the third week of the primary lesion); (b) In some cases of latent syphilis (a negative is rare before the third year); and (c) In many cases of neurosyphilis (as the blood Wasserman may be negative, the spinal fluid must be examined also).
+ ++ or +++){indicates the necessity for further ireatment, but shows an approach toward cure.	 + {should be interpreted as a negative in the absence of other evidence. in the absence of other evidence, should be repeated many times and then should be accepted as good evidence of syphilis in only the very early or very late stages of syphilis. fhas more weight than ++, but should be interpreted in a similar manner. +++++(+, ++, or +++ are common in third week of primary lesion, but should be corroborated by dark field).
$\{ corroborates previous diagnosis and ++++ indicates the necessity for much more treatment. \}$	(constant finding in secondary syphi- lis; usual finding by fourth week of primarylesion; usual finding in latent syphilis. (In absence of other evi- dence, should not be relied upon un- less repeated.)

¹ The Wassermann reaction should not be used as a guide *during* treatment, and a negative Wassermann should be disregarded in a case of syphilis known to be insufficiently treated.

Notes on the Treatment of Syphilis.

Treat the patient as well as the disease.—In stressing the importance of both arsphenamine and mercury in the chemo-therapeutic attack on the *Treponema pallidum* and the pathological formations caused by it, too frequently the physical condition of the patient and the toxic effects of the drugs upon him are forgotten. Proper hygicnic treatment of the patient is necessary to stimulate his resistance and to assist the action of the drugs. The preliminary examination of the patient should include a study of all his organs and their functions so that proper hygiene can be advised and tonics administered when necessary; and throughout the treatment urinalyses and other examinations should be employed regularly to prevent any serious toxic effects from the drugs.

THE METHOD OF ADMINISTRATION OF ARSPHENAMINE, MERCURY, AND IODIDE3.

ARSPHENAMINE AND NEOARSPHENAMINE COMPARED.

While there are few clinical data for the comparison of the relative merits of arsphenamine and neoarsphenamine, many of the recognized leaders in syphilology insist that arsphenamine should be used wherever the facilities for its administration exist, because they find that the administration of neoarsphenamine may result in dangerous reactions. The statement that 9 decigrams of neoarsphenamine are the therapeutic equivalent of 6 decigrams of arsphenamine is doubted by many syphilologists; and at least one manufacturer of the two drugs advises the administration of neoarsphenamine in double the dosage used for arsphenamine.

I. ARSPHENAMINE.

The preparation of arsphenamine solution and its injection.—Before preparing arsphenamine solutions the sheet of instructions accompanying each ampul should be read carefully in its entirety, because of the variation in different products. However, there are certain precautions which must be observed regardless of the product used.

(a) The gravity apparatus and its sterilization.-While there are many types of apparatus used for the injection of arsphenamine, the Luer-Kaufman is one of the simplest and most inexpensive. The one essential part is a special form of 2 cubic centimeter all-glass syringe, which acts merely as a valve between a Luer needle and the rubber tubing which is attached to the arsphenamine container. The entire apparatus must be boiled for about 15 minutes before using, and then rinsed with sterile distilled water. If the apparatus is not rinsed, there is danger that the concentration of the salts in the water in which the apparatus is boiled may leave a deposit of salt, which, by its contact with the arsphenamine solution, may produce reactions. When new rubber tubing is used, it must be boiled for about half an hour and the rubber stretched during the boiling process to eliminate the sulphur. Of course, the rinsing of new tubing should be thorough. The ampul containing the arsphen-amine should be soaked for a few minutes in alcohol to insure sterility and to test for minute cracks in the glass.

(b) Each decigram of arsphenamine dissolved in 30 cubic centimeters of water.—Arsphenamine should be diluted with not less than 30 cubic centimeters of sterile, freshly distilled water for each decigram of the product; the temperature of the water to be used is stated by the manufacturer. While the arsphenamine should dissolve readily in this amount of water, the container may be rocked to hasten the solution; but agitation should be avoided.

(c) The hyperalkalinization of arsphenamine.—Arsphenamine gives an acid reaction to its solution and is very toxic in this form, so that it must be hyperalkalinized before injection. The inconvenience of titration has caused many physicians to give up the use of arsphenamine or to substitute neoarsphenamine, but the titration may be performed more satisfactorily when normal NaOH (approximately 4 per cent) solution is used, (instead of the more concentrated solution formerly recommended) and measured from a burette or pipette. A sufficient quantity is added to the acid arsphenamine solution to redissolve the precipitate first formed; then to this neutral solution one-fifth of the amount already used for neutralization should be added to insure hyperalkalinization.

(d) The injection of arsphenamine.—The hyperalkalinized arsphenamine solution should be filtered through sterile gauze into the container, and if clear, the solution is ready for injection. The patient should lie on the table with the arm, neck, and side of chest exposed. Rubber tubing or an Esmerch bandage tightened about the upper arm will usually distend the veins sufficiently to make veni-puncture easy, but, if necessary, the opening and closing of the hand will aid in distending the veins. The site of the injection should be sterilized with 70 per cent alcohol; the skin should be drawn down and held down with the left hand while the needle is inserted into the vein with the knuckles of the right hand pressed firmly against the skin of the arm.

(e) The needle point.—Platinum needles are preferable to steel needles because they do not rust or corrode. The needle, which should be not larger than 22 gauge, should be sharp, for a dull point causes pain and tears the wall of the vein. Stokes ² points out that if the point of the needle is too long, the needle may enter the vein sufficiently far to allow a flow of blood, yet enough of the opening may be outside the vein wall to permit of considerable infiltration of the surrounding tissues; or the point may penetrate beyond the vein and allow leakage in the same manner, in which case there will be pain but no bulging if the infiltration is slight. A point ground too short can not be sharp enough to penetrate the vein wall easily.

(f) Allow two minutes for the injection of each decigram.—When the needle has entered the vcin satisfactorily it should not be moved during the period of administration. As an additional precaution against any slipping of the needle, a small piece of adhesive plaster is sometimes used to anchor the needle or syringe to the skin. The container should be elevated only sufficiently high to force a slow injection of the arsphenamine solution. At least two minutes should be consumed in injecting each decigram of arsphenamine; if the injection is proceeding too rapidly the container should be lowered; if too slowly, it may be raised.

2. NEOARSPHENAMINE.

Neoarsphenamine does not require alkalinization after solution. The greater simplicity of this injection as compared with that of arsphenamine accounts in a large measure for the popularity of this product. The gravity method of injection for neoarsphenamine is urged by most manufacturers; but the use of a syringe in injecting the product is more common under the conditions which prevail in

² Technical Refinements and Methods of Intravenous Injections.

most free clinics, for the time and effort conserved more than balance the danger of too rapid injection if the following precautions are observed:

(a) Sterilization of syringe.—The syringe should be boiled in distilled water, or if tap water is used, it should then be rinsed in sterile distilled water. The ampul containing neoarsphenamine should be soaked in alcohol for a few minutes to test for minute cracks in the glass and to insure sterility.

(b) Preparation and injection of neoarsphenamine.—The neoarsphenamine is best dissolved by being sprinkled on sterile water, allowed to settle, and the cylinder or flask being turned once or twice to obtain a clear solution. The solution should be filtered through a little plug of gauze stuffed part way into the stem of a funnel or thistle tube. This filtration will remove cotton, glass, or undissolved particles of neoarsphenamine which might cause embolism. Use only a recently manufactured product, without abnormal color, odor, or insolubility, and contained in a perfect package.

(c) Dilution.—Not less than 10 (preferably 20) cubic centimeters of sterile distilled water should be used for dissolving each dose of neoarsphenamine (2 c. c. for each 0.1 gm.); greater dilutions reduce the danger of reactions; lesser dilutions may be used, but they increase the danger of reactions because of the difficulty of making a slow injection with a small quantity of fluid.

(d) The suggestions (d) and (e) on page 865, relating to the injection of arsphenamine, apply equally to the injection of neoarsphenamine. The tourniquet must be applied, the area sterilized, and the properly sharpened needle introduced into the vein; the blood must flow freely to assure the operator that the vein has been entered properly; then the neoarsphenamine solution should be injected slowly without undue pressure.

(e) Time required for injection.—At least two minutes should be consumed in injecting each 30 cubic centimeters of solution; the temptation to hasten the injection is so great that the operation should be timed with a watch. The use of a small caliber needle, 22-gauge, is urged to help insure slowness of injection.

SAFEGUARDS TO PREVENT REACTION.

A. The patient.—(a) Antisyphilitic treatment should not be begun until a thorough examination of the patient has been made; the examination should include the usual tests on all the organs of the body.

(b) Patients who are suffering from an acute involvement of the heart, the nervous or the sensory organs, should not receive arsphenamine medication until a period of mercury treatment has prepared the patient's system for arsphenamine.

(c) Patients whose livers have become involved, who are febrile, or who are suffering from urinary retention or cancer should not

receive full doses of arsphenamine except after the most serious consideration. Stokes advises the treatment of the cancer first; syphilis after.

(d) In patients who have exhibited a hypersensitivity to arsphenamine, reactions may be prevented by giving one-fiftieth grain of atropin intravenously an hour before the injection. Atropin prevents reaction probably by stimulating adrenal activity. It is wise to have a sterile syringe always on hand with adrenaline solution to be injected intravenously should reactions occur.

(e) The Herxheimer reaction is caused probably by the liberation of endotoxins from the destroyed Treponemata in amounts too great to be borne by the body. Usually this reaction may be prevented by a preliminary administration of mercury, which, because of its slower action, does not cause such a rapid liberation of endotoxins.

B. The administration of the drug.—(a) Every precaution should be observed to insure aseptic conditions. Sterilize the ampul with alcohol: boil and rinse the instruments; follow the manufacturer's directions carefully in making the solutions; guard against infiltrations and against haste in injecting, but do not allow the solution to stand an undue length of time.

(b) No meal should be eaten by the patient during the six hours prior to the injection, nor for three hours afterwards; but a cup of tea or coffee with a piece of toast may be taken three hours before the injection. Cathartics should be given the night before the injection and the patient urged to drink large amounts of water.

Prophylactic use of arsphenamine.-Arsphenamine alone can not be relied upon for the cure of syphilis, but it may be used as a prophylactic for a person exposed to syphilis who reports too late to be benefited by early local treatment. Clinical records show that a limited number of persons treated with two half-doses of arsphenamine after the first day of exposure and before the primary symptoms have had time to appear have never developed symptoms of syphilis. The difficulty of obtaining positive proof of the absolute value of this procedure is apparent; but it seems to be well established by negative proof that the use of two such injections is warranted.

3. OTHER ARSENICAL COMPOUNDS.

(a) Substitutes for arsphenamine are ineffective.--There are many trivalent arsenical compounds and some preparations which are merely physical mixtures of the common arsenicals or mercury salts with other drugs, for which extravagant claims are made, but which have little therapeutic value in comparison with arsphenamine. These drugs, some inefficient and others dangerous, sold under such trade names as Monarson, Arrhenal, Arsenoven, Atoxyl, or Soamin and Arsacetin, have been condemned by the American Medical Association and the United States Public Health Service. Those which are not dangerous probably have not the therapeutic value of the standard preparations, arsphenamine and neoarsphenamine, the manufacture of which is under the inspection and license of the United States Public Health Service. Since both arsphenamine and neoarsphenamine in a safe form, properly tested, can be obtained throughout the country, there is no excuse for the use in the routine treatment of syphilis of any product not passed by the Council on Pharmacy of the American Medical Association.

4. MERCURY,

Administered either by inunction or injection, mercury has a slower action than arsphenamine, but for this reason its use is indicated in those conditions where the administration of arsphenamine might cause a Herxheimer reaction and might affect unfavorably acute involvement of the heart, nervous system, or sense organs. Mercury is carried in the blood as an albuminate and is eliminated very slowly, so that, if it is administered carelessly, it may accumulate and give rise to serious toxic manifestations. This danger varies with the different methods of administration, which must be considered separately.

A. Mercurial inunctions.—Mercury is better tolerated when administered as an inunction than it is in any other form, but the use of mercury by inunction is limited by the difficulty of obtaining the patient's cooperation in applying the inunctions properly. Only exceptional patients can be relied upon to rub themselves properly, and as the process is dirty and disagreeable, the physician must have a considerable influence upon his patient to insure proper application.

Mercurial inunctions should be administered in a larger dose than is commonly employed by physicians. From 4 to 8 grams of 33 per cent mercurial ointment should be rubbed in every day for 6 days, and followed by a day of rest, during which a bath should be taken. From 40 to 80 inunctions should constitute a course, and a total of about 300 inunctions should be administered during the entire treat-Several sites on the body, free from hair, should be chosen so ment. that the mercury is not applied to the same area repeatedly. The areas best suited for inunctions are the sides of the back and abdomen and the inner sides of the thighs. Patients should be instructed to rub the ointment in for at least 15 minutes while in a warm room, but cautioned not to rub too vigorously. If the limit of toleration has been reached, further absorption may be prevented by giving two hot baths and a sweat.

B. Mercurial injections.—Either the soluble or the insoluble salts may be used in injections of mercury. The soluble salts are used and recommended by many eminent syphilologists; but in practice, the majority of physicians ³ are using the insoluble form probably because its use requires only one visit each week to the physician's office.

The replies to questionnaires addressed to the physicians of New Jersey show that 60 per cent of those replying use in cetions of salicylate.

Soluble and insoluble mercury salts compared.—The soluble preparations are preferable because their action is more rapid and is more easily controlled, and because they do not cause abscesses or embolism. The advantage of the insoluble salt, i. e., the infrequency of the visits required for its administration, should not outweigh the obvious advantages of the soluble form in so serious a disease as syphilis.

(a) Of the soluble salts—

(1) The bichloride is used most frequently.⁴

(2) The succinimide, the benzoate, the oxycyanide, and other salts are substituted by a few ⁴ physicians with the intention of causing less pain to the patient.

The soluble salts should be administered at least three times each week in 0.016 gram (¹/₄ grain) doses. The intravenous injection of soluble salts is believed by Stokes to be dangerous; they should be injected intramusculary as are the insoluble forms. (b) Of the insoluble salts—

(1) The salicylate in oil is the most satisfactory form and one most frequently administered.⁴

(2) Calomel is not absorbed quite so rapidly or regularly as the salicylate, but is used by few ⁴ physicians.

(3) "Gray oil" is substituted for the salicylate by only a very few physicians.⁴ As it is absorbed irregularly and sometimes not for months, most syphilographers advise against its use.

The medium in which the insoluble mercury is suspended should consist of at least 9 parts of a vegetable oil to 1 part of mineral oil. The insoluble salts are usually administered once every 7 days, in 0.064 gram (1 to $1\frac{1}{2}$ grain) doses. Irvine recommends a smaller dosage biweekly.

The effects of overdosage and how to prevent the toxic effects of mercury.—Since mercury is a poison only slightly less toxic to the human body than to the Treponemata, a dosage sufficiently large to be effective in the cure of syphilis may produce toxic effects in the body. The toxic effects are indicated most frequently by—

(1) Renal Complications: Stokes advises the making of a weekly urinalysis during the entire period of mercury administration and the inclusion of a microscopical examination for casts and blood. When kidney irritation is discovered, treatment with mercury should be suspended or reduced until the urine is free from the casts or cells. After this time the dosage should be increased cautiously.

(2) Salivation: Salivation should not be used as a guide for overdosage. The manifestations may be stopped by—

(a) The use of an alkaline tooth paste containing $KClO_3$ (potassium chlorate);

(b) Painting the gums with an astringent; and

(c) Gargling the throat.

⁴ All statements are based upon the replies to a questionnaire which was answered by one-third of the physicians of the State of New Jersey.

Slight discomfort felt, when the teeth are clenched is not a danger signal and may be prevented by excluding acid fruits and vinegar from the diet.

(3) Gastrointestinal Complications: Gastrointestinal irritation may be controlled by—

(a) Regulating the diet to exclude foods with a high fiber content; and

(b) By prescribing bismuth, charcoal, or paregoric when indicated.

Method of injecting mercury.—The technique of intramuscular injection is described by Stokes as follows: The position of the patient has much to do with the ease of injection. The patient should lie face downward on the table, the arms hanging over the sides, the buttocks exposed, the legs extended with the toes turned in and heels out. This position relaxes the gluteal muscles. The upper, outer quadrants of the buttocks should be selected as the sites for the injections. The site should be washed with soap and water and rubbed with 70 per cent alcohol. The Luer syringe should be equipped with needles varying in length from 1 inch to $2\frac{1}{2}$ inches, and preferably 22 gauge. It is important that the length of the needle be suitable to the type of buttocks presented by the patient, that it be of small diameter, and that it be sharp. With proper equipment and skillful technique, the pain of injection may be greatly diminished; but with needles too large and dull, the patient learns to dread the injection.

Stokes advises against the use of an empty needle. The syringe is filled with the mercury salt, the buttock is pulled down with the left hand and held firmly, and the needle is introduced quickly at an angle of 45°. If the needle is of the proper length, the point will lodge in the facia of the muscle rather than in the muscular tissue. If this is accomplished, the mercury salt spreads over the facia, is absorbed more easily, and does not produce nodules. After the needle is introduced, the syringe is aspirated lightly and a minute is allowed to give the blood an opportunity to appear in the syringe in case a vein is punctured. If blood does not appear, the mercury salt may be injected, but the injection should be given slowly. If blood does appear, the needle should be removed, the syringe refilled, and a new puncture made. It is not wise to attempt to jab the needle about hoping thereby to escape the vein which was punctured. When the injection is completed and the needle withdrawn, the release of the buttock prevents the escape of the salt.

5. THE IODIDES.

While the potassium salt is most commonly employed, the iodide of sodium is less depressing but no less efficacious. The iodides are believed to have some resolving action upon gummata and other overgrowths of connective tissue; the hypothesis is that the iodine neutralizes the agents which prevent the absorption of the diseased tissues. It may be necessary to omit the use of iodides in cases of tuberculosis.

While overdosage should be avoided, from 3 to 10 grams (approximately 50 to 150 grains) may be administered daily, if given after meals, with large quantities of water. On account of the occasional production of edema of the glottis, the initial dosage in 24 hours should not exceed 1 gram (15 grains).

Although the value of the iodides in the early stages of syphilis was not argued at the Institute at Washington, there are many references in the present-day literature urging their use in conjunction with the spirillicides in all stages of the disease, and therefore the iodides are included in the schedules of treatment which follow.

THE TREATMENT OF SYPHILIS IN THE EARLY PRIMARY STAGE.

If antisyphilitic treatment can be commenced soon after the appearance of the chancre and *before* the blood Wassermann becomes positive, it is possible, frequently, by the intensive administration of both arsphenamine and mercury in the maximum doses which can be administered without injuring the patient, to effect a cure in one year; but all cases must be followed up for at least two more years to watch for possible recurrences.

A study of the replies to a questionnaire on the treatment of syphilis shows that the majority of the physicians of New Jersey, who are administering arsphenamine and mercury in the treatment of early primary syphilis, are giving two or three courses, each consisting of from 4 to 8 injections of arsphenamine or neoarsphenamine and from 12 to 24 injections of a soluble salt. Few of the physicians answering the questionnaire rely on the injections of only a few large doses of arsphenamine to effect an abortive cure.

The minimum amount of drugs for the treatment of early primary syphilis recommended by the Bureau of Venereal Disease Control of the State of New Jersey is indicated in the following table:

Díug.	Injections.	Total grams.
Arsphenamine		7-10
Neoarsphenamine	16	10-15
Mercury (soluble)	147	2.4 (37 grains)
Mercury (insoluble)	49	3.0 (49 grains)

At times it may be necessary to discontinue the administration of one or another drug and to break in with additional rest periods because of the patient's condition or intercurrent illness. Therefore, while no hard and fast schedule can be prepared to be followed blindly, a typical schedule of the necessary minimum of treatment is presented in Table I for convenient reference in the treatment of cases presenting no unusual feature.

