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SOME CONCLUSIONS DRAWN FROM A SURVEY OF SEWAGE TREATMENT PLANTS.[1]

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During the past 20 years many processes and devices for sewage treatment have been developed and actually demonstrated by being installed in various plants throughout the country. In many cases they have been abandoned by their real parents, the designing engineers, and apprenticed out to foster parents, who, while demanding maximum service, have cruelly neglected them. With this neglect, they have often failed to render proper service and have thereby come into disrepute.

THE SURVEY.

During the summer of 1920 the United States Public Health Service undertook a survey of 15 sewage treatment plants, located in 12 cities in different parts of the country, and considered to exemplify different processes and different conditions. The objects of this survey were : (1) To obtain a bird's-eye view of the field of sewage treatment; (2) to secure basic data by which the efficiency of service could be judged; (3) to suggest some standard tests which might, without undue labor, be adopted at all plants so that results at different plants would be comparable.

The plants selected for the survey were, therefore, those which were felt to be representative, receiving reasonably careful and intelligent operation. The devices and processes employed at these plants included primary plain sedimentation, septic, hydrolytic and Imhoff tanks; fine screens; trickling, contact, and intermittent filters; secondary sedimentation; and activated sludge. It was originally planned to study chemical precipitation and Dortmund tanks, but they were for various reasons omitted from the schedule. At no plant visited was routine disinfection practiced.

The collection of the basic data was divided between an engineer and a chemist. The engineer secured the details of the design and construction of the plant, the population and industrial plants contributing to the sewers, the sewerage system, and other factors bearing upon the operation of the plant. He also took up the opera-

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tion, and in some instances special subjects such as the use of sludge as a fertilizer or soil builder. The basis of this part of the survey was a 21-page questionnaire. Plans of the plants were secured for use in the preparation of the final report.

The chemist spent from 10 days to over two weeks at each plant analyzing an average of 12 series of 24-hour samples. These samples were composed of portions taken each hour before and after each phase of the treatment. They were stored on ice during the period of collection. Sufficient laboratory equipment to perform all the selected determinations was shipped from place to place by the chemist. This work was (at all except four plants) done by the same chemist, assuring identical methods and eliminating the personal equation in the comparison of results from any two plants. The analytical work at the four plants not visited by this chemist was done by men who had received very detailed instructions from him.

The analyses selected for routine on this survey were not those which would be recommended for a plant operator. It was desirable and possible to include some analyses which were considered to be of little value for operating purposes, such as the chlorides, and others which were of doubtful value, probably not giving sufficient information to justify the labor involved in making them. No nitrogen determinations, other than nitrates, were made at any except the activated sludge plants, where the ammoniacal nitrogen determination is of value in judging the efficiency of the aeration.

The following plants were surveyed: Two Imhoff tanks and trickling filter plants without secondary sedimentation at Atlanta, Ga., and one at Columbus, Ohio; a combination of plain sedimentation and Imhoff tanks followed by contact beds and final intermittent fine cinder or sand filters at Alliance, Ohio; Imhoff tanks with contact beds at Canton, Ohio (the last two having glass-covered sludge drying beds); hydrolytic tanks, fine screens, trickling filters, secondary sedimentation and sludge digestion tanks at Baltimore, Md.; Imhoff tanks, trickling filters and secondary sedimentation at Rochester, N. Y., Fitchburg, Mass., and Lexington, Ky.; septic tank, trickling filters and secondary sedimentation at Reading, Pa.; fine screens, Riensch-Wurl, followed by Imhoff tanks and disposal by dilution without oxidation at Rochester, N. Y.; and activated sludge at two plants at Houston, Tex., and at San Marcos, and Sherman, Tex.

Raw sewage.—Except at plants treating sewage from separate sewerage systems, the total flow was not ascertainable, because of the wastage by overflows or by-passes, which are used when the flow exceeds the maximum capacity of the treatment plant. The volume passing through the treatment plant was known fairly accurately at

all but the two smallest plants, where the flow averaged, as actually measured on the survey, less than a half million gallons daily.

The per capita volume treated averaged very close to the commonly used figure of 100 gallons per day, it being about 94. There were 9 with smaller and 6 with larger flows. Six were within 10 per cent of the average, five within 25 per cent, and four from 36 to 58 per cent.

The number of people served per sewer connection averaged 5.4, with variations from 3.8 to 7.1. The number of connections was not known at four places.

The character of the sewage received at the different plants varied, as would be expected, within wide limits. Suspended matter ranged from 101 to 297 parts per million, averaging 174. Except at plants where an unusual amount of industrial wastes is discharged into the sewers, as at Gloversville, N. Y., it is not probable that many municipal sewages are more concentrated than some of those studied, and sewages with less than 101 parts per million of suspended matter are seldom encountered. It is believed, therefore, that the survey included a good cross section of American sewages.

Solids settleable in two hours in Imhoff glasses ranged from 1.9 to 4.9 c. c. The values obtained from this determination do not correspond very closely with the suspended matter obtained by the Gooch crucible. Readings of 4.8 and 4.9 c. c. were obtained with sewages containing 261 and 264 parts per million of suspended matter, whereas only 2.7 c. c. were settled from the sewage containing 297 parts per million, and 2.0 c. c. from the least concentrated sewage containing 101 parts per million, and also from two other sewages containing as high as 226 parts per million.

The oxygen-consumed values, by the 30 minutes in boiling water method, ranged from 24 to 69 parts per million, averaging 44.

The 5-day biochemical oxygen demand averaged 114 parts per million, the maximum value being 190 and the minimum 67.

Imhoff tanks.—While Imhoff tanks were in use at 10 out of the 15 plants, at two plants the effluent from the Imhoff tanks was mixed with that from other types of tanks with which they operated in parallel, and the samples analyzed were the mixed effluents. On the whole, the Imhoff tanks performed their function of removing suspended matter very satisfactorily, the average removal amounting to 59 per cent. At only two plants was it below 60. These being 37 and 40, pulled down the average. Accompanying this the biochemical oxygen demand was reduced 42.5 per cent, and the permanganate oxygen consumed 36 per cent. The last two figures are rather interesting in that the reduction of the 5-day oxygen demand was greater than that of the oxygen consumed. Studies of industrial wastes by the United States Public Health Service at Cincinnati,

Ohio, have indicated that the removal of solids affected the oxygen consumed to a much greater degree than the oxygen demand.

As affecting subsequent treatment, the actual amount of suspended matter in the tank effluent is of more importance than the per cent removed by the tanks. The Imhoff tank effluents at half the plants contained between 60 and 70 parts per million; three contained more, the highest being 119, and one contained only 40. The effluent containing 119 parts per million received no subsequent treatment. Detention periods for normal flows averaged about four hours, computed on a total displacement basis, and, with this detention period, the velocity averaged about 0.6 foot per minute.

Foaming appeared to be more of an occasional nuisance than a serious difficulty of operation. With but one or two exceptions, most of the tanks foamed at one time or another, but relief could be obtained by the withdrawal of sludge. This method was accepted by all the plant operators as the only one capable of giving permanent relief.

The capacity of the digestion chambers, below the overlap of the slot, averaged for all 12 installations 1.3 cubic feet per capita served; but omitting two plants at which this factor was purposely made unusually large, both being 2¼ to 2½, the average for the remaining 10 plants was 1.1.

Considering the variations in the character of the sewages entering the tanks at different places, and the differences in the many design factors, it is not possible to compare the efficiencies of tanks at different plants on the basis of any selected design factor. In a general way, it seems that refinements in minor features do not materially affect operation.

Trickling filters.—Trickling filters were studied at eight plants. At six they were preceded by Imhoff tanks; at one by hydrolytic tanks, with a small admixture from Imhoff tanks; and at one by a septic tank. The depth of the filters ranged from 5 to 10 feet; but at six of the eight plants the variation was from 5 to 6 feet.

The rates of filtration fell for an equal number of plants above and below 2 m. g. d.; but at two of the four plants operating in excess of this rate, there was sufficient filter area available to effect rates below 2 m. g. d., if it was all used regularly.

The physical appearance of the effluents was good at all except one plant, and this plant was the only one at which there was any appreciable pooling, though the surface layers of several others exhibited considerable clogging. When it is remembered that some of these filters have been in continuous operation for 10 to 12 years with very little expense other than occasionally going over the surface with a pick or harrow or flushing with a hose, there appears to be little reason to anticipate any material decrease in efficiency.

