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THE FIELD INVESTIGATION OF EPIDEMIC POLIOMYELITIS (WHAT THE HEALTH OFFICER CAN DO TOWARD SOLVING A NATIONAL PROBLEM).[a]

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PREVALENCE AND SERIOUSNESS.

Epidemic poliomyelitis, which has for many years been recognized at intervals in circumscribed localities as a serious problem for the guardians of the public health, has in the present year become in the United States one of our national public health problems. It has become so chiefly by reason of its enormously increased prevalence—an increase both in the total number of persons affected and in the area of epidemic prevalence.

Lovett (1),[b] in a compilation prepared for the Massachusetts state board of health, gives the number of cases of poliomyelitis reported in the literature of the world as occurring in epidemics by five-year periods from 1880 to 1909, as follows:

Five-year period.	Cases.	Epidemics.	Average number of cases.
1880–1884	23	2	11.5
1885–1889	93	7	13.0
1890–1894	151	4	38.0
1895–1899	345	23	15.0
1900–1904	349	9	39.0
1905–1909	8,054	25	322.0

After making all due allowance for the increase due to greater accuracy of diagnosis, it is still clearly evident that there has been an actual, progressive, and rapid increase in the occurrence of epidemics of this disease. And, what is of more vital importance to us, of the 8,000 cases reported from 1905 to 1909, approximately 5,000 have occurred in the United States, practically all within the three years 1907–1909. The cases in 1907 were confined quite definitely

[a] Read at the Tenth Annual Conference of Sanitary Officers of New York, Buffalo, N. Y., November 18, 1910.

[b] For references see end of article, p. 1676.

to New York City and its vicinity. Epidemics were reported in 1908 from several States, in 1909 from at least 4, and in 1910 from at least 17 States.

The Surgeon-General of the Public Health and Marine-Hospital Service is endeavoring to collect from the health officials of all the States reports of the prevalence of the disease in 1910. These reports (2), known to be fragmentary as yet, indicate approximately 2,500 cases reported from 23 States; and additional reports, unofficially received, make it quite certain that 3,000 is a minimum estimate of the cases occurring in the United States during 1910.

These figures, to be sure, are not alarming when compared with the statistics of other infectious diseases; but there are, in the prevalence of epidemic poliomyelitis, certain features which add to the seriousness of the problem. First, its rapidly progressive increase, indicating, so far as predictions are justifiable, that the situation for the ensuing year will be more serious than at present. Again, while the mortality of the disease, averaging perhaps 10 to 15 per cent, is not greater than that of other more widespread infections, the mortality in this case represents but a small part of the suffering and economic loss entailed. A very large percentage of those who escape with their lives are left with a permanent disability of greater or less degree, which often results in a lifetime of dependence on the part of the victim and of distress on the part of his family. Epidemics of other diseases come, go, and are forgotten; but epidemics of poliomyelitis leave in their wake cripples who will remain as objects of sympathy, often as objects of charity, to the next generation. Another most serious feature of epidemic poliomyelitis is the mystery which still surrounds its origin and means of dissemination, resulting in a lack of confidence in preventive measures and a magnification in the popular mind of the terrors of the disease.

PREVENTABILITY.

It is not, however, the seriousness of epidemic poliomyelitis, but its preventability, which fastens upon the health officer his responsibility in the matter; the seriousness of the disease only increases the gravity of this responsibility. So long as a disease is known to be irremediable the health officer may stand by and commiserate; if there is reason to suspect that it is preventable it is his duty to investigate; if it is known to be preventable, he must prevent.

To define the status of the health officer in regard to epidemic poliomyelitis, it will be necessary first to give a brief summary of facts bearing on its preventability.

Laboratory studies, a large and valuable part of which has been contributed by Flexner and Lewis from the Rockefeller Institute, have demonstrated that the disease is transmissible from human beings to monkeys and from monkey to monkey; animals other than the monkey have been found insusceptible, except by a few observers who report successful inoculations of rabbits (3, 4, 5).

It has been demonstrated that the specific causative organism is of minute size, being able to pass through a Berkefeld filter; that it is easily killed by heat and by comparatively weak disinfectants; that it is very resistant to cold and to drying. In the bodies of infected animals the virus (germ) of the disease has been demonstrated not

only in the spinal cord and brain, but in the nasal mucous membrane, the salivary glands, mesenteric glands, and, after subcutaneous inoculation, at the site of inoculation and in the lymph glands receiving the drainage from that area. The cerebro-spinal fluid and blood have been found infectious in the early stages of the disease. It appears, however, that the virus is present in the blood only in the early stages of infection and then in small amounts.

The most uniformly successful method of inoculating monkeys is by injection of the virus into the central nervous system, but successful inoculations have been made into the peripheral nerves, intravenously, intraperitoneally, and subcutaneously; also, which is of great importance, by introducing the virus into the stomach or intestines, by rubbing it into the scarified mucous membrane of the nose, and, as reported by one observer, by bathing the uninjured nasal mucosa with an emulsion of the virus (6).

Immunity after an attack of the disease is manifested in monkeys by insusceptibility to reinoculation. In the blood of both persons and monkeys after recovery from the disease specific antibodies have been demonstrated, capable of neutralizing in vitro certain amounts of the virus. The efforts to produce an antitoxin of therapeutic value have so far been unsuccessful, as have also the efforts to devise a safe means of protective inoculation or vaccination.

Reviewing briefly the results of laboratory experiments, it is shown that epidemic poliomyelitis is an acute infection due to a specific micro-organism. The demonstration that the secretions of the nose and mouth are infectious even in monkeys inoculated intracranially, and the successful inoculation of monkeys through the respiratory and digestive tracts, form a convincing chain of evidence that the disease is transmissible by direct contagion.

Epidemiological studies have, to some extent, confirmed the inference drawn from experimental work, that epidemic poliomyelitis is transferred from person to person by direct contact, and have further indicated the probability of conveyance of the disease by healthy persons. Widely divergent inferences have, however, been drawn from the study of epidemics in different localities.

Wickman (7) stands as the pioneer in the epidemiology of poliomyelitis, having convinced himself, by extensive field studies in Sweden, that the disease is spread by direct contact. Other observers, reporting epidemics, have emphatically stated that there was no evidence of contagion. Such divergences of opinion may be partly explained by differences in the thoroughness of investigation and in the personal equation of the observers. It must be evident, however, to anyone studying the reports that epidemics of poliomyelitis vary greatly in their degree of infectivity and in their apparent relation to contact.

Clinical studies have taught that the disease is protean in its manifestations, often diverging widely from the classical descriptions generally given in text-books. This fact is important from an epidemiological standpoint, as it raises, at the very outset, an obstacle alike to investigation and prevention, namely, the difficulty of recognizing the disease. Of extreme importance in this connection is the occurrence of abortive forms of poliomyelitis—cases in which there is no paralysis. The absolute diagnosis of such cases has, in the past, often been impossible. There is, however, reason to hope that diagnostic

methods worked out within the last year will aid greatly in their future recognition.

As regards the preventability of poliomyelitis, then, the disease is certainly due to a specific microorganism which can be quite readily destroyed by the usual methods of disinfection. It is, therefore, preventable, provided that we can locate the organism accurately and apply the germicides thoroughly. The first problem is to locate the organism in that part of its cycle where it can be most readily destroyed. Our present knowledge indicates that man is the essential host, the breeding place of the organism, and that prevention should consist in the destruction of the organism as it is excreted from the body of the patient. The efficiency of such preventive measures remains, however, to be demonstrated. While it is, therefore, the duty of every health officer for the present to put into effect the preventive measures already indicated, it is highly important that he should at the same time make diligent investigation to ascertain whatever deficiencies there may be in such methods and to point out the means of supplementing or supplanting them.

FIELD INVESTIGATIONS.

Invaluable as laboratory studies have been and will continue to be in formulating knowledge of epidemic diseases, such investigations, often of necessity carried out at a distance from the field, never have given, and perhaps never will give, a complete knowledge of the conditions governing the spread of epidemic diseases. First-hand knowledge of attendant conditions, derived from observations in the field, have always been necessary to give a practical solution to the problem of the control of any epidemic disease; and this is especially true in regard to epidemic poliomyelitis, which seems in so many respects to disregard the laws which are supposed to govern epidemics of contagious diseases.

MORBIDITY REPORTS.

It is of the utmost importance to ascertain the exact prevalence of the disease. To accomplish this it is absolutely essential that the disease be made reportable in all States. The transmissibility of epidemic poliomyelitis has already been sufficiently indicated to justify such a requirement on the ground of protection to the community; and as a means of obtaining accurate statistics the measure is absolutely essential. Laws to this effect have already been made in a number of States, and it is to be hoped that in the coming year all other States will follow their example.

So far the disease has been made reportable chiefly, if not solely, in States where its prevalence has already alarmed the people. Other States should not postpone their legislation until such circumstances make it imperative, but should at once enact laws to keep them forewarned and forearmed.

The importance of obtaining reports of all cases of anterior poliomyelitis may be illustrated by a few examples:

1. Our knowledge of its prevalence is at present derived largely from unofficial reports of epidemics. These reports embrace for the most part only outbreaks of sufficient magnitude to have attracted special attention and study, failing very often to take account of

scattered so-called sporadic cases. The result is a failure to give an accurate idea of the actual prevalence of the disease and, what is perhaps of greater importance, a failure to grasp the connection between seemingly isolated cases and epidemic foci. A case which appears absolutely isolated to the attending physician or even to the local health authorities may be seen by the state health officer, who has before him reports of all cases in the State, to have a definite relation to some epidemic focus.

2. By reports of all cases, the isolated as well as the epidemic, valuable inferences may be drawn as to the influence of many large factors, such as density of population, routes of travel, climatic conditions, drainage, the prevalence of insects, the prevalence of paralysis of animals; all of these being points concerning which the most careful intensive study of epidemic foci alone is apt to give erroneous impressions.

3. Prompt and accurate morbidity reports are obviously necessary as a preliminary to intensive study of cases. An edict making poliomyelitis reportable in Sweden laid the foundation for the epidemiological study of poliomyelitis, making possible the extensive studies of Wickman.

Reports from a large area of country can not be expected to be accurate in detail. Such reports must necessarily be obtained from hundreds of different observers, each introducing an unknown coefficient of error in his own personal bias. To reduce this error, such extensive reports should be made as simple as possible, embracing only bare facts, in reporting which the chances of error due to faulty observation, carelessness in expression, or unwarranted inferences are reduced to a minimum. Much will be lacking in these reports, much that is of importance in interpreting the laws of epidemic poliomyelitis; but they will at least have the advantage of being broad and, what is better, of being accurate.

INTENSIVE FIELD INVESTIGATIONS.

To supplement the extensive knowledge gained by collective reports, it is necessary to have other observations not less accurate, but more detailed. These observations must be made by individual intensive studies, in which thoroughness and accuracy must be the first aim, extensiveness of observation secondary. Accuracy in such studies may best be obtained by the employment of specially trained, experienced observers; uniformity by having the men engaged in such work keep in close touch with each other; extensiveness by having a large number of observers, each of them devoting as much as possible of his time to the work. In some instances the local health officer can best make these studies, especially in small localized outbreaks, having as he does the advantage of local knowledge. In most cases, however, it is better to have the studies undertaken by the State, especially studies of epidemics so large as to require more time than the local health officer can devote and studies of cases so widely scattered as to be inaccessible to one having local duties to perform. The local health officer can, however, even when he is not the principal in the study, be an invaluable ally, being already possessed of a knowledge of local conditions which a stranger in the community would have difficulty in acquiring without his aid.

Our knowledge of the epidemiology of poliomyelitis is based on the result of comparatively few field studies. Wickman has contributed a careful intensive study of over 1,000 cases occurring in Sweden in 1905–6, a study which is still unsurpassed in combined extent and thoroughness. The collective investigation committee of the New York Neurological Society (9) made a careful study of the epidemic of about 2,500 cases occurring in and around New York in 1907. The Massachusetts state board of health has been actively engaged since 1907 in the study of the disease in that State. Their report for 1909 (1), giving the distribution of cases in the State for three years and the results of the intensive study of 150 cases, is as valuable a contribution as has ever been made to the subject and serves admirably to illustrate the advantages of combining intensive personal studies with collective reports. Minnesota has made some excellent studies on similar lines (15), the results of which have not yet been published in full. Some interesting contributions have also been made from Nebraska (10, 11), and scattered reports of smaller outbreaks from various places. During the present year the collective and intensive studies have been continued in Massachusetts and Minnesota and similar studies undertaken in Iowa. A number of other States, including Virginia, Pennsylvania, Connecticut, and Kansas, and doubtless still others, have undertaken at least collective studies of the disease, while in the District of Columbia a collective study has been undertaken by an organization of the medical profession.

The information gathered from the studies in 1910 will be very valuable, but still not sufficient. Reports are wanted from every State to give a clear idea of the situation and how to control it.

METHODS OF INTENSIVE FIELD STUDY.

To take up now in detail the objects, methods, and difficulties of an intensive study of epidemic poliomyelitis:

COLLECTION OF CASES.

The official morbidity reports must first be verified as to accuracy of date and diagnosis. Almost invariably, too, these reports will have to be supplemented by the addition of abortive and suspected cases. It is not even to be expected as yet that official reports will include all the abortive cases of poliomyelitis occurring in a community, although the wide discussion of the subject now taking place, calling attention to the existence of such cases, will undoubtedly result soon in their more general recognition.

Wickman (7), in reporting his exhaustive studies of epidemic poliomyelitis in Sweden, in 1905–6, first pointed out clearly the occurrence of abortive forms of the infection and emphasized strongly their frequency and epidemiological importance. He distinguished several types of abortive cases.

1. With symptoms of general infection.
2. With symptoms indicative of meningitis.
3. With hyperæsthesia and pain.
4. With gastro-intestinal disturbances.

Cases showing symptoms referable to the central nervous system, such as meningitis, hyperæsthesia, disturbances of reflexes, or transitory paresis, are sufficiently distinctive to make a clinical diagnosis

possible. Other cases, however, can be diagnosed only by inference, from their relation to typical cases of poliomyelitis, and are almost certain to be overlooked unless this relation is known. The practicing physician is usually unaware of the relation of his cases to cases occurring in the practice of other physicians. Prompt reporting of all cases to the local health officer will therefore not only help the health officer, but will equally help the practitioner who, by keeping in touch with the health officer and being informed of the relation between cases, may often get a lead on an otherwise impossible diagnosis.

Caverly (12) states that, during the epidemic of poliomyelitis observed by him near Rutland, Vt., in 1894, the prevailing diseases of children were accompanied by unusual nervous symptoms; and similar observations have been made in other epidemics. It would be of great value to obtain, in each focus of epidemic poliomyelitis, careful information concerning diseases of children diagnosed as influenza, neuritis, muscular rheumatism, "summer complaint," etc. Such information can be obtained only by enlisting the hearty cooperation of practicing physicians.

Very frequently, also, abortive cases of poliomyelitis are so slight as not to have been brought to the attention of any physician. The matter, then, of tracing out abortive cases is always one of difficulty, and there is good reason to believe that, except in very limited epidemic foci, such cases have never been traced with satisfactory thoroughness. A house to house canvass of the town seems the only way to accomplish this end satisfactorily.

After tracing up possible abortive cases of poliomyelitis there remains the even greater difficulty of deciding which of these cases may be safely considered as due to this infection. There is the danger on the one hand of too great conservatism and on the other hand of too great enthusiasm for a convenient diagnosis. On the whole, I think it may be safely asserted that the error has generally been on the side of conservatism. In order that the epidemiologist may be able to decide which cases he shall include under the diagnosis of poliomyelitis, it is necessary that he should make a careful clinical study of the disease and that he should, if possible, be provided with a field laboratory sufficient to enable him to make examinations of blood and cerebro-spinal fluid. Examinations of this kind promise to be very helpful to the epidemiologist in the future. Especially in regard to abortive cases it is highly important that the field study be undertaken during the progress of the epidemic or very shortly thereafter, as such mild cases of illness will often have been forgotten alike by physician and family within a few weeks after their occurrence.

It may not be out of place here to call attention to the frequency of abortive, as compared with paralytic, cases in several different localities.

Of the 1,025 cases studied by Wickman (7) in Sweden during 1905–6, 157, or a little over 15 per cent, are classed as of the abortive type. The author states, however, that this does not in his opinion represent the true proportion of such cases. In three circumscribed epidemic foci, offering favorable opportunities for tracing all cases, Wickman found 68 paralytic cases and 62 of the abortive type, approximately 48 per cent of the total. Taking into consideration only those houses

in each of which there occurred more than one case, Wickman states that of 404 cases occurring in 156 houses, 211, or 52 per cent, were of the abortive type.

In Massachusetts (1), in the intensive study of 150 paralytic cases occurring in 142 houses, 49 possible abortive cases were found to have occurred in the same houses, making 26.6 per cent of the total cases.

In a field study in Iowa during the past summer the writer investigated 67 houses in which there had been 74 paralytic cases and 44 possible abortive cases, making a total of 118 cases, of which 37 per cent were possible abortive types. Taking into consideration cases occurring in the same vicinity but not in the same house with paralytic cases, I collected 83 cases which I suspected to be abortive types of poliomyelitis, as compared with 74 frank cases.