		· · · · · · · · · · · · · · · · · · ·	1			1	
Tests.	Dark-field examination of lesion. Positive finding before beginning treat- ment.	Microscopical examination for erythrocytes and for casts.	Same as above.	At end of month blood Wassermann can be taken, but treatment must be continued if nogative.	Microscopical axamination of urine for erythrocytes and for casts. ¹	Same as above.	Blood Wassermann after 1 month without treat- ment. If negative, re- peat at 1.2.3-4-5-6 month intervals.
Wcekly dosage of iodides.	Omit.	Sodium or potassium iodide by mouth, 1 gm. or more daily (mcreasing in rarc cases even as high as 10 gm.), given intermittently over 2-woek periods with two weeks' rest.	. Same as abovo.	Omit.	Sodium or potassium lodide by mouth, 1 gm. or more daily (increasing in rare cases even as high as 10 gm.), groun intermittently over 2-week periods with two weeks' rest.	Same as above.	Omit.
Weekly dosage of mercury.	Omit.	Beginning after fourth in- jection of the arsenical: functions, $to \times gm$, or 1 insoluble saft, 0.04 gm. (1 gr.), or 3 soluble salt, 0.16 gm. (t gr.) (1.0 c. c. of a 1 per cont solution).	Same as above.	Omit.	6 inunctions, 4 to 8 gm., or or 1 insoluble salt, 0.064 gm. (gr), 0.016 gm. (gr), 9.106 salt, 0.016 gm. (f gr.), (1.6 c. c. of a 1 per cent solution).	Same as above.	Omit.
Weekly dosage of arsenic.	3 injections of arsphenamine, dosago, 0.2 to 0.6 gm. as indicated; an arran arran and an arran arran arran arran arran arran arran arge, or 3 to 0.9 ar as indicated. First dose, one-third regular dosage: sec- ond dose, two-thirds (approximate).	 injection of arsphenamine, dosage, 0.4 to 0.6 gm.; or injection of neoarsphenamine, dosage, 0.6 to 0.9 gm. 	Omit.	Omit.	 injection of arsphenamine, dosage, 0.4 to 0.6 gm. as indicated; or injection of neorrsphenamine, dos- age, 0.5 to 0.9 gm. as indicated. 	Omit.	Omit.
Period during which indi- cated treatment is admin- istered.	First week.	Second to sixth week (In- clusive).	Seventh to eighteenth week.	Nineteenth to twenty-soc- ond week.	Twenty-third to thirtleth week.	Thirty-first to forty-eighth week.	Forty-uinth to fifty-second week.
Course.			Second course.				

TABLE I.—Primary syphilis: Blood Wassermann negative—Typical course of treatment for average sized adult male.

¹ If the urine is not watched carefully, mercury should not be administered during the entire course of arsphenamine. Therefore, if for economic reasons the physician can not require a weekly urinalysis, mercurial treatment should be delayed until half the arsphenamine course has been given.

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THE TREATMENT OF SYPHILIS IN THE LATE PRIMARY AND SECONDARY STAGES.

After syphilis has progressed to the stage in which the blood Wassermann is positive (as it is before the secondary rash appears) the disease does not respond so well to intensive treatment, and it may be better sometimes to withhold such intensive treatment until the body has been prepared for it with preliminary injections of mercury. If no symptoms, such as headache or neurological signs, develop, the intensive treatment with arsphenamine should be begun on the eighth day with half dose, after treatment with iodides and injections of mercury (as indicated in the next table), followed with full doses of arsphenamine and mercury.

The typical schedule of treatment for late primary and secondary syphilis presented in Table II is prepared only as a convenient reference for uncomplicated cases. As in the treatment of early primary syphilis, no hard and fast schedule is possible. It is well to note that in the latter stages of syphilis the urinary examination is of increased importance, for frequently such cases do not tolerate mercury so well as do patients in whom treatment is begun earlier.

ye-stated under marc.	Tests.	Microscopical examination of urine, for erythro- cytes and for casts.	Same as above. ¹	Same as above. ¹	Same as above.	Blood Wasscrmann can be taken, but treatment must be continued even if negative.
car comere of a cartice and a car	Weckly dosage of iodides.	Omit.	Omit.	Sodium or potassium lodide by mout. 1 gm. or more daily (increasing in rare cases even as high as 10 gm.) given intarmittently over two-week periods with two weeks' rest.	Same as above.	Omit.
dit	Weekly dosage of mercury.	6 inunctions, 4 to 8 gm.; 1 insoluble sait, 0.064 gm. (1 gr.); 3 soluble sait, 0.016 gm. (4 gr.).	Omit.	6 inunctions, 4 to 8 gm.; or 1 insoluble salt, 0.064 gm. (1 gr.); 3 soluble salt, 0.016 gm. (1 gr.).	Same as above.	Omit.
on account of burnes. Droom me	Weekly dosage of arsonic.	Orait.	2 injections of arsphonamine, dosage, 0.1 to 0.6 as indicated. 2 injections of neoarsphenamine, dos- age, 0.6 to 0.9 gm. as indicated (first dose half regular dosage).	 injection of arsphenamine, dosage, 0.4 to 0.6 gm. so indicated; 1 injection of necersphenamine, dosage, 0.6 to 0.9 gm. as indicated. 	Omit.	Omit.
fimilia and TI and TI	Period during which indi- cated treatment is admin- istored.	First week.	Second week.	Third to eighth week, in- clusive.	Ninth to twenty-sixth week.	Twenty-seventh to thirticth week.
	Course.			^r irst course.		

TARE II.—Late wimary or secondary suphilis: Blood Wassermann positive—Tupical courses of treatment for average-sized adult male.

ې عو عو	Thirty-first to thirty-eighth woek.	1 injection of arsphenamine, dosage, 0.4 to 0.6 gm. as indicated; 1 injection of neoarsphenamine, dosage, 0.6 to 0.9 gm. as indicated.	6 inunctions, 4 to 8 gm.; or 1 insoluble salt, 0.064 gm. (1 gr.); or 1 soluble salt, 0.016 gm. (‡ gr.).	Sodium or potassium iodida by mouth, I arm. or more daily (increating in rare cases even as high as 10 gm.), given intermittently over two-week periods with two weeks' rest.	Microscopical examination of urine, for erythrocytes and for casts. ¹
course.	Thirty-ninth to sixty-second week.	Omit.	Same as above.	Same as aboro.	Same as above. Blood Wassernann after two months without treat- ment: if negativo, give one more course; if posi- tive, at least two courses.
Third ccurse.		Repeat second course.	Repuat	second course, increasing the length of re	st period.
Fourth course.		Repeat second course.	Same as above in case of p	ositive Wassermann at end of second cour tinue tests.	se; if negative, omit but con-

¹ If the urine is not watched carefully, moreury should not be administered during the entire course of arsphenaraine. Therefore, if for economic reasons the physician can not require a weakly urinalysis, mercurial treatment should be delayed until half the arsphenamic course has been given.

Nere.--If blood Wassermann remains positive, treat as latent syphilis; if negative, ropeat test at suggested intervals. If the Wassermann becomes positive lator, treat as latent sybilis.

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THE TREATMENT OF LATENT OR TERTIARY SYPHILIS.

The treatment of syphilis in the latent and tertiary stages is more a private medical problem than a public health problem, for only in the early stages is the disease highly infectious. While infectiousness is demonstrable in latent, tertiary, or "para-syphilis," it must be disregarded because of the economic limitations of the present-day program for the control of the disease. If all cases of syphilis in the earlier or florid stages could be treated adequately, the problem of control could be solved; and this properly may be the aim of our efforts. On the other hand, the discussion of the many details of the treatment of such affections as nervous, vascular, or heriditary syphilis can not be covered adequately in a short series of notes.

HYFOCHLORITE PROCESS OF OYSTER PURIFICATION.

REPORT ON EXPERIMENTAL PURIFICATION OF POLLUTED OYSTERS, ON A COMMERCIAL SCALE, BY FLOATING THEM IN SEA WATER TREATED WITH HYPOCHLORITE OF CALCIUM.

By F. A. CARMELIA, Passed Assistant Surgeon, United States Public Health Service.

Introduction.

Raritan Bay is one of the important oyster-producing areas of the country, and, owing to its proximity to New York City and contiguous urban centers, it became, with the growth of those communities, increasingly more desirable from a commercial standpoint and less desirable from the public health standpoint.

Recently, as shown by the *B. coli* content, the sewage pollution present in the waters and shellfish of the Raritan Bay area was reported generally to have reached the permissible limit from the public health standpoint, and in considerable areas it had exceeded such limits. The problem of what to do with the bay as a shellfishproducing area w_rs becoming increasingly urgent, as it was not believed practicable to cause the abandonment of the area for shellfish culture.

To the already urgent problem was added the belief that the completion of the Passaic Valley sewerage project, adding about 300 million gallons of sewage per day to the waters of New York Bay, would make imperative the adoption of further safeguards to protect public health from the possibility of contracting infectious disease through the marketing of shellfish from this area.

The Passaic Valley sewerage project is a collecting trunk sewer serving several large congested urban populations in the Passaic River Valley, discharging through multiple dispersion outlets into the waters of Upper New York Bay along the westerly edge of the ship channel opposite Robbins Reef and about 2 miles above the Narrows leading direct to the waters of Lower New York Bay, which include Raritan Bay. Owing to the length of the sewer trunk (several miles), the sewage would be discharged in a fine state of subdivision, tending toward a maximum area of diffusion in those tidal waters.

Accordingly, the health authorities concerned issued notice that direct marketing of shellfish from the waters of Raritan Bay would probably have to be prohibited in order to safeguard public health, unless such shellfish were subjected to some acceptable method of purification. This notice focused interest upon available methods of oyster purification. Of the two methods known, that of purifying polluted oysters by means of floating them in natural waters of acceptable freedom from sewage contamination was impracticable because there were no such natural waters in that area. There remained, therefore, but to consider the feasibility of purifying polluted oysters on a commercial scale by floating them in natural waters rendered safe through treatment with hypochlorite of calcium.

Oystermen in the area had learned of the possibility of oyster purification by the hypochlorite method demonstrated by the United States Public Health Service in the contiguous area, Jamaica Bay, in 1916. They met and selected a committee to seek aid from the State Conservation Commission of New York.

The State Conservation Commission arranged to conduct a series of demonstrations on a commercial scale, selecting Great Kills Harbor, a small harbor on Raritan Bay, as the site. The Department of Health of the city of New York, the Bureau of Chemistry of the United States Department of Agriculture, and the United States Public Health Service were duly invited to make observations covering the acceptability of the process from the public health standpoint.

Personnel.

Commissioner George D. Pratt, of the State Conservation Commission, designated Sanitary Chemist William F. Wells, formerly of the Public Health Service, to conduct the demonstration; the Bureau of Chemistry designated Dr. Payn Parsons to make observations on the acceptability of the process; and the writer was detailed by the Public Health Service to cooperate with Dr. Parsons in making the observations. The State Department of Health of New York did not make observations of the series of demonstrations; a representative was present at one special demonstration but took no samples of the oysters. The New York City Department of Health secured samples of the treated oysters upon marketing and were represented at but two of the series of demonstrations.

The Site.

Great Kills Harbor is a shallow, landlocked body of water about one-half mile in width and 2 miles in length, having a narrow entrance from Raritan Bay. The tidal replacement of its waters is estimated to be 66 to 75 per cent of total high-water volume. There was moderate pollution along the foreshores and from about a score of small pleasure yachts anchored in the harbor. The harbor water at low tide was, on the average, positive for *B. coli* in amounts of 1 c. c. (sometimes in three-tenths c. c.), and at high water it was positive in amounts of 3 c. c. (frequently in 1 c. c.). There was a moderate degree of turbidity present which was mostly due to suspended organic matter. Wind was of little import in the water pollution, as was also tidal flow, locally.

Experimental Equipment. 🗍

Two tight oyster floats of scow type, 50 feet by 9 feet by 2 feet 6 inches, were moored out in the upper center portion of the harbor, which was less frequented by boats and distant from sources of shore pollution. The mean low-water depth was 4 feet, and the tidal range varied from 5 to 6 feet. The harbor bottom was soft mud, 18 inches to 3 feet in depth. Each scow had 4 bungholes, 2½ inches in diameter, stopped with wooden plugs. One scow was equipped with a small gas engine and a rotary pump, piped to fill with and discharge sea water and also to circulate water within the hold. It could not be made to operate satisfactorily, and so in both scows filling was accomplished through temporary removal of the plugs, and the water was discharged with pails and hand pumps. In such scows containing water for floating, 60 to 75 bushels of oysters can be handled.

A supply of 12-ounce containers of commercial hypochlorite of calcium, a pestle and a mortar for pulverizing and mixing the hypochlorite, a pair of ordinary 6-foot rowing oars, and a glass container for testing satisfactory diffusions of the hypochlorite in the floating water by means of a one-tenth of '1 per cent solution of orthotoludine in 10 per cent hydrochloric acid completed the equipment used, in addition to the ordinary oyster-dredging equipment.

The laboratory control of the process was conducted by Dr. Parsons, who used the laboratory of the eastern division of the Bureau of Chemistry in New York City, and by the writer, who availed himself of the laboratory facilities of the United States marine hospital at Stapleton, N. Y., about 8 miles from Great Kills. The standard methods of the American Public Health Association were used in the examination of the oysters.

In addition, market samples of treated oysters were examined by the New York City Department of Health. Owing to the cost of out-of-season dredging and handling of the oyster stock for the experiment in large commercial quantities, oystermen as a group did not feel inclined to undergo experimental expense; and no other means were available for securing the oyster stock. This part of the demonstration seemed to have greatly hampered the possibilities of the experiment. Two oystermen, however, took really active interest in the project: To Mr. A. F. Merrill, of the Merrill-Haviland Oyster Co., belongs due credit, for he alone provided the essential oyster stock and necessary handling and floating equipment; and credit is also due Mr. John Schmeelks, of Jamaica Bay, for securing special lots of markedly polluted oysters made available in the series of experiments.

Conduct of the Experiment.

As it was ascertained that the tide made but slight variation in the amount of sewage pollution as evidenced by the *B. coli* content present in the waters of Great Kills, it was disregarded in conducting the experiment.

From 60 to 150 bushels of oysters were procured by the usual method of oyster dredging, from the oyster grounds of the Raritan Bay area. (A few other demonstrations were made with oysters from the most markedly polluted areas obtainable.) This dredge load of oysters was then brought in directly to the floats. Meanwhile the floats had been rendered relatively fresh and clean by being washed down with harbor water prior to placing any oysters in them. From 50 to 75 bushels of oysters were then evenly placed in the floats to a depth of 6 to 8 inches. The plugs were then pulled and the float was allowed to fill through the plug openings until several inches of water covered the top oysters, the amount of water being approximately 50 gallons to the bushel of oysters. The plugs were then securely replaced. Tight floats without leaks are essential.

A 12-ounce container of hypochlorite of calcium was then opened, and from one-third to one-half of its contents was placed in a mortar. This quantity gave from 4 to 6 parts per million of available free chlorine (assuming a 30 per cent commercial product). A sufficient quantity of water was added to the mortar to make a smooth paste, and this mixture was then quickly added, in scattered, roughly equal portions, to the water in the floats containing oysters. This was then diffused as rapidly and thoroughly as possible by means of stirring with oars. Usually 10 to 15 minutes of stirring proved sufficient.

Within from 20 to 30 minutes following the addition of the hypochlorite paste, water from various parts of the float was tested for the presence of free chlorine, using the orthotoludine test. A glassful of the treated water was taken up, and from 5 to 10 drops of one-tenth of 1 per cent solution of orthotoludine in 10 per cent hydrochloric acid was added, which, in the presence of very small quantities of residual excess of free chlorine in the treated water, colors the water a decided straw color. The smaller the amount of residual chlorine present, the slower was the straw-colored coloration of the sample of water tested.

It is desirable to have a small residual amount of chlorine remaining in the treated water at the end of a 20-to-30-minute period. Should the test then not indicate such excess of chlorine, sufficient additional hypochlorite of calcium should be added until such excess is obtainable. There is one caution in the application of the test: Avoid taking up any small particles of unreduced hypochlorite of calcium which may occasionally be found remaining in the treated water at that stage. Such particles give a pronounced test for chlorine, which may at times erroneously indicate the desired average excess of chlorine in the treated water.

It is highly desirable that the entire step of evenly charging the water with hypochlorite of calcium be done with as little delay as possible, as the chemical is most active in the period immediately following its mixture with the water.

The amount of free and suspended organic matter present in the water to be treated directly should govern the judgment as to the amount of hypochlorite of calcium it is necessary to add to give the desired excess of chlorine at the termination of the 20-to-30-minute period. The greater the amount of organic matter present, the larger the quantity of hypochlorite indicated.

The excess of chlorine present at the termination of the 20-to-30minute period disappears in a comparatively short time. The end products of the process consist of correspondingly small amounts of calcium carbonate and sodium chloride and are indistinguishable, both qualitatively and quantitatively, from such salts already present in comparatively large amounts in natural sea water; therefore there is no question of adulteration or otherwise changing the taste or quality of the oysters placed in such treated waters.

Following the first treatment of the water with hypochlorite, nothing further is done for a period of about 6 hours, and the oysters are allowed to remain undisturbed, which aids in their purification. At the end of 6 hours a second treatment of the water with hypochlorite, identical with the first, is then made. Following the second treatment, the treated water containing the oysters is again allowed to remain undisturbed for an additional period of from 12 to 18 hours.

At the end of this final period, totaling 18 to 24 hours from the first step in the process, the oysters are ready to be removed and marketed. It is best that their removal be accomplished with the least practicable disturbance of the water in, which they have been floated. Oysters should not remain in the treated water longer than 24 to 30 hours. Prior to the removal of the oysters from the floats at the expiration of 18 to 24 hours, it was routine to test (with the orthotoludine test) several parts of the treated water for the presence of excess of chlorine. In no instance was there found any trace of the presence of free chlorine in the water.

It is of further aid in the case of oyster stock covered with much débris and similar organic matter to wash such material off the shells in a reasonably thorough manner with ordinary clear sea water before placing such oyster stock in the floats for treatment.

Biologic Principles Involved.

The oyster, by reason of its biologic principles of growth and life, is practically a small pump with a sieve or strainer on the intake line. The flow of water set up between the shells of the oyster for the oxygenation necessary to its metabolism is, at the same time, strained of the minute organisms present therein, constituting the food sup-Any other fine particles suspended in the water, including sewplv. age when present and bacteria, are at the same time strained out with its food supply. The material so strained passes through the alimentary canal of the oyster, being utilized as suitable for food supply, or rejected and passed through. Occasionally irritant particles are strained out of the water. These are summarily and forcibly cjected almost immediately after their entrance into the shells, without passing through the alimentary canal. Bacteria and nonfood particles entering the alimentary canal are apparently passed through and ejected practically unchanged in from four to six hours. It is estimated that about 50 gallons of water each 24 hours is passed between the shells of an oyster during the active feeding season. The amount of water so passed varies directly with the temperature of the water and ovster. Below temperatures of 40° to 45° Fahrenheit very small quantities of water are passed, barely sufficient to supply oxygenation necessary to support the dormant metabolism of the so-called hibernation stage. This explains the apparent improvement noted in oysters grown in polluted areas during such low temperatures.

Results of the Process.

The hypochlorite of calcium practically sterilizes and clears the sea water in which the oysters are placed. The water, for a brief period following the addition of the hypochlorite, is more or less irritating to the oyster, which repeatedly and forcibly rejects the water. This removes mechanically gross particles, such as mud and the like, from within the outer chamber between the shells, and for this reason the oysters when opened present a nice, clean appearance. Likewise the organic matter on the outside of the shells is loosened and more or less disintegrated and falls from the shells, leaving the external appearance of the oyster stock considerably improved for marketing and removing to a considerable degree the danger of contamination of the oyster meats during shucking.

With the disappearance of the excess of chemical from the water, the oyster resumes "drinking," i. e., passing water between its shells. The water is now practically sterilized and clear of suspended organic matter, and in passing through the oyster it mechanically cleans the outer and inner chambers between the shells of practically all material usually present therein. This material and the contents of the alimentary canal, having been within the oyster, were not sterilized by the first application of hypochlorite, and upon ejection into the water in which the oysters are floated, again pollute the water moderately. This necessitates the second application of hypochlorite, following which the water and oysters are both comparatively clean and sterile. The washing process incident to the oyster's drinking the treated water is then permitted to continue for the duration of the second period of from 12 to 18 hours, following which the oysters are removed for marketing.