The analytical results obtained from all the effluents, with the exception of those from the pooling filter, were good. One of the most interesting results obtained from the studies of these plants was the uniformity of the final effluents. The raw sewages pretty well covered the range of concentration of American sewages. Preliminary settling, however, in tanks of totally different design and operation produced effluents of remarkably similar character, and the trickling filter effluents were all of such like composition that they could well be expected to have come from the same filter in a period covered by the survey as a whole.

Suspended matter determinations may be misleading or meaningless for trickling filter effluents, as this constituent varies so greatly with the cycle of operation of the filter, from the storing period to the unloading period. The character of the solids in the filter effluent is, moreover, totally different from that in the influent.

The filter is an oxidizing device and its efficiency must, therefore, be judged by determinations involving the presence of oxygen. Three such determinations were made: The oxygen consumed, the oxygen demand, and nitrogen as nitrates. This last determination is of relatively little value unless the amount of nitrogen in other forms present in the influent is known. Low nitrates in themselves mean very little.

Omitting the one clogged filter already mentioned, the oxygen-consumed values for the plants studied fell within the relatively narrow limits of 7 and 19, and the 5-day oxygen demand values between 4 and 20. The one pooled filter had an oxygen-consumed value more than twice the average of the other filters, and a 5-day oxygen demand about two and one-half times as great as the maximum value for the other filters.

Another interesting fact brought out by the analytical work was the reduction of the methyl orange alkalinity by the filters. At all except one plant this reduction amounted to over 30 per cent, and at one plant it was 92 per cent—from 99 to 8 parts per million. We could not undertake to obtain sufficient analytical data to definitely assign any reason for this reduction, but it may possibly be due to the use of CO_2 by bacterial activities in the filters which, when taken from the soluble bicarbonates in the influent, reduces these to insoluble carbonates, which are retained in the filter. This same reduction in alkalinity was found in all properly operating oxidizing devices, such as contact beds and aeration tanks of the activated sludge process.

Contact beds.—Contact beds were studied at Alliance and Canton, Ohio. While they did not produce results equal to the average of the trickling filters, the effluents were entirely satisfactory for ulti-

mate disposal with the dilution factors available. The oxygen-consumed values were 11 and 18, and the 5-day demand values 20 and 37, respectively, for Alliance and Canton. At neither place are these filters operated during the winter months.

Fine screens.—Fine screens were found at Rochester, N. Y., and Baltimore, Md. At Rochester, Riensch-Wurl screens precede Imhoff tanks and serve to keep large floating solids from the surface of the tanks and of Lake Ontario into which the Imhoff tank effluent is discharged. At Baltimore, rotating drum screens, similar to the Weand segregator, follow the tanks and serve to remove solids likely to clog the trickling filter nozzles. Their efficiency is best represented by a reduction of about 87 per cent in nozzles cleaned after the installation of the screens.

The analytical methods used in the survey failed to show any accomplishment by the screens at Rochester during the period of the survey. Suspended and settleable solids and oxygen consumed were slightly higher in the effluent than the influent, and the oxygen demand was slightly lower; but in none of the determinations was the difference of any significance. Computing from the screenings collected back to equivalent solids, the removal amounted to less than 1 or 2 per cent.

Activated sludge.—Four activated sludge plants were studied at three Texas cities. At Houston are the two largest plants in actual permanent operation in this country. At San Marcos is the reputed first municipal plant of this type; it is of very small capacity, as is also the plant at Sherman. The smallness of these plants makes them worthy of study, in view of the stated opinions of some engineers that this process is adapted only to large installations, where highly paid operators are in charge and where there is sufficient sludge to warrant its profitable recovery.

The San Marcos plant, treating less than 200,000 gallons per day, was the smallest plant studied. In actual man-hours it received much less attention than any of the other plants, with the possible exception of the Sherman plant. A good general utility man visited the plant every day to oil the machinery and make a brief general inspection. The influent was a weak domestic sewage, and it was passed through a septic tank before entering the aeration tank. The effluent ranked well among the best of those studied, with a suspended matter content of about 3 parts per million, an oxygen-consumed content of about 8, and a 5-day oxygen demand of 16, with ample contained oxygen in the form of dissolved oxygen and nitrates to more than satisfy this demand.

The cost of operation per million gallons naturally was high, amounting to about $20, including interest on the money invested. This is equivalent to an annual cost of $1,400, or about 56 cents per

capita served, which, considering the contributing population of 2,500, does not appear excessive.

This plant may be taken to illustrate the adaptability of the activated sludge process to small installations, and it brings up the question of the value of presettling the sewage before aeration in such installations, where the recovery of the commercial value of the sludge is not feasible.

The value of the activated sludge process for small installations may also be considered from another angle. It obviously is not entirely automatic. I feel that too much emphasis has been placed on the so-called automatic operation of other types of sewage treatment devices. Many, one might almost say most, small sewage plants have been installed with the idea firmly rooted in the minds of the city officials that the plants will run themselves. Certainly it must be admitted that the officials' actions bespeak such convictions. It seems that there might be a distinct inherent advantage in a process which must require some attention to operation. Motors and blowers or air compressors can not run day after day without oil at least. Moving machinery must be cared for. To insure a daily visit to the plant is of real value.

It appears possible that the activated sludge process may find its greatest field of usefulness in small installations rather than, as is at present held, in the large ones. In small installations, and especially with presedimentation, the sludge problem is greatly reduced, whereas with large installations, present opinions predicate its economic feasibility upon the commercial value of the sludge produced and the cost of its reduction to a commercial form.

The plant at Sherman, Tex., did not present as optimistic a picture as the one at San Marcos. The effluent was comparable with that from the already mentioned pooling trickling filter. The sewage was extremely concentrated, receiving night soil from a population about equivalent to that connected to the sewers, and this night soil was dumped into the sewers so close to the treatment plant that it reached the plant in an almost unbroken condition. The installation of a preliminary settling tank might greatly facilitate the operation of the aeration tank; but even then better operation would be essential to produce a uniformly first-class effluent.

Both of the two large plants at Houston produce excellent effluents. There is no longer any doubt of the capability of the process to effect adequate treatment. The problem at Houston, as at all large plants of this type, is the ultimate disposal of the sludge produced. There are great possibilities and promise of ultimate solution of this problem, but so far no sludge-handling plant has operated sufficiently to demonstrate either success or failure. No new data on this subject could be secured during the survey. The attitude

of most engineers still remains a mixture of anticipation, hope, and doubt.

Utilization of sludge.—Utilization of sewage sludge usually carries the idea of some ambitious scheme for the preparation of a market fertilizer from the sludge which will result in large financial returns. Sludge for the most part takes the extremes (*a*) of being no earthly good, a valueless waste, a liability to dispose of; or (*b*) of being possessed of so much value that it must pay not only for its own disposal but also for a portion of the cost of the treatment of the sewage. The saving of the expense of hauling the sludge from the plant to a dump and any small revenue for its sale have in most places not been considered worth the trouble of creating a local demand.

At three of the plants visited—Alliance and Canton, Ohio, and Rochester, N. Y.—the sludge is all used by local farmers. At the time of the survey Rochester was the only place where any charge was made for the sludge, but at the other two places the growing demand will probably eventually give to the sludge a commercial value.

The psychology of disposal to local farmers has recently been well expressed by Mr. N. A. Brown, of Rochester, when he said that as long as sewage-treatment officials themselves tell the farmers that the sludge has little if any fertilizing value, the farmers will not be inclined to haul it away, but that if the farmers see that the officials think it worth selling, they will not only haul it away but will pay a price for it.

The average farmer is practical when it comes to hauling fertilizer. If he does not get any benefit, he stops using it. And yet at the three plants visited and also at Lexington, Ky., farmers are calling for the sludge year after year, and taking ever-increasing amounts.

A sewage-plant operator objected to my use of the word "sludge" as "fertilizer" when referring to the value of sludge to growing crops. To him fertilizer meant the three plant foods—nitrogen, phosphates, and potash—and the value of sludge had to be judged by its content of these ingredients, and by them alone. This is a common attitude, which I feel is the wrong one to take. It is well recognized that manures, horse litter, and barnyard compost produce greater results than can be expected from their nitrogen, phosphates, and potash constituents as determined by analysis. For total content of these three plant foods, sludge can compare very favorably with manures. Both form humus and build soil by improving its texture.