Anderson (11), in a summary of 86 cases occurring in Polk County, Nebr., in the summer of 1909, states that 40 per cent of the cases showed no paralysis.

Müller (13) gives an account of an epidemic, evidently poliomyelitis, occurring in the island of Nauru, in Oceania, in January, 1910. Within two weeks 700 of the 2,500 inhabitants of the island were attacked by an acute general infection affecting the nervous system, but of these 700 only about 50 showed paralysis after three months.

The occurrence of abortive cases of poliomyelitis is by this time well established, and while conservatism in diagnosis is to be commended, we can no longer make definite and lasting paralysis the criterion for inclusion of cases under the diagnosis of poliomyelitis. Abortive cases may be considered as probably more important than paralytic cases in the epidemiology of this disease, and no intensive study can now claim to be complete without taking such cases into consideration. These cases, in fact, are deserving of special study, both by the clinician and the epidemiologist.

LOCATION OF CASES.

The plotting of cases upon a map is a helpful and even necessary procedure. The map should be as nearly as possible accurate, and should be on a generous scale. The cases should be plotted on this map with care as to location and with an easily comprehended graphic representation of the date as well as the location of each case. Such a map, showing at a glance the grouping of cases with regard to previous cases, as well as in relation to elevation, drainage, sewage disposal, dusty streets, etc., often shows more at a glance than could be learned from the study of many tabulations.

The map, however, is often misleading unless interpreted in the light of further observations. Epidemiological observations to be reliable must be made by personal canvass of cases. Allowance must be made for a certain amount of error in the information obtained from even the most careful personal canvass. It is the realization of this unavoidable error which leads those who have tried to get accurate information by this means to distrust the accuracy of compilations made from the scattering observation of many different observers.

SYMPTOMATOLOGY.

In the canvass of cases of poliomyelitis it is necessary to go into the symptomatology of each case with more care than is usually required

in the epidemiological study of other infectious diseases. This is necessary because, as already stated, in many cases the diagnosis is doubtful, and clinical study is necessary to give to these cases their proper epidemiological significance. It is desirable also to utilize such an opportunity to collect statistical data as to the symptomatology and ultimate effects of epidemic poliomyelitis.

CONTACT.

In trying to determine the source of infection in each case, while no possible factor should be overlooked, special attention should be paid to determining contact with previous cases, paralytic or abortive. Even when there has been direct contact with a previous case in the acute stage of the disease, it is not always easy to determine this. Contact with unrecognized abortive cases is still more difficult to determine, especially in the case of children, whose playmates are often unknown to the parents. In reckoning the chances for contact account must be taken of neighbors, chance playmates, visitors, and schoolmates; also attendance at schools, Sunday schools and church, public places of business or amusement, railway travel, public drinking cups, etc. Add to this the chances of indirect contact through other members of the family, visitors, servants, tradesmen, etc., and the possible avenues of contact become surprisingly numerous and complex, even for a child kept strictly at home in a small family comparatively isolated. Complicate all this with confusion of dates, failure to remember visits and visitors, and all the other vagaries of the memory, and it is readily seen that even the most careful investigator must needs be very cautious about asserting that there was no chance of contact infection in any given case.

Considering then the difficulties of tracing contact between cases, the tracing of contact is of more epidemiological value than the failure to trace it. This is especially true as regards many of the epidemics which have been reported after very superficial observation.

On the other hand, in interpreting the finding that a certain percentage of cases have been in contact with previous cases, it is necessary to take into consideration numerous factors, such as the probable number of persons exposed to infection and the proportion of these that develop the disease. For instance, in a small community where there had been, say, one case per hundred inhabitants, it would mean very little to find that 20 or 30 per cent of the patients had been in contact with previous cases. This percentage of traceable contacts would mean a great deal more, however, in a larger community where there had been perhaps only one case to each 10,000 inhabitants.

FACTORS OTHER THAN CONTACT.

In the effort to trace out contact between cases one must not lose sight of the numerous other possible factors in the spread of the disease, paying most attention to those factors which seem most probably important, but not forgetting to gather information concerning even the seemingly least important. Factors which must be considered are food and water supply, insects, paralysis of domestic animals, relation to water courses, dust, sewage disposal, general hygienic conditions, previous health, etc.

FOOD AND WATER SUPPLIES.

It is impossible in this space to discuss the relation of all these factors to the spread of poliomyelitis. Moreover, their importance is as yet largely undetermined. Food and water supplies have quite generally been eliminated as probable sources of general infection, although Wickman cites one group of cases apparently infected by their common milk supply.

HYGIENIC CONDITIONS.

Previous health appears to have no appreciable influence in determining infection. The influence of insanitary conditions of life is particularly difficult to determine, as it is usually impossible to make more than a rough estimate of the proportion of people in any community who live under what may be called insanitary conditions.

It would seem that, in general, the disease is more prevalent among those classes of people that live in rather crowded, insanitary surroundings; but the incidence of cases among the lower social strata is not sufficiently disproportionate to justify attaching any great importance to general hygienic conditions as a factor in infection.

INSECT TRANSMISSION.

The probability of insect transmission of the disease is strongly suggested by several epidemiological facts already established. One of the most striking of these facts is the seasonal incidence of epidemics. In this latitude epidemics occur almost without exception in the warm season, from May to November, the season when insects are most prevalent and most active. It is of interest to note in this connection that the epidemics reported from the southern hemisphere have occurred between January and April, a period corresponding seasonally to our late summer and fall months. Another fact which suggests insect transmission is the geographic distribution of epidemics. Generally speaking, epidemic poliomyelitis is a summer disease of cold countries. In Europe, Norway and Sweden, Holland, Germany, and Austria have suffered most; in this country the States which have suffered most are those included in the northeast quadrant.

A further indication of the probability of insect transmission is the distribution of the disease in relation to density of population. Apparently density of population bears no constant relation to the prevalence of epidemic poliomyelitis. Wickman noted this in Sweden in 1905, and statistics for the United States, so far as they are available, confirm this observation. Indeed, it has been noted both in Sweden and in the United States that epidemics of poliomyelitis are most severe in small towns and rural communities, the larger cities as a rule suffering less in proportion to population.

Since the first considerable epidemic in this country occurred in and around New York City in the summer of 1907, and epidemics all over the country have been more common since that time, it is naturally suggested that the disease has spread from New York. Yet if that is the case the spread has been remarkably slow considering the constant communication between New York and other parts of the country, and still more remarkably irregular in its progress. In 1907 the region of greatest prevalence was in and around New York City, extending to Massachusetts. In 1908 there were epidemics in

Massachusetts, Minnesota, Wisconsin, and at least two small outbreaks in Iowa. In 1909 the epidemics reached their height in Massachusetts, Minnesota, and Nebraska. In 1910 the disease has been less prevalent in Massachusetts and Nebraska, but has been epidemic in Iowa, Pennsylvania, District of Columbia, Virginia, Connecticut, and other widely separated States. If the disease has been disseminated from New York along routes of travel, it is hard to understand why it has progressed so irregularly, skipping wide areas of thickly settled country, and why it has spread so slowly, becoming epidemic in the District of Columbia, for example, three years subsequent to the epidemic in New York.

These facts are strongly suggestive of the existence of some as yet unrecognized biologic factor, possibly an insect, the presence of which in a community is necessary or at least favorable to the spread of epidemic poliomyelitis.

Considering, on the other hand, the evidence against insect transmission, the most striking is that presented by laboratory experiments already cited, viz, the low degree of infectiousness of the blood; the apparent dissemination of the virus through the body by the lymph stream rather than the blood; the demonstrated infectiousness of the nasal and buccal secretions; the possibility of infecting animals through the normal mucosa of the respiratory and digestive tracts. Epidemiological studies have failed to give evidence of the prevalence of unusual insects or of common insects in unusual numbers in epidemic foci; they have failed to give any evidence of an extrinsic period of incubation; they have failed to show that infection is confined to places rather than persons; and have, indeed, shown the probability of healthy persons acting as carriers of infection. Any insect to merit consideration as an obligatory factor in the transmission of poliomyelitis must be of almost world-wide distribution and perennial prevalence, for poliomyelitis has occurred in all latitudes from Australia to Canada, and, while epidemics have been confined almost exclusively to the warm months, scattered cases have been reported in the United States in every month of the year. On the whole, the evidence at present available is against the theory of any insect being a necessary or important factor in the spread of the disease; but on this, as on other points, undoubtedly more evidence is needed—another indication of the necessity for field studies.

PARALYSIS OF DOMESTIC ANIMALS.

As regards the relation of paralytic diseases of animals to epidemic poliomyelitis, it has been noted in connection with a number of epidemics that domestic animals, especially chickens, dogs, horses, hogs, cattle, and sheep, were found in the same community to be suffering from paralytic diseases clinically similar to the disease prevailing among human beings. The earliest observations of this kind of which I am aware were recorded by Caverly[12] in his report of an epidemic occurring at Rutland, Vt., in 1894, when he noted paralysis of chickens and dogs. One of these chickens, examined by Dana[14], of New York, showed lesions of the lumbar cord resembling the lesions of acute anterior poliomyelitis.

So far as I have been able to ascertain from an incomplete review of the literature, this is the most suggestive evidence yet presented of a close relation between fowl paralysis and human poliomyelitis.

The pathology of the paralytic diseases of animals has evidently not been sufficiently studied, but the bulk of the pathological evidence now available is against the assumption of a close etiologic relation between such affections and epidemic poliomyelitis. Numerous attempts have been made to inoculate laboratory animals other than monkeys with the virus of human poliomyelitis, the results being uniformly negative except for the inoculations of rabbits, previously referred to.

The reports of paralysis among domestic animals in localities where poliomyelitis is prevalent have certainly been quite striking. Paralysis among domestic animals is, however, quite common and may be due to diverse causes, and it may be that the numerous reports of it from such localities are due more to increased interest in the matter than to any unusual prevalence of paralysis of animals in such localities. The most careful investigation of this point by the Massachusetts state board of health (1) showed that the distribution of paralysis among animals did not correspond to the distribution of human poliomyelitis.

DUST.

The occurrence of epidemic poliomyelitis in the hot, dry, dusty season has given rise to the surmise that dust may be in some way a factor in the spread of the disease. This surmise has been strengthened by the grouping of cases along dusty thoroughfares, observed in several localities, and by the cessation of several epidemics shortly after the dust had been abated by rainfall or sprinkling of streets.

Other observations in support of the causative relation of dust to epidemic poliomyelitis are, the greater incidence of the disease among children at the age when they are likely to crawl and play in the dust, and the greater incidence among males, who are out of doors in the dust, than among females, who are more intimately exposed to infection through contact with sick persons. It has been suggested, in view of the occurrence in horses of a disease resembling poliomyelitis that the infective agent in dust is horse manure. The excessive prevalence of dust has not, however, been found constantly to coincide with the prevalence of poliomyelitis. It is true that the disease is more prevalent in the late summer and fall months; it is also true that dust is generally more prevalent at this season, but the coincidence is not sufficient to establish the relation of cause and effect.

SUMMARY.

Epidemic poliomyelitis must, in the light of present knowledge, be regarded as most probably transmissible by direct contact. Its spread, to be sure, does not exactly follow the routes and the laws which we should expect in the case of a disease transmitted by direct contagion; but it is to be remembered that infection of the human body with any micro-organism is a fairly complex biological phenomenon into which there may enter many factors other than the mere bringing together of the body and the germ.

We must consider, first, that the infecting organism is not an unchanging fixed quantity; not a definite thing like a stable chemical compound, but a far more complex and probably very variable factor—a living organism, reacting to all kinds of external conditions. Realizing the complexity of conditions in the environment of the organism,

together with our inability even to analyze these conditions, much less to appreciate their effect upon an ultramicroscopic body, we should be prepared to find the organism deviating at times from the course which, with our very limited knowledge, we would lay down for it.

Taking up, on the other hand, the factor of susceptibility to the infection of poliomyelitis, we may assume this factor also to be extremely variable. There are some facts which indicate that only a certain proportion—usually a small proportion—of persons exposed to the disease are readily susceptible to infection. In general it has been found that only one, or, at most, a few, of a family have the disease. Assuming that the disease is contagious, the other members certainly have been exposed to infection, and their failure to develop the disease would seem to be due to a lack of susceptibility. Even assuming that the disease is not contagious and that infection is contracted from some other source in the environment, it certainly is probable that in general the members of one family, especially the small children, are likely to be exposed to the same environmental conditions. Whether we regard the disease as contagious or not, the rarity of multiple cases in a family seems best explained by individual variations in susceptibility. The occurrence of abortive cases is also an indication in the same direction.

The conditions constituting susceptibility are, of course, unknown except in a broad, general sense. Statistics indicate that children are more susceptible than adults; that males, especially in later life, are more susceptible than females; the white races more than the negro. The increased incidence of the disease in the summer months, among children, suggests the possible operation of causes similar to those which make diarrhœal diseases especially prevalent among children in hot weather.

NECESSITY OF FURTHER STUDIES.

It has been the object of this paper not to explain the spread of epidemic poliomyelitis, but rather to point out the difficulties in the way of explaining it; to attempt an interpretation of known facts chiefly to show the deficiencies in the facts. If the facts already ascertained seem contradictory, it is because they are incomplete. What is needed to harmonize the apparent contradictions is more facts. Laboratory workers have contributed a generous share of knowledge concerning this disease; clinicians all over the country are studying it; and every health officer should embrace the opportunity to contribute his share of the facts which shall explain the spread of epidemic poliomyelitis. There is little chance of making a brilliant discovery in this work. If such a discovery remains to be made, it will be made by one or at most a very few of the many workers engaged. There is a certainty, however, that every accurate observation, every common-sense fact added to the subject will play its part in solving a problem that has already become very serious and shows no indication of becoming less so.

PROPHYLAXIS.

While a discussion of the prophylaxis of epidemic poliomyelitis is not strictly germane to this paper, a few words on the subject may perhaps not be altogether out of place.

After a careful consideration of the facts of epidemic poliomyelitis as known at present, it seems to me that health authorities are morally bound to put into effect to the best of their ability certain pretty definitely indicated measures for the prevention of the spread of epidemic poliomyelitis—measures similar to those adopted for the control of other diseases commonly accepted as directly contagious. Without attempting to go into detail, these measures may be given as:

1. Isolation of the patient, with isolation of the contacts so far as practicable—certainly to the extent of excluding members of the patient's family from school for at least two weeks. Exclusion of insects and animals from the room.

2. Disinfection of the secretions of the nose and mouth and of the stools and urine. Disinfection of all articles which might have been contaminated by the patient.

3. Fumigation of premises after recovery.

In framing our expectation of results from these measures we must consider several circumstances:

1. The disease is already disseminated over a wide area. Experience with other widespread contagious diseases, such as scarlet fever, for the control of which we have to depend solely on isolation and disinfection, has demonstrated that we can hardly expect to eradicate such a disease by present methods, but that much may be done in the way of limiting its spread.

2. Epidemic poliomyelitis presents unusual difficulties in the recognition of even typical cases in their early stage and of abortive cases in all stages.

3. It will be difficult to estimate the effect of preventive measures, since the disease often fails to spread in communities where conditions seem most favorable for an epidemic.

The hope is certainly justified, however, that energetic preventive measures will result, if not in an actual immediate reduction in the total number of cases as compared with previous years, at least in a reduction of the number that would have occurred without such measures.

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UNITED STATES.

PLAGUE-PREVENTION WORK.

DISTRIBUTION OF POISON.

In connection with the making of a squirrel-free zone around the cities on San Francisco Bay, 1,520 acres of land in Contra Costa County and 460 in San Mateo County, were covered with poison during the week ended October 29, 1910.

Record of Plague Infection.

Place.	Date of last case of human plague.	Date of last case of rodent plague.	Total number of rodents found infected since May, 1907.
California:			
Cities—			
San Francisco	Jan. 30, 1908	Oct. 23, 1908	398 rats.
Oakland	Oct. 26, 1909	Dec. 1, 1908	126 rats.
Berkeley	Aug. 28, 1907	None recorded.	
Los Angeles	Aug. 11, 1908	Aug. 21, 1908	1 squirrel.
Counties:			
Alameda (exclusive of the city of Oakland)	Sept. 26, 1909	May 30, 1910	88 squirrels, 1 wood rat.
Contra Costa	July 21, 1908	Sept. 10, 1910	247 squirrels.
Merced	None recorded.	June 6, 1910	2 squirrels.
Monterey	do	do	4 squirrels.
San Benito	June 5, 1910	July 11, 1910	20 squirrels.
San Joaquin	None recorded.	Aug. 19, 1910	6 squirrels.
San Luis Obispo	do	Jan. 29, 1910	1 squirrel.
Santa Clara	Sept. 5, 1910	Oct. 5, 1910	23 squirrels.
Santa Cruz	None recorded.	May 17, 1910	3 squirrels.
Stanislaus	do	May 21, 1910	5 squirrels.
Washington:			
Seattle	Oct. 30, 1907	Feb. 8, 1910	22 rats.

Rats Collected and Examined for Plague Infection.