The bacteriological results obtained by the above-described treatment of oysters showing accepted evidence of pollution are best visualized in the accompanying table, which is self-explanatory. Several samples were taken from different parts of the float, both before and after treatment, in a series of 13 runs from August 9 to September 23, 1920, and the average bacteriological results obtained in each run are tabulated.

Run No.	Average B. coli score of oysters before treatment.	Average B. coli score of oysters after treatment.	Quantity of oysters treated (bushels).	Average per cent reduction cf B. coli after treating.	Source of oysters.
1	23	2	46	91. J	Raritan Bay between Great Kills and Princess Bay.
9	50	5	50	90.0	Do.
3	230	23	20	90.0	Jamaica Bay, Big Channel, Canarsie.
Å	14	. 4	60	71.4	Raritan Bay between Great Kills and Princess
-		-			Bav.
5	14	4	150	71.4	Do.
ă	5	3	60	40.0	Do.
7	Ă	2	50	50.0	Do.
ŝ	14	5	60	64.3	Do.
ă	41	4	15	90.2	Raritan Bay, off South Beach.
าก้	19	i	GO	50.0	Raritan Bay between Great Kills and Princess
. 40	-	-			Bay.
. 11	320	4	25	98.7	Raritan Bay, near Great Beds, Light Amboy.
12	320	3	20	99.0	Jamaica Bay, Sweetwater area near Inwood.
13	320	23	15	92. 3	Jamaica Bay, Big Channel, Canarsie.

Bacteriological results of hypochlorite process of oyster purification.

Discussion and Conclusions.

It will be noted readily that the reduction of B. coli following the process is more marked in oysters which were originally more heavily polluted than in those which were but moderately or slightly polluted. This experience confirms and parallels that found in the application of hypochlorite for the purification of water supplies.

In oysters scoring in the neighborhood of 50 or more, an average reduction of 90 per cent of the B. coli content can be confidently expected from the process.

It is apparent that an average reduction of 90 per cent in the B. coli score of an oyster originally scoring 500, the maximum index of pollution, will just about bring such oysters to the neighborhood of 50, the maximum score allowed for marketable oysters. Since this degree of reduction just about meets sanitary standards, and allows no leeway for a safety factor, it should not be permissible. It is believed that oysters with an original score of 230-320 represent about the maximum pollution which can be safely reduced to an acceptable score and yet provide the desired factor of safety. In other words, in dealing with oysters of known considerable pollution, the rule should be that the greater the original degree of pollution, the greater the allowance should be for a safety factor, in admitting such processed oysters to market.

In a general way, this would permit the marketing of oysters from large oyster-bearing areas now restricted to marketing during the hibernation or other restricted period fixed for such areas, during the entire season, by the use of this process during the season now prohibited.

From the public health standpoint, in an administrative way, the process should be handled in much the same manner that pasteurization of milk is controlled. The ideal plan would be the utilization of a central oyster treatment plant, preferably supervised by State or local authorities. Such a plant could be operated on a cooperative basis by the local oystermen. And, finally, the application of the process by individual oystermen in their local business has been demonstrated to be entirely feasible and desirable, if properly supervised.

Such process treatment of all oysters marketed, regardless of origin, would insure an additional safety factor to public health.

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EXTRACTS FROM REFERENCES IN AVAILABLE LITERATURE PERTAINING TO SPLEEN EXAMINATIONS IN MALARIA.

In connection with the spleen examinations of school boys in Mitchell County, Ga., recently reported by Special Expert M. A. Barber and Acting Assistant Surgeon C. P. Coogle, United States Public Health Service,¹ the following review of available literature pertaining to spleen examinations in other countries has been prepared at malaria field headquarters. It is felt that the employment of spleen examinations, particularly among school children, may be a simple measure of easy application for the determination of malaria prevalence, a measure which, perhaps, has not received anywhere in the United States the attention to which it is entitled. It is hoped that through the State and local health authorities, spleen examinations of from 50,000 to 100,000 school children can be secured during 1921, in widely separated sections of the United States. These spleen examinations will be checked by other methods of determining malaria prevalence; and it is believed that a careful study of the findings will enable us to determine whether this procedure, which is so easy of application, can be employed as a satisfactory measure of malaria prevalence in the United States.

In ascertaining the prevalence of malaria in any locality, Stephens and Christophers (1904) state as follows relative to the importance of spleen examinations:

The method of determining to what extent enlargement of the spleen occurs has been largely used. Spleen enlargement due to ordinary malarial infection tends to disappear, once the individual has ceased to suffer from the disease. In very malarious countries, where each individual, after childhood, has become highly immunized, the adult population usually shows no splenic enlargement. In less malarious regions the adults have not become highly immunized, and a certain percentage of them will be found with enlarged spleens and malarial infection. The use, then, of the percentage of adults with enlarged spleens is not a reliable method of determining the real intensity of malaria.

In children the spleen enlargement appears to require a certain time to become apparent, and it takes a certain time to disappear as the malarial infection disappears with ensuing immunity. In the examination of children we find—

In the early ages, 1 to 2 years, the number infected is usually in excess of those showing splenic enlargement.

Above 2 years the spleen rate is usually somewhat in excess of the parasite rate.

Above 10 years, the spleen rate is usually considerably in excess of the parasite rate.

¹ Public Health Reports, Apr. 8, 1921, pp. 706-710.

In the use of a spleen census one should then avoid a mixed adult and child count, and children between the ages of 2 years and 10 years should be chosen.

It seems clear that the comparison of the malaria prevalence in widely different regions, by means of the percentage of enlarged spleens in the children, is not possible. It has been found, however, in some tropical regions, like Bengal, that the parasite rate and spleen rate in children vary proportionately. Here the spleen rate was always about double that of the parasite rate. (Stephens, J. W. W., and Christophers, S. R., The Practical Study of Malaria, pp. 263-4. The University Press of Liverpool, London, 1904.)

James (1920), in describing his methods of studying endemic malaria in the Tropics, relates the following as the manner of obtaining the spleen rate:

In villages in the Tropics it is seldom difficult, after the objects of the inquiry have been tactfully explained to the people, to collect a crowd of children who, by the distribution of sweets or coppers, can be persuaded to submit to clinical examination with a view to ascertaining the presence and degree of splenic enlargement. The examination should be carried out as thoroughly as circumstances permit, but it nearly always has to be made while the child is in the erect posture. The size of the spleen should be stated as being one, two, three, etc., fingers' breadth below the edge of the costal margin.

The term *splenic index* is used to denote the percentage of children between the ages of 2 and 10 years who have enlarged spleens due to malaria; however, in field work it is best not to limit the examination of children to those ages, but to examine all people who will permit it. It is often quite as important to know the adult spleen rate in a community as it is to know the rate in children. (James, S. P., Malaria at Home and Abroad, p. 96. Bale & Danielsson, London, 1920.)

Ross (1910), in his chapter on malaria in the community, gives concretely the advantages and defects of the spleen rate relative to the index in malaria. He treats of the subject as follows:

It is known that the spleen enlarges sufficiently to be detected by palpation in a considerable proportion of infected persons. Such enlargement is discoverable with certainty and in a few seconds by the fingers pressed under the ribs of the left side, and anyone—hospital assistants, nurses, and laity—can detect it. The persons to be examined are passed in a line before the examiner, while another person records the results; and with good management 100 people can be thus inspected in an hour, or else one can do the work by house to house inspection.

The method is open to the following defects:

(a) The enlargement may be so slight in a small proportion of cases, especially in early infections, that it may be overlooked in
them if we use palpation only. Generally, however, there is fever, or a history of recent fever, in such cases.

(b) The spleen of healthy infants is sometimes so easily palpable that the unskilled observer may think that it is enlarged.

(c) Not all infected persons show palpable spleens.

(d) Not all splenomegalous persons are necessarily infected. Generally speaking, however, widespread splenomegaly is due to malaria.

The advantages of the method are: (1) That the enlargement can be detected, practically with certainty and in a few seconds, by almost anyone; (2) that the method can be applied with little trouble to enormous numbers of people, thus practically avoiding the error of random sampling.

We must note that a smaller degree of splenic enlargement can be detected by percussion (as practiced by medical men) than merely by palpation. By the former method we can nearly always detect some enlargement in malaria. On the whole, we can conclude that some degree of splenic enlargement probably exists in 95 to 100 per cent of all persons infected with malaria, but that the enlargement is great enough to be palpable only in about 75 to 90 per cent of cases.

Thus, by the term *splinic* (*nlex* is generally meant the percentage of persons in whom enlargement is detectable by palpation only.

In what proportion of persons with enlarged spleen are there no plasmodia at all? It is impossible to say; but we may give 20 per cent as a rough conjectural estimate.

It would thus seem that the spleen index is much nearer the truth than the parasite index, provided that the splenomegaly is really due only to the malaria.

The number of persons with parasites, but without splenomegaly, seems to be an important figure, because such cases are due to recent infections, before the spleen has had time to become enlarged--especially in children.

The average spleen enlargement depends not only on the degree of enlargement but also on the proportion of infected persons (general malaria rate), and may be looked upon as an index of the average amount of illness caused by malaria in the community. The average enlarged spleen indicates only the degree of enlargement, where it exists. Several useful deductions may be drawn from figures: Thus, numerous small enlargements would tend to indicate many recent infections; and numerous large ones with few small ones, a past epidemic.

"Generally considered, the study of the splenic enlargement, so important for public health work; has been curiously neglected in medical literature." Ross concludes that, as a general rule, the spleen index (obtained by palpation only) is by far the best method of measurement in determining the degree of endemic malaria. It requires no great skill; it can often be applied to almost all the people in a community; and it should yield by itself a very nearly correct measure of the actual malaria rate. As a rule, local conditions, race, and complicating diseases are likely to cause a percentage of error far smaller than that due to the insufficient random sampling which must always attend the laborious estimation of the parasite index (the advocates of which frequently overlook this important point). (Ross, R., The Prevention of Malaria, pp. 220-224. John Murray, London, 1910.)

Daniels and Newham (1911), in discussing the endemic index in malaria, give the value of the splenic index in the following statement:

The spleen test, or the proportion of persons with enlarged spleens, is useful if age and race are taken into account. It is of more value amongst Negroes than amongst other races, as the Negro spleen does not continue to enlarge after immunity has been acquired, in the same way that the spleens of many individuals of other races do. The test can be used easily, as there is nothing in the examination to excite, alarm, or frighten children, and can be made more quickly than any other examination.

It indicates only antecedent, probably remote, infection, and is less certain proof of antecedent infection than the presence of parasites. A large proportion with enlarged spleens between 2 and 5 years of age is an indication of a high endemic index. If the presence of malaria in a district is proved, the absence of enlarged spleens in Negro adults or a low proportion between 10 and 15 years of age is equally a proof of high endemic index; whilst if the proportion of enlarged spleens in adult Negroes is appreciable, or large in those between 10 and 15, the endemic index is low. It is noted, however, that with no other race but the Negro can such conclusions be drawn with certainty.

The determinations obtained by the spleen test are less likely to be influenced by metcorological conditions than the test by blood examinations; they are easier to make and can be made in a larger number of cases, but otherwise are less accurate, as the conditions that lead to splenic enlargement after malarial infection vary and are not thoroughly understood, and splenic enlargement in a varying proportion is due to other causes. (Daniels, C. W., and Newham, H. B., Laboratory Studies in Tropical Medicine, 3d edition, p. 463. Bale & Danielsson, London, 1911.)

Daniels (1913) asserts that the test of the prevalence of enlarged spleen has fallen undeservedly into disuse on account of the manner in which it was at one time abused in India by the laity as well as by medical men. With the following limitations it is of considerable value: That other diseases are also causes of enlargment of the spleen and that, therefore, where these diseases are prevalent, the value of the test is greatly reduced; that the examination should be limited to children, as in adults of other races, East Indians, etc., chronic enlargement of the spleen, whether as the result of early infection of malaria or not, persists throughout adult life, and may even increase

With Negro races the results obtained by the spleen test are of high value. With other races, only the examinations made of children up to 15 years of age are valuable.

The advantages of the method of spleen examination are that: (1) There is less opposition to palpation of the abdomen in children than to blood examination; (2) that the examinations can be made more quickly than the examination of blood for parasites and far more quickly than differential leucocyte counts; (3) that with little training, moderately reliable results may be obtained by trustworthy men with no medical education; (4) that the condition of the spleen does not vary so rapidly as the number of parasites in the blood. Thus a spell of cold or wet weather will often result in an increase in the proportion of persons in whose blood the parasites are sufficiently numerous to be readily found, whilst the probabilities of a new infection are not affected by such meteorological changes. The size of the spleen is affected by such changes to a very slight extent. (Daniels, C. W., Tropical Medicine and Hygiene, 2d edition, pp. 83-84. Bale & Danielsson, London, 1913.)

Deaderick and Thompson (1916) state, relative to spleen rate and the endemic index, that they believe that the spleen rate would not disclose the true endemic index of regions in the southern United States. They note that elsewhere the prevalence of splenic enlargement has been employed to calculate the extent of paludism, this method requiring much less time than the examination of the blood. In their experience the spleen rate and the endemic index estimated by a microscopic examination of the blood do not usually correspond even approximately.

Quoting Stephens and Christophers, a selection of seven localities in India gave an average spleen rate of 31.46 and a corresponding parasite rate of 14.4. (Deaderick, Wm. H., and Thompson, L. T., The Endemic Diseases of the Southern States, pp. 38-39. 1916.)

DEATHS DURING WEEK ENDED APR. 9, 1921.

Summary of information received by telegraph from industrial insurance companies for week ended Apr. 9, 1921, and corresponding week, 1920. (From the "Weekly Health Index." Apr. 12, 1921, issued by the Bureau of the Census, Department of Commerce.)

1 · · · · · · · · · · · · · · · · · · ·		÷	• 12 C 1	Week ended Apr. 9, 1921.	Corresponding week, 1939.
Policies in force	*****			46, 505, 524	42, 871, 031
Number of death claims			•••••	9, 592	8, 878
Death claims per 1,000 policies in force				10. 8	10.8

Deaths from all causes in certain large cities of the United States during the week ended Apr. 9, 1921, infant mortality, annual death rate, and comparison with corresponding week of preceding years. (From the "Weekly Health Index," Apr. 12, 1921, issued by the Bureau of the Census, Department of Commerce.)

	Fatimated	Week Apr.	: ended 9, 1921.	Average	Death 3	s under 1 rear.	Infant mor- tality
City.	population, July 1, 1921.	Total deaths	Death rate.1	death rate per 1,000. ²	Week ended Apr. 9, 1921.	Previous year or years. ²	rate week ended Apr. 9, 1921.*
Akron, Ohio. Albany, N. Y. Atlanta, Ga. Baltimore, Md. B'rmingham, Ala. Boston, Mass. Bridgeport, Conn. Buffalo, N. Y. Cambridge, Mass. Camden, N. J. Chicago, Ill. Chicego, Ill. Chicego, Ill. Chicego, Ill. Chicego, Ill. Chicego, Ill. Cleveland, Ohio. Celumbas, Ohio. Dalles, Texas. Dayton, Ohio. Detroit, Mich. Fall River, Mass. Grand Rapids, Mich. Horston, Tex. Indianapolis, Ind. Jersey City, N. J. Kaness City, Kans. Kaness City, Kans. Kaness City, Kans. Kaness City, Kans. Milwaukee, Wis. Milwaukee, Wis. Milwaukee, Wis. Milwaukee, Wis. Milwaukee, Wis. Milwaukee, Wis. Milwaukee, Wis. Milwaukee, Wis. Milwaukee, Wis. Milwaukee, Wis. New Heedford, Mass. New Heen, Conn. New York, N. Y. Newark, N. J. Nortolk, Va. Omahs, Nebr. Paterson, N. J. Philadelphia, Pa. Pittsburgh, Pa. Providence, R. I. Richmond, Va. Rochester, N. Y. Set Lauke Mass. Spokane, Wash. Sprangedo, Mass.	* 208, 435 115, 071 207, 473 751, 537 186, 133 757, 634 149, 967 519, 608 110, 444 119, 672 2, 780, 665 2403, 418 831, 138 831, 138 245, 338 165, 282 158, 119 263, 152 158, 119 263, 152 263, 152 165, 282 158, 119 263, 152 263, 152 263, 152 165, 282 165, 012 167, 007 157, 781, 887 122, 290, 645 137, 463 137, 463 137, 463 137, 686 137, 463 137, 686 137, 463 137, 595 1520, 546 327, 227 104, 442 135, 877 104, 442 135, 877 105 105 105 105 105 105 105 105 105 105	$\begin{array}{c} 39\\ 46\\ 61\\ 223\\ 57\\ 227\\ 38\\ 144\\ 21\\ 32\\ 625\\ 5113\\ 195\\ 65\\ 59\\ 227\\ 35\\ 277\\ 41\\ 191\\ 102\\ 27\\ 87\\ 174\\ 68\\ 311\\ 107\\ 97\\ 132\\ 21\\ 132\\ 21\\ 752\\ 496\\ 207\\ 58\\ 62\\ 162\\ 184\\ 74\\ 496\\ 207\\ 58\\ 62\\ 184\\ 74\\ 496\\ 207\\ 58\\ 62\\ 37\\ 37\\ 58\\ 62\\ 37\\ 37\\ 37\\ 37\\ 37\\ 37\\ 37\\ 37\\ 37\\ 37$	$\begin{array}{c} 9.8\\ 20.8\\ 15.3\\ 15.5\\ 16.0\\ 13.2\\ 14.5\\ 9\\ 13.9\\ 11.5\\ 14.6\\ 12.2\\ 13.8\\ 15.5\\ 8.6\\ 16.2\\ 11.1\\ 10.0\\ 14.6\\ 17.6\\ 13.5\\ 14.6\\ 17.6\\ 13.5\\ 14.5\\ 13.5\\ 14.6\\ 17.6\\ 13.5\\ 14.2\\ 11.1\\ 12.9\\ 18.5\\ 15.9\\ 15.9\\ 17.4\\ 13.5\\ 14.8\\ 11.6\\ 11.2\\ 11.1\\ 12.9\\ 18.5\\ 14.8\\ 11.6\\ 11.2\\ 11.1\\ 18.4\\ 11.8\\ 11.6\\ 11.2\\ 11.1\\ 18.4\\ 11.8\\ 0\\ 10.9\\ 10.9\\ 10.9\\ 10.5\\ 10.3\\ 10.5\\ 1$	5 11.7 C 21.5 C 21.5 C 16.4 A 19.2 A 19.8 A 18.5 A 16.8 C 18.6 C 18.6 C 18.6 C 18.6 C 26.0 C 14.4 A 13.5 C 26.0 C 14.4 A 13.5 C 26.0 C 14.4 A 13.5 C 26.0 C 14.4 A 13.5 C 26.0 C 14.4 C 21.4 A 13.5 C 22.9 A 15.7 C 15.2 C 14.0 C 23.2 A 17.5 A 21.3 C 23.2 A 17.5 C 26.2 C 23.5 C 24.2 C 24.2 C 24.4 C 21.3 C 26.2 C 26.2 C 26.2 C 26.2 C 27.5 A 18.6 C 26.2 C 27.5 C 15.5 C 26.2 C 26.2 C 27.5 A 18.6 C 26.2 C 27.5 C 15.5 C 26.2 C 26.2 C 27.5 C 15.5 C 26.2 C 27.5 A 18.6 C 21.5 C 26.2 C 27.5 C 15.5 C 26.2 C 27.5 C 15.5 C 26.2 C 27.5 C 26.2 C 27.5 C 15.5 C 26.2 C 27.5 C 15.5 C 26.2 C 27.5 C 15.5 C 26.2 C 27.5 C 15.5 C 26.5 C 26.5 C 27.5 C 15.5 C 26.5 C 27.5 C	$\begin{array}{c} 4\\ 4\\ 4\\ 9\\ 9\\ 30\\ 7\\ 29\\ 27\\ 4\\ 5\\ 5\\ 9\\ 5\\ 7\\ 6\\ 4\\ 10\\ 52\\ 7\\ 6\\ 11\\ 10\\ 16\\ 6\\ 11\\ 10\\ 16\\ 2\\ 9\\ 9\\ 13\\ 3\\ 8\\ 29\\ 9\\ 6\\ 4\\ 4\\ 23\\ 224\\ 13\\ 3\\ 9\\ 7\\ 84\\ 4\\ 7\\ 84\\ 4\\ 7\\ 84\\ 4\\ 7\\ 84\\ 6\\ 12\\ 3\\ 3\\ 10\\ 9\\ 9\\ 4\\ 6\\ 5\\ .\\ \end{array}$	57 C 55 C 55 C 35 C 35 C 31 A 36 A 36 A 36 A 36 A 36 A 36 C 31 C 32 C	38 38 90 84 78 104 78 66 67 81 66 97 81 66 98 102 73 43 61 35 129 140 51 61 48 88 53 101 99 40 47 30 46 58 787 90 60
Toledo, Ohio. Trenton, N. J. Washington, D. C. Wilmington, Del. Worcester, Mass Yonkers, N. Y. Youngstown, Ohio.	177, 205 253, 696 122, 760 454, 026 113, 408 184, 972 103, 324 139, 432	37 74 28 129 30 68 35 35	10.9 15.2 11.9 14.8 13.8 19.2 17.7 13.1	A 17.8 A 17.8 A 18.7 A 18.0 C 22.8 C 24.8 A 12.6	3 18 4 20 9 - 9 7 5	C 1/ A 14 A 7 A 12 C 7 A 3	181 117 97 159 63

¹ Annual rate per 1,000 population.
² "A" indicates data for the corresponding week of the years 1913 to 1917, inclusive. "C" indicates data for the corresponding week of the year 1918.
³ Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1920. Cities left blank are not in the registration area for births.
⁴ Enumerated population Jan. 1, 1920.
⁶ Data based on statistics of 1915, 1916, and 1917.