Some experimental work has been done to test the value of sludges by their actual effect on growing vegetation; but I can not feel that any have been extensive enough, on a large enough scale, or with proper control to justify the prevailing low opinion in which sewage

sludges are held. The American Society of Municipal Improvements and other organizations have by resolution called upon the Department of Agriculture to conduct actual large scale tests. If such tests are made, it is to be hoped that a part of them will be run with sludge as sludge and not solely as a vector for the three plant foods. The survey of the sewage-treatment plants has made me believe that the whole value of sludge can not be stated in the analyses of nitrogen, phosphates, and potash.

One need not be an expert in farming to form an estimate of the benefit of sludge to grasses, wheat, oats, and other crops at Canton, Ohio. It is written in the fields so that he who runs may read. Unfortunately, none of the results obtained by the farmers can be converted into quantitatively controlled figures. One farmer stated that by actual weight he obtained with two cuttings 34 tons of grass from 9 acres treated with sludge in a 49-acre field, while from the other 40 acres he had only one cutting, which totaled 42 tons. Whether there were other explanatory factors is not known; but this farmer considers sludge superior to barnyard manure and is each year hauling all he can.

It must be admitted that such reports are not in keeping with experience at some other places, and in themselves do not definitely prove anything; but they are worthy of consideration. They evidence the need for a more complete and more thorough study of the whole question than has as yet been made and indicate the advisability of placing just a little less emphasis on chemical analyses in rating the value of sludge as a fertilizer.

I do not want to give the impression that I consider sewage sludges market competitors of commercial fertilizers. But I do believe that at most sewage treatment plants a local demand for the sludge can be created on an actual value basis which will not only be the means of the ultimate disposal of the sludge but will produce a revenue which will, at least partially, pay for the cost of handling the sludge after its removal from the tanks.

There are three possible causes for failures of sewage treatment plants: (1) The processes may not in themselves be capable of producing a good effluent; (2) the design of the individual plant may be at fault—capacities of the devices inadequate to handle the load placed upon them; and (3) poor operation or, as is often the case, no operation at all.

The first of these presents the most serious aspect. Opinions have been expressed, even among those familiar with sewage treatment, that the whole system and theory of sewage treatment practices has fallen down. This feeling has gained some ground among the uninformed who have come into contact with conspicuous failures of plants supposedly of the best design and supposedly entirely automatic.

The second cause of failure is restricted to individual plants and can be largely eliminated when the public and especially city officials thoroughly understand that the designing of treatment plants is a specialized branch of professional engineering and that such plants are not a part of the city's plumbing system.

Finally, failures due to poor or to no supervision of operation will gradually be reduced by education and expensive experience.

This 1920 survey by the Public Health Service was primarily concerned with the first and most serious alleged cause of failure. For this reason the plants selected for study were those which were considered to have been properly designed by engineers versed in the principles involved and which were receiving good or at least reasonable attention and operation.

It was originally planned to continue the studies in subsequent years, specializing in plants where design was at fault and where supervision of operation was obviously below a required minimum. It was also intended to study the adaptability and efficiency of the different principles of treatment at smaller installations than those studied in 1920. These studies have, however, been at least temporarily abandoned.

REVIEW OF RESULTS OF THE SURVEY.

In reviewing the results of the survey as a whole, there does not appear to be much ground for pessimistic criticisms of general theories of sewage treatment on the basis of their failure to effect adequate purification. All municipal sewage must ultimately be disposed of by dilution in some body of water, and the purpose of treatment is to prepare the sewage so that it will not produce objectionable conditions in the receiving body of water or, in some cases, place an undue load on a water purification plant using the receiving body of water as a source of supply. To these may be added the protection of bathing beaches, oyster beds, etc.

The primary function of preparing sewage for disposal by dilution without creating objectionable conditions was the main objective of the plants studied. No bacteriological analyses were attempted.

With but one or two exceptions, physical observations and analytical results agree that the plants visited were accomplishing the main object of their existence. All plants were seen during the warm months, the critical period of the year. At only 2 out of the 14 operating oxidizing devices was the color reduced in the methylene blue putrescibility tests of the effluents, which were incubated at room temperature. At one of these two the samples stood up for three to eight days. Only four of them had biochemical 5-day oxygen demands in excess of 20, and all had contained oxygen to partially satisfy this demand. With any reasonable dilution factor

no objectionable conditions should be created with the effluents from the oxidizing devices studied. In addition to oxidation, the treatment processes removed practically all of the settleable solids.

I do not argue that present-day practices represent the last word in sewage treatment. New methods, it is to be hoped, will be developed—better methods than any we have at the present time. Those existing now are not perfect, but they are not deserving of the unfavorable reputation they hold in the opinion of those partially informed and of limited experience. This reputation is based on ignorance and the reaction of disappointment over the failure of plants to accomplish results which have been extravagantly and improperly promised by promoters and, unfortunately, in some instances by engineers.

It is unfortunate that few if any plant operators have time or facilities to undertake original work or carry on special investigations. Conditions as a whole are such that the field of sewage plant operation offers but little attraction as a life work. The aim of the ambitious plant operator is to become a designing engineer. The studies of the basic principles of sewage treatment have been, to a very large extent, made at testing stations built and operated for the particular needs of individual cities. Relatively few of these have been in the hands of men who had previously been in the operating field, and from them have been developed only a very limited number of men who remained for any length of time in the strictly operating field. There have been few operators capable of or interested in such temporary specialized work, and the men who have been fitted have not seen an attractive future in plant operation.

The engineers of but relatively few of the plants in this country have had opportunity to study intimately the operation of the plants which they have designed.

There is need for a closer connection between these two phases of the subject. There is need also for the development of a group of plant operators to whom must be given sufficient inducements to retain them in this field. Compare the number of capable trained sewage-plant operators with the number of equally skilled men in the field of water filtration operation. Sewage treatment, unfortunately, has been the stepchild of municipal activities.

The time of a plant operator is always filled, with plenty of work left over. It is vital, therefore, that his activities be confined to those essential to the proper operation of his plant. This requirement applies to the laboratory work as well as to any other work at the plant. Each routine analysis that the operator makes should be selected to give some definite information on the condition in the plant, and on the efficiency of operation of the various devices Where several determinations give the same general information,

that one should be selected which gives it most accurately and with the least work.

The two functions of sewage treatment are the reduction of solids and the partial oxidation of the organic matter not removed with the solids. To these may be added, in isolated cases, the reduction of bacteria for the protection of a near water supply or bathing beaches, etc. In some cases the reduction of solids or of bacteria may be sufficient in itself, but the average plant is built for the first two objectives. The analytical determinations made should be selected, therefore, to tell the extent to which these two objectives are attained. The best determination we have to indicate the extent of the removal of solids is the suspended matter determination by the Gooch crucible. This determination on the influent and the effluent of the settling devices both primary and secondary, gives the data covering the main function of these tanks. The determination of settleable solids is much simpler and is advocated by some as giving the more nearly attainable efficiencies; but there appear to be uncontrollable factors and conditions in this method which limit, to a greater extent than the Gooch crucible method, its general application.

In the opinion of the men engaged on this survey, the best criterion by which to judge the efficiency of oxidizing devices is the oxygen demand by the excess oxygen method, stated in terms of the 5-day biochemical oxygen demand at 20° C. This method is possibly more elaborate and involves more technique than some of the other methods used to determine the biochemical oxygen demand, or than the oxygen consumed determination, but it has appeared to give the most enlightening and valuable information.

These two determinations can constitute the backbone of the laboratory routine of the average plant. With special methods of treatment, other determinations should be included as routine procedure, as, for instance, the ammoniacal nitrogen determination gives a most rapid method for control of the aeration processes at activated sludge plants. Of course, when bacterial removal is a function of the plant, total bacterial counts are essential for the proper operation of the disinfecting process.

It must not be inferred that the adoption of an irreducible minimum routine of laboratory work for all plants is advisable. Where facilities and time are available, other determinations should be added to the skeleton suggested. But there now exist at many laboratories elaborate routines containing the more tedious determinations, which give, when completed, very little information or data of use in the actual operation of the plant. These are extravagant users of the time of the plant operator—time which can be made to yield greater returns if devoted to other lines of activity.

Laboratory procedure at sewage plants has in a way, like Topsy, "just growed." Probably there are not two plants in the country, unless operated by the same man, where the schedule of analyses and the technique in making them are the same. Throughout the survey of 1920, our laboratory procedure was the same at all plants. At all except 2 out of the 15 plants, or 10 out of the 12 cities, some laboratory work was done regularly by local chemists. Our results, however, are, with the exception of the Gooch suspended matter and the Imhoff glass settleable solids determinations, not directly comparable with results obtained at any plant visited. Nor are the local results of any two plants directly comparable except in the two determinations mentioned. It is only by computation with average relation factors between two determinations or methods that any comparison of the functioning of the oxidizing devices is possible.