Place.	Week ended—	Found dead.	Total collected.	Examined.	Found infected.
California:					
Berkeley	Oct. 29	0	[a] 117	117	.....
Oakland	...do.....	12	[b] 660	570	.....
San Francisco	...do.....	41	[c] 1,751	1,184	.....
Washington:					
Seattle	...do.....	.....	1,013	863	.....
Total	.....	53	3,541	2,734	.....

[a] Identified, *Mus norvegicus* 88, *Mus musculus* 29.
[b] Identified, *Mus norvegicus* 567, *Mus rattus* 2, *Mus musculus* 90, *Mus alexandrinus* 1.
[c] Identified, *Mus norvegicus* 1,222, *Mus rattus* 186, *Mus musculus* 353, *Mus alexandrinus* 89.

Squirrels Collected and Examined for Plague Infection.

Place.	Week ended.	Trapped and shot.	Found dead.	Examined.	Found infected.
California:					
Cities—					
San Francisco	Oct. 29	16	.....	14	.....
Counties—					
Calaveras	...do.....	83	.....	83	.....
Contra Costa	...do.....	60	5	65	.....
Fresno	...do.....	83	.....	83	.....
Los Angeles	...do.....	228	.....	216	.....
Merced	...do.....	49	.....	49	.....
Monterey	...do.....	239	.....	233	.....
Sacramento	...do.....	169	1	170	.....
San Joaquin	...do.....	268	.....	265	.....
San Luis Obispo	...do.....	1,010	.....	1,004	.....
San Mateo	...do.....	6	.....	6	.....
Santa Clara	...do.....	24	.....	24	.....
Solano	...do.....	95	.....	95	.....
Tuolumne	...do.....	104	.....	104	.....
Yolo	...do.....	19	.....	19	.....
Total	.....	2,453	6	2,430	.....

Other Animals Collected and Examined.

Place.	Week ended.	Animals collected.	Examined.	Found infected.
California:				
Cities—				
San Francisco	Oct. 29	2 gophers	1	.....
Counties—				
San Luis Obispo	...do.....	1 rabbit	1	.....
Santa Clara	...do.....	2 rabbitts	2	.....
Total	.....	.....	4	.....

SMALLPOX IN THE UNITED STATES.

In the following tables the States indicated by an asterisk are those from which reports of smallpox are received only from certain city, and in some cases county, boards of health. In these States, therefore, the recorded cases and deaths should not be taken as showing the general prevalence of the disease. In the States not marked by an asterisk the reports are received monthly from the state boards of health and include all cases reported throughout the State.

Reports Received During Week Ended November 18, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
*Alabama:				
Mobile	Oct. 30-Nov. 1	1	.....	
*Arizona:				
Flagstaff	Oct. 23-29	1	.....	
Connecticut, entire State	Oct. 1-31	.....	.....	No cases reported.
Florida:				
Duval County	Oct. 30-Nov. 5	1	.....	
Osceola County	Oct. 30-Nov. 5	5	.....	
*Louisiana:				
New Orleans	Nov. 2-8	2	.....	
Massachusetts, entire State	Oct. 1-31	.....	.....	No cases reported.
Michigan:				
Bay County	Oct. 1-31	1	.....	
Benzie County	Oct. 1-31	2	.....	
Charlevoix County	Oct. 1-31	4	.....	
Cheboygan County	Oct. 1-31	1	.....	
Crawford County	Oct. 1-31	.....	.....	Estimated 12 to 15 cases.

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received During Week Ended November 18, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
Michigan—Continued.				
Genesee County	Oct. 1–31	7		
Gratiot County	Oct. 1–31	1		
Isabella County	Oct. 1–31	1		
Lake County	Oct. 1–31	1		
Lapeer County	Oct. 1–31	2	1	
Livingston County	Oct. 1–31	1		
Missaukee County	Oct. 1–31	2		
Saginaw County, exclusive of Saginaw.	Oct. 1–31	7		
Saginaw	Oct. 1–31	70	19	
Wayne County	Oct. 1–31	1		
Minnesota, general	Nov. 1–30		1	
Hennepin County	Oct. 17–23	7		
Mower County	Oct. 17–23	2		
Ramsey County	Oct. 3–30	9		
Todd County	Oct. 24–30	1		
Wright County	Oct. 17–23	1		
*Missouri:				
St. Louis	Oct. 30–Nov. 5	1		
New York, general	Sept. 1–30	1		
North Dakota:				
Bottineau County	Oct. 1–31	2	1	
Nelson County	Oct. 1–31	1		
Ohio:				
Madison County	Oct. 1–31	7		
Seneca County	Oct. 1–31	3		
Stark County	Oct. 1–31	1		
Pennsylvania, entire State	Sept. 1–30	6		
*Tennessee:				
Shelby County, exclusive of Memphis.	Oct. 1–31	7		
Washington:				
Pierce County—				
Tacoma	Sept. 1–30	2		
Spokane County—				
Spokane	Sept. 1–30	4		
Walla Walla County	Sept. 1–30	1		
Wisconsin:				
Green County	Oct. 1–31	3		
Iowa County	Oct. 1–31	8		
La Crosse County	Oct. 1–31	1		
Milwaukee County	Oct. 1–31	1		
Rock County	Oct. 1–31	1		

Reports Received from June 25 to November 11, 1910.

[For reports received from January 1, 1910, to June 24, 1910, see PUBLIC HEALTH REPORTS for June 24, 1910. In accordance with custom, the tables of epidemic diseases are terminated semiannually and new tables begun.]

Place.	Date.	Cases.	Deaths.	Remarks.
*Alabama:				
Birmingham	June 12–Aug. 6	11		
Mobile	June 12–Oct. 8	20		
Montgomery	June 12–25	6		
Total for State		37		
*Arkansas:				
Fort Smith	June 19–25	1		
California, general	May 1–June 30	27		
Amador County	July 1–Aug. 31	2		
Hamlet County	Aug. 1–31	2		
Los Angeles County	July 1–31	1		
Sacramento County	Aug. 1–31	1		
San Francisco County	July 1–Aug. 31	2		
San Joaquin County	July 1–Aug. 31	4		
Santa Clara County	July 1–31	2		
Total for State		41		

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received from June 25 to November 11, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
Colorado:				
Conejos County	Apr. 1–30	.....	1	Received out of date.
Las Animas County	Mar. 1–Apr. 30	.....	2	
Logan County	May 1–31	.....	1	
Montrose County	Apr. 1–30	.....	1	
Adams County	July 1–31	3	.....	
Archuleta County	June 1–Oct. 31	25	.....	
Boulder County	Oct. 1–31	1	.....	
Chaffee County	July 1–Aug. 31	3	.....	
Clear Creek County	Aug. 1–31	1	.....	
Conejos County	June 1–Oct. 31	6	.....	
Delta County	June 1–30	2	.....	
Denver County	June 1–Oct. 31	92	.....	
El Paso County	July 1–Aug. 31	3	.....	
Fremont County	Oct. 1–31	1	.....	
Garfield County	Oct. 1–31	1	.....	
Huerfano County	June 1–Oct. 31	24	.....	
Kit Carson County	June 1–30	4	.....	
Larimer County	June 1–30	1	.....	
Las Animas County	June 1–Oct. 31	8	.....	
La Plata County	Oct. 1–31	4	.....	
Logan County	June 1–30	1	.....	
Mesa County	June 1–Oct. 31	2	.....	
Montezuma County	Sept. 1–Oct. 31	3	.....	
Montrose County	June 1–30	5	.....	
Otero County	June 1–Sept. 30	5	.....	
Prowers County	June 1–Sept. 30	17	.....	
Pueblo County	July 1–31	1	.....	
Rio Grande County	June 1–30	4	.....	
Saguache County	June 1–July 31	20	.....	
San Miguel County	June 1–30	1	1	
Teller County	June 1–Oct. 31	12	.....	
Weld County	June 1–30	5	.....	
Total for State	.....	255	6	
District of Columbia	July 3–Sept 17	15	.....	
Total for district	.....	15	.....	
Florida:				
Brevard County	Aug. 7–13	1	.....	
Duval County	June 19–25	2	.....	
Gadsden County	July 3–Oct. 22	12	.....	
Hillsboro County	July 17–Oct. 29	4	.....	
Jackson County	June 19–Aug. 6	3	.....	
Jefferson County	July 10–Aug. 6	4	.....	
Leon County	Mar. 1–Oct. 29	1	1	
Liberty County	July 17–23	14	.....	
Osceola County	Oct. 23–29	25	.....	
Santa Rosa County	July 31–Aug. 6	2	.....	
Taylor County	July 3–9	1	.....	
Walton County	June 12–18	1	.....	
Total for State	.....	70	1	
***Georgia:**				
Columbus	July 3–9	6	.....	
Macon	Apr. 1–June 30	8	.....	
Total for State	.....	14	.....	
Illinois:				
Adams County	June 1–30	2	.....	
Clay County	June 1–30	1	.....	
Coles County	June 1–Aug. 31	30	.....	
Cook County	June 1–30	1	.....	
Chicago	June 1–Aug. 31	3	.....	
Edgar County	June 1–30	2	.....	
Franklin County	June 1–30	1	.....	
Henry County	July 1–31	3	.....	
Iroquois County	June 1–30	1	.....	
Jo Daviess County	June 1–July 31	9	.....	
Kendall County	June 1–July 31	2	.....	
Knox County	June 1–July 31	6	.....	
Madison County	June 1–Aug. 31	23	.....	
Marion County	June 1–30	3	.....	
Montgomery County	June 1–30	6	.....	
Peoria County	June 1–Aug. 31	6	.....	
Perry County	June 1–30	1	.....	
Pulaski County	June 1–30	1	.....	

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received from June 25 to November 11, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
Illinois—Continued.				
Randolph County	June 1–30	1		
Richland County	June 1–Aug. 31	9		
Rock Island County	June 1–Aug. 31	8		
St. Clair County	June 1–30	1		
Sangamon County	June 1–30	1		
Tazewell County	June 1–30	2		
Union County	June 1–30	4		
Wayne County	June 1–30	3		
Williamson County	June 1–30	2		
Total for State		132		
Indiana, general	Aug. 1–31	6		
Allen County	May 1–June 30	8		
Carroll County	June 1–30	1		
Clay County	June 1–30	2		
Clinton County	May 1–31	1		
Dekalb County	June 1–30	1		
Delaware County	May 1–31	4		
Elkhart County	May 1–31	1		
Gibson County	May 1–31	1		
Grant County	May 1–June 30	13		
Greene County	May 1–31	9		
Howard County	May 1–June 30	21		
Lake County	June 1–30	1		
Madison County	June 1–30	6		
Marion County	May 1–June 30	6		
Marshall County	June 1–30	1		
Martin County	June 1–30	4		
Miami County	June 1–30	6		
Montgomery County	June 1–30	6		
Orange County	May 1–31	18		
Owen County	May 1–June 30	23		
Putnam County	June 1–30	1		
St. Joseph County	May 1–June 30	10		
Tipton County	May 1–31	1		
Vigo County	May 1–June 30	28		
Warren County	June 1–30	1		
Wayne County	June 1–30	6		
Total for State		186		
Iowa:				
Benton County	June 1–July 31	4		
Buchanan County	June 1–30	2		
Cedar County	July 1–31	1		
Clayton County	June 1–30	1		
Dallas County	June 1–30	1		
Delaware County	June 1–30	10		
Dubuque County	June 1–30	1		
Linn County	June 1–Sept. 30	42		
Plymouth County	Aug. 1–31	1		
Polk County	June 1–Sept. 30	20		
Pottawattamie County	June 1–Aug. 31	21		
Scott County	June 1–July 31	4		
Warren County	Aug. 1–Sept. 30	14		
Webster County	July 1–31	1		
Winneshiek County	June 1–30	1		
Woodbury County	June 1–30	1		
Total for State		125		
Kansas:				
Allen County	May 1–Aug. 31	41		
Atchison County—				
Atchison	Apr. 1–May 31	7		
Barton County	June 1–July 31	7		
Butler County	Apr. 1–June 30	8		
Cherokee County	June 1–30	4		
Clay County	July 1–31	1		
Coffee County	July 1–31	1		
Cowley County	Apr. 1–July 31	12		
Crawford County	June 1–30	4	1	
Pittsburg	Aug. 1–31	1		
Decatur County	Apr. 1–Aug. 31	38		
Dickinson County	May 1–June 30	10		
Donniphan County	Apr. 1–30	10		
Edwards County	Apr. 1–Aug. 31	7		
Elk County	May 1–July 31	6		
Ellis County	July 1–31	3		

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received from June 25 to November 11, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
Kansas—Continued.				
Ellsworth County	Apr. 1–30	1		
Finney County	Apr. 1–30	2		
Ford County	June 1–30	1		
Graham County	Apr. 1–May 31	6		
Greenwood County	Apr. 1–June 30	56		
Harper County	May 1–June 30	3		
Harvey County	Apr. 1–June 30	22		
Hodgeman County	July 1–31	1		
Jewell County	May 1–June 30	21		
Kearny County	Apr. 1–May 31	5		
Kingman County	Apr. 1–June 30	4		
Labette County—				
Parsons	Apr. 1–July 31	12		
Lane County	May 1–31	2		
Leavenworth County	Apr. 1–May 31	8		
Leavenworth	May 1–June 30	2		
Lyon County	June 1–Aug. 31	13		
Marion County	July 1–31	1		
McPherson County	May 1–June 30	14		
Miami County	Apr. 1–May 31	2		
Marshall County	Aug. 1–31	1	1	
Montgomery County	Apr. 1–Aug. 31	64	2	
Coffeyville	Apr. 1–June 30	12		
Nehama County	July 1–31	2		
Neosho County	May 1–July 31	38		
Norton County	Apr. 1–Aug. 31	56		
Osage County	Apr. 1–May 31	6		
Osborne County	Apr. 1–June 30	33		
Pawnee County	Apr. 1–30	3		
Phillips County	May 1–31	6		
Pratt County	June 1–July 31	2		
Rawlins County	June 1–30	1		
Reno County	Apr. 1–June 30	23	3	
Riley County	Apr. 1–May 31	5		
Rush County	Apr. 1–30	3		
Saline County	Apr. 1–Aug. 31	22		
Scott County	Apr. 1–May 31	5		
Sedgwick County	Apr. 1–May 31	7		
Wichita	Apr. 1–July 31	52		
Seward County	May 1–31	2		
Shawnee County	June 1–30	1		
Topeka	July 1–31	7		
Sheridan County	Apr. 1–30	1		
Sherman County	May 1–31	1		
Stafford County	June 1–July 31	4		
Sumner County	May 1–31	4		
Thomas County	Apr. 1–May 31	2	1	
Trego County	June 1–30	1		
Wallace County	June 1–30	1		
Wyandotte County	Apr. 1–30	4		
Kansas City	Apr. 1–Aug. 31	59		
Total for State		764	8	
***Kentucky:**				
Covington	June 26–July 2	1		
Total for State		1		
***Louisiana:**				
Avoyelles Parish	June 1–30	12		The last report received from the Louisiana state board of health was for the month of June.
Calcasieu Parish	June 1–30	2		
Iberia Parish	June 1–30	19		
Orleans Parish	June 1–30			
New Orleans	June 12–Oct. 22	89		
St. John Parish	June 1–30	10		
St. Tammany Parish	June 1–30	2		
Tangipahoa Parish	June 1–30	25		
Vermilion Parish	June 1–30	30		
Total for State		209		
Maine:				
Biddeford	May 1–31	1		
Total for State		1		

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received from June 25 to November 11, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
Maryland:				
Allegany County—				
Cumberland	May 1–July 31	2		
Total for State		2		
Massachusetts:				
Middlesex County	July 1–31	1		
Suffolk County	June 1–July 31	8		
Total for State		9		
Michigan:				
St. Clair County	May 1–31	43		Reported out of date.
Alcona County	June 1–30	1		
Arenac County	June 1–30	2		
Baraga County	Aug. 1–31	5		
Bay County	June 1–Sept. 30	10	2	
Benzie County	Sept. 1–30	1		
Berrien County	July 1–Aug. 31	2		
Cheboygan County	June 1–Sept. 30	34		
Clare County	June 1–July 31	12		
Emmet County	Aug. 1–Sept. 30	7		
Eaton County	June 1–30	7		
Genesee County	June 1–Sept. 30	52		
Grand Traverse County	July 1–Aug. 31	6		
Gratiot County	June 1–Sept. 30	12		
Houghton County	June 1–30	3		
Huron County	June 1–July 31	12		
Ingham County	June 1–Aug. 31	10		
Ionia County	June 1–Aug. 31	7		
Isabella County	June 1–July 31	4		
Kalamazoo County	June 1–July 31	8		
Kent County	June 1–30	17		
Keweenaw County	July 1–31	1		
Lapeer County	June 1–July 31	16		
Livingston County	June 1–30	17		
Manistee County	June 1–Sept. 30	13	1	
Marquette County	June 1–30	1		
Mason County	June 1–Aug. 31	11		
Mecosta County	June 1–Aug. 31	7		
Midland County	June 1–July 31	11		
Missaukee County	June 1–Sept. 30	15		
Monroe County	June 1–30	2		
Montcalm County	July 1–31	1		
Muskegon County	June 1–30	2		
Newaygo County	June 1–30	2		
Osceola County	June 1–Sept. 30	7		
Ottawa County	June 1–30	1		
Roscommon County	June 1–30	4		
Saginaw County	June 1–Aug. 31	40		
St. Clair County	June 1–Aug. 31	55		
Sanilac County	June 1–July 31	3		
Shiawassee County	June 1–Aug. 31	54		
Tuscola County	June 1–Aug. 31	23		
Wayne County	June 1–Aug. 31	19		
Total for State		560	3	
Minnesota:				
Pope County	Apr. 1–30		1	Received out of date.
Rice County	Mar. 1–31		1	Received out of date.
Beltrami County	May 26–June 5	4		
Blue Earth County	June 6–12	1		
Brown County	Aug. 1–7	1		
Carver County	June 13–July 10	2		
Faribault County	May 26–Aug. 14	3		
Hennepin County	May 26–Sept. 4	64		
Kittson County	June 6–19	2		
Koochiching County	May 26–June 5	6		
Lesueur County	June 13–19	32		
Meeker County	June 6–12	1		
Mower County	July 11–Aug. 7	5		
Nicollet County	Aug. 12–18	1		
Ramsey County	June 13–Sept. 18	31		
Renville County	June 6–12	1		
Rice County	May 26–July 10	2		
St. Louis County	May 26–Aug. 28	13	1	
Stearns County	June 20–26	1		
Steele County	June 6–19	2		
Wabasha County	June 13–26	2		