PREVALENCE OF DISEASE.

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

UNITED STATES.

CURRENT STATE SUMMARIES.

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Telegraphic Reports for Week Ended Apr. 16, 1921.

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

ALABAM	A. Ca	ses.	COLORADO—continued. Ca	ses.
Chicken pox		8	Scarlet fever	11
Hookworm		116	Smallpox	16
Measles		9	Typhoid fever	11
Ophthalmia neonatorum		1	Whooping cough	1
Smallpox		20	CONNECTICUT	
Trachoma		1		-
Tuberculosis		12	Cerebrospinal meningitis.	1
Typhoid fever		11	Chicken pox	57
ARKANS	18.		Conjunctivitis (infectious)	7
		20	Hartford	•
Unickén pox	•••••	39	Contraine	- 00 - 00
Diphtneria	•••••••	0	Common monolog	20
	••••••	1		~
Influenza	•••••••••••••••••••••••••••••••••••••••	10	This construction of the second secon	
Malaria	•••••	28	Letnargic encephantis.	2
Measles	•••••	103	Mataria	2
Pellagra	••••••	10	Meastes:	••
Pneumonia	•••••	2	Hartlord	12
Scarlet fever	•••••	7	New Britain	28
Smallpox	•••••	12	Norfolk.	13
Trachoma		2	Waterbury	10
Tuberculosis		17	Scattering	53
Typhoid fever	•••••	7	Mumps	95
Whooping cough	••••••	21	Pneumonia (lobar)	27
			Searlet fever:	
CALIFORN	IA. .		Bridgeport.	22
Cerebrospinal meningitis:			New Haven	28
Perkeley		1	Scattering	53
Los Angeles		6	Septic sore throat	2
San Francisco		1	Trachoma	1
Influenza		99	Tuberculosis (all forms)	57
Lethargic encephalitis:			Typhoto fever	3
San Francisco		2	Whooping cough	75
Visalia		1	DELAWABR.	
Smallpox		82	Chicken pox	7
Typhoid fever		-7	Diphtheria	9
	•		Measles	3
COLORAD	.		Mumps	3
(Exclusive of I	Denver.)	- 1	Pneumonia	5
Chicken pox		33	Scarlet fever	9
Diphtheria		-5	Tuberculosis	25
Lethargic encephalitis-Nun	1	1	Typhoid faver	7
Measles		50	Whooping cough	10
		(80	NU) A 19 19 19 19 19 19 19 19 19 19 19 19 19	
		100		

FLORIDA.	Case	s.
Cerebrospinal meningitis	•••	1
Diphtheria	•••	6
Influenza	•••	1
Leprosy	•••	2
	•••	17
Pinetingroups	•••	5
Scarret rever.	•••	
Simapox	•••	95 00
I yphon Rvei	•••	
GEORGIA.		
Chicken pox	1	19 .
Diphtheria	1	10
Dysentery (amebic)	••	2
Dysentery (bacillary)		
Malazia	•••	8 I
Maala		
Minnis		
Paratynhoid fever	••••	1 2
Pneumonia	••	
Scarlet fever		ilo
Septic sore throat		4 1
Smallpox	5	6 I
Tuberculosis (all forms)	3	8 L
Typhoid fever	. 1	0 1
TT I INCHS		L R
Comphysical maningities		P
Chienzo		S
Marshall County-Bell Blain Townshin	- 1	
Diphtheria:	• •	T
Chicago	. 157	
Scattering	. 53	. "
Influenza	. 26	
Lethargic encephalitis-Chicago	. 3	C
Pneumonia	. 225	
Poliomyelitis-Chicago	. 1	Co
Scarlet fever:		D
Chicago	. 142	Ge
Peoria	. 16	In
	. 14	M
Springneia	15	Me
Scattering	126	M
Rect St Lonio		Pn
Nientie		Po
Plainfield	25	Sei
Richland County-Decker Township	13	Se
Rockford	11	SH
Scattering	101	10
Typhoid fever	8	w
INDIANA.	01	
Pahias_I awrence County	10	Cer
Scarlet (ever	228	Chi
Smallpox	161	Cos
Typhoid fever.	16	Dig
		Ger
IOWA.		Inf
Corebrospinal meningitis-Grinnell	1	Let
Dipotneria	14	Mea
Neariet lever	40	Mu
CHAUPOX:	.	Opł
Lavingsul	14	Pell
	110	rne
• week ended Friday.	15.5	5

-	•
KANSAS.	Cases.
Unicken pox	118
Influenza.	48
Measles	523
Mumps	16
Protumonis.	18
Smallpex	111
Trachoma.	1
Tuberculosis	75
Typhoid fever	3
whooping cougn	70
LOUISIANA.	
Cerebrospinal meningitis.	1
Dipatneria	8
Smallpox.	Z
Typhoid fever	
MAINR.	
Chicken pox	11
Diphtheria.	3
Influenza.	124
Measles	1
Mumps	. 139
Pneumonia	. 8
Scarlet fever.	. 26
Smanpox	. 1
Typhoid fever	U
Whooping cough	. 16
MARYLAND. ¹	
Cerebrospinalmeningitis	
Chicken pox	. 58
Conjunctivitis	. 2
Diphtheria	. 28
Influenza.	. 3
Maharia	. 40
Measles	128
Mumpe	. 50
Poliomyslitis	, 78
Scarlet fever.	47
Septic sore throat	1
Smallpox	2
Tuberculosis	73
Whooping cough	10
WASSACHUSETTS	
	•
Chicken pox	3 232
Conjunctivitis (suppurative)	14
Diphtheria	165
jerman measies	23
H IUGIISS	482
	2
leasles	2 794
erbargic enceptantis	2 794 126
etnargie encepmatis	2 794 126 20
cerargie encopmanis	2 794 126 20 1

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1 Casso

MASSACHUSETTS-Continued.

	Casco
Poliomyelitis	1
Scarlet fever	230
Septic sore throat	`4
Tetanus	2
Trachoma	2
Trichinosis	1
Tuberculosis (all forms)	170
Typhoid fever	7
Whooping cough	189

MINNESOTA.

Chicken pox	15
Diphtheria	74
Measles	48
Pneumonia	5
Poliomyelitis	1
Scarlet fever	133
Smallpox:	
Minneapolis.	83
Scattering	230
Tuberculosis	64
Typhoid fever	26
Whooping cough	3

Diphtheria	4
Scarlet fever	1
Smallpox	29
Typhoid fever	12
MONTANA.	
Diphtheria	4

Diphtheria	4
Scarlet fever	4
Smallpox.	26
Typhoid fever	2

NEBRASKA.

Cerebrospinal meningitis:	
Davenport	1
Gage County	1
Chicken pox	25
Diphtheria	5
German measles	1
Influenza	1
Lethargic encephalitis-Omaha	1
Measles	145
Mumps	6
Pneumonia.	4
Scarlet fever:	
Spalding.	17
Scattering.	83
Smallpox:	,
Adams County	12
Bennington.	11
Byron	12
Hitchcock County.	10
Omaha	13
Walthill	12
Scattering	45
Tuberculosis	4
Typhoid fever	1
Whooping cough	2
NOW TRADE	
NEW JEBOEL.	
Cerebrospinal meningitis	4

Cerebrospinal meningitis	4
Chicken pox	205
Diphtheria	154

NEW JERSEY-continued.

~

	s	ses.
Influenza		34
Measles		258
Pneumonia		133
Poliomyelitis		1
Scarlet fever		237
Smallpox		17
Trachoma		3
Trichinosis		ĩ
Typhoid fever		0
Whooping cough		319

NEW MEXICO.

Chicken pox	6
Diphtheria	20
German measles	1
Measles	53
Mumps	4
Pellagra	1
Pneumonia	4
Scariet fever.	11
Smallpox	6
Tuberculosis	47
Typhoid fever	3
Whooping cough	17

NEW YORK.

(Exclusive of New York City.)

Cerebrospinal meningitis	3
Diphtheria	191
Influenza	39
Lethargic encephalitis.	6
Measles	907
Paratyphoid fever	1
Pneumonia	259
Scarlet fever	231
Smallpox	21
Tetanus	1
Trachoma	3
Typhoid fever	26
Whooping cough	405

NORTH CAROLINA.

Cerebrospinal meningitis	3
Chicken pox	89
Diphtheria	21
German measles	7
Measles	700
Ophthalmia neonatorum	2
Poliom velitis	1
Scarlet fevor.	12
Septic sore throat	6
Smallpox	112
Typhoid fever	10
Whooping cough	377

SOUTH DAKOTA.

Chicken pox	14
Diphtheria	16
Measles	78
Pneumonia	1
Scarlot lever	2
Smallpox	58
Tuberculosis	1
Typhoid fever	1

893

TEXAS.	Cases.	1
Chicken pox	50	Measles-
Diphtheria	11	Willie
Influenza	24	Scatte
Measles	151	Scarlet fev
Scarlet fever	12	Smallpox
Smallpox	32	Bluefi
Typhoid fever	7	Scatte
VERMONT.		Typhoid f
Chicken pox	40	
Diphtheria	11	Milwauke
Influenza	1	Cerebr
Measles		Chicke
Mumps	12	Dipht
Scarlet fever	15	Germa
Smallpox	6	Lethat
Typhoid fever	2	Measle
Whooping cough	26	Scarlet
WASHINGTON.		Smallp
Chicken pox	70	Tubero
Diphtheria	18	Whoop
Influenza	12	Scattering:
Measles	82	Cerebro
Mumps	6	Chicke
Pneumonia		Diphth
Scarlet fever.	16	Germa
Smallpox	123	Influen
Tuberculosis	11	Measles
Typhoid fever.		Ophtha
Whooping cough	17	Poliom
		01-4

WEST VIRGINIA.

Diphtheria	9
Measles:	-
Elkins	9

WEST VIRGINIA—continued.	
Measles-Continued. Ca	ses.
Williamson	10
Scattering	24
Scarlet fever.	19
Smallpox:	
Bluefield	20
Scattering	15
Typhoid fever	2
WISCONSIN.	
Cerebrospinal meningitie	
Chicken por	57
Dinhtheria	- - -
German measles	20 9
Lethargic encephalitis	1
Measles	
Scarlet fever.	37
Smallpox	18
Tuberculosis	20
Whooping cough	14
Scattering:	13
Cerebrospinal meningitis	2
Chicken pox	168
Diphtheria	41
German measica	1
Influenza	70
Measles	99
Ophthalmia neonatorum	1
Poliomyclitis	2
Scarlet fever.	17
Smallnox	39
Tuberculosis	13
Typhoid fever.	1
Whooping cough1	08

District of Columbia and Kentucky Reports for Week Ended Apr. 9, 1921.

1 1 13

DISTRICT OF COLUMBIA.

	Cases.
Cerebrospinal meningitis.	. 1
Chicken pox	34
Diphtheria	7
Influenza.	2
Lethargic encephalitis.	1
Measles.	231
Scarlet fever.	- 24
Tuberculosis	25
Typhoid fever	3
Whooping cough	1

KENTUCKY.

Cerebrospinal meningitis:
Jefferson County
Warren County
Chicken pox
Diphtheria:
Jefferson County.
Scattering
German measles
Influenza

KENTUCKY- continued.	
Measles:	Cases.
Boyd County	. 39
Grant County	. 23
Harian County	. 8
Jefferson County	- 26
Scattering	. 14
Mumps	. 18
Paratyphoid fever	. 3
Pneumonia	. 14
Scarlet feyer:	
Jefferson County.	. 20
Scattering	. 11
Smallpox:	
Fulton County	. 30
Graves County	. 19
Knox County	. 9
Scattering	. 39
Tonsillitis	4
Trachoma	2
Tuberculosis:	
Jefferson County	13
Scatter ng	8
Typhoid Icver	13
whooping couga	28

KENTUCKY- continued.

SUMMARY OF CASES REPORTED MONTHLY BY STATES.

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

State.	C e r ebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measlos.	Pellagra.	Poliomyelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
1921. Alabama (March) Colorado (February). Connecticut (March). Florida (March). Massachusetts (March). New Mexico (January) New Mexico (February) New Mexico (March). New Mexico (March).	5 2 6 2 14 	41 138 294 50 749 103 119 177 25	24 12 35 34 123 6 9 4 3	12 1 57 4 1 3	99 978 797 140 2.836 659 519 525 691	4 1 6 2 1	1 2 2 1 7	35 95 575 17 1, 254 37 43 46 99	529 299 1 324 12 11 15 14 44	73 5 14 90 52 8 3 9 10

RECIPROCAL NOTIFICATION.

Connecticut-March, 1921.

Cases of communicable diseases referred during March, 1921, to other State health departments by Department of Health of the State of Connecticut.

	1 .	1 ·
Disease and locality of notifi- cation.	Referred to health authority of-	Why referred.
Diphtheria: Norwalk, Conn	State Board of Health, Newark N.J.	Onset of discase five days after ar- rival in Norwalk, Conn., from Newark, N. J.
Measles: Warren, Conn	do	Onset day after arrival in Warren, Conn., from Montclair, N. J., where measles was present in her household.
Smallpox: Bethel, Conn	State Department of Health, Al- bany, N. Y.	This case had been in contact with a smallpox case in Elmhurst, L. I.
Scarlet fever: Litchfield, Conn	do	Onset two days after arrival in Litchfield, Conn., from Pelham
Hartford, Conn	do	Person left Hartford, Conn., for Brooklyn, N. Y., after contact
Groton, Conn	do	Onset of discase two days after ar- rival in Groton, Conn., from Ellis Island Immigration Sta- tion New York City
Watertown, Conn	State Health Departments of follow- ing States: New York, Massachu- setts, Ohio, Tennessee, Michigan, Missouri, Arkansas, Pennsylvania Indiana, California, Minnesota, North Carolina, Lonisiana, West Virginia, Florida, Rhode Island, Kentucky, Illinois, Nebraska, New Jersey, Texas, Delaware, Wyoming, Oklahoma, Washing- ton, Kansas, Washington, D. C.	200 pupils of private school in Watertown, Conn., returned home after exposure to scarlet fever cases.

895

PLAGUE.¹

HUMAN CASES OF PLAGUE REPORTED.

Place.	Period covered.	Cases.	Deaths.	Remarks.
California: San Benito County	1921. Feb. 7		1	

¹ A summary of the reports received of the occurrence of plague and the finding of plague infected rodents in the United States during 1920 was published in Public Health Reports, Jan. 7, 1921, p. 15.

PLAGUE-INFECTED RODENTS.

Place.	Period covered.	Rodents found plague infected.
Florida: Pensacola	1921. Jan. 1 to Mar. 9 Mar. 10 to Apr. 16	4
Louisiana: New Orlean3	Jan. 1 to Feb. 19. Feb. 20 to Apr. 11. Apr. 12. Apr. 13 to 16.	33 0 1 0

CITY REPORTS FOR WEEK ENDED APR. 2, 1921.

CEREBROSPINAL MENINGITIS.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

Place.	Median for pre-	Week ended Apr. 2, 1921.		Place.	Median for pre-	Week ended Apr. 2, 1921.	
	years.	Cases.	Deaths.		vious years.	Cases.	Deaths.
California: Los Angeles	0 0 3 0 1 1 0 2	1 1 3 1 1 2 1	2 1 1	Missouri: St. Louis	2 0 12 0 1 2 0	2 1 9 1	2 1 2 1
Minnesota: St. Paul	0	•••••	. 1				

DIPHTHERIA.

See p. 902; also Telegraphic weekly reports from States, p. 890, and Monthly summaries by States, p. 894.

INFLUENZA.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alabama: Birmingham California: Alameda. Long Beach Los Angeles. Oalfang		1	New Jersey—Continued. Hoboken Jeræy City Passaic. Trenton. New Vork	1 19 1 3	1
San Francisco. Connecticut: Hartford. District of Columbia: Washington. Georgia:	13 3 1	i 1	Buffalo. Mount Vernon. New York. Niagara Falis. North Tonawanda. Saratoga Springs.	2 11 142 1 4 2	10
Savannah Illinois: Chicago Indiana: Torre Hante	11	1 4	Schenectady Yonkers North Carolina: Rocky Mount Obio:	1	i 1
Kansas: Lawrence Louisiana: New Orleans		1	Canton Cincinnati Oregon: Portland	3	·····i 1
Maine: Portland Maryland: Baltimore Cumberland	6 28 1	1	Philadelphia Philadelphia Rhode Island: Pawtucket Providence	8	4
Massachusetts: Boston Cholsea Lynn North Adams	. 1 . 2	1	Tennesse: Nashville Texas: Dallas Utab.	3	2
Saugus. Michigan: Detroit Grand Rapids	3 3 4 1	1	Salt Lake City Virginia: Roanoke Washington:	1	
Minnesota: Minneapolis Missouri: Kansas City New Jersey:	4 2	5	Seattle West Virginia: Charleston Huntington Wisconsin:	۱ 	1 1
Clifton Harrison	1 5		La Crosse Milwaukee	2 11	

LEPROSY.

Place.	Cases.	Deaths.
Louisiana: New Crleans	1	•••••

LETHARGIC ENCEPHALITIS.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Connecticut: Bridgeport Illinois: Oak Park New Jersey: Jersey City	1	1 1	New York: Ithaca Oregon: Portland Wisconsin: Milwaukee	1 1 1	1 2

MALARIA.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alabama: Birmingham Georgia: Atlanta Brunswick Bayaanah Illinois: Chicago Louisiana: New Orteans. Massachusetts: Boston Chelsea. Chelsea. Michigan: Detroit.	1 1 4 1 2 1 1	 	New Jersey: Hackonsack. New York: North Carolina: Salisbury. Ohio: Findlay. South Carolina: Charleston. Texas: Dallas.	1 1 1 4	1

MEASLES.

See p. 962; also Telegraphic weekly reports from States, p. 890, and Monthly summaries by States, p. 894. PELLAGRA.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alabema: Birmingham Mobile Georgia: Atlanta	1	1	Michigan: Pontiac Virginia: Richmond	1	1

PNEUMONIA (ALL FORMS).