It is only natural that there should be a great reluctance at any laboratory to change methods, many of which may have been used for years and only by means of which can the results of future years of operation be compared with the past. Standardization can not come overnight, and should not be precipitately adopted. However, it is believed that the time is ripe to approach this subject with a little more assurance, to make definite selections of some one method of making different determinations, and to establish tentative schedules of routine from the irreducible minimum to those more elaborate at plants which are able to support them without sacrificing the physical operation of the plant. It is hoped that this survey may be a step in that direction, by furnishing comparative data covering a wide range of plants and a rather elaborate schedule of laboratory routine.

The future development of sewage treatment has need of more study than has been given in the past to the basic principles involved. Practical application has been made of phenomena which have, in many cases, been developed from experiments while their fundamental principles are only roughly understood. Their study in the light of the combined knowledge of the engineer, chemist, biologist, plant operator, plankton expert, and others will place the principles of sewage treatment on a firmer basis. Development does not necessarily mean the discovery of new unused principles; it includes the better understanding of principles already in use; for with this fuller knowledge will come more intelligent application of these principles.

Such investigations must include studies of conditions in the existing operating plants at which the theories of the laboratory must be given practical application. Surveys similar to this one made by the Public Health Service must be made to include more plants and more detailed study extending over longer periods of operation.

New problems and new ideas are continually coming to the front. Many of these can best be studied at existing plants where opportunities for study on a large scale are available. But others requiring special equipment and specialized laboratory work will probably demand study at testing stations. Industrial wastes, for example, require experimental work to be done at the point of origin.

For testing-station studies of domestic sewage, it would appear to be ideal to establish a permanent station, at which fairly large-sized units could be operated over long periods. The results of the 1920 survey indicate that the variation in raw domestic sewages at different places, where not complicated with industrial wastes of unusual quantity or character, is not a serious objection to restricting experimental work to the sewage of one locality.

At such a testing station new processes and devices, some of which are brought forward as commercial ventures with little authoritative data upon which to base any judgment of their value, could be subjected to at least preliminary tests—sufficient to eliminate those processes and devices the merits of which lie primarily in sales literature, based upon ignorance and imagination.

Such far-reaching and complete investigations of the scope suggested can not be undertaken by any one municipality, State, or section of the country. It must be national. The special studies at the central permanent laboratory and testing station must be fathered and supported by some national organization.

Around this organization should lie other cooperative bodies: First, a consulting board with experts specialized in different work, e. g., the various branches of chemistry, engineering, biology, sewage plant operation, etc., and second, a group of collaborators, including the engineering department of the State boards of health, universities, individual sewage plant operators, and other organizations or individuals.

Such a plan is not impossible. It has, in one form or another, been in the minds of and at times expressed and seriously discussed by men high in the ranks of the scientists versed in sewage treatment.

Investigations by such an organization would throw the light of definite knowledge over much of the present twilight zone of sewage treatment. They may not result in the discovery of any new short-cut processes—sewage may still remain a public liability—but we may expect them to effect appreciable economies in the treatment and disposal of sewage, to materially raise the standard of operation of treatment plants, and to protect the rivers, lakes, and other waters of the country from their improper use as diluents.

A PHYSIOLOGICAL TEST FOR THE ACTIVITY OF VITAMINE PREPARATIONS.

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Progress in the chemical isolation of vitamine depends largely upon the success of the physiological tests available for guiding the fractionations. Any improvement in the accuracy and rapidity of these tests is undoubtedly a matter of importance. The technique which has gradually been developed in the Hygienic Laboratory is believed to possess advantages which may be appreciated by others engaged in experiments on the isolation of vitamine.

The effect produced on fowls by vitamine deficiency was early utilized for studies of both the distribution of the antineuritic vitamine in natural foodstuffs and in fractions obtained by chemical operations. At first the curative effect of vitamine concentrates upon fowls, brought to the polyneuritic state by vitamine deficiency, was utilized as a test for the activity of the unknown sample. This has gradually been supplanted by a preventive method, which consists in adding measured amounts of the vitamine material to a vitamine-deficient diet and noting the amount required to replace the deficiency. This procedure has the advantage that birds in a normal condition are used, rather than those in an abnormal or what may, perhaps, be more properly described as a state of unstable nutritional equilibrium.

The most suitable bird to use for the tests is the common pigeon, and a satisfactory vitamine-deficient diet is polished rice. Upon such a diet pigeons soon begin to lose weight, and after about three weeks decline to some 60 to 70 per cent of their original weight and exhibit characteristic symptoms of polyneuritis. If, however, samples containing the antineuritic vitamine are administered daily or on alternate days to such pigeons, fed only on rice, no apparent change in their condition takes place. The presence or absence of vitamine will be indicated by comparing the weight curves of the birds receiving the vitamine with those receiving none—that is, with the control birds. In the past, whenever one or more samples were to be tested for their vitamine content, a group of pigeons was placed on a rice diet and measured doses of the samples were given to some of the birds, the others being retained as controls. At the end of the experiment, all of the birds were given a mixed diet to restore them to their initial condition. They could then be again used for a similar experiment if desired.

Considerable experience has shown that the tests can be conducted much more satisfactorily if all the birds on a rice diet are given

"activated solid" [1] on alternate days, in doses just sufficient to prevent an appreciable loss in weight. They thus become accustomed to the rice diet and reach a state approaching vitamine equilibrium. If now the doses of "activated solid" are replaced by those of the samples to be tested for their vitamine content, there will be a very quick response to any diminution of vitamine, and thus a very prompt indication of the character of the sample in question. The administration of "activated solid" can then be resumed, and the birds made ready for a second test within another 10 days or so. Proceeding in this manner a single group of pigeons can be used for periods of many months, and for testing large numbers of different samples. The group in use at this laboratory has now been on an exclusive diet of polished rice (with addition of active vitamine preparations) for more than six months.

The practical consideration underlying the adoption of the above plan was the observation that, whenever pigeons are put upon polished rice, some time is required for them to become adjusted to the new diet. When they receive polished rice for the first time they may eat excessively and show abnormal weight changes. When they are placed on this diet a second time, after a recuperation period on mixed grains, they refuse to eat until driven to it by hunger, and thus again exhibit abnormal weight changes. If kept on rice constantly, they appear to standardize their eating habits, and irregularities in the weight curves are greatly diminished.

The question whether rice plus fuller's earth containing adsorbed vitamine is an adequate diet for pigeons, has not been taken into consideration in the present test. Although the birds do not mate and reproduce, they show no perceptible signs of malnutrition for relatively long periods and are constantly in a state in which the withdrawal of vitamine is manifest by prompt and definite effects. It is believed that an attempt to modify the diet by addition of constituents intended to improve its quality might have the effect of diminishing the accuracy of the test.

In a practical way it has been found convenient to keep groups of 10 or more pigeons in compartments of some 300 cubic feet in volume. A bottle with wide mouth, clamped in an inverted position over a small pan, makes a satisfactory receptacle for the rice supply. A fairly large tank through which a slow stream of water flows should, if possible, be provided. A thin layer of coarse sand is spread over the floor of the compartment and should be renewed frequently.

Each bird is provided with a numbered leg band and is weighed on each alternate day, and immediately after weighing it is given, by mouth, the "activated solid" or sample being tested. On plotting

[1] See Improved Method of Preparing Vitamine-Activated Fuller's Earth. By A. Seidell. Public Health Reports, 37, 801 (Apr. 7, 1922). Reprint No. 738.

the series of weighings, a clear picture is obtained of any change which may take place in the condition of the bird.

The vitamine samples are most conveniently administered in gelatine capsules, each being moistened with water immediately before being given to the pigeon. For this reason it has been found advantageous to convert all samples of vitamine to their adsorption combination with fuller's earth. The dry powder thus obtained can be readily measured in capsules of standard size instead of being weighed. This greatly simplifies the preparation of the capsules for dosage, and provides against deterioration or change in the activity of the vitamine during the period of the test.

The procedure for preparing the vitamine-fuller's earth adsorption combination for physiological tests consists in dissolving the weighed sample in about 500 c. c. of water, or diluting a solution containing a known amount of vitamine solids to about this volume, and adding such an amount of fuller's earth that each 0.1 gm. corresponds to 1, 2, or more milligrams of the vitamine solids present. The mixture is actively shaken during one-half hour or longer, filtered on a Buchner funnel, and washed with water, then alcohol, and finally with ether to facilitate rapid drying. The dried sample is then measured into gelatine capsules, each containing 0.1 gm. or more, as the case might be, and these capsules are given to the pigeons after each weighing as described above. In this way all conditions of the test are kept uniform and the only variable is the antineuritic activity of the unknown sample.