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received from June 25 to November 11, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
Minnesota—Continued.				
Washington County	Sept. 11	1		
Watonwan County	Sept. 5-11	1		
Wright County	July 4-31	2		
Total of State		178	3	
***Mississippi:**				
Marshall County	Sept. 25-Oct. 1	1		
Natchez	July 24-30	5		
Yazoo City	Sept. 25-Oct. 1	1		
Total for State		7		
***Missouri:**				
Andrew County	June 26-Oct. 8	11		
Kansas City	May 15-Aug. 20	36		
St. Louis	June 12-July 16	9		
Total for State		56		
Montana:				
Beaverhead County	June 1-Sept. 30	2		
Cascade County	June 1-30	1		
Custer County	Apr. 1-30		1	
Dawson County	June 1-Aug. 31	14		
Fergus County	June 1-July 31	8		
Flathead County	June 1-30	1		
Meagher County	June 1-30	1		
Park County	June 1-Aug. 31	2		
Rosebud County	June 1-Aug. 31	4		
Silver Bow County	June 1-Sept. 30	17		
Butte	June 1-Sept. 30	51		
Teton County	July 1-31	2		
Yellowstone County	June 1-30	2		
Total for State		105	1	
***Nebraska:**				
Lincoln	Apr. 1-July 31	31		
South Omaha	June 1-30	3		
Total for State		34		
New Jersey:				
Cumberland County	June 1-Aug. 31	7		
Total for State		7		
New York, general	June 1-Aug. 31	62	3	
Erie County—				
Buffalo	May 1-31	1		
Tonawanda Township	May 1-31	2		
Niagara County—				
Niagara Falls	May 1-31	1		
North Tonawanda	May 1-31	1		
St. Lawrence County	May 1-31	19		
Schenectady County	May 1-31	2		
Total for State		88	3	
North Carolina:				
Forsyth County	Feb. 1-28		1	Received out of date.
Rowan County	Feb. 1-28		1	Received out of date.
Alamance County	Mar. 1-July 31	42		
Alexander County	Mar. 1-June 30	75		
Anson County	Apr. 1-July 31	11		
Ashe County	Mar. 1-31	12		
Beaufort County	Mar. 1-Sept. 30	7		
Bladen County	Apr. 1-July 31	29		
Brunswick County	July 1-31	2		
Buncombe County	June 1-July 31	2		
Cabarrus County	Mar. 1-July 31	16		
Caldwell County	Mar. 1-Sept. 30	14	1	
Catawba County	Mar. 1-June 30	42		
Chatham County	Mar. 1-July 31	19		
Chowan County	Mar. 1-31	3		
Cleveland County	June 1-30			Few cases.
Columbus County	Apr. 1-Aug. 31	25		
Craven County	Mar. 1-31	1		
Cumberland County	Sept. 1-30	3		
Currituck County	Mar. 1-June 30	23		

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received from June 25 to November 11, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
North Carolina—Continued.				
Davidson County	Mar. 1-July 31	15		
Davie County	Mar. 1-31	8		
Durham County	Mar. 1-Sept. 30	34		
Edgecombe County	June 1-30	1		
Forsyth County	Mar. 1-Aug. 31	29		
Franklin County	Mar. 1-Sept. 30	17		
Gaston County	Mar. 1-July 31	14	2	
Graham County	Mar. 1-Apr. 30	8		
Greene County	Mar. 1-June 30	20		
Guilford County	Mar. 1-Aug. 31	69		
Halifax County	Mar. 1-31	40		
Haywood County	July 1-Aug. 31	10		
Henderson County	May 1-June 30	6		
Hertford County	Mar. 1-31	1		
Iredell County	June 1-July 31	26		Several cases in May.
Johnson County	Apr. 1-May 31	4		Several cases in March.
Jones County	Mar. 1-31	1		
Lee County	Mar. 1-June 30	6		
Lenoir County	Mar. 1-June 30	19		
Lincoln County	Mar. 1-July 31	4		
Madison County	Apr. 1-30	5		
Martin County	Apr. 1-Sept. 30	7		
Mecklenburg County	Mar. 1-Aug. 31	36		
Mitchell County	Aug. 1-Sept. 30			Present.
Montgomery County	Mar. 1-Aug. 31	54		
Nash County	Mar. 1-Aug. 31	56		
New Hanover County	Mar. 1-Aug. 31	48		
Onslow County	Mar. 1-May 31	5		
Orange County	Mar. 1-July 31	51		
Pamlico County	Mar. 1-Aug. 31	6		
Pender County	Aug. 1-Sept. 30	8		
Perquimans County	May 1-31	1		
Person County	May 1-July 31	7		
Pitt County	Mar. 1-Sept. 30	36		
Polk County	Mar. 1-31	7		
Richmond County	Apr. 1-30	2		
Robeson County	Apr. 1-Sept. 30	45		
Rockingham County	Mar. 1-31	48		
Rowan County	Mar. 1-July 31	45	1	
Sampson County	May 1-Sept. 30	4		
Scotland County	May 1-Sept. 30	6		
Stanly County	Apr. 1-July 31	35		
Stokes County	Mar. 1-31	64		
Surry County	Mar 1-31	4		
Union County	Mar. 1-Sept. 30	40		
Vance County	Apr. 1-30	4		
Wake County	Apr. 1-May 31	22		
Warren County	Apr. 1-Aug. 31	28		
Washington County	Mar. 1-Apr. 30	4		
Wautauga County	Apr. 1-Aug. 31	36		
Wayne County	Apr. 1-May 31	6		Few cases in June.
Wilkes County	Mar 1-July 31	39		
Wilson County	Mar. 1-June 30	25	1	
Yancey County	Mar. 1-31	26		
Total for State		1,468	7	
North Dakota:				
Bowman County	Aug. 1-31	37		
Cass County	June 1-Sept. 30	4		
Cavalier County	June 1-30	1		
Grand Forks County	June 1-10	4		
Logan County	June 1-30	1		
McKenzie County	June 1-30	1		
Morton County	July 1-31	4		
Pierce County	June 1-30	1		
Stark County	July 1-31	1		
Steele County	Sept. 1-30	1		
Stutsman County	Aug. 1-31	1		
Traill County	June 1-30	6		
Ward County	June 1-30	4		
Total for State		66		
Oklahoma, general	Jan. 1-31		1	
Canadian County	Apr. 1-30		1	
Comanche County	Apr. 1-30		3	Reported out of date.
Grady County	Apr. 1-30		1	
Oklahoma County	Apr. 1-30		4	
Pottawatomie County	Apr. 1-30		2	
Atoka County	May 1-31	20		

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received from June 25 to November 11, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
Oklahoma, general—Cont'd.				
Beckham County	May 1-31	2		
Blaine County	May 1-31	8		
Bryan County	Aug. 1-31	25		
Caddo County	May 1-Aug. 31	6		
Canadian County	May 1-Aug. 31	18	1	
Choctaw County	May 1-31	1		
Coal County	May 1-31	5		
Comanche County	May 1-31	4	1	
Custer County	May 1-31	9		
Garvin County	May 1-31	1		
Grady County	May 1-Aug. 31	13	7	
Haskell County	May 1-31	7		
Hughes County	May 1-31	42		
Jefferson County	May 1-31	3		
Kiowa County	May 1-31	1		
Lincoln County	May 1-31	4		
McLain County	May 1-31	9		
McIntosh County	May 1-31	11		
Murray County	May 1-31	1		
Muskogee County	May 1-31	5		
Noble County	May 1-31	8		
Nowata County	May 1-Aug. 31	9		
Okfuskee County	May 1-31	1		
Oklahoma County	May 1-Aug. 31	3	1	
Okmulgee County	May 1-31	2		
Pawnee County	May 1-31	4		
Payne County	May 1-31	10		
Pittsburg County	May 1-Aug. 31	6	2	
Pontotoc County	May 1-31	12		
Seminole County	May 1-Aug. 31	3		
Sequoyah County	Aug. 1-31	1		
Texas County	May 1-31	4		
Tillman County	May 1-Aug. 31	3		
Tulsa County	May 1-Aug. 31	3	1	
Washita County	May 1-31	1		
Total for State		265	25	
Ohio:				
Allen County	June 1-30	3		
Athens County	July 1-31	1		
Butler County	June 1-July 31	4		
Clarke County	July 1-31	3		
Clinton County	June 1-30	10		
Columbiana County	June 1-July 31	6		
Cuyahoga County	June 1-July 31	16	1	
Fairfield County	June 1-30	1		
Franklin County	June 1-Sept. 30	12		
Hamilton County	June 1-Sept. 30	2		
Hancock County	July 1-31	4		
Hocking County	June 1-July 31	26		
Jackson County	Sept. 1-30	3		
Jefferson County	July 1-31	1		
Lucas County	June 1-Sept. 30	8		
Mahoning County	July 1-31	1		
Marion County	July 1-31	1		
Perry County	June 1-30	1		
Pickaway County	June 1-30	1		
Portage County	June 1-30	7		
Ross County	June 1-Sept. 30	74		
Seneca County	July 1-31	1		
Scioto County	June 1-30	2		
Stark County	June 1-July 31	29		
Summit County	July 1-31	5		
Wayne County	June 1-30	2		
Wood County	June 1-30	2		
Total for State		226	1	
Oregon:				
Baker County	May 1-31	1		
Benton County	May 1-31	2		
Linn County	June 1-30	2		
Multnomah County	Apr. 1-May 31	10		
Umatilla County	May 1-31	1		
Union County	May 1-31	2		
Wasco County	Apr. 1-30	2		
Washintgon County	Apr. 1-June 30	3		
Yamhill County	Apr. 1-June 30	15		
Total for State		38		

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received from June 25 to November 11, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
Pennsylvania, general	Apr. 1–30		2	
	May 1–Aug. 31	56	4	
Total for State		56	6	
*South Carolina:				
Charleston	June 1–July 31	28		
Total for State		28		
*Tennessee:				
Benton County—				
Camden	July 1–7	2		
Davidson County—				
Nashville	June 12–July 9	2		
Hamilton County—				
Chattanooga	June 12–Oct. 8	5		
Knox County—				
Knoxville	June 12–July 16	8		
Shelby County	May 1–Sept. 30	45		
Memphis	June 12–Oct. 15	9		
Total for State		71		
Texas, general	Apr. 1–July 31	881	27	
Total for State		881	27	
Utah, general	Mar. 1–31	112		Report received out of date.
Boxelder County	May 1–31	1		
Cache County	May 1–31	6		
Davis County	May 1–July 31	43		
Juab County	June 1–July 31	3		
Salt Lake County	May 1–Sept. 30	36	1	
Utah County	May 1–Sept. 30	49		
Wasatch County	Aug. 1–31	1		
Weber County	May 1–Sept. 30	26		
Total for State		277	1	
*Virginia:				
Alexandria	Aug. 25			One case from the schooner Persis A. Colwell, from Gaspe, Quebec.
Lynchburg	June 12–18	1		
Total for State		1		
Washington, general	Feb. 1–Mar. 31		4	
Adams County	June 1–30	1		Reports for April and May not yet received.
Chehalis County	June 1–30	3		
Chelan County	June 1–30	1		
Pierce County—				
Tacoma	June 1–July 31	2		
Skagit County	July 1–31	2		
Everett	June 1–30	5		
Spokane County	July 1–31	2		
Spokane	June 1–Aug. 3	21		
Thurston County	Aug. 1–31	1		
Whitman County	June 1–July 31	13		
Yakima County	July 1–Aug. 31	4	1	
Total for State		55	5	
Wisconsin:				
Ashland County	June 1–Aug. 31	17		
Barron County	June 1–30	1		
Brown County	July 1–31	5		
Douglas County	June 1–July 31	3		
Dunn County	July 1–31	1		
Eau Claire County	June 1–July 31	4		
Florence County	June 1–30	4		
Fond du Lac County	July 1–31	1		
Grant County	Sept. 1–30	1		
Greene County	Sept. 1–30	2		
Iowa County	Sept. 1–30	3		
Kenosha County	July 1–31	1		
Lafayette County	June 1–30	1		
La Crosse County	June 1–30	2		

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received from June 25 to November 11, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
Wisconsin—Continued.				
Milwaukee County	July 1–Sept. 30	15		
Pierce County	July 1–31	1		
Polk County	July 1–Aug. 31	6		
Rush County	June 1–30	1		
St. Croix County	July 1–31	5		
Sawyer County	June 1–Sept. 30	11		
Waupaca County	June 1–Sept. 30	5		
Winnebago County	July 1–31	1		
Total for State		91		
Grand total for the United States		6,420	97	

CHOLERA IN THE UNITED STATES.

Place.	Date.	Cases.	Deaths.	Remarks.
New York:				
New York	Sept. 26–29	1	1	Case in immigrant removed at quarantine from s. s. Germania, from Marseille and Naples.

PLAGUE IN THE UNITED STATES.

Reports Received from June 25 to November 11, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
California:				
San Benito County—				
Hollister	June 5–11	1	1	
Santa Clara County—				
San Jose	Sept. 5	1		

MORBIDITY AND MORTALITY.

WEEKLY MORBIDITY AND MORTALITY TABLE, CITIES OF THE UNITED STATES, FOR WEEK ENDED OCTOBER 29.

[For smallpox and plague see special tables.]