	1			1	
Alabama:	{		Georgia:		· ·
Annistan	2		Atlanta	1	· 9
Rirmingham		5	Savannah	1	i i
Montgomery			Ideho		1 · •
Animona Animo An		-	Roise	9	
Arizona:			DOISC	-	
Tucson		Э	Illinois:		1
Arkansas:			Alton	7	
Little Rock	1 1		Bloomington	• • · • • • • • • • • • • • • • • • • •	1
California:			Chicago	185	50
Alameda		. 1	Danville	1	
Eureka		1	Desatur	-	1
Long Beach	1		East St. Louis		2
Los Angeles	28	14	Evenston		-
Oakland		3	Calashurr	5	
Pasadena	2		Oak Dark	\$	
Secremento		2	Deenie	1	
San Barnardino	•••••	ĩ	Peoria	•••••	1
San Dieme	• • • • • • • • • •	1	Rockiora	• • • • • • • • • • • • •	1
	••••••		Rock Island	1	
San Francisco	•		Indiana:		
Santa Barbara		2	East Chicago		3
Stockton.		1	Elkhart		· 1
Colorado:			Fort Wayne		ī
Colorado Springs		11	Gary	•••••	. î
Denver		13	Hommond	•••••	1
Pueblo		1	Tuntington	•••••	1
Connecticut			Indianapolia	••••	. 10
Bridgeport.	3		Indiadapoils	•••••	10
Bristol	2		Kokome	•••••	1
Greenwich	ī		Marion	•••••	1
Hartford	5	·····i	Misbawaka		1.
Moridan	ĭ		Muncie		1
Millord	÷ .	•••••	South Bend		1
New Henry	-	•••••••	Terre Haute		1
New Haven	•••••		Lowa-		
New Longon	•••••		Council Bluffs		9
NORWALK	• • • • • • • • • • •	1	Voobuk	•••••	1
Stonington		1	Munatina		-
Waterbury	4	2	MUSCBMIE	4	•••••
Delaware:	1	1	Kansas:	1	
Wilmington		. 2	Arkansas City		1
District of Columbia:		1	Kansas City	2	
Washington		11 1	Wichita		4
					-

PNEUMONIA (ALL FORMS)-Continued.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
			Nam Jaman Gantinuad		
Kentucky:			New Jersey-Continued.	.	1
Lowington	• • • • • • • • • • • • • • • • • • • •	. á	Gloppester City	1 1	
Louisville	• • • • • • • • • • • •		Hackensack		
New Orleans	· ·	9	Hoboken	•	·····;
Maine:			Jersey City	. 14	"I"
Biddeford		3	Kearny	. 2	
Portland		2	Montclair	. 3	i
Sanford	. 2		Passaic		2
Maryland:			Perth Amboy		1
Baltimore	. 69	22	Summit	. 2	1
Cumberland	. 4		New Yest	. 8	3
Massachusetts:	1		New YOFK:		
Adams	1 1		Auburn		·····
Amesoury			Buffelo	22	1,1,1
Boverly		2	Elmira	1 1	15
Roston	43	32	Ithaca	1 7	
Breckton	3		Jamestown	5	
Brookline		1	Lockport.	1	i
Cambridge		3	Middletown		l ī
Chelsea	. 4		Mount Vernon	4	2
Everett	. 2	1 1	Newburgh		3
Fall River		. 2	New York.	392	189
Gardner	1 1		Niagara Falls.	5	1
Greenheid	. 1	·····	North Tonawanda	2	•••••
		3	Peekskiii	3	••••
Loominster	. 1	······	Port Chester	2	••••••
Lowell		1	Rome	2	0
Welden		1 . 1	Saratoga Springe	-	••••••
New Bedford	1 7	. 7	Schenectady	5	2
Newton	3	2	Syracuse		3
Northampton	3	l ī	Trov.		5
Peabody	l ī		Watervliet		i
Plymouth		1	White Plains	4	2
Salem	1		Yonkers	13	5
Somerville	2		North Carolina:		
Southbridge	2		Charlotte		1
Springfield	•••••	1	Durham	• • • • • • • • • • •	2
Taunton		2	Wington Solom	•••••	2
West Sprinefold		•••••	North Dekote		1
Woroester			Fargo		1
Michigan		7	Ohio:	•••••	-
Ann Arbor	1		Alliance		1
Detroit.	40	19	Barberton	3	1
Flint.		ī	Bucyrus.	. 3	1
Grand Rapids	3	1	Canton		2
Hamtramck		2	Cincinnati		19
Kalamazoo.,	1		Cleveland	27	24
Pontiac	2		Cotumbus	•••••	4
Port Huron	6	2	Dawton	•••••••	. 4
Minnesota:	4	••••••	Hemilton		1
Austin		1	Mansfield	4	' 3
Minneapolis	•••••	15	Piqua.		1
St. Paul		7	Toledo.		$\overline{2}$
Missouri:		- 1	Youngstown		7
Kansas City		8	Zanesville		1
St. Joseph		7	Oklahoma:		
Montana:		_	Oklahoma City		Z
Anaconda		2	Uregon:		à
Bluings	•••••	1	Portiand		z
Great Balla	•••••••	- 4	Philedelphie	120	84
Missoule	· · · · · • •		Rhode Island		01
Nebreska	••••••	-	Newport		1
Omaha		3	Pawtucket		ī
Nevada:			Providence		5
Reno.		1	Tonnessee		-
New Hampshire:		-	Nashville		4
Concord	.	1	Taraat		-
Keene	1		Beaumont		1
Manchester		5	Dallas	2	
New Jersey:		· _	El Paso.		8
AtlanticCity	4	1	Fort Worth		ĭ
Ballomile	1.	•••••	Utah:		
Bloomfold			Salt Lake City		3
Clinton		1	Vermont:		
Elizabeth		3	Burlington		- 2
		• •	0		-

PNEUMONIA (ALL FORMS)-Continued.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Virginia: Alexandria. Danville. Lynchburg. Petersburg. Richmond. Roanoke West Virginia: Charleston. Huntington.	6	1 1 1 3 2 1 1	West Virginia Continued. Wheeling. Wisconsin: Oreen Bay. Madison Oshkosh. Racine Wausau Wyoming: Cheyenne.	2	4 1 1 2 2 2

POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

Place.	Median for pre-	Week ended Apr. 2, 1921.		Place.	Median for pre-	Week ended Apr. 2, 1921.	
	years.	Cases.	Deaths.		years.	Cases.	Deaths.
Illinois: Chicago Louisiana: New Orleans	1 0	1		Massachusetts: Baston. Everett. New York: Ithaca	0	1 1 1	1

RABIES IN ANIMALS.

	:	 Place.	•	Cases.
Virginia: Petersbur	g	 		2

SCARLET FEVER.

See p. 902; also Telegraphic weekly reports from States, p. 890, and Monthly summaries by States, p. 894.

SMALLPOX.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

Place.	Median for pre-	Weel Apr.	c ended 2, 1921.	Place.	Median for pre-	Week ended Apr. 2, 1921.		
	vious years.	Cases.	Deaths.		years.	Cases.	Deaths.	
Alabama: Birmingham Mobile Montgomery Arkansas: Little Rock California: Long Beach Los Angeles Oakland Riverside Sacramento San Francisco Stockton		12 3 6 3 1 2 9 3 1 1 5 15 1	······	Colorado: Denver Pueblo District of Columbia: Washington. Georgia: Atlanta La Grange Idaho: Boise Illinois: Aurora Bloomington Blue Island Centralia	18 1 1 4 8 0 0 0	18 13 1 13 1 1 1 1 2 1 1		

SMALLPOX-Continued.

Place	Median for pro-	Week ended Apr. 2, 1921.		k ended 2, 1921. Place.		ek ended r. 2, 1921. Place. for p		Week Apr.	ended 2, 1921.	
riate.	vious years.	Cases.	Deaths.		vious years.	Cases.	Deaths.			
Illinois-Continued.	1			Nebraska:						
Chicago	3	4		Lincoln	7	2	·····			
Evanston	0	3		Nevada:	10		1			
Freeport	0	8		Reno.	0	2	·····			
Peoria.	8	2		Union		4				
Rock ford	0	10		West New York		10				
Springfield	4	. 3		New York	1	1				
Indiana:		1	4.1.12	North Carolina		8	•••••			
Crawfordsville	ŏ	3		Charlotte	0	3				
Elkhart	1	12	·····	Winston-Salem	0	2 20	•••••			
Frankfort		1 I		North Dakota:						
Gary. Indianapolis	5	14		Grand Forks	1	3	•••••			
Kokomo	Ő	2		Chio:						
Marion		- 7		Canton	í	32				
Muncie	2	1		Cincinnati	3	8				
Terre Haute	0	12		Columbus	ŏ	4				
Iowa:	,	1	1.1.1.1	Dayton	0	2	•••••			
Cedar Rapids	2	16	/*	Lancaster	0	- 4				
Council Bluffs	5	3		Lime	1	. 1				
Des Moines	18	9		Mansfeld		1				
Dubuque	0	1		Marion Middletown	2	23	•••••			
Keokuk	1	3		Newark	Ô	ĩ				
Marshalltown	7 2	1	····	Springfield	1	1 32	• • • • • • • •			
Kansas:	2			Oklahoma:		-				
Arkansas City	·····	2		Cklahoma City Tulsa	10	3	•••••			
Kansas City	4	17		Oregon:						
Salina Wichita	·····ii	. 5.	,,	Portland Pennsylvania:	Z	5	•••••			
Kentucky:				Altoona	0	1				
Louisville Paducah	7	3		South Carolina:	•••••	:	•••••			
Louisiana:		•		Charleston	0	10	•••••			
New Orleans		9		Tennessee:	v		•••••			
Maine:		1		Chattanooga Knoxville	32	20	•••••			
Maryland:	•••••	1	· ····	Nashville	ī	10				
Baltimore	1	10 2	•••••	Texas: Beaumont	0	2				
Massachusetts:				Dallas	15	3				
Boston Salem	0	1	•••••	Utah:	•••••	0	••••••			
Michigan:			·	Salt Lake City	3	25	•••••			
Detroit	3	37		Lynchburg	0	1				
Flint	2	3		Roanoke	1	1	•••••			
Marquette	·····i	5		Aberdeen	0	4				
Sault Ste. Marie	0	5		Everett	0	27	•••••			
Austin		3		Spokane	12	57				
Duluth	2	14		Tacoma Yakima	0	4	•••••			
Minneapolis	13	62		West Virginia:		_l				
Rochester	·····	4	•••••	Blueneid Charleston	6 2	3	•••••			
St. Paul	6	54		Fairmont	ō	1				
Missouri: Joplin	2	1		Wisconsin: Le Crosse	o	3				
Kansas City	6	13		Madison	2	11				
St. Joseph St. Louis	23 6	23		Milwaukee	8	29				
Montana:				Oshkosh	3	6	•••••			
Great Falls	1	43		Superior	ŏ	2				
Missoula	0	2		-		1				

TETANUS.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
California: Los Angeles Illinois: Chicago	1	1	New York: Rochester	2	

TUBERCULOSIS.

See p. 902, also Telegraphic weekly reports from States, p. 890.

TYPHOID FEVER.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1927, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

Place. Median for pre- vious		c ended 2, 1921.	Place.	Median for pre-	Week ended Apr. 2, 1921.		
	years.	Cases.	Deaths.		years.	Cases.	Deaths.
Alabama: Birmingham California: Alameda. Long Beach. Oakiand. Sacramento. Sararmento. Oakiand. District of Columbia: Washington. Georgia: Atlanta. Brunswick. Illinois: Chicago. Decatur. Rock Island. Indiana: Louisville. Louisville. Louisville. Louisville. Biddeford. Maryland: Baltimore. Masachusetts: </td <td>0. 000003 01110 300001111005 000111005 000211000000</td> <td>5 1 1 2 1 3 1 1 1 1 1 1 1 3 1 3 3 2 1 3 3 1 2 1 3 1 2 1 2</td> <td></td> <td>Minnesota: Duluth. Minneapolis. St. Paul. Miscouri: St. Louis. Montona: Billings. New Hampshire: Berlin. New Jersey: Summit. New Jork: Buffalo. New York. Niagara Falls. North Tonawanda. Rochester. Schenectady. Ohio: Akron Cleveland. Columbus. Dayton Fremont. Ironton Peinsylvania: Allentown. Bethlehem. Philadelphia Warren Wikinsburg. Rhode Island: Pawtucket. Tcanesee: Nashville. Tcana; Dallas.</td> <td>0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td> <td></td>	0. 000003 01110 300001111005 000111005 000211000000	5 1 1 2 1 3 1 1 1 1 1 1 1 3 1 3 3 2 1 3 3 1 2 1 3 1 2 1 2		Minnesota: Duluth. Minneapolis. St. Paul. Miscouri: St. Louis. Montona: Billings. New Hampshire: Berlin. New Jersey: Summit. New Jork: Buffalo. New York. Niagara Falls. North Tonawanda. Rochester. Schenectady. Ohio: Akron Cleveland. Columbus. Dayton Fremont. Ironton Peinsylvania: Allentown. Bethlehem. Philadelphia Warren Wikinsburg. Rhode Island: Pawtucket. Tcanesee: Nashville. Tcana; Dallas.	0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Detroit	2	3		Huntington	0		1

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

	Population Jan. 1,	Total	Diph	theria	Me	asles.	Sc: fe	arlet ver.	Tu cul	ber- osis.
Place.	1920, sub- ject to cor- rection.	from all causes.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alabama:					1					
Anniston	17,734						····;·		2	·····
Mobile.	60, 151	26	1		10	i	1		•	7
Montgomery	43, 464	11					. 1			
Arizona: Tueson	20 292	: 22		1 · ·		1	1	1		
Arkansas:	20, 202					· -			1	-
Fort Smith	28, 811	••••••••	1		15		1	·····		
North Little Rock	54, 997 14, 048				3		1		12	
California:	- 1, 010			1.5						
Alameda	28,806	· 8.	•••••		2		····			·····
Long Beach	55, 593	22	2		15		Ĩ		l	9
Los Angeles	576, 673	1 164	47	· 1	168	2	20	4	08	15
Pasadena	216, 361 45, 351	- 31	5		93	•••••	14		4	2
Richmond	16, 843	ن 4					2			
Riverside	19, 341	2	••••		;-		20	•••••	····;·	·····
Sau Bernardino	00,807	23	4					•••••	3	
San Diego	74, 683	+ 28			3				10	. 7
San Francisco	508, 410	167	31	•••••	30	1	11	•••••	28	6
Santa Cruz.	10, 917	6	, o							
Stockton	40, 296	11	•••••		1		1			1
Coloredo:	21, 107	1	•••••				1	•••••		
Colorado Springs	30, 105	10	•••••							. 7
Denver	256, 369	87	7		66		12			12
Connecticut:	42, 900	•••••	19		- 33			•••••		2
Bridgeport	143, 538	26	6		1		19		3	3
Danhury (town)	20,620	. 5	1	•••••	2		2	• • • • • •	2	· 1
Greenwich (town)	22, 123	·····			16		3			
Hartford	138,036	28	7	1	17		1		8	
Manchester (town)	29,842	, 1	1		•••••		1	•••••	····i	•••••
Milford (town)	10, 193						1		ī	
New London	162, 519	41	6	•••••	1		26	• • • • • •	38	4
Norwalk	27,700	6								
Norwich (town)	29,685	·····	•••••					• • • • •	1	1
Waterbury.	10, 236 91, 410	19	••••••				••••••	•••••	6	·····
Delaware:	,		-		Ů		-		Ū	-
Wilmington	110, 168	31	2				2	•••••	•••••	•••••
Washington.	437, 571	109	8	1	275	1	19		19	15
Georgia:	COD 010	-0								
Brunswick	200,010	52	4	1	40		ა		2	- 4
La Grange	17,038				56					
Savannah	83, 252	37	1	• • • • • •	• • • • • •				•••••	3
Boise	21, 393	6			32		2			
Illinois:										• • • •
Alton	24,682 36,397	12	•••••	•••••	6 5	•••••	····;·	•••••	····;·	•••••;
Bloomington	28,725	5					4		2	<i>م</i>
Blue Island	11,424	2	1		····;•		3			•••••
Chicago	2, 701, 705	615	175	12	355	6	121		189	49
Danville	33, 750	4					2	Ť.		
East St. Louis	43,818	5	4	•••••	1	•••••	1	•••••	····;·	•••••
Elgin.	27,454	3			38				<u>^</u>	•••••
Evanston	37, 215	10	4		4		2			
Galesburg	23, 834	4	1	•••••		•••••	Z	•••••	2	1
Jacksonville	15, 713	8	i		14		i			$\overline{2}$
Acwanee	16,026	51	21	••••••	25	· · · · · · · · ·	6,	 !	!	

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

· ·	Population Jan. 1, 1920 sub-		¹ Total deaths		. Me	Measles.		Scarlet fever.		Tuber- culosis.	
Place.	1920 sub- ject to cor- rection.	from all causes.	Cases.	Dcaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
Illinois-Continued.											
La Salle	13,050 39,830		2		24						
Pekin	12,035	l					5				
Peoria	76, 121	17	4	1			. 20		. 1	4	
Rockford	65,651	15	¦	• • • • • •	. 21		. 10		• • • • • • •	- 2	
Springfield	59 183	11	í		10	1	6			. i	
Indiana:	,		-								
Bloomington	11, 595	1		• •••••	· · · · · · ·		¦	• • • • • •	• • • • • •		
Crawiordsville	10, 139	11	• • • • • •	• •••••	·¦····	····i			• • • • • • •		
Elkhart	24, 277	10	1		3	.	3			. 1	
Fort Wayne	36, 549	23	8		38		11			. 1	
Frankfort	11, 585	2		• • • • • • •					• • • • • • •	• • • • • • •	
Hammond	36,031	19			•		i			i	
Huntington	14,000	9			13		12				
Indianapolis	314, 194	78	7	1	13		52		. 20	10	
Kokomo.	30,037	7							· 1	1	
La rayette	21, 623	7	4				i		· *		
Marion	23, 747	Ġ	4								
Mishawaka	15, 195	4					2		·····	·!····	
Muncie	36, 624	8	••••;•		3	• • • • • •				1	
Torro Haute	66 083	10	1		6	•••••	5		1	2	
Iowa:			-					1	1		
Burlington	24,057	6	1				2				
Cedar Rapids	45, 565		3		• • • • • • •						
Devenoet	30, 102 58, 727	9	2		•••••	• • • • • •	5	····i	····i	i	
Des Moines	123, 458		5		i		4	<u>-</u> .	[_]		
Dubuque	39, 141		1		3						
Iowa City	11,267	•••••	2							•••••	
Keokuk	14, 423	3	• • • • • •	• • • • • •	11		4				
Mason City	20,035	3					$\overline{2}$				
Muscatine	16,038	4			18		1	• • • • • •			
Sioux City	71, 227		1	• • • • • • •			4				
Arkansas City	11, 253	3			8						
Atchison	12,630						6				
Coffeyville	13, 452	4									
Hutchinson	23, 298	•••••	••••	• • • • • •	1		35	• • • • • •		•••••	
Lawrence	12 456		4		23)	•••••	3				
Leavenworth	16, 912	7			5						
Parsons	16, 028	3									
Salina	15,085	3	1	• • • • • • •		• • • • • • •	10	•••••	•••••	····;	
Wichita	72, 128	19	3	•••••	84		8		3 3		
Kentucky:	,		Ŭ								
Covington	57, 121	18				• • • • • • •	1		1	2	
Lexington	41, 534	14	1			•••••	10				
Louisvine	204, 091	12	1	•••••	21	•••••	10		**		
Monroe	12,675	6	1		1		1			1	
New Orleans	387, 219	100	4		2		7	1	17	15	
Maine:	16 025		.	1	2						
Bangor	25 978	4	-	•••••		· · · · · · · · · · · · · · · · · · ·	3				
Bath.	14, 731	5 !			1 .					2	
Biddeford	18,003	10	1						2	2	
Lewiston	31, 791	7	2	•••••	2 . 40	•••••	2	•••••	•••••	T	
Fortiand	10,691	15	1	····i	±J .		*				
Waterville	13, 351	· · · · ·	ī		7		1				
Maryland:				_			10	- 1	05	20	
Baltimore	733, 823	248	25	3	57		19	•••••	20	25	
Massachusetts:	20,001	* -	•••••	••••••	•••••	•••••	"		. "	•	
Adams	12, 937	3.								.	
Amesbury	10,033	3 /	31	••••••	· • • • • • • • •		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · ·	••••••	• • • • • •	