In regard to the delicacy of the test, it has been found that unmistakable differences in the weight changes of the pigeons can be detected for quantities of sample, varying by one or two tenths of a gram. Thus, for example, pigeons receiving 0.3 gm. doses of a fuller's earth-vitamine combination, corresponding to 3 milligrams of the unknown sample, have been found to remain stationary in weight, while those receiving 0.2 gm. doses, corresponding to 2 milligrams, declined noticeably, and those receiving 0.1 gm. showed a more rapid decline. Differences which have been obtained between the effects of 4 and 6 milligrams of adsorbed vitamine solids and between 7.5 and 10 milligrams are other examples of the delicacy of the method.

It has been found that the time required for detecting the differences, resulting from variation in dosage, is shorter than before adoption of the technique here described. Positive results can usually be obtained within two weeks, and frequently within a shorter time. Samples devoid of vitamine are identified most promptly.

There is, of course, a necessity for caution against giving doses in excess of the amount required for maintenance of weight. Such

quantities are not indicated by the test, and the best practice requires that for each sample being tested at least some of the pigeons receive slightly deficient doses. The matter of the selection of the dosage of unknown samples is, of course, the principal difficulty, and accurate results require repetition of the test with repeated adjustments of the dosage. In general, each sample should be tested in two or more different dosages and not less than three pigeons should be used for each dosage.

Although the method described above has been developed particularly for controlling the fractionation steps in the attempts to isolate vitamine from brewer's yeast, it can be used equally well for testing the antineuritic vitamine content of a great variety of vitamine preparations. In such cases, the vitamine portion of the sample should be obtained in the form of an aqueous solution (by any appropriate means), and this solution should be agitated with fuller's earth. The vitamine-fuller's earth adsorption combination is then removed and obtained in the form of dry powder, as already described. The protective effect of this product, as compared with that of standardized "activated solid," will give a satisfactory estimate of the vitamine content of the unknown material.

In the course of experiments made on the isolation of vitamine from brewer's yeast, some evidence was obtained as to the approximate weight of active material required to replace the deficiency of a polished rice diet for pigeons. This evidence was based upon a comparison of the milligrams of nitrogen (determined by the Kjeldahl method) present in samples of fuller's earth containing adsorbed antineuritic material responsible for the protective action. It is provisionally assumed that the pure antineuritic vitamine actually contains nitrogen, although it should be stated that this assumption is not proved, as pure vitamine has not been isolated.

Experiments have shown that a sample of the new "activated solid,"[1] which contains 1.5 per cent of nitrogen protects pigeons on a rice diet in doses of 0.1 gram given on alternate days. On the nitrogen basis, the protective dose is, therefore, 1.5 milligrams. Using "activated solid" prepared by the old method and containing 2 per cent nitrogen, the average protective dose was at least 0.15 gram, which, on the nitrogen basis, corresponds to 3 milligrams. It is, therefore, apparent that at least one-half of the nitrogen in the old sample is not present as vitamine nitrogen.

In regard to what proportion of nitrogen in the "activated solid" prepared by the new method is present in vitamine combination, some light is obtained from the following experiment. The extracted material, removed from the sample of the new "activated solid" by

[1] Seidell. Loc. cit.

barium hydroxide extraction, was readsorbed by being agitated with a fresh portion of fuller's earth. Tests of this material, which contained only 0.17 per cent of nitrogen, showed that protection was afforded by doses of 0.3 gram. This, on the nitrogen basis, corresponds to 0.51 milligram instead of 1.5 milligrams nitrogen found for the original "activated solid," and, therefore, indicates that not more than one-third of the nitrogen in the "activated solid" prepared by the new method is present in vitamine combination.

In view of this result, it appeared of interest to ascertain what is the lowest obtainable amount of nitrogen capable of replacing the vitamine deficiency of a polished rice diet for pigeons. Nitrogen was, therefore, determined in those fuller's earth preparations which had been found, by comparative tests, to protect pigeons in doses corresponding to the smallest amounts of active material. Of these the most favorable sample was one which had been made by the fuller's earth adsorption of the highly active silver-free residue obtained from an ammoniacal silver nitrate precipitate. It contained 0.08 per cent of nitrogen, determined by the Kjeldahl method, and protected in doses of 0.1 gram given on alternate days. Therefore, in this case the deficiency of the rice diet was replaced by doses of approximately 0.08 milligram of nitrogen in vitamine combination given on alternate days, which is equivalent to 0.04 milligram daily.

On the basis of estimations of nitrogen in samples of highly active vitamine fractions obtained from silver precipitates, and after deducting the nitrogen present in these residues as nitric acid, it is probable that the free vitamine base contains somewhat more than 16 per cent of nitrogen. If it is assumed that 20 per cent is prese t, the 0.04 milligram of active nitrogen, referred to in the preceding paragraph, corresponds to 0.2 milligram of uncombined vitamine base.

Although this figure is simply a rough approximation and may be somewhat too high, it serves to convey an idea as to the quantity of vitamine required for normal nutrition. It is useful in a practical way in work on the isolation of vitamine, in showing the order of magnitude of dosage which must be approached with fractions believed to be pure or nearly pure vitamine. With this figure in mind, it certainly will not be necessary to undertake identification tests or analyses upon fractions which, in daily doses greater than one-fourth milligram, do not protect pigeons from loss in weight on polished rice.

ACT READJUSTING PAY AND ALLOWANCES OF THE COMMISSIONED PERSONNEL OF THE PUBLIC HEALTH SERVICE.

PUBLIC 235 (67TH CONG.). An Act To readjust the pay and allowances of the commissioned and enlisted personnel of the Army, Navy, Marine Corps, Coast Guard, Coast and Geodetic Survey, and Public Health Service.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, beginning July 1, 1922, for the purpose of computing the annual pay of the commissioned officers of the Regular Army and Marine Corps below the grade of brigadier general, of the Navy below the grade of rear admiral, of the Coast Guard, of the Coast and Geodetic Survey, and of the Public Health Service below the grade of surgeon general, pay periods are prescribed, and the base pay for each is fixed as follows:

The first period, $1,500; the second period, $2,000; the third period, $2,400; the fourth period, $3,000; the fifth period, $3,500; and the sixth period, $4,000.

The pay of the sixth period shall be paid to colonels of the Army, captains of the Navy, and officers of corresponding grade who have completed twenty-six years' service, or whose first appointment in the permanent service was in a grade above that corresponding to captain in the Army, or who were appointed to the Regular Army under the provisions of the first sentence of section 24, Act of June 3, 1916, as amended by the Act of June 4, 1920; to officers of the Staff Corps of the Navy advanced by selection under existing laws to the rank or pay of captain; to lieutenant colonels of the Army, commanders of the Navy, and officers of corresponding grade, and lieutenant commanders of the line and Engineer Corps of the Coast Guard who have completed thirty years' service; and to the Chief of Chaplains of the Army.

The pay of the fifth period shall be paid to colonels of the Army, captains of the Navy, and officers of corresponding grade who are not entitled to the pay of the sixth period; to lieutenant colonels of the Army, commanders of the Navy, and officers of corresponding grade who have completed twenty years' service, or whose first appointment in the permanent service was in a grade above that corresponding to captain in the Army, or who were appointed to the Regular Army under the provisions of the first sentence of said section 24; to officers of the Staff Corps of the Navy advanced by selection under existing laws to the rank or pay of commander; and to majors of the Army, lieutenant commanders of the Navy, and officers of corresponding grade who have completed twenty-three years' service: *Provided*, That lieutenant commanders of the Staff Corps of the Navy who were appointed between the dates of March 4, 1913,

and June 7, 1916, in a grade above that of ensign, shall receive the pay of this pay period after completing twenty years' service.

The pay of the fourth period shall be paid to lieutenant colonels of the Army, commanders of the Navy, and officers of corresponding grade who are not entitled to the pay of the fifth or sixth period; to majors of the Army, lieutenant commanders of the Navy, and officers of corresponding grade who have completed fourteen years' service, or whose first appointment in the permanent service was in a grade above that corresponding to second lieutenant in the Army, or who were appointed to the Regular Army under the provisions of the first sentence of said section 24; to captains of the Army, lieutenants of the Navy, and officers of corresponding grade who have completed seventeen years' service, except those whose promotion is limited by law to this grade and who are not entitled under existing law to the pay and allowances of a higher grade; and to lieutenants of the Staff Corps of the Navy, and lieutenants and lieutenants (junior grade) of the line and Engineer Corps of the Coast Guard whose total commissioned service equals that of lieutenant commanders of the line of the Navy drawing the pay of this period.