Cities.	Total deaths from all causes.	Tuberculosis.		Typhoid fever.		Scarlet fever.		Diphtheria.		Measles.		Whooping cough.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Altoona, Pa	9	....	1	2	....	1	....	4	....	.....	....	....	....
Ann Arbor, Mich	5	....	....	....	....	....	....	....	....	....	....	....	....
Auburn, N. Y	5	....	1	....	....	2	1	1	....	1	....	....	....
Aurora, Ill	12	....	....	....	....	2	....	....	....	....	....	....	....
Baltimore, Md	188	37	28	61	14	11	....	19	....	13	....	4	2
Bayonne, N. J	.....	1	1	2	....	2	....	4	....	.....	....	....	....
Beaver Falls, Pa	0	....	....	....	....	....	....	1	....	....	....	....	....
Bennington, Vt	3	....	....	6	....	....	....	4	1	.....	....	....	....
Berkeley, Cal	4	1	....	....	....	1	....	....	....	.....	....	1	....
Biddeford, Me	11	....	2	....	....	3	1	....	....	.....	....	....	....
Binghamton, N. Y	10	....	1	1	....	....	....	....	....	1	....	....	....
Braddock, Pa	8	....	....	7	1	1	....	5	....	1	....	....	....
Bridgeport, Conn	32	....	2	1	1	3	....	6	....	.....	....	....	....
Brockton, Mass	12	1	1	5	....	2	....	2	1	2	....	....	....
Buffalo, N. Y	137	21	10	16	2	51	2	41	4	3	....	17	....
Butler, Pa	15	....	....	4	....	....	....	4	1	.....	....	....	....
Cambridge, Mass	24	8	2	5	....	3	....	5	....	4	....	....	....
Cambridge, Ohio	4	1	....	6	2	....	....	....	....	.....	....	....	....
Camden, N. J	.....	....	....	1	....	5	1	11	3	.....	....	....	....
Camden, S. C	1	....	....	....	....	....	....	1	....	.....	....	....	....
Canton, Ohio	11	....	....	2	....	1	....	5	....	.....	....	....	....
Carbondale, Pa	6	....	....	2	....	....	....	1	....	.....	....	....	....
Charlotte, N. C	6	....	....	1	....	3	....	....	....	.....	....	....	....
Chattanooga, Tenn	.....	1	....	1	....	3	....	3	....	.....	....	....	....
Chelsea, Mass	13	4	....	1	....	1	....	....	....	.....	....	1	....
Chicago, Ill	515	102	63	57	3	87	3	204	22	23	....	25	3
Chicopee, Mass	9	....	....	....	....	....	....	2	....	.....	....	....	....
Cincinnati, Ohio	98	18	12	6	1	17	1	23	....	2	....	4	....
Cleveland, Ohio	122	26	10	33	2	21	5	34	1	3	1	2	....
Coffeyville, Kans	2	1	1	4	....	2	....	....	....	.....	....	....	....
Columbus, Ga	4	....	....	....	1	....	....	....	....	.....	....	....	....
Columbus, Ind	.....	....	....	....	....	1	....	....	....	.....	....	....	....
Columbus, Ohio	55	6	7	....	1	1	....	1	1	2	....	....	....
Concord, N. H	10	....	....	....	....	....	....	2	....	.....	....	....	....
Council Bluffs, Iowa	5	....	....	....	....	1	....	....	....	.....	....	....	....
Covington, Ky	8	....	....	....	....	3	....	5	....	.....	....	....	....
Cumberland, Md	6	....	....	26	1	....	....	....	....	.....	....	....	....
Danville, Ill	7	1	1	1	1	1	1	2	....	.....	....	....	....
Dayton, Ohio	34	....	6	2	1	5	....	....	1	.....	....	....	1
Detroit, Mich	139	....	....	....	5	21	1	44	1	.....	....	....	....
Duluth, Minn	19	3	1	5	1	5	....	3	....	5	....	7	....
Dunkirk, N. Y	2	....	....	....	....	3	2	1	....	.....	....	....	....
Elizabeth, N. J	23	....	4	....	....	7	....	8	....	.....	....	....	....
Elmira, N. Y	8	....	1	3	2	2	....	....	....	.....	....	....	....
El Paso, Tex	18	....	2	....	2	....	....	....	....	.....	....	....	....
Elyria, Ohio	5	....	....	....	....	1	....	....	....	.....	....	....	....
Erie, Pa	15	1	1	5	....	8	....	....	1	1	....	7	....
Evansville, Ind	24	....	1	7	2	....	....	5	....	.....	....	....	....
Everett, Mass	7	....	....	1	....	3	....	3	....	.....	....	....	....
Fall River, Mass	28	2	3	4	....	1	....	4	1	1	....	2	....
Freeport, Ill	4	....	....	....	....	....	....	1	....	.....	....	....	....
Galesburg, Ill	10	....	....	....	....	1	....	....	....	.....	....	....	....
Gloucester, Mass	5	....	....	....	....	....	....	....	....	.....	....	....	....
Grand Rapids, Mich	22	1	....	5	1	2	....	3	1	40	....	2	....
Greensboro, N. C	5	....	1	....	....	....	....	2	....	.....	....	....	....
Harrison, N. J	4	....	....	....	....	2	....	1	....	.....	....	....	....
Hartford, Conn	32	....	1	7	2	2	....	21	1	.....	....	....	....
Haverhill, Mass	8	3	1	....	....	....	....	2	1	.....	....	....	....
Hoboken, N. J	.....	....	....	....	....	1	....	2	....	.....	....	1	....
Hyde Park, Mass	4	....	....	7	1	....	....	3	1	2	....	1	....
Jacksonville, Fla	27	....	2	1	....	....	....	....	....	.....	....	....	1
Johnstown, Pa	15	....	....	2	2	....	....	4	1	.....	....	1	....
Kalamazoo, Mich	12	2	2	5	1	4	....	....	....	9	....	2	....
Kansas City, Kans	20	....	....	3	1	2	....	15	....	.....	....	....	....
Kearney, N. J	6	2	....	....	....	1	....	3	....	16	....	....	....
Kingston, N. Y	11	....	....	....	....	....	....	....	....	.....	....	....	....
Knoxville, Tenn	9	....	1	1	....	....	....	2	....	3	....	....	....
La Crosse, Wis	10	....	....	....	....	4	....	....	....	.....	....	....	....
Lafayette, Ind	7	....	3	....	....	....	....	....	....	.....	....	....	....

MORBIDITY AND MORTALITY—Continued.

Weekly morbidity and mortality table, cities of the United States, for week ended October 29—Continued.

Cities.	Total deaths from all causes.	Tuberculosis.		Typhoid fever.		Scarlet fever.		Diphtheria.		Measles.		Whooping cough.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Lancaster, Pa	16	3	....	....	....	1	....	7	1	....	....	5	....
Lawrence, Mass	22	....	....	....	....	2	....	6	1	....	....	....	....
Lebanon, Pa	3	....	....	....	....	....	....	1	....	....	....	....	....
Lexington, Ky	19	....	....	1	....	....	....	2	....	....	....	....	....
Lowell, Mass	36	3	4	6	1	4	....	2	....	....	....	....	....
Lynchburg, Va	....	....	....	2	....	5	....	6	....	....	....	1	....
Lynn, Mass	15	1	....	4	....	4	....	1	....	....	....	....	....
McKeesport, Pa	19	....	....	28	3	2	1	1	....	....	....	7	....
Malden, Mass	8	2	2	....	....	2	....	2	....	2	....	....	....
Manchester, N. H	15	2	2	....	....	1	....	4	....	....	....	....	....
Manistee, Mich	1	....	....	1	1	1	....	....	....	....	....	....	....
Manitowoc, Wis	3	2	1	1	....	....	....	1	....	....	....	....	....
Marinette, Wis	2	....	....	....	....	....	....	....	....	....	....	....	....
Marlboro, Mass	3	....	....	....	....	....	....	....	....	....	....	....	....
Massillon, Ohio	1	....	....	....	....	....	....	....	....	....	....	....	....
Medford, Mass	2	1	....	2	....	....	....	4	....	....	....	....	....
Melrose, Mass	5	....	1	....	....	2	....	....	....	....	....	....	....
Milwaukee, Wis	74	16	5	16	2	32	1	29	3	3	....	1	....
Mobile, Ala	23	....	....	1	1	2	....	....	....	....	....	....	....
Moline, Ill	10	....	....	1	....	....	....	2	1	....	....	....	....
Montclair, N. J	1	....	....	....	....	....	....	3	....	....	....	....	1
Montgomery, Ala	15	3	1	2	....	....	....	2	....	....	....	....	....
Morristown, N. J	7	....	....	....	1	5	....	6	....	....	....	....	....
Mount Vernon, N. Y	11	....	....	....	....	....	....	1	....	....	....	....	....
Muskegon, Mich	....	....	....	4	....	....	....	....	....	....	....	1	....
Nanticoke, Pa	2	....	....	....	....	4	....	12	1	....	....	....	....
Nashville, Tenn	37	1	3	5	1	1	....	5	....	....	....	....	....
Newark, N. J	....	18	16	2	1	19	....	28	1	....	....	....	....
New Bedford, Mass	30	2	1	4	....	1	....	6	1	....	....	....	....
Newburyport, Mass	7	2	1	....	....	....	....	....	....	....	....	....	....
New Orleans, La	118	35	20	3	1	28	....	20	1	1	....	....	....
Newport, Ky	10	....	1	....	....	1	....	3	1	....	....	....	....
Newton, Mass	10	....	....	....	....	2	....	....	....	....	....	....	....
New York, N. Y	1,246	455	142	115	14	86	2	249	18	84	1	38	3
Niagara Falls, N. Y	5	1	....	2	1	....	....	8	....	....	....	....	....
Norristown, Pa	5	1	....	....	....	....	....	1	....	....	....	....	3
North Adams, Mass	7	....	....	....	....	1	....	....	....	3	1	....	....
Northampton, Mass	3	1	....	3	....	....	....	2	....	....	....	....	....
Oakland, Cal	34	2	2	....	1	3	1	4	....	....	....	....	....
Orange, N. J	14	4	3	....	....	1	....	....	1	1	....	....	1
Ottumwa, Iowa	6	....	1	....	....	....	....	....	....	....	....	....	....
Paducah, Ky	8	....	1	....	....	....	....	....	....	....	....	....	....
Palmer, Mass	1	....	....	....	....	....	....	1	....	....	....	....	....
Peekskill, N. Y	5	....	....	....	....	2	....	2	....	....	....	....	....
Pittsburg, Pa	159	18	12	24	5	16	1	31	4	11	2	16	1
Pittsfield, Mass	11	1	2	4	1	....	....	2	....	10	....	....	....
Plainfield, N. J	6	3	1	1	....	1	....	3	....	4	....	....	....
Portsmouth, N. H	....	....	....	....	....	....	....	1	....	....	....	....	....
Portsmouth, Va	13	....	....	....	....	....	....	3	2	....	....	....	....
Pottstown, Pa	4	....	1	2	....	....	....	....	....	....	....	....	....
Providence, R. I	56	6	10	7	2	1	....	7	....	....	....	....	....
Racine, Wis	4	....	1	1	....	2	....	2	....	....	....	....	....
Reading, Pa	22	2	....	3	1	....	....	8	2	2	....	5	....
Rock Island, Ill	4	1	1	1	....	1	....	3	....	....	....	....	....
Rutland, Vt	4	....	....	1	....	....	....	1	....	....	....	1	....
Sacramento, Cal	21	....	1	1	....	....	....	2	....	1	....	....	....
Saginaw, Mich	25	1	1	....	....	....	....	....	....	....	....	....	....
St. Louis, Mo	190	38	16	26	3	18	2	41	3	26	....	11	....
San Antonio, Tex	9	....	8	8	....	2	....	4	1	1	....	....	....
Saratoga, N. Y	2	2	....	....	....	....	....	....	....	....	....	....	....
Schenectady, N. Y	20	2	2	11	....	....	....	2	....	4	....	2	....
Seattle, Wash	43	8	7	14	1	2	....	....	....	17	....	....	....
Somerville, Mass	16	3	4	6	....	....	....	5	....	....	....	....	....
South Bend, Ind	18	....	1	3	....	....	....	....	....	....	....	....	....
Springfield, Mass	19	....	....	5	....	1	....	7	....	....	....	....	....
Steelton, Pa	2	4	....	....	....	1	....	4	....	....	....	....	....
Superior, Wis	11	....	....	....	1	4	....	8	....	....	....	....	....
Tacoma, Wash	26	....	....	7	....	....	....	1	....	1	....	....	....
Taunton, Mass	11	1	1	....	....	2	....	4	....	....	....	....	....
Terre Haute, Ind	14	....	....	3	1	9	....	9	2	....	....	....	....
Toledo, Ohio	50	....	6	17	2	6	....	14	2	....	....	....	....

MORBIDITY AND MORTALITY—Continued.

Weekly morbidity and mortality table, cities of the United States, for week ended October 29—Continued.

Cities.	Total deaths from all causes.	Tuberculosis.		Typhoid fever.		Scarlet fever.		Diphtheria.		Measles.		Whooping cough.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Trenton, N. J.	1	1	....	5	....	4	....	3	1	....	....	....	....
Waltham, Mass.	11	1	2	....	....	2	....	1	....	....	....	....	1
Warren, Ohio.	2	....	....	1	....	....	....	1	....	....	....	....	....
Washington, D. C.	108	21	13	31	4	4	....	12	....	1	....	8	1
Wheeling, W. Va.	7	1	1	2	1	1	....	....	....	....	....	....	....
Wichita, Kans.	13	....	1	2	1	....	....	14	1	....	....	....	....
Wilkes-Barre, Pa.	19	4	....	....	....	1	....	5	2	....	....	....	....
Wilkinsburg, Pa.	6	1	....	2	1	....	....	....	....	....	....	....	....
Williamsport, Pa.	6	....	....	1	....	1	....	3	....	....	....	....	....
Wilmington, Del.	21	....	2	....	1	....	....	....	....	....	....	....	....
Woburn, Mass.	2	1	1	1	....	....	....	....	....	3	....	....	....
Worcester, Mass.	44	5	3	3	1	4	....	8	1	6	....	....	....
Yonkers, N. Y.	19	6	2	2	....	1	....	3	1	....	....	....	....
York, Pa.	....	1	....	....	....	....	....	9	....	....	....	8	....
Zanesville, Ohio.	7	....	2	....	1	3	....	1	....	....	....	....	....

STATISTICAL REPORTS OF MORBIDITY AND MORTALITY, STATES AND CITIES OF THE UNITED STATES (untabulated.)

ARIZONA.—Week ended October 29, 1910. Number of deaths not reported. Cases reported: Typhoid fever 3 (at Tucson 2, Tombstone 1), smallpox 1 (at Flagstaff), diphtheria 2 (at Globe).

CONNECTICUT—*Stamford.*—Month of October, 1910. Population, 25,200. Total number of deaths from all causes not reported. Cases reported: Typhoid fever 1, measles 20, scarlet fever 2, diphtheria 1, tuberculosis 3.

FLORIDA.—Week ended November 5, 1910. Reports from the state board of health show typhoid fever present in 1 locality (Ybor City) with 1 case, smallpox in 2 counties (Duval and Osceola) with 6 cases, diphtheria in 6 localities with 12 cases, malaria in 5 localities with 17 cases, tuberculosis in 4 localities with 4 cases.

ILLINOIS—*Alton.*—Month of October, 1910. Population, 17,528. Total number of deaths from all causes 18, including tuberculosis 2. Cases reported: Scarlet fever 1, diphtheria 5.

INDIANA—*Kokomo.*—Month of October, 1910. Population, 18,000. Total number of deaths from all causes 32, including typhoid fever 2, diphtheria 1, tuberculosis 5. Cases reported: Typhoid fever 5, smallpox 1, scarlet fever 3, diphtheria 3.

Muncie.—Month of October, 1910. Population, 31,692. Total number of deaths from all causes 30, including typhoid fever 3, tuberculosis 3. Cases reported: Typhoid fever 11, scarlet fever 11, diphtheria 4.

MICHIGAN.—Month of September, 1910. Population, 2,668,308. Total number of deaths from all causes 3,412, including typhoid fever

96, measles 1, scarlet fever 13, diphtheria 47, tuberculosis 210. Cases reported: Typhoid fever 562 in 178 localities, smallpox 43 in 13 localities, measles 108 in 17 localities, diphtheria 308 in 74 localities, tuberculosis 175 cases.

MINNESOTA—*Stillwater.*—Month of October, 1910. Population, 12,528. Total number of deaths from all causes 8, including typhoid fever 1. Cases reported: Typhoid fever 5, scarlet fever 1.

NEBRASKA—*South Omaha.*—Month of September, 1910. Population, 35,000. Total number of deaths from all causes 26, including measles 1, tuberculosis 2. Cases reported: Measles 2, tuberculosis 2. Month of October, 1910. Total number of deaths 16, including tuberculosis 1. Cases reported: Diphtheria 3, tuberculosis 1.

NEW JERSEY.—Month of October, 1910. Population, 1,183,669. Total number of deaths from all causes 2,930, including typhoid fever 57, measles 9, scarlet fever 5, diphtheria 49, tuberculosis 341.

OHIO—*Youngstown.*—October 15 to 31, 1910. Population, 56,413. Total number of deaths from all causes not reported. Deaths from contagious diseases include typhoid fever 4, diphtheria 3. Cases reported: Typhoid fever 11, scarlet fever 4, diphtheria 26.

SOUTH CAROLINA—*Charleston.*—Month of October, 1910. Population, 58,833. Total number of deaths from all causes 133, including typhoid fever 2, tuberculosis 18. Cases reported: Typhoid fever 10, scarlet fever 5, diphtheria 6.

FOREIGN AND INSULAR.

MEASURES TO PREVENT THE INTRODUCTION OF CHOLERA INTO THE UNITED STATES.

EXAMINATION OF BAGGAGE OF RUSSIAN EMIGRANTS FOR EXCLUSION OF FOODSTUFFS.

On October 12, 1910, the medical officer of the service attached to the American consulate at Libau, Russia, was cabled to exclude foodstuffs from the persons and baggage of emigrants from Russia prior to the commencement of their five-days' detention and observation, which they are required to undergo prior to their departure direct from the port of Libau for the United States, and also to examine the baggage and persons of the emigrants at the end of their detention in order to detect the presence of any foodstuffs possibly overlooked at the first inspection.

Cabled advices have just been received to the effect that in consequence of the efforts on the part of the medical officer at Libau to carry out these instructions, many steerage passengers from Russia are passing through Libau to depart from the various English ports. Therefore in order to counteract the danger of such detouring on the part of these emigrants a request was made through departmental channels that the American consul-general at London be directed to issue the proper instructions to the consular officers to detain all emigrants from Russia at the various British ports of embarkation for five days after their arrival prior to their embarkation.

The task of eliminating foodstuffs from the baggage of emigrants from the cholera-infected districts of Europe has proved a most difficult one, and almost daily efforts are being made both on the part of the Bureau and on the part of the officers engaged in the handling of persons from the cholera-infected districts of Europe, to effect such an organized inspection of the persons and baggage of emigrants as will effectually exclude the carrying of foodstuffs or water.

BRAZIL.

PERNAMBUCO—Plague.

Consul Griffith reports October 4:

Since the appearance of bubonic plague in Pernambuco September 19 there has occurred a total of 4 reported cases, of which 3 were fatal.

CUBA.

Transmissible diseases in the island.

Passed Assistant Surgeon de Valin, at Habana, reports November 8:

The national sanitary department gives the following statement of transmissible diseases in Cuba:

September 15–30, 1910.

	New cases.	Deaths.	Under treatment.
Tuberculosis	49	59	2,884
Leprosy	.....	1	347
Malaria	64	12	167
Typhoid fever	23	10	53
Diphtheria	24	3	26
Scarlet fever	4	.....	4
Measles	22	.....	41
Varicela	2	1	1
Tetanus in the new-born	4	4	1
Filariasis	.....	.....	1
Dengue	.....	.....	2

ECUADOR.