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

	Population Jan. 1, 1920, sub- from all	Population Jan 1, 1920, sub-		Me	Measles.		Scarlet fever.		iber- losis.	
Place.	1920, sub- ject to cor- rection.	from all causes.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Massachusettes-Continued			1				1			
Arlington	18,665	1	2		4		2			
Attleboro	19, 731	8					2		2	1
Belmont	10,749	3		• • • • • • •	2		1			. 1
Beverly	748 060	000		· [· · · · · g ·	155		56			· · · · · ; -
Braintree	10,580	228	10		135		1 30	3	19	1 11
Brcckton	66, 138	14	····i		l î		1		i	· · · · · i
Brookline	37,748	i ii	[_]				5		1	l
Cambridge	109, 694	31	4		49	1	5		5	3
Chelsea	43, 184	9	3	1	19		2	····	2	·····:
Chicopee	36, 214	8	1	·····					2	1
Denvora	12,979	3							•	1 1
Easthampton	11,261	•••••	5				l °		····i	
Everett	40, 120	5	Ĭ		ii				Î	
Fall River	120, 485	28	8		13		2		Ĝ	1
Gardner	16, 971	0			11				3	
Greenfield	15,462	9							1	1
Holyoke.	· 60, 203	26				• • • • • •	· · · · ·		1	
Leominister	19,744	4		÷	23	• • • • • •		• • • • • • •	1	·····
Lynn	99 148	- 33 - 25	0	1	21			•••••	1	
Malden	49, 163	16	5	· .*	2		3		Â	
Medford	39,038	. 8	Š		15		4	1		
Melrose	18, 204	5			1		í		2	1
Methuen	15, 189	4					5			
New Bedford	121, 217	28	13		1	• • • • • •	7	•••••	10	2
Newburyport	15,618	5			1	• • • • • •	2	• • • • • •	•••••	;
North Adams	40,004	12	• • • • • •		2	•••••	•••••	•••••	•••••	1 1
Northampton	21, 951	11	•••••		3			•••••	1	·····i
Peabody	19, 552	-15					3			
Pittsfield	41,751	17	2		2		ĭ	2	2	2
Plymouth	13,045	2								1
Quincy	47,876	1	1		2		1		••••	
Salem.	42,529	13	• • • • • •	•••••	.4	•••••	2		3	2
Somerville	93,091	94	····.	•••••	- 11		·····A			
Southbridge.	14, 245	2		-	4	•	Ŧ			
Springfield	129, 563	32	4				7		3	
Taunton	37,137	12	1	1		1	3		1	1
Wakefield	13,025	1					1		1	1
Watertown	21,457	4	• • • • • •		•••••	• • • • • •			1	•••••
West Springneid	13, 443	4	•••••		5	•••••	Z	•••••	1	•••••
Winthron	15,009	5	•••••		•••••	•••••	2	•••••		•••••
Woburn	16, 574	4	•••••				-			
Worcester	179,754	51	6	2			12		4	3
Michigan:			-	-						
Ann Arbor.	19, 516	8	1		1		6		1	· • • • • •
Benton Harbor	12,233		1			• • • • • •		•••••		
Flint	993,739	199	81	8	49	•••••	84	1	07	Ta
Grand Rapids	137 634	35	0 5	3		•••••	2	•••••	•••••	2
Hamtramck	48, 615	15	ğ	ĭ	4		ĩl	2		ĩ
Ironwood	15,739	1			2		4			
Kalamazoo	48, 858	20			2		11		2	2
Marquette	12,718	2			•••••		•••••		1	1
Pontiac	34, 2/3	12	2	•••••	•••••	•••••	•••••	•••••	• • • • • •	•••••
Sault Ste Marie	20, 944	4	2	•••••		•••••		•••••	•••••	•••••
Minnesota:	12,000	0		•••••	10		4			•••••
Austin	10.118	5								
Duluth	98, 917	19	3				9		2	1
Hibbing	15,089		1							•••••
Minneapolis	380, 582	96	10	2	13		53	2	11	16
St. Cloud	13,722	14 .	····:·	••••••	5		·····		1	1
St. Cloud St. Panl	10, 8/3	63	- 20		- I			•••••		
Virginia	14.022		- 3	•	* I		20		42	
Winona	19, 143		2							

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CITY REPORTS FOR WEEK ENDED APR. 2, 1921-Continued.

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

	Population Jan. 1.	Total	Total		eria. Measles.		a. Measles. Scarlet Tuber- fover. culo.is.		Scarlet fever.		ıbe r- lo:i3.
Place.	1920, sub- ject to cor- rection.	from all causes.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
Missouri											
Independence	11,686	5						.		• • • • • • • •	
Joplin	29,855			· · · · · , ·	1 60		;	• [• • • • • •	····;	·	
St. Joseph	324, 410	29	12	0	23						
St. Louis	772, 897	180	73		16	1	54		35	8	
Montana:	11 000							1		1	
Billings	11,658	3	····i		21		i		i	• • • • • • • •	
Butte	41, 611	8					1			. 1	
Groat Falls	24, 121	4		.	21	••••••	1		2	1	
MISSOUIA	12, 668	8	•••••		^	• • • • • •		• • • • • • • • • • • • • • • • • • • •	1	•••••	
Lincoln	54. 934	10	1	l	3		6		1		
Omaha	191, 601	43	12	3	18		10			. 3	
Nevada:	19 016				1		1				
New Hampshire:	12, 010	ð	•••••	· ····	1					• • • • • •	
Berlin	16, 104	4			· · · · · ·					· · · · · · ·	
Concord	22, 167	13					Ō		• • • • • •	1	
Keene	13,029	4	1		i					•	
Manchester	78, 384	17	7	i	¦		5		5		
Portsmouth	13, 569		• • • • • •		1	!			2	÷	
Ashury Park	12 400	9			1	l.			1	1	
Atlantic City.	50, 682	11	6	1	7		5	1	5	2	
Bayonne	76, 754		3				9				
Belleville	13,660	••••••	•••••		9		3		1	•••••	
Clifton	22,019	2	1		3	•••••	2				
Elizabeth	95, 682		10	1	21		2		2	1	
Englewood	11,627	2		•••••		· • • • • •			• • • • • •	•••••	
Gloucester City	19, 381	•••••	1	•••••	1	•••••	i		• • • • • •		
Hackensack.	17, 667		 				7		1		
Harrison	15, 721			····;·	4				• • • • • •		
Inoboken	68, 166	21	2	1	1		0		•••••	2	
Jersey City.	297.864	•••••	20		11		11		10		
Kearny	26, 724	4	2		5		2				
Montclair.	28, 810	7		• • • • • • •	Э		2		1	2	
Orange	33, 268	4	12		36		$\hat{2}$		····i	2	
Passaic	63, 824	17	4		6		5	1	•••••	1	
Perth Amboy	41, 707	10	10	•••••	1		5	•••••	3		
Plainfield	27, 700	4	6		3	•••••	····i		2	•••••	
Rahway	11, 042	4					3		•••••	1	
Summit	10, 174	3			••••;•		10	•••••	•••••	1	
Union	20,651	30	23	•••••	6	•••••	10	•••••	*		
West Hoboken.	40, 068		š								
West New York	29, 926	2	1				•••••		• • • • • •	•••••	
New York:	15, 573	5	• • • • •	•••••	12		•••••	•••••	• • • • • •	1	
Albany.	113, 344		2		47		5		3		
Auburn	36, 192	12	1	1	••••		2		.3	1	
Buffalo	506, 775	125	31	1	54		12	1	14	9	
Elmira	45. 305	12	···i		ï		3				
Geneva.	14, 648	3 .			•••• <u>•</u> •		·····!	!			
Glens Falls	16, 638	4.		•••••	5	•••••	••••;•	•••••	1	1	
Jamestown	38,917	16	i.l		7		i			·····i	
Lockport.	21, 308	-ğ	8		1i		3				
Middletown.	18, 120	2	1	·····	•••••		5	•••••¦•		· • • • •	
Mount Vernon	42,726	12	42	••••••	····;·	•••••	2	•••••		·····i	
New York.	5, 621, 151	1, 379	359	18	276	2	386	24	1 295	1 127	
Niagara Falls	50, 760	12	8		3		12	•••••¦•		•••••	
North Tonawanda	15,482 '	31	41	11	41	••••••	11	•••••	•••••	•••••	

Pulmonary tuberculosis only.

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

	Population	Total	Diph	theria.	Мса	sles.	Sca fev	rlet 'er.	Tu cul	ber- osis.
Place.	1927, sub- ject to cor- rection.	deaths from all causes.	Cases.	Death3.	Ca3es.	Deaths.	Ca3es.	Deaths.	Cases.	Deaths.
New York-Continued										
Olean	20, 506	4								
Peckskill	15,868	3					2			2
Plattsburg	10,909	4	···· <u>·</u> ·							
Port Chester	16, 573	3		····;·	25		10	•••••		· · · · · .
Rocnester	295,730	18	23	1		• • • • • •	18	1	14	0
Saratora Springs	20, 341		–		A				ĭ	•••••
Schenectady	88, 723	16	6	i	24		1		3	i
Syracuse.	171, 717	38	22	1	45		13		5	3
Troy	72,013	20	1		22				3	2
Watervliet	16,073	.8							····;·	• • • • •
White Plains	21,031	6	····	····;·	···;:·				I I	
1 Onkers	100, 220	21	2	1 1	15		9			
Charlotte	46 338	9	1		33		1		10	2
Durham	21,719	6	<u>-</u>		2	1			6	1
Greensboro	19,861	10								
Rocky Mount	12,742	5								
Salisbury	13,884	4					1		1	····;
Winston-Salem	48, 395	11	2		- 38				*	1 1
Fargo	21 961	12	2		4	•	· ·			1
Grand Forks	14,010	0	Ĩ		6		1			
Ohio:	ĺ í.			•			l•			
Akron	208, 435	48	1		8		9		6	· • • • •
Alliance	21,603	10					2			•••••
Buorris	10, 425) 		·····			• • • • • •			
Canton	87 091	12		·····i*	1		3			2
Cincinnati	401, 247	115	18	2	15	1	8		15	11
Cleveland	796,836		13	2	35		39		36	20
Cleveland Heights	15, 236				1		1			•••••
Columbus.	237,031	58	10	1			4	• • • • • •	2	4
Devton	10,200						2		2	
East Cleveland	27, 292	- <u>-</u>	2		2		-			
Findlay.	17,021	1								
Fremont	12, 468	2					3		<u>.</u> .	
Hamilton	39,675	7	2		1		10		1	
Ironton	14,007	0	1		····		1	•••••	•••••	
Lancaster	41 306	Â	····;·		U V		2	•••••		i
Lorain	37, 295	Ŭ	$\hat{2}$		12				2	
Mansfield	27,824	5			1		1		1	
Marion	27, 891	<u>.</u> .					1			• • • • • •
Middletown	23, 594	5		• • • • • •	1	• • • • • •	2	• • • • • •		
New Philedelphie	20,718	0	••••		• • • • • •		•••••	•••••	1	
Niles	13,080	2			····ii		3			
Norwood	24,966	$\overline{2}$		1					1	1
Piqua	15,044	4		,						-
Salem.	10, 305	1			•••••	• • • • • •	2			·····;
Sandusky	22,897	15	••••;•		•••••	• • • • • •		•••••	•••••	
Stenbenville	28 508	13	2		•	•••••	ĩ			
Tiffin	14, 375	8		1						
Toledo	243, 109	64	21		6		10	· · · · <u>·</u> ·	1	8
Youngstown	132, 358	32	2		67	1	12	3	5	1
Zanesville	29, 569	12	2	1	•••••	•••••	· · · · •	•••••	••••	•••••
Oklahoma City	91 258	25	4		2		4		3	1
Tulsa	72,075		2		10					ī
Oregon:	,									
Portland	258, 288	62	16	•••••	03		3	• • • • • •	2	9
Pennsylvania:	72 500				12					1
Altoona	73, 302 60 331	•••••	2		12		2			
Ambridge.	12,730		7		10					
Berwick.	12, 181				ī					
Bethlehem	50, 358		1		17		3			• • • • • •
Braddock	20,879	•••••	5	•••••	••••;•	• • • • •	• • • • • •	•••••	1	
Butler	23, 778		3		26		3			

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

	,		1		1		1		1	
	Population Jan. 1,	Total	Diph	theria.	Mea	asles.	Sca fev	ver.	Tu cul	iber- osis.
Place.	1920, sub- ject to cor- rection.	from all causes.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Pennsylvania—Continued.	10 010		Ι.			1		1		
Carbondale	13,040		1		2					· · · · · · ·
Chester	58,030		i i		. .		3			
Coatesville	14, 515						2			
Dickson City	11,049		· · · · <u>·</u> ·				1			
Duquesne	19,011						· · · ·			
Easton	33,813				13		1			•••••
Farrell	15, 586				ı ĭ					
Greensburg	15,033				·		3			
Harrisburg	75, 917		1		22		2			
Harleton	32, 277		1		3	• • • • • • •	• • • • • •			•••••
Jeannette	10, 627	•••••	····			•••••		•••••	1	•••••
Lancaster	53, 150	•••••	10		1 i		6		1	•••••
McKeesport	45,975		1		2		1		2	
McKee's Rocks	16, 713		1		2					
Mahanoy City	15, 599		2]			• • • • • •	• • • • • •		
Mount Carmel	17,469		• • • • • •			• • • • • •	• •	• • • • • •	• • • • • •	· · · · · ·
New Castle	44,900	•••••				•••••	7	• • • • • • •		
North Braddock	14, 928		2		3		7		· · · · ·	
Philadelphia	1, 823, 158	566	72	6	. 41	2	126	6	81	65
Phoenixville	10, 484				1					
Pittsburgh	588, 193		11		39		21	• • • • • •	14	
Plymouth	10, 500		•••••	• • • • • • •	1	• • • • • •	•••••	• • • • • •	• • • • • • •	•••••
Pottsville	21, 876		ĭ		10		$\tilde{2}$	•••••		
Reading	107, 784		3		19		9		4	
Scranton	137, 783		1		9		3			
Shenandcah	24, 726		1				• • • • • •		• • • • • •	· · · · •
Steelton	13, 428		••••		2		• • • • • •		• • • • • •	•••••
Sundury	15,721		1	• • • • • •			•••••		•••••	• • • • • •
Tamaoua	12, 363		•••••	•••••			····i			
Uniontown	15,692		1		2		5			
Warren	14, 256						4		•••••	· • • • • •
Washington	21, 480		• • • • • •		2		3	•••••	• • • • • •	· · · · · •
Wilkes Rerro	73 633	•••••	····			•••••	4	•••••		•••••
Wilkinshurg	24, 403		•	•••••	2		3			
York.	47, 512		3				1		1	
Rhode Island:									1	
Cranston	29,407	3	•••••	• • • • • •	12	!	3	•••••	•••••	•••••
Cumperiand (lown)	21,077	•••••	•••••		•••••	••••••	1	•••••	•••••	•••••
Newport	30, 255		7	····i			i :			·····i
Pawtucket	64,248	18					2			
Providence	237, 595	66	10		85	2	8	•••••		6
South Carolina:	67 057	05					!			9
Columbia	37 524	20	•••••	•••••	44		1			. 2
Tennessee:	01,021								-	•••••
Chattanooga	57, 895		1				5		6	· · · ·
Knoxville	77,818				4	•••••	••••••	•••••	2	· · · · · ·
Nashville	118,342	37	• • • • • • •		1	•••••'	8	•••••	2	4
Baumont	43 122	11			1				1	
Dallas	158,978	32	2		120		2		5	
El Paso	77, 543	54				1 :		!		15
Fort Worth	106,482	13	3		11	•••••	1	•••••	•••••	1
Galveston	44,255	13	2			•••••	•••••	• • • • • •	• • • • • •	2
Port Arthur	22,251	4	• • • • • •	•••••	1	•••••	•••••	•••••	•••••	•••••
Salt Loko City	118 110	19	11		17		5		1	1
Vermont:	,	~				i	-		-	-
Burlington	22,779	6			1	l.				· · · • · •
Rutland	14, 954	1		•••••	1	•••••	•••••	•••••	····•	•••••
Virginia:	10.000			.	10		1		1	
Alexandria	18,060	Ŭ.	• • • • • •	1	12	•••••¦•	· · · · · · ·	•••••	••••••	1,
Lynchburg	29 956	10	····i'		38		3		····i	
Petersburg.	31,002	6	<u>-</u> .l		16				4	1
- · · · · · · · · · · · · · · · · · · ·			•	•	•	•	•		•	

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

	Population Jan. 1,	pulation Jan. 1, deaths		Diphtheria.		Measles.		Scarlet fever.		ber- osis.
Place.	1920, sub- ject to cor- rection.	from all causes.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Virginia-Continued, Portsmouth Richmond Roanoko Washington: Aberdeen Relliverborr	54, 387 171, 667 50, 842 15, 337 25 570	10 36 25	2 1		8 52 65 2	· · ·	3 2 2	 	1 9 2	2 5 3
Bernigham Everet Seattle Spokane Tacoma Vancouver Walla Yakima	27, 644 315, 652 104, 437 96, 965 12, 637 15, 503 18, 539		7 3 1		5 2 10 1 11		1 3 5 4 	· · · · · · · · · · · · · · · · · · ·	1	· · · · · · · · · · · · · · · · · · ·
West Virgina: Bluefield. Charleston. Fairmont. Huntington. Morgantown Moundsville. Parkersburg. Wheeling.	15,282 39,608 17,851 50,177 12,127 10,669 20,050 54,322	1 11 23 3 5 5 15	1 1 2		3 2 7		3 1 4 2		2	2 3
Wisconsin: Appleton Beloit. Eau Chaire. Fond du Lac Green Bay. Janesville. Kenosha. Le Consec	19, 561 21, 284 20, 880 23, 427 31, 017 18, 293 40, 472 30, 363	1 	• 2 • 1 2 1 1 4	 1	 1 1	 	7		1	 1
Madison Marinette Milwaukee Oshkosh Racine Sheboygan Superior Wausau	30,305 38,378 13,610 457,147 33,162 58,593 30,955 39,624 18,661	7 16 13 8 5	1 2 35 10 2	1	1 1 1		9 35 4 . 2 1 1		2 1 22 5 1	1 1
W yoming: Cheyenne	13, 829	1	•••••		·····`		1			•••••

FOREIGN AND INSULAR.

CUBA.

Quarantine Against Jamaica on Account of "Alastrim."

Under date of April 5, 1921, quarantine measures were ordered into effect at Cuban ports against arrivals from the Island of Jamaica on account of the prevalence of "alastrim" in that island, these measures to be identical with those established, under date of January 19, 1921, against arrivals from Haiti, on account of smallpox.¹

GREECE.

Recurrent Fever-Typhus Fever-Saloniki.

During the two weeks ended March 6, 1921, 382 cases of recurrent fever were reported at Saloniki, Greece, occurring among Russian refugees. During the same period 134 cases of typhus fever with 10 fatalities were reported at Saloniki, of which 129 cases occurred among refugees from Russia, the remainder being reported among the population of Saloniki. At localities in the vicinity of Saloniki, 27 cases of typhus fever with 2 fatalities were reported.

JAMAICA.

Infectious Disease (Alastrim or Kaffir Pox).

During the week ended March 26, 1921, 311 new cases of alastrim or Kaffir pox, were reported in the Island of Jamaica.

MEXICO.

Plague-Infected Rodents-Tampico.

During the week ended April 10, 1921, two plague-infected rodents were reported found at Tampico, Mexico.

POLAND.

Cholera-Typhus Fever-Year 1920.