The pay of the third period shall be paid to majors of the Army, lieutenant commanders of the Navy, and officers of corresponding grade who are not entitled to the pay of the fourth, fifth, or sixth period; to captains of the Army, lieutenants of the Navy, and officers of corresponding grade who have completed seven years' service, or whose first appointment in the permanent service was in a grade above that corresponding to second lieutenant in the Army, or whose present rank dates from July 1, 1920, or earlier; to first lieutenants of the Army, lieutenants (junior grade) of the Navy, and officers of corresponding grade who have completed ten years' service; and to lieutenants (junior grade) of the line and Engineer Corps of the Coast Guard whose total commissioned service equals that of lieutenants of the line of the Navy drawing the pay of this period.

The pay of the second period shall be paid to captains of the Army, lieutenants of the Navy, and officers of corresponding grade who are not entitled to the pay of the third or fourth period; to first lieutenants of the Army, lieutenants (junior grade) of the Navy, and officers of corresponding grade who have completed three years' service, or whose first appointment in the permanent service was in a grade above that corresponding to second lieutenant in the Army; and to second lieutenants of the Army, ensigns of the Navy, and officers of corresponding grade who have completed five years' service.

The pay of the first period shall be paid to all other officers whose pay is provided for in this section.

During the existence of a state of war, formally recognized by Congress, officers of grades corresponding to those of colonel, lieuten-

ant colonel, major, captain, and first lieutenants of the Army, holding either permanent or temporary commissions as such, shall receive the pay of the sixth, fifth, fourth, third, and second periods, respectively, unless entitled under the foregoing provisions of this section to the pay of a higher period.

Every officer paid under the provisions of this section shall receive an increase of 5 per centum of the base pay of his period for each three years of service up to thirty years: *Provided*, That the base pay plus pay for length of service of no officer below the grade of colonel of the Army, captain of the Navy, or corresponding grade, shall exceed $5,750. Nothing contained in the first sentence of section 17 or in any other section of this act shall authorize an increase in the pay of officers or warrant officers on the retired list on June 30, 1922.

For officers appointed on and after July 1, 1922, no service shall be counted for purposes of pay except active commissioned service under a Federal appointment and commissioned service in the National Guard when called out by order of the President. For officers in the service on June 30, 1922, there shall be included in the computation all service which is now counted in computing longevity pay, and service as a contract surgeon serving full time; and also 75 per centum of all other periods of time during which they have held commissions as officers of the Organized Militia between January 21, 1903, and July 1, 1916, or of the National Guard, the Naval Militia, or the National Naval Volunteers since June 3, 1916, and service as a contract surgeon serving full time, shall be included in the computation.

The provisions of this Act shall apply equally to those persons serving, not as commissioned officers in the Army, or in the other services mentioned in the title of this Act, but whose pay under existing law is an amount equivalent to that of a commissioned officer of one of the above grades, those receiving the pay of colonel, lieutenant colonel, major, captain, first lieutenant, and second lieutenant, being classified as in the sixth, fifth, fourth, third, second, and first periods, respectively. Pay clerks of the Marine Corps shall receive the pay of second lieutenants of the Army of the same length of service. Contract surgeons serving full time shall have the pay and allowances for subsistence and rental authorized for officers serving in their second pay period. Commissioned warrant officers on the active list with creditable records shall, after six years' commissioned service, receive the pay of the second period, and after twelve years' commissioned service, receive the pay of the third period: *Provided*, That a commissioned warrant officer promoted from the grade of warrant officer shall suffer no reduction of pay by reason of such promotion. Army field clerks and field clerks, Quartermaster Corps,

shall have the allowances for subsistence and rental authorized for officers receiving the pay of the first period.

SEC. 2. That no commissioned officer while on field or sea duty shall receive any increase of his pay or compensation by reason of such duty.

SEC. 3. That when officers of the National Guard or of the reserve forces of any of the services mentioned in the title of this Act are authorized by law to receive Federal pay, those serving in grades corresponding to those of colonel, lieutenant colonel, major, captain, first lieutenant, and second lieutenant of the Army shall receive the pay of the sixth, fifth, fourth, third, second, and first periods, respectively. In computing the increase of pay for each period of three years' service, such officers shall be credited with full time for all periods during which they have held commissions as officers of any of the services mentioned in the title of this Act, or in the Organized Militia prior to July 1, 1916, or in the National Guard, or in the Naval Militia, or in the National Naval Volunteers, or in the Naval Reserve Force or Marine Corps Reserve Force, when confirmed in grade and qualified for all general service, with full time for all periods during which they have performed active duty under reserve commissions, and with one-half time for all other periods during which they have held reserve commissions.

SEC. 4. That the term "dependent" as used in the succeeding sections of this Act shall include at all times and in all places a lawful wife and unmarried children under twenty-one years of age. It shall also include the mother of the officer provided she is in fact dependent on him for her chief support.

SEC. 5. That each commissioned officer on the active list, or on active duty below the grade of brigadier general or its equivalent, in any of the services mentioned in the title of this Act, shall be entitled at all times, in addition to his pay, to a money allowance for subsistence, the value of one allowance to be determined by the President for each fiscal year in accordance with a certificate furnished by the Secretary of Labor showing the comparative retail cost of food in the United States for the previous calendar year as compared with the calendar year 1922. The value of one allowance is hereby fixed at 60 cents per day for the fiscal year 1923, and this value shall be the maximum and shall be used by the President as the standard in fixing the same or lower values for subsequent years. To each officer of any of the said services receiving the base pay of the first period the amount of this allowance shall be equal to one subsistence allowance, to each officer receiving the base pay of the second, third, or sixth period the amount of this allowance shall be equal to two subsistence allowances, and to each officer receiving the base pay of the fourth or fifth period the amount of this allowance shall be equal

to three subsistence allowances: *Provided*, That an officer with no dependents shall receive one subsistence allowance in lieu of the above allowances.

SEC. 6. That each commissioned officer on the active list or on active duty below the grade of brigadier general or its equivalent, in any of the services mentioned in the title of this Act, if public quarters are not available, shall be entitled at all times, in addition to his pay, to a money allowance for rental of quarters, the amount of such allowance to be determined by the rate for one room fixed by the President for each fiscal year in accordance with a certificate furnished by the Secretary of Labor showing the comparative cost of rents in the United States for the preceding calendar year as compared with the calendar year 1922. Such rate for one room is hereby fixed at $20 per month for the fiscal year 1923, and this rate shall be the maximum and shall be used by the President as the standard in fixing the same or lower rates for subsequent years. To each officer receiving the base pay of the first period the amount of this allowance shall be equal to that for two rooms, to each officer receiving the base pay of the second period the amount of this allowance shall be equal to that for three rooms, to each officer receiving the base pay of the third period the amount of this allowance shall be equal to that for four rooms, to each officer receiving the base pay of the fourth period the amount of this allowance shall be equal to that for five rooms, and to each officer receiving the base pay of the fifth or sixth period the amount of this allowance shall be equal to that for six rooms. The rental allowance shall accrue while the officer is on field or sea duty, temporary duty away from his permanent station, in hospital, on leave of absence or on sick leave, regardless of any shelter that may be furnished him for his personal use, if his dependent or dependents are not occupying public quarters during such period. In lieu of the above allowances an officer with no dependents receiving the base pay of the first or second period shall receive the allowance for two rooms, that such an officer receiving the base pay of the third or fourth period shall receive the allowance for three rooms, and that such an officer receiving the base pay of the fifth or sixth period shall receive the allowance for four rooms, but no rental allowance shall be made to any officer without dependents by reason of his employment on field or sea duty.

SEC. 7. That when the total of base pay, pay for length of service and allowances for subsistence and rental of quarters, authorized in this Act for any officer below the grade of brigadier general or its equivalent, shall exceed $7,200 a year, the amount of the allowances to which such officer is entitled shall be reduced by the amount of the excess above $7,200: *Provided*, That this section shall not apply

to the Captain Commandant of the Coast Guard nor to the Director of the Coast and Geodetic Survey.