GUAYAQUIL—Plague and Yellow Fever.

Passed Assistant Surgeon Parker reports October 20:

From October 1 to 15 there were 83 cases of plague with 25 deaths at Guayaquil. One new case of plague was reported during the same period at Duran, making, with one previously reported case, a total of 2 cases with 1 death. There was one new case at Babahoyo.

During the same period 8 new cases of yellow fever with 4 deaths occurred at Guayaquil.

GERMAN EAST AFRICA.

Plague at Lindi.

The following information is taken from the official publication of the imperial bureau of health, Berlin, dated October 26:

On September 5 a plague death occurred at Lindi. A fatal case presenting symptoms of plague had occurred previously (August 7), and the infection in this case had been traced to bales shipped from Bombay or Zanzibar. During the period from August 19 to September 6, 402 rats were examined for plague infection, of which number 22 were found to be plague infected.

GERMANY.

Measures against Cholera.

Consul-General Thackara, at Berlin, reported, October 29, to the Department of State:

By official order of the imperial German chancellor, issued October 15, passengers and crews of all vessels arriving at a German port from ports of the Black Sea, the Bosphorus, and the Sea of Marmora, as well as from the ports of the Italian Provinces of Bari and Foggia, will, until further notice, undergo medical inspection before the vessels are granted free pratique.

HAWAII.

HONOLULU—Smallpox on Transport Sheridan.

Chief Quarantine Officer Ramus reports November 14:

Case of smallpox in Filipino seaman on army transport *Sheridan* from San Francisco.

INDIA.

CALCUTTA—Cholera and Plague.

Acting Assistant Surgeon Allan reports October 13:

During the week ended September 17 there were reported at Calcutta 17 deaths from cholera and 5 from plague; in all Bengal, 73 cases of plague, with 53 deaths; in all India, 3,673 cases of plague, with 2,641 deaths.

ITALY.

Status of Cholera.

Surgeon Geddings at Naples reported November 10:

During the week ended November 8 there were 36 cases of cholera, with 12 deaths in all Italy. No cases or deaths were reported in Naples.

November 16 Doctor Geddings further reported:

Naples, November 8, 2 cases of cholera with 1 death.

JAMAICA.

Malaria—Mosquito Destruction.

Consul Dreher at Port Antonio reports November 1:

The most generally prevalent disease in Jamaica is malarial fever. During the year ended March 31, 1910, 7,144 cases were admitted to hospital, 2,153 at Annotto Bay and 1,081 at Lionel, localities where mosquitoes are abundant. The health law of 1910 provides for the destruction of mosquitoes and requires the draining of swamps and the drawing off of stagnant water, or where this is not possible the stocking of such water with mosquito-destroying fish. Sanitary inspectors are appointed to carry out the law and enforce the penalties of violation.

JAPAN.

KOBE—Cholera.

Vice-Consul Gassett reports October 13:

The following statistics of cholera are given out by the municipal authorities of Kobe and Osaka:

Cholera.—At Kobe from September 12 to October 12, 1910, there were reported 154 cases, with 95 deaths; at Osaka from September 16 to October 10, 1910, 185 cases, with 110 deaths.

MEXICO.

Yellow Fever at Campeche.

The following information, dated November 7, was received from the president of the superior board of health of Mexico:

During the week ended November 5 a case of yellow fever was reported at Campeche, occurring November 1.

TAMPICO—Measures against Importation of Cholera.

Consul Miller reported, October 20, to the Department of State:

All vessels arriving at this port will, from this date, be rigidly inspected for possible cholera infection.

PERU.

Status of Plague.

Acting Assistant Surgeon Castro-Gutierrez, at Callao, reports October 20:

The following statement of plague in Peru was received from the public health service:

Month of August, 1910.

	Cases remaining July 31.	New cases.	Recovered.	Died.	Remaining.
Department of—					
Arequipa		1			1
Lambayeque	3	6	7	2	
Libertad	7	7	6	4	4
Lima	4	18	7	8	7
Callao	1		1		

PORTUGAL.

LISBON—Plague and Smallpox.

The American consul-general reported, November 9, to the Department of State, the appearance of bubonic plague at Lisbon and the increase of smallpox.

RUSSIA.

Status of Cholera.

Acting Assistant Surgeon De Forest at Libau reports October 30:

During the week ended October 26 there were reported at St. Petersburg 69 cases of cholera with 27 deaths and in all Russia during the same period 801 cases with 394 deaths.

LIBAU—Examination of Emigrants.

For the steamship *Kursk*, sailing November 2, there have been examined 983 passengers.

ODESSA—Cholera and Plague.

Consul Grout reports, October 17 and 23:

Cholera.—During the week ended October 14 there were reported in the city of Odessa 4 cases of cholera with 3 deaths. At the close of the week 3 cases remained in hospital. During the week ended October 21 the number of new cases reported was 2 with 1 death. At the close of the week 3 cases remained in hospital. From the outbreak of the epidemic to October 21 there were reported 603 cases with 340 deaths in the city of Odessa and in the county of Odessa exclusive of the city, from the outbreak to October 19, inclusive, 751 cases with 322 deaths.

Plague.—During the week ended October 14 there were reported 2 cases of plague with 1 death and during the week ended October 21, 4 cases with 2 deaths. From the date of the outbreak to October 22 there were reported 130 cases with 38 deaths.

TURKEY.

SALONIKI—Precautions against Cholera.

Consul Horton reports October 27:

The sanitary department of this city is taking the following measures against cholera:

All trains arriving from Constantinople or other cities where cases of cholera are reported are detained at the central station, and the passengers are sprayed with a mild sublimate solution. Their baggage is disinfected, and all articles of food which they may have with them are destroyed.

After arrival, the passengers, whose names and addresses are taken, are visited and examined for five successive days by a health officer detailed for the purpose. Isolated rooms have been prepared at the municipality's hospital for any who develop suspicious symptoms, and a building is rented outside the town for any actual victims of cholera.

The same precautions are taken for arrivals by sea, the first examination being held on board, before the vessel enters the harbor.

The municipality has given orders to its employees to visit every meat and fruit shop daily and to inspect the food products sold in these places, as well as to give especial attention to the cleaning of the streets, water-closets, etc.

No case of cholera has appeared at Saloniki.

VENEZUELA.

Yellow Fever at Valencia.

The American consul at Puerto Cabello reported, October 14, to the Department of State:

Three cases of yellow fever, with 1 death, are reported at Valencia, a locality 42 miles from Puerto Cabello.

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX.

Reports Received During Week Ended November 18, 1910.

[These tables include cases and deaths recorded in reports received by the Surgeon-General, Public Health and Marine-Hospital Service, from American consuls through the Department of State and from other sources.]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
Austria-Hungary:				
Hungary, general	Oct. 9–15	76	34	
India:				
Bombay	Oct. 5–11	.....	2	
Kurrachee	Oct. 2–8	3	2	
Madras	Oct. 1–7	.....	11	
Italy (exclusive of Naples)	Nov. 1–16	116	34	
Naples	Nov. 8	2	1	
Indo-China:				
Haipong	Aug. 30	.....	.....	Present.[a]
Java:				
Batavia	Sept. 25–Oct. 1	8	5	
Japan:				
Kobe	Oct. 2–12	52	42	
Osaka	Oct. 2–10	41	31	
Turkey in Asia:				
Basra	Oct. 20	2	.....	
Zongouldak	Oct. 1–16	43	24	And vicinity.

[a] Bulletin Sanitaire de l'Algérie, October 15, 1910.

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

Reports Received During Week Ended November 18, 1910.

YELLOW FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Ecuador:				
Guayaquil	Oct. 1–15	8	4	
Mexico:				
Campeche	Oct. 30–Nov. 5	1	.....	
Venezuela:				
Valencia	Oct. 14	3	1	

PLAGUE.

Arabia:				
Aden	Oct. 9–15	2	2	
Brazil:				
Pernambuco	Sept. 19–Oct. 4	4	3	
Ecuador:				
Babahoyo	Oct. 1–15	1	1	
Duran	Oct. 1–15	1	2	
Guayaquil	Oct. 1–15	83	25	
India:				
Bombay	Oct. 5–11	.....	16	
Calcutta	Oct. 18–24	.....	5	
Kurrachee	Oct. 2–8	8	8	
Madras	Oct. 1–7	.....	1	
German East Africa:				
Lindi	Sept. 5	[a]1	1	
Mauritius	July 30–Sept. 1	16	10	
Peru:				
Departments—				
Arequipa	Aug. 1–31	1	.....	
Lambayeque	Aug. 1–31	6	2	
Libertad	Aug. 1–31	7	4	
Lima	Aug. 1–31	18	8	
Portugal:				
Lisbon	Nov. 9	.....	.....	Present.
Russia:				
Odessa	Oct. 9–21	6	3	
Turkey in Asia:				
Beiruth	Aug. 1	[b]1	.....	

SMALLPOX.

Argentina:				
Buenos Aires	Aug. 1–31	.....	29	
Canada:				
Halifax	Sept. 30–Nov. 5	1	.....	
Sydney	Sept. 30–Nov. 5	1	.....	
Chile:				
Punta Arenas	Sept. 21–27	1	.....	From a coaling vessel.
Germany, general	Oct. 16–22	3	.....	
Hawaii:				
Honolulu	Nov. 14	1	.....	From army transport Sheridan from San Francisco.
India:				
Madras	Oct. 1–7	.....	1	
Peru:				
Salaverry	Oct. 7–13	3	.....	
Portugal:				
Lisbon	Oct. 16–22	21	.....	
Russia:				
Riga	Oct. 9–22	47	.....	
St. Petersburg	Oct. 2–22	56	16	
Straits Settlements:				
Singapore	Oct. 16–22	16	5	
Switzerland:				
Zurich, canton	Oct. 16–22	1	.....	

[a] From the Veröffentlichungen des Kaiserlichen Gesundheitsamtes, Oct. 26, 1910.
[b] Das österreichische Sanitatswesen, Aug. 18, 1910.

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

Reports Received from June 25 to November 11, 1910.

[For reports received from January 1, 1910, to June 24, 1910, see PUBLIC HEALTH REPORTS for June 24, 1910. In accordance with custom, the tables of epidemic diseases are terminated semiannually and new tables begun.]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
Arabia:				
Maskat	Sept. 18–Oct. 2	25	19	Including Matrah.
Austria-Hungary:				
Galicia—				
Padwoloczyska	June 20	1	1	From Russia.
Hungary (total for Hungary).	Aug. 19–Oct. 15	288	139	
Budapest	Sept. 8–Oct. 1	8	5	
Kalocsa	Sept. 23			Present.
Mohacs	Aug. 25–Sept. 24	22	10	
Neusatz	Sept. 23			Do.
Pressburg	Aug. 24–30	1	1	From the steamer Rosenburg.
Trieste	Oct. 16	1		
Vienna	Aug. 21–Sept. 24	9	2	
Borneo:				
Pamangkjat	July 22–31	20	20	
Brazil:				
Pernambuco	Oct. 20	1		On s. s. Manaos.
China:				
Amoy	July 17–Sept. 24	6	6	
Fatshan	July 1			Epidemic.
Hankow	Aug. 7–Sept. 24	4	1	
Hongkong	July 10–16	9	6	Imported.
Swatow	May 10–June 6		254	From 3,000 to 4,000 deaths in vicinity.
Colombo:				
Ceylon	July 3–9	1		
Denmark:				
Copenhagen	Sept. 27	1		On a steamer from Holland.
France:				
Marseille	Oct. 4–6	4	3	Three cases from s. s. Bosphore from Piraeus; 1 case a contact.
Germany:				
Freiburg	Sept. 9–13	2		
Kalthoff	Sept. 14	10	6	Suburb of Marienburg.
Marienburg	Sept. 13–Oct. 9	16	6	
Ruhleben (near Berlin)	June 23–27	2	2	Among Russian emigrants.
Sommerau	Sept. 22	1	1	
Spandau (near Berlin)	Aug. 29	2	1	
India:				
Bombay	June 8–Oct. 4		35	
Calcutta	May 1–Sept. 24		536	
Kurrachee	July 24–Oct. 1	40	34	
Madras	May 21–Sept. 30		95	Madras Presidency Oct. 1–Dec. 31, 1909, cases 5,579, deaths 3,264; Jan. 1–Aug. 31, 1910, cases 23,101, deaths 14,671.
Moulmine	May 1–7	1	1	
Negapatam	Apr. 16–Sept. 16		259	
Rangoon	May 8–Sept. 24		16	
Indo-China:				
Saigon	Jan. 1–Sept. 25	78	52	
Italy (exclusive of Naples)	Oct. 2–30	420	200	
Province of Avellino	Oct. 9–22	7	2	
Province of Bari—				
Andria	Aug. 17–Oct. 22	41	29	
Barletta	Aug. 17–Sept. 24	167	102	
Bisceglie	Aug. 17–Oct. 22	4	2	
Bitonto	Aug. 17–Oct. 22	3	1	
Canosa	Aug. 17–Sept. 10	10	2	
Carbonara	Oct. 2–7	1	1	
Grumo Appula	Aug. 17–27	1		
Molfetta	Aug. 17–Oct. 22	80	29	
Ruvo	Aug. 17–Oct. 1	4	1	
Spinazzola	Aug. 17–Sept. 4	15	8	
Terlizzi	Oct. 1–7	2		
Trani	Aug. 17–Sept. 10	93	71	
Triggiano	Sept. 18–24	1		
Province of Campobasso	Oct. 9–22	6	2	
Province of Caserta	Oct. 1–22	191	132	
Province of Foggia—				
Cerignola	Aug. 17–Oct. 7	38	30	
Margherita di Savoia	Aug. 17–Sept. 10	24	24	
Ortanova	Aug. 17–Sept. 10	4	2	
San Ferdinando	Aug. 17–Sept. 10	15	15	
Trinitapoli	Aug. 17–Oct. 1	55	30	

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

Reports Received from June 25 to November 11, 1910.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Italy (exclusive of Naples)—Con.				
Province of Lecce	Oct. 16–22	6	3	
Province of Messina	Oct. 16–22	1	1	
Province of Naples	Oct. 9–22	205	56	
Naples	Sept. 25–Oct. 30	327	130	
Palermo	Oct. 16–22			
Palermo	Oct. 16–22	4	4	
Province of Potenza—				
Genzano	Aug. 17–27	2	1	
Palazzo San Gervaso	Aug. 17–27	1	1	
Province of Rome—				
Fiumicino	Oct. 2–7	1	1	
Rome	Sept. 25–Oct. 22	15	8	
Province of Salerno	Oct. 1–22	18	8	
Province of Sicily—				
Girgenti	Oct. 21	1		
Monreale	Oct. 1	1		
Palermo	Sept. 28	4		
Trapani	Oct. 21–22	3	2	
Sardinia	Oct. 3	4	1	
Japan:				
Awaji Island	July 22–28	3		
Ehime	Oct. 4	5		
Fukuoka	Oct. 4	20		
Hiroshima	Oct. 4	5		
Ibogun	Aug. 5	3	1	
Kagawa	Oct. 4	2		
Kyoto	Oct. 7	82	30	
Kobe	Sept. 12–Oct. 12	154	95	Sept. 12, first case from s. s. Amakusa Maru, from Dalny.
Moji	Aug. 13–Oct. 8	23	9	On s. s. Helios.
Nagasaki	Aug. 15	1		On s. s. Kasuga Maru, from Shanghai.
Nara	Oct. 4	1		
Okayama	Oct. 4	1		
Osaka	Aug. 6–Oct. 10	195	117	
Tokushima	Oct. 7	2		
Wakamatsu	Oct. 8	2		
Yokohama	Aug. 22	1		On s. s. Siberia, from Shanghai.
Java				June 18, present in extreme eastern part.
Batavia	May 8–Sept. 24	379	252	Mainly among natives.
Samarang	May 8–July 31	323	266	
Soerabaya	May 8–Aug. 20	125	70	
Korea:				
Chinampo	Aug. 26–27	2	1	From steamship Suma Maru.
Manchuria:				
Dalny	Aug. 21–Sept. 10	4	1	
Morocco, general	Sept. 27–Oct. 7		5	Between Rabat and Casablanca, among troops.
Netherlands:				
Rotterdam	July 23–29	1		From a vessel from Russia.
Persia:				
Ardabil	July 1–Aug. 21	70	56	
Chudja	Sept. 4	2	1	
Enzeli	Aug. 20	3	3	
Hassan Branch	July 11–13	6	2	
Kermanshah	Oct. 1–10	67	46	Present in all localities between Hamadan and Kasnekin.
Khorassan Province—				
Badjuirian	Aug. 1–Sept. 4	2	1	
Nir	Sept. 4			Present.
Serab	Aug. 4–27			Do.
Philippine Islands:				
Manila	May 22–Sept. 24	405	266	July 29, 1 fatal case from s. s. Batangueno. First quarter, 1910—cases, 56; deaths, 45. Second quarter, 1910—cases, 37; deaths, 27.
Provinces				First quarter, 1910—cases, 578; deaths, 432. Second quarter, 1910—cases, 2,324; deaths, 1,692.
Albay	Sept. 4–10	3	2	
Batangas	May 1–Sept. 24	1,154	736	
Bulacan	May 1–Sept. 24	803	569	
Cavite	June 12–24	6	5	
Ilocos Sur	Aug. 14–Sept. 24	43	38	
Mindoro	Aug. 21–27	3	2	
Mountain	June 26–Aug. 20	5	4	