Cholera.—According to information received through the ministry of public health of Poland, cholera made its appearance in Poland in September, 1920, occurring at first in sporadic form, becoming epidemic in some sections, declining rapidly after reaching its maximum prevalence, and becoming restricted to a small number of prisoners

[,] Public Health Reports, Feb. 11, 1921, p. 265.

2 cases among civilians.

of war and a few cases among the civil population. In the district of Warsaw the occurrence was stated to have been almost exclusively among persons arriving from other localities. In the districts of Posen and western Galicia or the district of Cracow the occurrence was stated to have been among prisoners. In the Grodno district 20 cases, not verified, were stated to have occurred among prisoners and

Typhus fever.-The data obtainable with regard to typhus fever were stated to contain some discrepancies and the reports for the months of November and December, 1920, to be incomplete and not to include the Grodno and Vilna districts. The following statement presents the reported occurrence, distributed according to months. for the year 1920:

	Year 1920.	Cases.	Year 1920.	Cases.
January February		34, 530 25, 858	August September	1, 388 1, 650
March April		27, 843 24, 616	November	2, 195
May June	••••••••••••••••••	24, 339 12, 329	December	161 546
July		5, 336	Totai	101, 040

Cholera-March, 1921.

On March 1, 1921, 31 cases of cholera were reported present in the Posen district. The total number of cases of cholera reported present in all Poland, March 15, 1921, was: Among prisoners, 86; among civil population, 9; among military, 2.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER. Reports Received During Week Ended Apr. 22, 1921.²

CHOLERA.

				· · · · · · · · · · · · · · · · · · ·
Place.	Date.	Cases.	Deaths.	Remarks.
India				Jan. 9-15, 1921: Deaths, 1,302.
Calcutta Madras	Feb. 29–23 Feb. 27–Mar. 5	39 8	• 29 4	Mar. 15, 1921: Cases present, 86
Posen district	Mar. 1	31		among prisoners; 9 in civil pop- ulation; 2 among military.
	PLA	GUE.		
Brazil: Bahia	Feb. 20-Mar. 12	3	3	
Ceylon: Colombo	Feb. 20-Mar. 5	26	22	
China: Chihli Province	Ар г. 12			On Tientsin-Pukow R. R., about 60 miles from Tientsin. Re- appearance. Pneumonic.
Kwangtung Province – Tapu district	Mar. 7			Recurrence.
Manchuria Province- Harbin	Feb. 21-Mar. 6	269		West of Harbin, Apr 13, improv-

1 See Public Health Reports, Apr. 1, 1921, p. 693, and Mar. 25, 1921, p. 630, for complete reports for these months. ² From medical officers of the Public Health Service American consuls, and other sources.

ing; east of Harbin more seri-

ous.

Reports Received During Week E ded Apr. 22, 1921-Continued.

PLAGUE-Continued.

Place.	Date.	Cases	. Deaths	. Remarks.
Egypt				Jan. 1-Mar. 40, 1021: Cases, 33;
Cities			1	deaths, 19.
Alexandria	Mar. 6			
Suoz	Mar. 3			i'l
Provinces-		1	.	
Girgeh	! Mar. 7	•	3	•
India	. Mar. 5	•		Fob 13-96 1091. Career 7.620.
Bombay	.' Feb. 13-19	12	2 9	deaths, 6.174.
Madras Presidency	. Feb. 27-Mar. 5	. 840	61:	3
Mexico:				
татрео		•¦•••••	·	Apr 10 1021; Apr 14, 1921.
				rodents found
Peru:				
Trujille-Salaverry	. Feb. 28-Mar. 13	. 4	1) 3	B
Andola-		1 1		
Loanda	Apr. 8			Rat plague still present but
	1		1	abating.
		<u> .</u> .		
	SMA	LEPOX.		
		1	1	1
Canada:		· .		
Benaventure and		1 .		
Gaspe Counties	Mar. 1-31	12		
Nova Scotia-	1	1	1	
Yarmouth	. Mar. 20-26	1		•
Untario	Ann 2.0			
Kingston	Mar. 20-26	1 1		Feb 21-97 1921: One case
London	Mar. 27-Apr. 2	i		1 co. 21 21, 1021. One case.
North Bay	Mar. 20-Apr. 2	2		
Ottawa	Mar. 27-Apr. 2	22		
Toronto	Apr. 3-9			•
Saskatchewan-				· · · · · · · · · · · · · · · · · · ·
Moose Jaw	Mar. 27-Apr. 2	1		
Regina	Mar. 27-Apr. 2	2		•
Chile:	Mar. 13-19	3		
Coquimbo	Feb. 13-19	2		· ·
China:				
Antung	Feb. 28-Mar. 6	1	1	
Cube:	reb. 27-Mar. 5	3		
Antilla	Mar. 27-Apr. 2	4		
Nuevitas	Mar. 28-Apr. 3	1		1
France:		_		
Kouen	Mar. 6–12	1		Yen 0 17 1001, Desther (0)
Bombay	Feb 13-19	39	15	Jan. 9-15, 1921: Deatns, 491.
Karachi	Feb. 27-Mar. 5	7		
Madras	Feb. 27-Mar. 5	7	2	
Italy:	Mar 11 00			To Dessions
Messina	Mar 7-13	7	4	In Province.
Java:			-	
West Java-				
Batavia	Feb. 10-16	1	•••••	
Lebak	do	3	······	
Pandeglang	do	2	·····	
Jugoslavia:	71.1	_		
Belgrade	reb. 27-Mar. 5	1		
Funchal	Mar 13-10		,	
Mexico:	Maga: 10-10		-	
Mexico City	Mar. 6–12	15		Including municipalities in Fed- eral District.
Newfoundland:		1		
Bonne Bay	Mar. 26-Apr. 1	11	!	

Reports Received During Week Ended Apr. 22, 1921-Continued.

SMALLPOX-Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Pahama: Colon Portugal: Lisbon Portuguese East Africa: Chai-Chai Chinde Iuhambane District Spain: Barcelona Valencia.	Mar. 23-29 Feb. 27-Mar. 12 Jan. 2-29 Jan. 2-8 do Mar. 3-9 Feb. 27-Mar. 12	4	3	Present. Do. Do.
Tunis. Tunis On vessel: S. S	Mar. 12-18 Mar. 27- Apr. 2	5 2	5 1	At quarantine, St. John, New Brunswick. From Europe.

TYPHUS FEVER.

	1	1	1	
Bulgaria:				
Sofia	. Feb. 20-Mar. 12	5		
Colombia:	1		1	
Barranouilla.	Mar. 13-19	1	1	
Egynt		1	1	
Cairo	Ian 22-28	3	3	
Great Britain				
Ballast	Mar 12 10	1 2		
Denast	. Mai. 13-18	-		
Greeve:	Eah 00 Mar 6			•
Drama	. ren. 28-mar. 0			
Kavalla	do	2		
Saloniki	. Feb. 28-Mar. 13	134	10	Of these, 129 cases among Russian
				refugees. At other localities,
Japan:			1	27 cases, 2 deaths.
Nagasaki	. do	10	1	
Mexico:				
Mexico City	Mar. 6-12	16	i	Including municipalities in Fed-
				eral district.
San Luis Potosi	Mar 97-Apr 2		1	
Doland			-	Voor 1020- Conor 161 946
F Uand	• • • • • • • • • • • • • • • • • • • •		• • • • • • • • • • •	Law 1 Eab 98 1921, Deaths 2
Portugal	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			Jan. 1-Feb. 48, 1921. Deatins, 5.
• Oporto	. Mar. 22-28	2	1	
Russia:	1			
Latvia				
Riga	. Jan. 8-31	151		A CONTRACTOR OF
-			i i	

Reports Received from Jan. 1 to Apr. 15, 1921.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China: Canton Changsha	Nov. 1-30.	7	6	Present.
Chungking Chosen (Korea)	do.			Do. Aug. 1-Dec. 2, 1920: Cases, 24,017; deaths, 13,329.
India Bombay	Dec. 5-11	2	2	Sept. 26-Oct. 9, 1920: Deaths, 2,672. Oct. 31-Dec. 11, 1920:
Do Calcutta	Jan. 16-Feb. 12 Oct. 31-Dec. 25	3 321	2 283	Deaths, 7,184. Jan. 2-8, 1921: Deaths, 1,678.
Do Madras	Dec. 26-Feb. 19 Dec. 12-18	441	352 44	
Do Rangoon.	Dec. 26-Feb. 26 Nov. 28-Dec. 25	193 9	106 8	
Do. Judo-China.	Dec. 26-Feb. 5	22	20	July 1-31, 1929: Cases, 136;
Saigon	Dec. 27-Jan. 9	1	1	deaths, 9. Including sArro mding country.

Reports Received from Jan. 1 to Apr. 15, 1921-Continued.

CHOLERA-Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Japan: Taiwan Island (Formosa).	Nov. 11-Dec. 31	219	23	
Do	Jan. 1-20	2		
Java:	1	-	1	
West Java-		1		
Bandoeng	Cct. 29 Nov. 11	2	1	
Batavia	Nov. 25 Dec. 1	1		•
Philippine Islands:			1	
Manila	Nov. 7- Dec. 25	9		1
Do	Jan. 9-Feb. 26	10		
Provinces-				
Cagayan	Oct. 3-Nov. 20	i ii	9	
Samar	Aug. 1-7	1	1	
Fotom frontion	• • • • • • • • • • • • • • • • • • • •	• • • • • • • •		Oct. 1-31, 1920: Cases, 25: deaths,
Balvetok	Dec. 16			13. Thereast
Calicia	Nov. 1 20			Present.
Gredue	do. 1-30	19		De
Olitza	do	• • • • • • • • •		Do.
Posen	do	•••••		Present in Russian prison camp
Stralkowo	do	•••••		riesene in reassan prison camp.
Streino	do	1	1	
Warsaw	Cet. 1-31	2	-	In district.
Do	Dec. 16	5		Nov. 1-30, 1920; Cases, 7; deaths, 2.
Russia:		•		
Lithuania				Feb. 19, 1921: Cases reported, 35;
Latvia				mortality, 30 per cent.
Riga	Jan. 22			Present.
Siam:				
Bangkok	Oct. 9-Nov. 7	7	1	
Do	Dec. 26-Jan. 22	3		

PLAGUE.

	•			
Algerie		1		
Algeria:	Nov. 1 Dec. 21			
Aigiers	lop 1 21		1	
Argentine.	Jan. 1-31	. 3	1 1	
Argentina.		1		Ten 1 21 1001. 2 nlama radanta
N058110		• • • • • • • • • •		Jan. 1-31, 1921; 5 plague rodents
A some	1	1		joung.
Azores:				Matal Oat 1 Dec 10 1000 (lager
ct. Michaels	· · · · · · · · · · · · · · · · · · ·	· -		10(al, Oct. 1-Dec. 10, 1920; Cases,
Donto Dolrodo	Esh F 11	1 .		149: deaths, 49. In vicinity of
Ponta Deigaua	Feb. 5-11			ronta Dergada.
Drazii:	0 at 01 Day 10			1
Bania	Oct. 31-Dec. 18	6	4	1
""""""""""""""""""""""""""""""""""""""	Dec. 26-1 eb. 12	1 11		
Ceara	Oct. 17-Feb. 5		15	
Pernambuco	Oct. 18-Dec. 5	1		
Porto Alegre	Nov. 11-Dec. 11		2	
Do	Dec. 26-Feb. 19		7	
British East Africa				Outbreak Nov. 8, 1929: Cases
Kenya Colony		1		reported, 1,067.
Kisumu	Oct. 31-Dec. 25			Fresent.
Do	Dec. 26-Feb. 12			Do.
Mombassa	Oct. 31-Dec. 25	2	2	
Do	Dec. 28-Jan. 15			Do.
Nairobi	Oct. 31-Dec. 25	16	11	
Do	Jan. 2-Feb. 5	19	15	Pneumonic, present.
Uganda	Oct. 21-Dec. 25	111	103	Entire protectorate.
Do	July 1-Nov. 5	259	63	Do.
Ceylon:				
Colombo	Nov. 7-Dec. 18	18	60	
Do	Jan. 16-Feb. 19	76	65	
Chile:				
Antofagasta	Nov. 24-Dec. 5	6	2	
Do	Dec. 27-Jan. 2	2		
China:				
Chihli Province				Mar. 11, 1921: Present on Tient-
				sin & Pukow R. R., 70 miles
				east of Tientsin. Pneumonic.
Peking.	Jan. 25		1	Chinese quarter.
Fan Yuan	Mar. 3		50	In Northern Shantung Province.
				-

Reports Received from Jan. 1 to Apr. 15, 1921-Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China-Continued.	Nov. 7-Dec. 18	6	6	
Kwantung Province Manchuria Province	Jan. 9-15 Dec. 29	i	<u>i</u>	Reported present in Tapu dis-
Changchun Harbin Manchuria station	Feb 18 Feb. 2-Mar. 20 Jan. 1-Mar. 10	15	148 283	West of Harbin, Feb. 7, 1921, 400 fatal cases reported. Feb. 14,
				1921, fatal cases, 1,200. To Mar. 14, 1921: 4,000 fatal cases. Pneumonic. Fatal cases ro- ported daily, about 40.
Mukden Tsitsihar	Feb. 20-26 Feb. 2-Mar. 10			Prevalent. Pneumonic. Present. Two plague rats found Dec. 20
				and Dec. 31, 1920.
Ecuador: Guavaquil	Nov. 16-Dec. 31	111	36	
Do	Jan. 1-Feb. 15	135	47	
Egypt.				Jan. 1-Dec. 30, 1920: Cases, 402; deaths 269. Jan. 1-Feb. 17.
Alexandria Port Said	Jan. 17–22 Oct. 22–28	1		1921: Cases, 20; deaths, 13.
Do	Jan. 22	1	1	
Suez	NOV. 18-27	10	3	Pneumonic, 6 cases: senticemic.
Province—	Jan. 0 1 00. 10			1 case.
Assiout	Nov. 24	• 3	2	
Minen	Feb. 14-15	.*	• • • • • • • • • • • •	
Marseille Paris	June-Aug. 31 June-Oct. 15	58 50	<u>20</u> 11	In suburbs, June-Nov. 2, 1920:
Do				Cases, 38; deaths, 19. Jan. 1-13, 1921: Cases, 3; deaths
Great Britain:			· ·	1. (Suspect.)
Dublin				1 case reported Dec. 15, 1920, date of occurrence, Oct. 18, 1920.
Liverpool				Plague-infected rat found, period Nov. 28-Dec. 11, 1920.
Greece: Kavala	Oct. 25-Nov. 7	. 2		
India.	Nov 99 Dog 95	e	_e .	Oct. 24-Dec. 25, 1920: Cases,
Do	Dec. 26-Feb. 12.	17	11	Feb. 12. 1921: Cases, 29,213;
Calcutta	Nov. 14-20	46	44	deaths, 22,573.
Do	Jan. 30-Feb. 12	1	1	
Karachi	D32. 25-31 Dog 5-25	27		
Do.	Jan. 9-29	3	i	
Madras Presidency	Nov. 14-Dec. 25	4,349	2,991	•
Do	Dec. 23-Feb. 26	8, 533	6,151	
Do	Dec. 26-Feb. 19	92	20 84	
	200120 2001000			T.1-1.01.1030. Gener 02t deaths
Indo-Unina	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • •	•••••	74.
SaigonJava:	Dec. 27–Jan. 9	2	2	Including surrounding country.
West Java	Nov. 91 Dog 1	2	9	
Do	Jan. 13–26	3 1	2	
Jugoslavia: Cattaro	Feb. 23	3		Among French troops.
Madagascar: Tamatave	Mar. 9.			Present.
Mesopotamia: Bagdad	Oct. 1-31	25	7	
Mexico:	Dec 5-20	2	1	State of San Luis Potosi Dec
Do	Dec. 26-Jan. 8	3		1920-Feb. 12, 1921: Cases, 24.
Cerritos	Dec. 5-20	7	8	State of San Luis Potosi.
Do Tampico	Mar. 23-30	5 4	2	
Vera Cruz.		······		Mar. 21-27, 1921: Two plague in- fected rodents found.

Reports Received from Jan. 1 to Apr. 15, 1921-Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Paraguay: Asuncion	Feb. 4	1	1	Tula December 1990, Gran 200
Departments-	••••••			deaths, 13). JanFeb. 28, 1921:
Callao-Lima Callao Libertad Trujillo-Salaverry. Lima Pitra Porto Rico: Son Juon	Feb. 1-15 do. Dec. 27-Feb. 27 Feb. 1-15 Go.	2 1 25 14 21	4 4 10	Cases, 141: deaths, 71. July-December, 1920: Cases, 23; deaths, 10. Jan. 1-31, 1921: Cases, 3; deaths, 2.
	rep. 10-29		2	19.
Angola— Loanda				Mar. 18, 1921: Rat plague present.
Russia: Batum	Nov. 24-Dez. 3	38		Epidemic outbreak.
Siam: Bangkok	Dec. 5-11	1	1	
Singapore	Oct. 31-Nov. 6	1	1	
Tunis: Ben Gardane				June-July, 1920: Cases, 6. No-
Zarzis	Jan. 25	1		vember-December, 1920: Cases, 10, in surrounding territory. Jan. 15, 1921: 10 cases notified in vicinity. (Corrected report report 20, 1921)
Turkey: Constantinople Union of South Africa:	Nov. 21-27	1	2	1021401 stat. 30, 1921.)
Hoopstad district	Nov. 28-Dec. 18	3	1	1 European, 2 natives. On Vry- heid Farm. (Public Health Benets June 25 1922 p. 1550)
Do Kroonstad district	Jan. 23–Feb. 5 Jan. 23–Feb. 23	1	1 3	In European; on farm. On farms. Plague-infected wild rolents found.
On vessei: S. S. Kronprincessan Vic- toria.	Jan. 15	•••••		At Stockholm, Sweden. Rat plague found. Vessel left Bue- nos Aires, Argentina, Nov. 17, 1920. Stopped at Goteborg and Malmo, Sweden. Left Malmo Jan. 11, 1921. Rats found dead Jan. 13, 1921, at Stockholm.

SMALLPOX.