Sec. 8. That commencing July 1, 1922, the annual base pay of a brigadier general of the Army and of the Marine Corps, rear admiral (lower half) of the Navy, commodore of the Navy, and Surgeon General of the Public Health Service shall be $6,000; and the annual base pay of a major general of the Army and of the Marine Corps, and rear admiral (upper half) of the Navy shall be $8,000. Every such officer shall be entitled to the same money allowance for subsistence as is authorized in section 5 of this Act for officers receiving the pay of the sixth period and to the same money allowance for rental of quarters as is authorized in section 6 of this Act for officers receiving the pay of the sixth period: *Provided*, That when the total of base pay, subsistence, and rental allowances exceeds $7,500 for officers serving in the grade of brigadier general of the Army and of the Marine Corps, rear admiral (lower half) of the Navy, commodore of the Navy, and Surgeon General of the Public Health Service, and $9,700 for those serving in the grade of major general of the Army and of the Marine Corps, and rear admiral (upper half) of the Navy, the amount of the allowances to which such officer is entitled shall be reduced by the amount of the excess above $7,500 or $9,700, respectively. Rear admirals of the Navy serving in higher grades shall be entitled, while so serving, to the pay and allowances of a rear admiral (upper half) and to a personal money allowance per year as follows: When serving in the grade of vice admiral, $500; when serving in the grade of admiral or as Chief of Naval Operations, $2,200.

Sec. 9. That commencing July 1, 1922, the monthly base pay of warrant officers and enlisted men of the Army and Marine Corps shall be as follows: Warrant officers of the Army and Marine Corps, $148; warrant officers, Army Mine Planter Service, master, $185; first mate, $141; second mate, $109; engineer, $175; assistant engineer, $120; enlisted men of the first grade, $126; enlisted men of the second grade, $84; enlisted men of the third grade, $72; enlisted men of the fourth grade, $54; enlisted men of the fifth grade, $42; enlisted men of the sixth grade, $30; enlisted men of the seventh grade, $21; and the pay for specialists' ratings shall be as follows: First class, $30; second class, $25; third class, $20; fourth class, $15; fifth class, $6; sixth class, $3. Existing laws authorizing continuous-service pay for each five years of service are hereby repealed, effective June 30, 1922. Commencing July 1, 1922, warrant officers of the Army and Marine Corps, including warrant officers of the Army Mine Planter Service and enlisted men of the Army and Marine Corps, shall receive, as a permanent addition to their pay, an increase of 5 per centum of their base pay for each four years of service in any of the

services mentioned in the title of this Act not to exceed 25 per centum: On and after July 1, 1922, an enlistment allowance equal to $50, multiplied by the number of years served in the enlistment period from which he has last been discharged, shall be paid to every honorably discharged enlisted man of the first three grades who reenlists within a period of three months from the date of his discharge, and an enlistment allowance of $25, multiplied by the number of years served in the enlistment period from which he has last been discharged, shall be paid to every honorably discharged enlisted man of the other grades who reenlists within a period of three months from the date of his discharge. Nothing contained herein shall operate to reduce the pay now being received by any transferred member of the Fleet Marine Corps Reserve. On and after July 1, 1922, retired enlisted men of the Army and Marine Corps shall have their retired pay computed as now authorized by law on the basis of pay provided in this Act.

SEC. 10. That on and after July 1, 1922, the monthly base pay of warrant officers of the Navy and Coast Guard shall be as follows: During the first six years of service—at sea, $153; on shore, $135; during the second six years of service—at sea, $168; on shore, $147; after twelve years' service—at sea, $189; on shore, $168. On and after July 1, 1922, for purposes of pay, enlisted men of the Navy and Coast Guard shall be distributed in seven grades, with monthly base rates of pay as follows: First grade, $126; second grade, $84; third grade, $72; fourth grade, $60; fifth grade, $54; sixth grade, $36; seventh grade, $21. Chief petty officers under acting appointment shall be included in the first grade at a monthly base pay of $99.

That the Secretary of the Navy is authorized to fix the pay grade for the various ratings of enlisted men of the Navy; and the Secretary of the Treasury is authorized to fix the pay grade for the various ratings of enlisted men of the Coast Guard. Mates shall receive the pay of enlisted men of the first grade of the Navy. Nothing contained herein shall operate to reduce the pay now being received by any transferred member of the Fleet Naval Reserve. In lieu of all permanent additions to pay now authorized for enlisted men of the Navy and Coast Guard, they shall receive, as a permanent addition to their pay, an increase of 10 per centum on the base pay of their rating upon completion of the first four years of enlisted service, and an additional increase of 5 per centum for each four years' service thereafter, the total not to exceed 25 per centum. All transient additions to pay of enlisted men of the Navy and Coast Guard are hereby repealed, except as provided for in section 21 of this Act.

The rates of pay of the insular force of the Navy shall be one-half the rates of pay prescribed for enlisted men of the Navy in corresponding ratings. Existing laws authorizing a reenlistment gratuity

to enlisted men of the Navy and Coast Guard are hereby repealed, and an enlistment allowance equal to $50 multiplied by the number of years served in the enlistment period from which he has last been discharged, but not to exceed $200, shall be paid to every honorably discharged enlisted man of the first three grades who reenlists within a period of three months from the date of his discharge; and an enlistment allowance of $25 multiplied by the number of years served in the enlistment period from which he has last been discharged, but not to exceed $100, shall be paid to every honorably discharged enlisted man of the other grades who reenlists within a period of three months from the date of his discharge. On and after July 1, 1922, retired enlisted men of the Navy and Coast Guard shall have their retired pay computed as now authorized by law on the basis of pay provided by this Act.

SEC. 11. That warrant officers of the Army, including those of the Army Mine Planter Service, of the Navy, Marine Corps, and Coast Guard, shall be entitled at all times to the same money allowance for subsistence as is authorized in section 5 of this Act for officers receiving the pay of the first period, and to the same money allowance for rental of quarters as is authorized in section 6 of this Act for officers receiving the pay of the first period. To each enlisted man not furnished quarters or rations in kind there shall be granted, under such regulations as the President may prescribe, an allowance for quarters and subsistence, the value of which shall depend on the conditions under which the duty of the man is being performed, and shall not exceed $4 per day. These regulations shall be uniform for all the services mentioned in the title of this Act. Subsistence for pilots shall be paid in accordance with existing regulations, and rations for enlisted men may be commuted as now authorized by law.

SEC. 12. That officers of any of the services mentioned in the title of this Act, when traveling under competent orders without troops, shall receive a mileage allowance at the rate of 8 cents per mile, distance to be computed by the shortest usually traveled route and existing laws providing for the issue of transportation requests to officers of the Army traveling under competent orders, and for deduction to be made from mileage accounts when transportation is furnished by the United States, are hereby made applicable to all the services mentioned in the title of this Act, but in cases when orders are given for travel to be performed repeatedly between two or more places in the same vicinity, as determined by the head of the executive department concerned, he may, in his discretion, direct that actual and necessary expenses only be allowed. Actual expenses only shall be paid for travel under orders outside the limits of the United States in North America. Unless otherwise expressly provided by law, no officer of the services mentioned in the title of this

Act shall be allowed or paid any sum in excess of expenses actually incurred for subsistence while traveling on duty away from his designated post of duty, nor any sum for such expenses actually incurred in excess of $7 per day. The heads of the executive departments concerned are authorized to prescribe per diem rates of allowance, not exceeding $6, in lieu of subsistence to officers traveling on official business and away from their designated posts of duty.

In lieu of the transportation in kind authorized by section 12 of an Act entitled "An Act to increase the efficiency of the commissioned and enlisted personnel of the Army, Navy, Marine Corps, Coast Guard, Coast and Geodetic Survey, and Public Health Service," approved May 18, 1920, to be furnished by the United States for dependents, the President may authorize the payment in money of amounts equal to such commercial transportation costs when such travel shall have been completed. Dependent children shall be such as are defined in section 4 of this Act.

SEC. 13. That, commencing July 1, 1922, the annual pay of female nurses of the Army and Navy shall be as follows: During the first three years of service, $840; from the beginning of the fourth year of service until the completion of the sixth year of service, $1,080; from the beginning of the seventh year of service until the completion of the ninth year of service, $1,380; from the beginning of the tenth year of service, $1,560. Superintendents of the Nurse Corps shall receive a money allowance at the rate of $2,500 a year, assistant superintendents, directors, and assistant directors at the rate of $1,500 a year, and chief nurses at the rate of $600 a year, in addition to their pay as nurses. Nurses shall be entitled to the same allowance for subsistence as is authorized in section 5 of this Act for officers receiving the pay of the first period, and to the same allowance for rental of quarters as is authorized in section 6 of this Act for officers receiving the pay of the first period.