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

Reports Received from June 25 to November 11, 1910.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Philippine Islands—Cont'd.				
Provinces—Continued.				
Nueva Ecija	June 26–Sept. 24	562	366	
Pampanga	Apr. 24–Sept. 24	284	262	
Pangasinan	Apr. 24–Sept. 24	3,906	3,010	
Rizal	June 12–Sept. 24	271	183	
Tarlac	May 8–Sept. 24	258	193	
Union	May 1–July 30	3	1	
Roumania:				
Galatz	Sept. 16	1	1	An Italian seaman.
Tulcea	Oct. 5	1	1	
Russia (total for all Russia)				May 8 to Oct. 28—cases 204,958; deaths, 95,673.
Amolinsk, territory	Aug. 7–Oct. 1	632	386	
Amur, territory	Sept. 11–Oct. 1	44	35	
Archangel, government—				
Archangel	July 17–Nov. 17	2	1	
Astrakhan, government	July 3–Oct. 1	1,794	797	
Baku, government	May 29–Oct. 1	1,086	576	
Baku	July 3–Oct. 1	992	413	
Batum, territory	Aug. 28–Oct. 1	14	7	
Bessarabia	June 5–Oct. 1	112	44	
Black Sea, province	July 3–Oct. 1	499	162	
Cronstadt	July 17–Oct. 1	220	116	
Daghestan, territory	July 17–Oct. 1	1,527	553	
Don, territory	May 29–Oct. 1	20,859	2,164	
Rostov on the Don	June 19–Sept. 10	3,079	1,029	
Erivan, government	July 24–Oct. 1	1,040	521	
Esthonia, government—				
Reval	July 24–30	1	.....	
Finland	Aug. 6	2	.....	
Kaluga, government	July 17–Aug. 6	21	3	
Kars, territory	Aug. 7–Oct. 1	699	304	
Kharkov, government	May 29–Sept. 10	2,586	1,090	
Khazan	June 26–Sept. 10	1,877	811	
Kherson, government	May 29–Sept. 10	8,784	4,744	
Odessa	May 29–Oct. 21	603	340	June 18-20: Fatal case on s. s. Colenzo.
Kief, government	May 20–Oct. 1	2,946	1,180	
Kostroma, government	May 29–Sept. 10	1,818	736	
Koutais, government	Aug. 7–Sept. 10	368	260	
Kuban, government	May 29–Oct. 1	49,590	10,267	
Kursk, government	June 26–Sept. 10	5,188	2,033	
Livonia, government	Aug. 28–Oct. 1	49	34	
Riga	Aug. 1–Sept. 24	27	.....	
Minsk, government	May 29–Sept. 10	459	152	
Mohilev, government	May 15–Sept. 10	180	76	
Moscow, government	July 24–Oct. 1	184	81	
Moscow	July 10–30	10	5	
Nikolajev	Aug. 28–Sept. 10	37	19	
Nizhni Novgorod, government	July 3–Oct. 1	1,785	776	
Novgorod, government	July 17–Oct. 1	340	150	
Olonetz, government	Aug. 14–Sept. 10	10	5	
Orel, government	Mar. 30–Sept. 10	417	162	
Orenburg, government	July 17–Oct. 1	2,666	1,331	
Orlov	July 3–9	22	8	
Podolia, government	July 3–Sept. 10	733	284	
Pensa, government	July 10–Aug. 13	401	138	
Perm, government	July 17–Sept. 30	684	231	
Poltava, government	May 29–Oct. 1	2,953	1,210	
Pskov, government	Aug. 14–Oct. 1	6	1	
Rjasan, government	July 3–Sept. 10	1,925	805	
St. Petersburg, government	July 10–Oct. 1	547	204	
St. Petersburg	June 19–Oct. 1	3,928	1,593	
Samara, government	June 19–Oct. 1	9,663	4,391	
Sarapul, government	July 17–Aug. 27	1,010	539	
Saratov, government	June 19–Oct. 1	5,842	2,417	
Semipatinsk, territory	Sept. 4–10	11	4	
Simbirsk, government	June 19–Oct. 1	3,354	1,618	
Smolensk	July 24–Sept. 10	69	31	
Stavropol, government	June 26–Sept. 10	3,861	1,862	
Syr Darya	July 24–Sept. 10	61	35	
Tambov, government	June 19–Oct. 1	4,059	1,961	
Transbaikal, territory	Sept. 4–10	15	8	
Taurida, government	May 29–Oct. 1	4,063	2,001	
Kertsch	May 29–Sept. 10	482	217	
Sebastopol	June 19–Sept. 10	44	24	
Theodosia	June 19–25	.....	.....	Present

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

Reports Received from June 25 to November 11, 1910.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Russia (total for all Russia)—Continued.				
Terek, territory	June 19–Oct. 1	1,257	655	
Tiflis, government	July 17–Oct. 1	1,585	591	
Tiflis	June 19–July 16	113	41	
Techernigov, government	May 29–Oct. 1	1,210	445	
Tobolsk, government	Aug. 7–Oct. 1	120	63	
Tomsk, government	Aug. 14–Oct. 1	280	106	
Trans-Caspian, territory	July 3–Sept. 10	62	27	
Trans-Caucasia—Tschernomorsk, district—Novorossysk	June 19–July 3	7	6	
Tula, government	July 10–Aug. 27	34	10	
Turgai, territory	July 24–Oct. 1	85	43	
Tver, government	July 24–Oct. 1	19	4	
Ufa, government	July 10–Sept. 10	588	361	
Ural, territory	Aug. 14–Oct. 1	177	115	
Vitebsk, government	May 29–Oct. 1	186	77	
Veronesch, government	May 29–Oct. 1	4,511	2.104	
Viatka	July 24–Sept. 10	275	146	
Vladimir, government	July 24–Oct. 1	25	16	
Volhynia, government	July 3–Sept. 10	47	25	
Vologda, government	Aug. 14–Sept. 10	188	109	
Warsaw, district	Aug. 25–Sept. 2	25	28	Sept. 22, still present.
Yaroslav, government	July 24–Oct. 1	1,139	603	
Yaroslav	July 10–23	25	13	
Yekaterinslav, government	May 29–Oct. 1	14,789	6,830	
Yelisavetpol	Aug. 7–Sept. 10	54	44	
Servia:				
Belgrade	Oct. 7–22	6	1	
Siam:				
Bangkok	May 4–Sept. 10	806	799	
Straits Settlements:				
Singapore	May 8–Sept. 17	115	110	
Tripoli:				
Tripoli	Oct. 3–16	14	9	
Turkey:				
Constantinople	Sept. 13–Oct. 10	84	46	
Turkey in Asia:				
Bagdad	Oct. 24	.....	.....	Present.
Basra	Sept. 25	1	1	
Erzerum, vilayet	Aug. 22–Oct. 15	543	365	
Irakil	Sept. 25–Oct. 1	1	1	
Samsoun	Sept. 18–24	1	.....	
Tizirk	Sept. 18–24	1	.....	
Trebizond	Sept. 10–Oct. 16	489	262	

YELLOW FEVER.

Brazil:				
Bahia	Apr. 30–Aug. 26	16	12	
Manaos	May 30–Oct. 15	48	48	S. s. Augustine, left Manaos Sept. 24 bound for Liverpool, via Para and Lisbon. After leaving Manaos 5 cases of yellow fever developed; 2 of these were landed at Para, 2 were buried at sea, and 1 was landed at Liverpool convalescent.
Para	May 30–Oct 15	160	107	July 25: One death on s. s, Augustine, en route from Para to Lisbon, 2 days previous to arrival at Madeira.
Pernambuco	May 16–21	.....	1	
Costa Rica:				
Limon	July 9–14	1	1	
San Jose	May 28–July 9	3	2	Fatal case May 28 from Barranquilla; case June 29 from Siquires; fatal case July 9 from Tivives.
Siquires	July 31	1	1	
Ecuador:				
Babahoyo	Sept. 1–15	1	.....	
Duran	Aug. 16–Sept. 30	2	.....	
Guayaquil	May 16–Sept. 30	67	29	
Milagro	Aug. 16–31	2	1	Present Sept. 19.

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

Reports Received from June 25 to November 11, 1910.

YELLOW FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Gold Coast:				
Sekondi	May 1-27	8	8	
Great Britain:				
Liverpool	Oct. 14	1		See remark opposite Manaos.
Hawaii:				
Honolulu	Nov. 5	1		From s. s. Hongkong Maru from Empalme, Mexico, via Manzanillo.
Mexico:				
Campeche	Sept. 25-Oct. 25	8	6	
Sierra Leone:				
Freetown	May 1-Sept. 31	8	8	
Sherboro	May 20			Present.
Venezuela:				
Caracas	Sept. 17			Do.
La Guaira	June 16-30		1	
Puerto Cabello	Oct. 12			Do.

PLAGUE.

Argentina:				
Rosario	Feb. 1-28	1	1	
Tucuman	Feb. 26-May 31	37	16	
Brazil:				
Bahia	Apr. 30-Aug. 26	12	12	
Para	Sept. 19	1		
Pernambuco	Apr. 1-June 30		2	
Rio de Janeiro	June 5-Aug. 31	2	1	
Chile, general	Jan. 1-May 31	104	35	
Iquique	May 8-Sept. 4	38	13	
Mejillones	Apr. 27			Present.
Pisagua	Apr. 1-May 31	14	4	
Taltal	Apr. 1-27	12		
China:				
Amoy	July 3-Sept. 24		11	May 8-June 11, 8 to 12 deaths daily. Aug. 6, present in vicinity.
Kulangsu international city.	June 5-11		1	
Canton	July 13-Aug. 6	43	31	
Chao Yang district	May 5-19		3,000	Mainly at Ho Peng. Present also at Chelin, Feng-chow-so, Taipushien, and Tsai-tang-shi.
Chang-pu district	June 11			Epidemic.
Ching-chew district	June 11			Do.
Hankow	May 15-28	5	3	
Hongkong	May 8-Aug. 27	20	18	
Swatow	June 1-July 11			Present in vicinity.
Ecuador:				
Babahoyo	Sept. 1-30	5	1	
Duran	Sept. 16-30	1		
Guayaquil	May 16-Sept. 30	130	45	
Matilde, plantation	Sept. 1-15	1		
Rocafuerte	Aug. 16-31	1		Sept. 15—1 case in hospital.
Egypt:				
Alexandria	May 24-Sept. 29	28	17	
Ismailia	June 19	1	1	
Port Said	June 14-Sept. 24	29	13	
Provinces—				
Assiout	May 26-Oct. 6	26	11	
Assouan	Apr. 30-June 8	2	2	
Beni Souef	May 27-June 29	8	5	
Dakalyieh	Aug. 16-26	3	2	
Galioobeeh	May 21-Sept. 9	9	2	
Garbieh	May 14-Oct. 5	46	17	
Fayoum	May 28-July 11	20	14	
Kena	May 27-June 18	24	22	
Menouf	May 24-Oct. 3	120	24	
Minieh	May 31-Aug. 19	24	9	
Great Britain:				
London	Oct. 18-19	2	1	Case Oct. 18 from s. s. Oceana from Bombay; case Oct. 19 from s. s. Hindle from Bombay.
Hawaii:				
Honolulu	July 5-12	2	2	

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

Reports Received from June 25 to November 11, 1910.

PLAGUE—Continued.

Place.	Date.	Cases	Deaths.	Remarks.
India:				
Bombay	May 18–Oct. 4	.....	912	
Calcutta	May 1–Sept. 24	.....	550	
Kurrachee	May 15–Oct. 1	358	355	
Madras	June 25–July 1	.....	1	
Rangoon	May 8–Sept. 24	.....	443	
Bombay Presidency and Sind	May 1–Sept. 24	10,798	7,636	
Madras Presidency	May 1–Sept. 24	1,154	901	
Bengal	May 1–Sept. 24	1,949	1,686	
United provinces	May 1–Sept. 24	7,310	5,518	
Punjab	May 1–Sept. 24	44,565	38,720	
Burma	May 1–Sept. 24	1,774	1,709	
Eastern Bengal and Assam	June 12–July 9	48	45	
Central provinces, including Berar.	May 1–Sept. 24	3,389	2,241	
Mysore State	May 1–Sept. 24	1,963	1,336	
Hyderabad State	May 1–Sept. 24	1,253	1,109	
Central India	May 1–Sept. 24	922	596	
Rajputana and Ajmer-Merwara.	May 1–Aug. 27	9,328	8,131	
Kashmir	May 1–June 11	58	49	
North West Province	June 12–18	3	3	
Grand total		84,514	70,680	
Indo-China:				
Saigon	Jan. 1–Sept. 18	98	39	
Japan:				
Formosa	May 8–June 18	16	12	
Osaka	May 1–June 25	9	9	
Yokohama	Aug. 31	1	1	On steamship Manchuria from Hongkong.
Malta:				
Valetta	July 16	1	.....	In quarantine station on Comino Island, from s. s. North Wales.
Mauritius	Apr. 1–July 29	22	10	
New Zealand:				
Auckland	May 23	1	.....	
Persia:				
Bouchir	Apr. 29–June 25	51	40	
Peru:				
Arequipa Department	Mar. 1–31	16	8	
Mollendo	May 16–Aug. 23	2	1	Sept. 12, present.
Callao Department	Mar. 1–31	2	.....	
Callao	May 12–Sept. 3	4	.....	Case May 12 from s. s. Victoria; case May 19 from s. s. Nicarie.
Lambayeque Department	Mar. 1–July 31	40	20	
Libertad Department	Mar. 1–Aug. 31	76	40	
Lima Department	Mar. 1–July 31	20	12	
Piura Department	Mar. 1–July 31	6	3	
Rhodes:				
Aplakia	May 22–28	.....	.....	Present
Russia:				
As rakhan government—Khirgiz Steppe	June 26–July 7	13	12	In Kalmuk and Narinsk.
Moscow	Aug. 14–Sept. 3	2	1	
Odessa	July 18–Oct. 21	130	28	
St. Petersburg	May 6–28	3	3	
Siam:				
Bangkok	Apr. 25–Sept. 10	30	27	
Straits Settlements:				
Singapore	May 8–28	3	3	
Trinidad:				
Port of Spain	May 15–July 14	2	2	
Tunis:				
Tunis	June 30	5	3	
Turkey in Asia:				
Basra	June 12–Aug. 13	5	4	
Lobeia	May 1–24	25	27	And vicinity.
Venezuela:				
Caracas	July 30–Oct. 25	7	7	
Zanzibar:				
Zanzibar	Sept. 2–14	3	2	

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

Reports Received from June 25 to November 11, 1910.

SMALLPOX.