Algeria: Algiers. Austria	Jan. 1-31	5		Aug. 2)-Dec. 25: 1920; Cases. 75.
Azores: Ponta Delgada Boliyia:	Dec. 18-24	7		
La Faz. Brazil: Bahia. Do. Pernambuco.	Oct. 31-Dec. 31 Jan. 8-15 Oct. 18-Dec. 19	19 6 4 102	7	
Do Rio de Janeiro Do Sao Paulo	Dec. 27-Jan 30 Oct. 24-Dec. 25 Dec. 23-Feb. 5 Dec. 13-19	36 108 21	24 6 1	
British East Africa: Kenya Colony Mombasa Uganda	Jan. 23-29	1		May 1-June 30, 1920: Cases, 272.
Bulgaria: Sofia	Nov. 7-13	2		

Reports Received from Jan. 1 to Apr. 15, 1921-Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Canada:				· · · · ·
Alberta-	D . 10.10			
Calgary	Dec. 12-18	15		•
British Columbia-	Jan. 2-1 CJ. 15	. 10	1	
Fernie	Feb. 6-12	. 2		
Vancouver	Dec. 5-11	1		
Do	Dec. 26-Mar. 19	21		
Manitoba-	Jan. 30-man. 5			
Winnipeg	Jan. 16-Mar. 19	17		
New Brunswick			.	From lumber camp on Canadian
Bonaventure and	Feb. 1-28	. 4		Government R. R., Feb. 5,
Campbellton	Jan. 9-15			Present.
Gloucester County	Jan. 23-29	1		
Madawaska County	Jan. 30-Feb. 19	2		
Northumberland	Mar. 6-12	1		
County. Restigouche County	Dec 12-18	1 1	1	
Do	Feb. 6-19.			1
St. Stephen	Feb. 27-Mar. 5	Ī		
York County	do	6		
Nova Scotia-	Fab 12 Mar 96	1=		
Sydney	Ian Q.Mar 5	15		
Ontario.	• • • • • • • • • • • • • • • • • • • •	l		November-December, 1920: Cases,
Hamilton	Dec. 19-31	9		992; deaths, 5. Jan. 1-31, 1921:
Do	Jan. 2-Apr. 2	67		Cases, 902; deaths, 3.
Kingston	Dec. 25-Jan. 19			
Montreal	do	13		
Niagara Falls.	Dec. 12-18	Ĩ		
North Bay	Der. 12-25	4		
Do	Jan. 2-Mar. 19	27	·····	
Do	Dec. 22-Mar. 26	631	2	
Peterborough	do	3		
Sarnia	Feb. 20-Mar. 5	2		
Sault Ste. Marie	Jan. 9-1 eb. 12	48	• • • • • • • • • • •	
Do	Dec. 23-Mar. 19	56		
Quebec-				
Quebec	Jan. 23-Feb. 19	2		
Saskatchewan-	Dec. 10.95			
Do	Jan. 2-Mar. 12	42		
Regina	Dec. 12-25	iī		
Do	Jan. 2-Mar. 25	52		
Saskatoon	Dec. 16-22	20		
Covion ²	Jan. 9-Mar. 20	20	•••••	
Colombo	Nov. 21-Dec. 25	18	7	
Do	Dec. 23-Feb. 19	5	2	
Chile:				Enidomic with high mortality
China:	••••••			Deligente with high mortunity.
Amoy	Nov. 7-Dec. 25		7	
Do	Dec. 26-Feb. 5		5	
Antung	Dec. 20-26	1	•••••••	
Do Cauton	Doc 1-31	-	2	Present.
Do	Jan. 1-31			Do.
Chungking	Nov. 7-Dec. 25			Do.
Do	Dec. 26-Feb. 5			De. De
Foccnow	Dec 28-Feb 12	•••••	•••••	Do.
Hankow	Jan. 2-22	2	1	
Manchuria Province-			_ [
Dairen	Nov. 16-Dec. 20	12	3	
D	Dec 00 Keb 12	الشعا	23	
Do Mukden	Dec. 28-Feb. 13			Prevalent.
Do Mukden Do	Dec. 28-Feb. 13 Dec. 12-18 Jan, 16-Feb. 26			Prevalent. Present.
Do Mukden Do Nanking	Dec. 28-Feb. 13 Dec. 12-18 Jan. 16-Feb. 26 Nov. 14-Dec. 18			Prevalent. Present. Do.

Reports Received from Jan. 1 to Apr. 15, 1921-Continued.

SMALLPOX-Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China-Continued.				
Tientsin	Nov. 14-Dec. 4	. 2		. Dec. 12-25, 1929: Cases, 169; in
Do	Dec. 26-Feb. 26	6		In camp for famine refugees. 177
Tsinanfu	Oct. 31-Nov. 12	20		. Statistics of Shantung Christian
Tsingtau	Jan. 3-Feb. 13	3	1	Hospital.
Chosen (Korea):	Dog 1 21	Ι.		
Fusan	Nov 1-31	1		•
Do	Jan. 1-31	4	1	•
Gensan	Dec. 1-31	15	12	
Do	Jan. 1-31	24	8	
Barranquilla	Jan 16-Mar 12		1	Present
Santa Marta	Dec. 5-25		1	Do.
Do	Dec. 26-Mar. 19			Do.
Cuba:	Dec 7 97	10		E
Do	Jan 2-Mar 19	87		Por port of Preston.
Camague / Province	Jan. 2-1101. 15	01		Reported seriously prevalent
				during January, 1921. Mar. 17,
Cienfuegos	Mar. 13-19	1		1921: 335 cases reported. M
Habana	Dec. 31-Feb. 16	11		1 from Jatibonico, Cuba; 1 from
Lugareno	Mar. 7-13	2		Vicinity of Nuevita: Dec 6-12
Mata:iza3	Jan. 2-29	6		1920: 1 case.
Nuevitaș	Dec. 6-19	2		
Do Oriente Province	Jan. 3-Mar. 27	36		Man 17 1021, 221 appart and
Santiago	Nov. 20-Dec. 10		• • • • • • • • • • • •	Mar. 17, 1921: 334 cases reported.
Do	Fcb. 1-Mar. 20	263		"Alastrim" reported present:
				cases, estimated, about 1,000.
Czechoslovakia	•••••	•••••	• • • • • • • • • • •	July 11-Aug. 14, 192): Cases, 141;
Danzig	Dec. 5-18	2		ueut.13, 29.
Do ninkan Republic				Nov. 15-Dec. 25, 192); Cases, 9;
Santo Do_fingo	Jan. 9-Feb. 19	13	1	occurring in 4 localities.
Ecuador:	Nov. 16 Dec. 21			
Do	Jan 1-Feb 15	30	2	
Egypt:			•••••	
Alexandria	Dec. 17-31	3	1	
00	Jan. 1-Mar. 4	9	1	
Do	Jan 8-14	3	•••••	
Port Said	Nov. 19-Dec. 31	î	1	
Do	Jan. 8-14		1	
France:	Nov. 1.20			
Do.	Jan 1-31	7	- i	
Rouen	Nov. 21-Dec. 31	7	$\hat{2}$	
Do	Feb. 13-27	2		
St. Etienne	Dec. 3-15	2	1	
lermany	Jan. 20- Feb. 12	3	•••••	Aug. 23-Nov. 6, 1920; Cases. 40.
reat Britain:				ing, in inter of inter cases, int
Glasgo w	Dec. 25	11	2	
Lirorpool	Jan. 2-Mar. 19	23	8	
London	Dec. 23-Jan. 1	1	•••••	
reece:		-	•••••	
Saloniki	Nov. 15-Dec. 23	39	14	In surrounding country: Cases,
DO	Dec. 27-Feb. 5	21	18	21; deaths, 2
Cane Haitien	Feb. 13-Mar. 12	23		2.232; deaths, 64.
Port au Prince	Sept. 22-Doc. 2	(83	2	In 8 interior to xns, 20 cases. In
				one locality, 18 cases. In coun-
				try district, vicinity of Port au
				date of outbreak to Feb 11
Ionduras:				1921: Cases, 2,874; deaths, 221.
Ceiba	Feb. 13-Mar. 5	4 .		
ndia	Nev 7 Dec of	····::·!·		Sept. 23-Oct. 9, 1923: Deaths,
Do	Dec. 25-Feb 12	81	3	200. 021. 31-000. 11, 192.); Deaths: 3.902 Day 10-23
Calcutta.	Dec. 5-11	2	2	1920: Deaths, 853. Doc. 23.
Do	Jan. 2-Fe5. 19	12	7	1920-Jan. 8, 1021: Deaths, 728,
	•	•	•	

Reports Received from Jan. 1 to Apr. 15, 1921-Continued.

SMALLPOX-Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
India-Continued.				
Karachi Madras	Jan. 16-Feb. 28 Nov 14-Dec. 18.	22	25	
Do	Dec. 26-Feb. 26	33	5	
Rangoon	Nov. 21-Dec. 25	5	1	
Indo-Chine	Jan. 2-rep. 19		1 1	July 1-21, 1920; Cases, 107.
Italy:		1		deaths, 24.
Catania	Nov. 29-Dec. 5	1	·····	In Province, Nov. 29-Dec. 26, 1920: Cases, 43. Jan. 3-10,
Do	Feb. 14-Mar. 12	11		1921: Cases, 32. Jan. 17-Feb.
Messing (city and Province)	Jen 3-Mar 6	37		Dec. 5, 1920-Jan. 16, 1921: Cases
Palermo.	Oct. 30-Dec. 27	410	124	25.
Do	Jan. 26-Mar. 8	238	35	
Java:			1	Nov 19 Dec 90 1090; Cases 79
West Java Bandoeng	Nov 19-25	1	······	deaths 6. Jan. 6-12, 1920;
Dandoeng	Feb. 3-9	1 i	1 1	One case, one death.
Patavia.	Nov. 12-Dec. 25	14	5	
Do	Jan. 27-Feb. 9	3	2	
Garoet	do	1		
Krawang	NOV. 12-Dec. 29			
Do	Jan. 13-Feb. 2	26		
Lebak.	Jan. 13-Feb. 9	24	9	
Pandeglang	Jan. 27-Feb. 2	6	2	
Jugoslavia	July 25-Aug. 28	128	42	Feb. 7-13, 1920: Cases, 122;
Zagreb	Jan. 9-Feb. 19	3	1	deatns, 27.
Madagascar:	Lec. 15-Jan. 1	1		• · · · ·
Madeira:	Jan. 11-20		2	
Funchal Do	Dec. 5-18 Dec. 26-Mar. 12		28	
Mesopotamia:				
Bagdad	Nov. 1-Dec. 31	2		
Do	Jan. 1-31	1	2	
Chihuahua	Dec. 6-26	11	3	
Do	Dec. 27-Mar. 13		15	
Ciudad Juarez	Mar. 21-27		1	
Guadalajara	Dec. 1-31	1		
Maxico City	Jan. 1-01	17		Induding municipalities in the
Do	Jan. 2-Mar. 5			Federal district.
Salina Cruz	Jan. 1-Feb. 28	4		Do.
San Luis Potosi	Feb. 6-12		1	
-Tecate	Jan. 17	3		
Newfoundland.	Jan. 1-F CD. 28	0	3	
Grand Falls.	Mar. 12-18.	1		
St. Johns	Jan. 22-26	1		
Norway:				
Stavanger	Jan. 23-29	3	•••••	
Colon	Jan. 5-Mar. 22	100		
Poland	·····			SeptOct., 1920: Cases, 175;
Warsaw	Sept. 1-30	3		deaths, 37.
Portugal:	N. 00 D. 10			• •
Do	NOV. 22-DCC. 18 Den 26-Feb 26	• • • • • • • •	12	
Portuguese East Africa	Dec. 20-Feb. 20	• • • • • • • • •	12	
Gaza district	Dec. 18-23.			Present.
Inhambane district	Dec. 26-Jan. 1			Do.
Lourenco Marques	Oct. 24-Dec. 11	10		Reported present in interior of
Quenmane	ao	3		Chai-Chai district.
Kisseneff.	Jan. 1-Mar. 18	18		District.
Russia:		-0		
Esthonia Province				Dec. 1-31, 1920: Cases, 17.
Reval	Oct. 1-Nov. 30	28		
Riga	Nov. 1-Dec 31	17		· · · · ·
Siberia-		**		
Vladivostok	Oct. 1-Nov. 30	2	1	· · ·

Reports Received from Jan. 1 to Apr. 15, 1921-Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Spain: Barcelona. Corunna. Madrid. Do. Malaga. Do. Tarragona. Valencia. Do.	Nov. 18-Dec. 29 Jan. 13-Mar. 2 Dec. 12-18 Feb. 6-13 Oct. 1-Dec. 31 Jan. 1-Feb. 28 Jan. 30-Feb. 19 Dec. 5-25 Dec. 26-Feb. 28	 	13 21 1 1 1 77 32 2	Year ended Dec. 31, 1920: Deaths, 9.
Syria: Aleppo. Do. Tunis: Tunis. Do	Nov. 14-Dec. 4 Jan. 16-Feb. 5 Nov. 30-Dec. 28	 10	18	Dec. 12–25, 1920: Present. Present.
Turkey: Constantinople Do Union of South Africa	Nov. 21–Dec. 11 Jan. 2–Mar. 5 Feb. 20–26	4 18		Fresh outbreaks, States of Natal, Orange Free State, and Trans-
Cape Province Natal	Jan. 23-Feb. 5			vaal. Outbreaks. Feb. 13–19, 1921: Present in rural arcas.
Orange Free State Transvaal	Jan. 23–Feb. 5 do		•••••	Outbreak. Outbreaks. Feb. 13-19, 1921: Present in rural area. Jan. 23-Feb. 5, 1921: Outbreak in
Johannesburg Do Uruguay: Montevideo	Oct. 1–31 Feb. 13–19 Dec. 1–31	1 2 6	2	one district. From Portuguese East Africa.
On vessels: S. S. Alfonso XIII	Dec. 27	1		At Habana, Cuba, from ports in northern Spain.
S. S. Cadiz U. S. S. Mississippi S. S. Ohioan	Jan. 3 Feb. 18–20 Jan. 4	1 22 1		At Habana, Cubb, from Mediter- ranean perts. In Canal Zone. At San Pedro, Calif., from New York, via Balboa, Canal Zone
S. S. Ventura	Jan. 18	1		At Sydney, Australia, from San Francisco, Calif., via Honolulu, and Pago Pago, Samoa.

TYPHUS FEVER.

		1	1	1
Algeria:				
Algiers	Jan. 1–Feb. 28	6	1	
Belgium:	•			
Ghent	Dec. 12-18.	5		
Bolivia:	1	-		
La Paz	Dec 1-31	13	l a	
Brazil.				
Cooto	Oct 17-Dec 28			
De	lon 9 90	• • • • • • • •	2	
Dulaasia.	Jan. 2-29		9	
Bulgaria:				
Eoua	Jan. 2-Feb. 19	3		
Chile:				
Concepcion	Nov. 1–Dec. 27		23	
Dō	Dec. 28–Feb. 20		9	Present in vicinity. Year 1920:
Coquimbo	Dec. 1-7		1	in public hospital, 89 cases, 13
Valparaiso	Oct. 25-Nov. 27		13	deaths
Do	Jan 30-Feb 19		5	
China.		••••••	, v	
Manchuria (Provinco)-	1			
Harbin	More 22 28			On Chinese Festein Detimos
	100.22-20	1		Un Chinese rastern Kallway.
Du	Jan. 3-9	1		~
Manchuria Station	NOV. 22-28	2		D0.
D0	Jan. 10-16	1		
Chosen (Korea):				
Seoul	Dec. 1-31	1		
Do	Jan. 1-31	1		

April 22, 1921.

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

Reports Received from Jan. 1 to Apr. 15, 1921-Continued.

TYPHUS FEVER-Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Czechoslovakia				July 11-Aug. 28, 1920: Cases, 138; deaths, 18. Reported present
Prague Danzig Do	Feb. 1–21 Dec. 20 Jan. 16–Feb. 5	2 1 3	1	Feb. 19, 1921. In emigrant from Brest-Litovsk with 2 weeks' stay at Warsaw.
Egypt: Alexandria Do	Nov. 19-Dec. 31 Jan. 1-Mar. 4	13 14	6	
Cairo Do Germany	Jan. 1–21	15	32 12	Sept. 12-Dec. 25, 1920: Cases, 259,
Great Britain: Belfast	Dec. 5-25	13		23, 1920–Jan. 8, 1921: Cases, 7.
Dublin Do	Nov. 28-Dec. 18 Jan. 9-Mar. 5	4 11	32	• · ·
Drama. Patras. Saloniki.	Nov. 22-28 Nov. 29-Dec. 5 Oct. 25-Dec. 23	1	1 9	
Do Serres	Jan. 10-Feb. 5 Nov. 8-14	354 1	5	Among refugees from Russia. Present among Caucasian refu- gees in vicinity.
Guatemala. Guatemala City. Hungary.	Mar. 1-12		i	Aug. 3-Dec. 5, 1920: Cases, 33.
Italy: Naples	Feb. 23	2		Among emigrants intending to
Japan: Nagasaki	Nov. 15-Dec. 26	10	1	come to United States.
Do Jugoslavia Belgrade	Dec. 27-Feb. 27 July 25-Aug. 28 Jan. 9-22	13 27 2	5 5	Feb. 7-13, 1920: Cases, 81; deaths, 2. Dec. 12-25, 1920; Cases, 112.
Medjumurju Province Do Zagreb	Jan. 2-8 Feb. 13-19 Dec. 12-25	73 42 27		114 remaining cases. 51 remaining cases.
Do Malta. Mesopotamia:	Dec. 25-Feb. 21 Dec. 1-31	41 1	6 1	City and county.
Mexico: Guadalajara	Dez. 1-31	11 6		
Mexico City Do	Nov. 14-Dec. 25 Dec. 23-Mar. 5	67 129		Including municipalities in the Federal district. Do.
San Luis Potosi Do Netherlands:	Dec. 5-31 Jan. 16-Mar. 26		3	Present. Dec. 26-Mar. 26, 1921: Present.
Rotterdam Poland District—	Jan. 23-29	1		SeptOct., 1920: Cases, 3,815; deaths, 371. Nov. 1-30, 1920
Galicia Kielce I.odz	Nov. 1 30 do do	1, 192 279 83	280 15 6 20	Cases, 3,009; deaths, 300. Dec. 1-31, 1929: Cases, 4,614; deaths, 550. Jan. 1-31, 1921: Cases, 5 208: deaths, 507
Posen Silesia Warsaw	do do do	17 17 191		0,005, 403(125, 000)
Warsaw city District— Bialysto'x	Nov. 1-Dec. 16 Jan. 1-31	96 321	- 8 33	•
Calicia Kielce Lodz	do do do	3,427 426 200	457 42 14	
Lublin Posen Silesia	do do do	383 13 1	18	
Warsaw Warsaw city Portugal:	do	340 197	16 17	-
Do	Dec. 26-Jan. 1	3	ï	-

Reports Received from Jan. 1 to Apr. 15, 1921-Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Russia: Province—				
Esthonia.	••••••			. Sept. 1-Dec. 31, 1920: Cases, 455.
Latvia— Riga	Nov. 1-Dec. 31	185		
Do Lithuania	Jan. 1-7	21		Feb. 19 1921: Cases 175: mo-
Buthania			1	tality, 5 to 6 per cent.
				5 fatal cases daily. Mar. 5, 1921: 200 fatal cases previously unreported.
Ukraine				Feb. 19, 1921: Occurrence of about 5 fatal cases daily.
Siberia— Vladivostob	Ion 1.21			· · · · · · · · · · · · · · · · · · ·
Turkey:	Juli. 1-31	1	0	
Constantinople	Nov. 21-Dec. 25	25	1	
Union of South Africa:	Jan. 2-Mar. 12	45		
Cape Province				Feb. 13-19, 1921: Outbreaks re-
Cape Town	Dec 20-26	16	5	ported.
Port Eli abath	Jan. 29-Feb. 12	5	3	
Notol	Fob 12 10	1	•••••	Outbrook
Orange Free State	Jan. 23-Feb. 5	•••••		Outbreak.
Johannesburg	do	1		District.
On vessels:				
• S. S. Presidente Wilson	Feb. 1-5	15	•••••	At New York. From Trieste, Italy, Jan. 15; Naples, Jan. 18;
S. S. San Giusto	Feb. 10-Mar. 3	22		At New York. From Trieste, Jan. 23, and Naples, Jan. 26, 1921.
	,			

YELLOW FEVER.

Constraint and the Data second s				
Brazil:				
Pernambuco	Nov. 14-21	1	1	
Mexico:		1		
Orizaba	Dec. 5-18	2	1	
Papantla	do	8	2	
Do	Jan. 9-15.		ī	
Tampico	Dec. 12-18	1	i i	
Tuxnam	Dec. 5-18	â	Î Â	
Do	Dec 26. Jan 1		1	
Vora Cruz	Dec 5-96		1 2	
Do	Dec. 0-20			
7.mora	Dec. 20-Mar. 20	1	1 1	Alan colled Cathomas Chats of
-	Dec. 12-18	1	1	Vera Cruz.
Peru:	1		i	
Department-	I		1	
Lambayeque			1	Outbreak reported Jan. 22, 1921.
Chiclayo	Feb. 1-28	18	6	· · · · · · · · · · · · · · · · · · ·
Eten.	do	7	2	
Ferrenafe	Jan. 1-31	18	17	
Do	Feb. 1-28	44	19	
Lambayeque	Jan. 1-31		1 1	
Do	Feb 1-28	Ā	- 1	
Monselu	Feb 16-28	3		
On voscal:	1 00. 10-20	-	•••••	
S S Somoio	Top. 11.15			At The bases of the form The
5. C. Savoli	Jan. 11-13	4	•••••	Cruz, Mexico. Vessel arrived Habana, Jan. 10. 1920, with
				three cases sickness on board. Two cases confirmed. Two
				cases developed later on board;
	•			Connrmed Jan. 15. Savoia left Vera Cruz Jan. 6, 1921.
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