Place.	Date.	Cases.	Deaths.	Remarks.
Abyssinia:				
Adis Ababa	May 16-Oct. 8			Present.
Arabia:				
Aden	Sept. 19-26		1	
Maskat	July 19-23	1		
Argentina:				
Buenos Aires	Feb. 1-July 31		408	
Mendoza, province	July 27			Epidemic.
Rosario	Apr. 1-July 31	5	5	In February 1 case, 1 death.
San Juan, province	July 27			Epidemic.
Algeria:				
Bona	May 1-31	1	1	
Australia:				
Victoria, general	Apr. 3-19	1	1	
Austria-Hungary:				
Bukowina	July 10-16	1		
Galicia	May 29-July 23	5		
Barbados	Aug. 16	1		From steamship Byron.
Belgium:				
Antwerp	July 24-Oct. 1	2	1	
Ghent	July 24-Sept. 10		2	
Brazil:				
Bahia	Apr. 30-Aug. 19	306	233	
Campinas	July 17-23		1	
Manaos	Aug. 6-Sept. 3			Present.
Para	May 29-Oct. 15	73	21	
Pernambuco	Mar. 16-June 30		331	
Rio de Janeiro	Apr. 18-Sept. 25	39		
Santos	May 22-Aug. 16		12	
Sao Paulo	June 12-25		4	
Canada:				
British Columbia—				
Fernie	June 12-25	4		
Vancouver	May 1-31	2		
Victoria	Aug. 21-Oct. 8	5		
Manitoba—				
Dauphin	Sept. 15			Present.
Winnipeg	June 19-25	1		
Nova Scotia—				
Halifax	June 14-Oct. 15	17		
Pictou	June 12-July 23	9	1	
Sydney	July 3-16	20		
Ontario—				
Kingston	Oct. 3			Present in vicinity.
Toronto	June 5-Sept. 17	13		
Ceylon:				
Colombo	June 26-Oct. 1	18	7	
Chile:				
Antofagasta	July 3-9	4		
Chilean	May 14			Epidemic.
Santiago	June 19-25			Present.
Valparaiso	May 19-Sept 24	312		Deaths not reported. Oct. 1, still present.
Victoria	May 14			Present.
China:				
Canton	May 8-28	9		
Chefoo	June 18-July 2	1	1	June 5—Present. July 2—One case from a vessel.
Chungking	Aug. 27			Present.
Hongkong	May 8-July 30	6	3	
Nanking	May 7-Oct. 8			Present.
Shanghai	May 22-Oct. 9	5	54	Cases among foreigners, deaths among natives. June 9—Three cases from U. S. cruiser New Orleans from Nanking.
Swatow	June 6-July 17			Present.
Tsingtau	June 12-18	2		
Cuba:				
Habana	Sept 17	1		On s. s. Corcovado, from Corunna.
Egypt, general	Apr. 30-June 17	415	85	
Alexandria	May 1-Aug. 31		13	
Cairo	May 21-Sept. 30	11	5	
Suez	May 21-27	1		
France:				
Paris	May 29-Oct. 1	36		
Germany, general	May 29-Oct. 15	21		
Hamburg	June 5-11	1		
Gibraltar	June 20-Oct. 9	7	2	

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

Reports Received from June 25 to November 11, 1910.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Great Britain:				
Liverpool	July 17–Sept. 24	3		
London	June 19–Aug. 6	6		
South Shields	May 22–June 4	4	1	
West Hartlepool	Oct. 2–8	1		
Hawaii:				
Hilo	Sept. 10	1		Case on s. s. Wilhelmina, from San Francisco via Honolulu.
India:				
Bombay	May 18–Oct. 2		121	
Calcutta	July 10–Sept. 17		4	
Kurrachee	May 15–July 16	12	3	
Madras	May 14–Sept. 30		61	
Rangoon	May 8–Aug. 27		38	
Indo China:				
Saigon	Jan. 1–Sept. 25	180	92	
Italy, general	May 30–Aug. 7	66		
Cosenza	Aug. 30–Oct. 8	39		
Genoa	June 16–Oct. 19	3		
Naples	May 30–Aug. 21	88	17	June 26—One case from s. s. San Giovanni. One case, July 3, on s. s. Pannonia.
Palermo	Sept. 25–Oct. 1	1		
Provaglio di Isco	Oct. 9–16	1		
Japan:				
Formosa	May 22–Sept. 25		5	
Java:				
Batavia	May 22–Oct. 1	6		
Korea:				
Fusan	May 1–7	1		
Seoul	May 26–July 2	3	4	
Malta	May 22–July 30	18	2	
Mexico:				
Aguascalientes	June 5–Oct. 8		40	
Guadalajara	June 11–July 2		6	
Mexico	May 15–Sept. 24		37	
San Luis Potosi	May 29–Oct 8	13	9	
Veracruz	July 3–9	1		
Netherlands:				
Rotterdam	Sept. 4–17		1	
Persia:				
Kerman	July 2			Present.
Teheran	May 1–Oct. 24		158	
Philippine Islands				First quarter, 1910, cases 71; second quarter, 1910, cases 56.
Portugal:				
Lisbon	May 29–Oct. 15	857		Jan. 1–Sept. 10, deaths 19.
Russia:				
Libau	May 30–Oct. 1	144	9	
Moscow	May 22–Oct. 15	191	70	
Odessa	May 22–Sept. 25	53	12	
Riga	May 29–Oct. 8	428		Apr. 1–July 31, deaths 144
St. Petersburg	May 8–Oct. 1	461	173	
Warsaw	Mar. 6–Sept. 10		191	
Siam:				
Bangkok	Apr. 25–Sept. 10	4	4	
Siberia:				
Vladivostok	Apr. 22–Aug. 13	9	1	
Spain:				
Almeria	June 1–Aug. 31		3	
Barcelona	May 31–Oct. 9		19	
Cadiz	May 1–31		1	
Madrid	May 1–Sept. 30		14	
Seville	May 1–Sept. 30		6	
Valencia	June 19–July 23	6		
Vigo	June 12–Oct. 15		10	
Straits Settlements:				
Penang	May 29–Sept. 3	27	5	
Singapore	May 8–Oct. 24	239	72	
Switzerland:				
Thurgau, Canton	July 10–16	1		
Zurich, Canton	June 19–Oct. 1	10		
Tripoli:				
Tripoli	June 12–18	1		
Turkey:				
Constantinople	Aug. 22–28		1	
Turkey in Asia:				
Basra	June 5–Aug. 13			Present.
Uruguay:				
Montevideo	Apr. 1–Aug. 31	775	330	
San Jose	July 7			Do.
Zanzibar:				
Zanzibar	June 1–Sept. 25	150	71	

MORTALITY.

WEEKLY MORTALITY TABLE, FOREIGN AND INSULAR CITIES.

Cities.	Week ended—	Estimated population.	Total deaths from all causes.	Deaths from—									
				Tuberculosis.	Plague.	Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Typhoid fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
Aberdeen	Oct. 22	185,703	44	....	....	....	....	....	....	1	....	....	....	....
Aix-la-Chapelle	Oct. 8	163,277	54	2	....	....	....	....	1	....	....	....	....	....
Amsterdam	...do....	572,074	129	20	....	....	....	....	....	1	....	1	....	....
Do.	Oct. 22	573,246	119	11	....	....	....	....	....	2	....	2	4	1
Do.	Oct. 29	.....	138	13	....	....	....	....	....	2	....	1	2	3
Antwerp	Oct. 22	326,351	70	4	....	....	....	....	....	....	....	1	4	....
Athens	Oct. 8	250,010	78	16	....	....	....	....	....	5	....	3	....	....
Barranquilla	Oct. 15	40,000	29	5	....	....	....	....	....	1	....	....	....	....
Batavia	Oct. 1	217,630	.....	....	....	5	....	....	....	....	....	....	....	....
Belfast	Oct. 15	391,167	122	25	....	....	....	....	....	....	....	2	3	1
Do.	Oct. 22	.....	120	16	....	....	....	....	....	....	1	1	5	....
Berlin	Oct. 8	2,126,429	485	27	....	....	....	....	....	3	5	11	....	1
Birmingham	Oct. 29	570,113	116	....	....	....	....	....	....	1	3	....	....	3
Bombay	Oct. 11	977,822	615	46	16	2	....	....	....	2	....	....	2	....
Bradford	Oct. 22	295,865	73	9	....	....	....	....	....	....	1	....	....	1
Bremen	...do....	242,489	64	8	....	....	....	....	....	....	....	1	2	....
Bristol	Oct. 29	382,550	83	5	....	....	....	....	....	....	1	1	....	1
Brussels	Oct. 22	720,030	182	18	....	....	....	....	....	....	....	2	....	....
Budapest	Oct. 8	950,610	.....	....	....	....	....	....	....	3	3	1	....	1
Do.	Oct. 15	.....	.....	....	....	....	....	....	....	4	9	3	2	....
Do.	Oct. 22	.....	.....	....	....	....	....	....	....	3	7	3	2	....
Calcutta	Sept. 3	847,796	412	30	7	10	....	1	....	....	....	....	....	....
Do.	Sept. 24	.....	372	24	5	17	....	....	....	....	....	....	1	....
Campeche	Oct. 22	17,665	16	1	....	....	3	....	....	....	....	....	....	....
Catania	Oct. 15	210,000	61	3	....	2	....	....	....	....	....	....	....	....
Chemnitz	...do....	288,132	67	2	....	....	....	....	....	....	1	1	....	6
Do.	Oct. 22	.....	78	12	....	....	....	....	....	....	....	2	....	2
Chihuahua	Oct. 30	39,000	25	3	....	....	....	....	....	1	....	....	....	....
Christiana	Oct. 22	250,000	50	12	....	....	....	....	....	1	....	2	....	2
Cologne	Oct. 15	513,130	144	19	....	....	....	....	....	....	....	1	....	1
Do.	Oct. 22	.....	121	17	....	....	....	....	....	....	....	2	5	2
Colombo	Oct. 1	187,554	105	20	....	....	....	....	....	4	....	....	....	....
Constantinople	Oct. 16	1,000,000	214	23	....	7	....	....	....	7	1	....	3	....
Do.	Oct. 23	.....	251	37	....	9	....	....	....	8	1	....	2	....
Copenhagen	Oct. 15	455,000	126	17	....	....	....	....	....	1	2	....	1	....
Dundee	Oct. 29	170,206	44	6	....	....	....	....	....	....	....	1	....	1
Erfurt	Oct. 8	109,140	24	2	....	....	....	....	....	....	....	2	....	....
Frankfort	Oct. 15	412,000	97	....	....	....	....	....	....	....	1	1	1	1
Glasgow	Oct. 28	884,520	217	....	....	....	....	....	....	....	....	4	....	2
Do.	Nov. 4	.....	220	....	....	....	....	....	....	....	2	3	....	4
Gothenburg	Oct. 22	164,000	42	11	....	....	....	....	....	....	....	1	....	....
Havre	...do....	132,430	46	7	....	....	....	....	....	....	....	1	....	1
Hilo	...do....	3,500	6	....	....	....	....	....	....	1	....	....	....	....
Hongkong	Oct. 1	336,455	.....	....	....	....	....	....	....	2	....	....	....	....
Hull	Oct. 29	280,006	80	....	....	....	....	....	....	1	....	....	1	1
Iquique	Oct. 1	38,382	.....	8	....	....	....	....	....	1	....	....	....	....
Konigsberg	Oct. 15	244,200	76	7	....	....	....	....	....	1	....	1	....	2
Do.	Oct. 22	.....	87	12	....	....	....	....	....	....	....	2	....	1
Kurrachee	Oct. 8	130,000	84	....	8	2	....	....	....	....	....	....	....	....
Leeds	Oct. 29	490,985	120	....	....	....	....	....	....	1	1	1	3	1
Leipzig	Oct. 15	590,329	162	24	....	....	....	....	....	2	2	5	1	....
Do.	Oct. 22	.....	146	25	....	....	....	....	1	1	....	3	2	2
Libau	Oct. 23	90,000	.....	....	....	....	....	....	....	1	....	....	....	....
London	Oct. 22	7,357,196	1,644	....	....	....	....	....	....	12	6	17	38	12
Lyon	Oct. 1	500,000	148	34	....	....	....	....	....	....	....	1	....	....
Do.	Oct. 8	.....	119	26	....	....	....	....	....	....	....	1	....	1
Do.	Oct. 15	.....	140	27	....	....	....	....	....	....	....	3	....	....
Madras	Oct. 7	550,000	499	....	1	11	....	1	....	....	....	....	....	....
Manchester	Oct. 22	631,533	205	17	....	....	....	....	....	3	1	2	7	3
Moscow	Sept. 24	1,500,000	693	79	....	1	....	....	2	9	21	21	3	8
Monterey	Oct. 30	100,000	40	4	....	....	....	....	....	1	2	....	....	....
Montreal	Oct. 29	450,000	203	25	....	....	....	....	....	....	1	4	8	6
Do.	Nov. 5	.....	154	12	....	....	....	....	....	2	....	3	9	2
Nuevo Laredo	...do....	9,000	8	1	....	....	....	....	....	1	....	....	....	....
Odessa	Oct. 1	546,000	173	18	6	6	....	....	....	6	13	1	4	1
Do.	Oct. 8	.....	217	23	2	8	....	....	....	3	17	8	1	2
Do.	Oct. 15	.....	191	24	2	3	....	....	....	4	16	5	1	3
Do.	Oct. 22	.....	185	21	3	1	....	....	....	1	15	6	1	....
Palermo	...do....	340,000	126	5	....	4	....	1	....	....	1	....	....	....
Prague	...do....	235,556	73	15	....	....	....	....	....	....	2	1	....	....

MORTALITY—Continued.

Weekly mortality table, foreign and insular cities—Continued.

Cities.	Week ended—	Estimated population.	Total deaths from all causes.	Deaths from—										
				Tuberculosis.	Plague.	Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Typhoid fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
St. Petersburg	Oct. 8	1,620,000	703	92	....	27	....	11	1	8	17	14	7	11
Do	Oct. 15	.....	663	84	....	25	....	3	....	6	20	15	5	7
Do	Oct. 22	.....	693	....	....	24	....	2	....	12	19	12	4	9
Sheffield	Oct. 20	472,000	134	10	....	....	....	....	....	....	1	1	4	3
Do	Oct. 29	.....	122	7	....	....	....	....	....	....	....	1	5	1
Salaverry	Oct. 25	1,800	.....	....	....	....	....	1	....	....	....	....	....	....
San Luis Potosi	Oct. 8	82,479	83	5	....	....	....	....	....	....	1	....	....	....
Do	Oct. 15	.....	68	9	....	....	....	....	....	....	2	....	....	....
Singapore	Oct. 1	271,060	217	31	....	....	....	5	....	....	....	....	....	....
Stettin	Oct. 15	241,000	66	13	....	....	....	....	....	....	2	3	....	....
Do	Oct. 22	.....	72	6	....	....	....	....	....	1	....	1	....	....
Sydney, N. S	Nov. 5	16,000	8	....	....	....	....	....	....	2	....	....	....	....
Talcahuana	Sept. 2	28,000	6	1	....	....	....	....	....	1	1	....	2	1
Do	Sept. 17	.....	3	....	....	....	....	....	....	....	2	....	1	....
Trebizond	Oct. 22	55,000	.....	....	....	14	....	....	....	....	....	....	....	....
Tripoli	Oct. 8	42,000	.....	....	....	4	....	....	....	....	....	....	....	....
Do	Oct. 15	.....	.....	....	....	4	....	....	....	....	....	....	....	....
Turin	Oct. 13	391,988	107	16	....	....	....	....	....	2	....	....	....	....
Vienna	Oct. 8	2,130,320	558	87	....	....	....	....	....	....	5	3	2	1
Do	Oct. 15	.....	562	86	....	....	....	....	....	1	6	4	4	....
Vladivostok	Sept. 4	90,162	7	1	....	....	....	....	....	1	....	....	....	....
Zanzibar	Sept. 21	75,000	40	11	....	....	....	2	....	....	....	....	....	....
Do	Sept. 30	.....	41	7	....	....	....	9	....	....	....	....	....	....

MORTALITY—FOREIGN AND INSULAR—COUNTRIES AND CITIES (untabulated).

AUSTRALIA—*New Castle.*—Month of August, 1910. Population, 55,500. Total number of deaths from all causes 45, including diphtheria 2.

BRAZIL—*Ceara.*—Month of September, 1910. Population, 55,000. Total number of deaths from all causes 83, including typhoid fever 8, measles 7, tuberculosis 18.

CANADA—*Hamilton.*—Month of October, 1910. Population, 73,500. Total number of deaths from all causes 83, including typhoid fever 2, scarlet fever 1, diphtheria 1, tuberculosis 4.

CUBA—*Cienfuegos.*—Month of September, 1910. Population, 41,000. Total number of deaths from all causes 68, including typhoid fever 1, tuberculosis 5.

FRANCE—*Calais.*—Month of September, 1910. Population, 80,000. Total number of deaths from all causes 116, including typhoid fever 1, tuberculosis 23.

St. Etienne.—Two weeks ended October 15, 1910. Population, 150,000. Total number of deaths from all causes 108, including typhoid fever 1, tuberculosis 15.

GREAT BRITAIN.—Week ended October 8, 1910:

England and Wales.—The deaths registered in 77 great towns correspond to an annual rate of 12.8 per 1,000 of the population, which is estimated at 16,940,895.

Ireland.—The deaths registered in 21 principal town districts correspond to an annual rate of 15.9 per 1,000 of the population, which is estimated at 1,151,790. The lowest rate was recorded at Newry, viz, 4.2, and the highest at Kilkenny, viz, 39.3 per 1,000.

Scotland.—The deaths registered in 8 principal towns correspond to an annual rate of 14.4 per 1,000 of the population, which is estimated at 1,865,571. The lowest rate was recorded at Leith, viz, 10.2, and the highest at Perth, viz, 19.6 per 1,000. The total number of deaths from all causes was 521, including typhoid fever 1, scarlet fever 5, diphtheria 14.

ITALY—*Genoa.*—Two weeks ended October 15, 1910. Population, 279,163. Total number of deaths from all causes 163, including typhoid fever 2, tuberculosis 23.

Milan.—October 1 to 15, 1910. Population, 900,000. Total number of deaths from all causes 64, including typhoid fever 6, measles 1, diphtheria 2, tuberculosis 54.

MAURITIUS.—Month of July, 1910. Population, 373,071. Total number of deaths from all causes 1,090, including typhoid fever 2, plague 8, tuberculosis 78.

SIERRA LEONE.—Month of September, 1910. Population, 40,000. Total number of deaths from all causes 68, including yellow fever 1.

ST. THOMAS.—October 1 to 14, 1910. Population, 12,019. Total number of deaths from all causes 15, including tuberculosis 3.

TURKEY—*Saloniki.*—Month of September, 1910. Population, 200,000. Total number of deaths from all causes 107. No deaths from contagious diseases reported.

TURKS ISLANDS.—Month of October, 1910. Population, 1,800. Total number of deaths from all causes 3. No contagious diseases.

URUGUAY—*Montevideo.*—Month of August, 1910. Population, 321,224. Total number of deaths from all causes 542, including typhoid fever 1, smallpox 14, measles 4, diphtheria 2, tuberculosis 65.

By authority of the Secretary of the Treasury:

WALTER WYMAN,
Surgeon-General,
United States Public Health and Marine-Hospital Service.