SEC. 14. That officers of the National Guard receiving Federal pay, except for armory drill, and reserve officers of any of the services mentioned in the title of this Act while on active duty shall receive the allowances herein prescribed for officers of the regular services in sections 5 and 6 of this Act. Hereafter, in addition to the pay authorized in section 109, Act of June 3, 1916, as amended by the Act of June 4, 1920, field officers and lieutenants of the National Guard commanding organizations less than a brigade, and having administrative functions, shall receive $240 per year for the faithful performance of the administrative duties connected therewith; and warrant officers of the National Guard shall receive not more than four-thirtieths of the monthly base pay of their grade for satisfactory performance of their appropriate duties, under such regulations as the Secretary of War may prescribe.

On and after July 1, 1922, the armory drill pay for enlisted men of the National Guard of the sixth grade shall be $1.15, and for those of the seventh grade shall be $1, in lieu of that authorized in section 110, Act of June 3, 1916, as amended by the Act of June 4, 1920; and the pay of enlisted men of the National Guard of the sixth and seventh grades shall be $1.15 and $1 per day, respectively, whenever they are participating in exercises provided for by sections 94, 97, and 99 of the National Defense Act, approved June 3, 1916.

SEC. 15. That existing laws authorizing increase of pay for foreign service and commutation of quarters, heat, and light are hereby repealed, effective July 1, 1922.

SEC. 16. That nothing contained in this Act shall operate to reduce the pay of any officer on the active list below the pay to which he is entitled by reason of his grade and length of service on June 30, 1922, not including additional pay authorized by the Act entitled "An Act to increase the efficiency of the commissioned and enlisted personnel of the Army, Navy, and Marine Corps, Coast Guard, Coast and Geodetic Survey, and Public Health Service," approved May 18, 1920; and nothing contained in this Act shall operate to reduce the total of the pay and allowances which any enlisted man of the Army, Navy, Marine Corps, or Coast Guard is now receiving during his current enlistment and while he holds his present grade or rating.

The provisions of this section shall apply in like manner to each person not commissioned whose pay is based by law on that of a commissioned officer.

SEC. 17. That on and after July 1, 1922, retired officers and warrant officers shall have their retired pay, or equivalent pay, computed as now authorized by law on the basis of pay provided in this Act: *Provided*, That nothing contained in this Act shall operate to reduce the present pay of officers, warrant officers, and enlisted men now on the retired list or officers or warrant officers in an equivalent status of any of the services mentioned in the title of this Act. Active duty performed after June 30, 1922, by an officer on the retired list or its equivalent shall not entitle such officer to promotion: *Provided*, That officers and former officers of the Philippine Scouts who were placed on the retired list prior to June 4, 1920, shall be entitled to promotion on the retired list for active duty heretofore performed subsequent to retirement, in accordance with the provisions of section 127a of the Act of June 3, 1916, as amended by the Act of June 4, 1920, and to the same pay and benefits received by other officers of the Army of like grade and length of service, on the retired list. Retired officers of the Army, Navy, Marine Corps, Coast Guard, and Coast and Geodetic Survey below the grade of brigadier general or commodore and retired warrant officers and enlisted men of those services, shall, when on active duty, receive full pay and allowances.

SEC. 18. That under such regulations as the President may prescribe, enlisted men of the Army, Navy, Marine Corps, and Coast

Guard may receive additional compensation not less than $1 or more than $5 per month, for special qualification in the use of the arm or arms which they may be required to use. All laws and parts of laws authorizing extra pay for qualification in the use of arms or instruments, or for holding rated positions, except as otherwise specifically provided herein, are hereby repealed, to take effect July 1, 1922.

SEC. 19. That cadets at the Military Academy and cadets and cadet engineers of the Coast Guard shall receive the same pay and allowances as are now or may hereafter be provided by law for midshipmen in the Navy.

SEC. 20. That all officers, warrant officers, and enlisted men of all branches of the Army, Navy, Marine Corps, and Coast Guard, when detailed to duty involving flying, shall receive the same increase of their pay and the same allowance for traveling expenses as are now authorized for the performance of like duties in the Army. Exclusive of the Army Air Service, and student aviators and qualified aircraft pilots of the Navy, Marine Corps, and Coast Guard, the number of officers of any of the services mentioned in the title of this Act detailed to duty involving flying shall not at any one time exceed one-half of 1 per centum of the total authorized commissioned strength of such service. Regulations in execution of the provisions of this section shall be made by the President and shall be uniform for all the services concerned.

SEC. 21. That nothing in this Act shall operate to change in any way existing laws, or regulations made in pursuance of law, governing pay and allowances of the General of the Armies, the enlisted men of the Philippine Scouts, Marine Band, Naval Academy Band, Indian scouts, or flying cadets; nor the allowances in kind for rations, quarters, heat, and light for enlisted men; nor allowances in kind for quarters, heat, and light for officers and warrant officers; nor allowances for private mounts for officers; nor transportation in kind for officers and warrant officers and enlisted men and their dependents; nor transportation and packing allowances for baggage or household effects of officers and warrant officers and enlisted men; nor additional pay for aides; nor extra pay to enlisted men serving as stenographic reporters, or employed as cooks or messmen, or mail clerks, or assistant mail clerks, or engaged in submarine diving or service on submarines; nor money allowances granted to enlisted men on account of awards of medals or decorations expressly authorized by Congress.

SEC. 22. That the provisions of this Act shall be effective beginning July 1, 1922, and all laws and parts of laws which are inconsistent herewith or in conflict with the provisions hereof are hereby repealed as of that date.

Approved, June 10, 1922.

DIVISION OF VENEREAL DISEASES, JANUARY, FEBRUARY, AND MARCH, 1922.

During the months of January, February, and March, 1922, 71,960 cases of venereal diseases were reported to the State boards of health, and 36,218 new cases were admitted to the venereal disease clinics.

Venereal disease reports for January, February, and March, 1922—Number of cases reported by the State boards of health, number of admissions to the venereal disease clinics operating under joint control of the United States Public Health Service and the State boards of health, and number of treatments of arsphenamine administered.

State.	Cases reported.				Admissions to clinics.				Arsphenamine treatments administered.
	Total cases.	Syphilis.	Gonorrhea.	Chancroid.	Total admissions.	Syphilis.	Gonorrhea.	Chancroid.	
Alabama	414	183	224	7	2,070	1,223	787	60	7,904
Arizona	33	13	20	.....	.....	.....	.....	.....	.....
Arkansas	2,403	1,262	1,104	37	722	471	240	11	2,839
California	2,300	1,196	1,104	.....	1,204	687	496	21	4,128
Colorado	767	250	492	25	371	196	166	9	1,463
Connecticut	479	306	173	.....	265	114	138	13	1,166
Delaware	275	154	118	3	65	26	31	8	175
District of Columbia	.....	.....	.....	.....	108	98	10	.....	304
Florida	996	473	462	61	1,076	833	190	53	3,522
Georgia	2,168	1,087	999	82	807	450	272	85	2,703
Idaho	73	25	47	1	.....	.....	.....	.....	.....
Illinois	3,062	1,546	1,449	67	2,577	1,104	1,371	102	9,233
Indiana	1,132	594	525	13	1,208	552	600	56	6,227
Iowa	657	241	405	11	399	189	206	4	2,282
Kansas	624	304	315	5	510	318	192	.....	2,287
Kentucky	7,185	4,869	2,243	73	967	571	382	14	4,000
Louisiana	1,842	945	748	149	584	67	428	89	3,549
Maine	354	151	202	1	672	652	20	.....	408
Maryland	973	423	525	25	597	202	373	22	1,457
Massachusetts	1,665	538	1,127	.....	1,940	1,212	725	3	11,794
Michigan	3,806	1,762	2,016	28	1,558	842	700	16	4,279
Minnesota	2,497	1,078	1,386	33	258	99	157	2	1,826
Mississippi	617	293	266	58	594	300	236	58	1,295
Missouri	3,242	1,614	1,415	213	2,496	1,316	1,002	178	5,111
Montana	210	91	119	.....	20	4	16	.....	110
Nebraska	1,086	365	674	47	323	143	160	20	1,633
Nevada[1]	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire	134	58	76	.....	48	22	26	.....	440
New Jersey	1,265	716	539	10	956	490	463	3	2,842
New Mexico	96	48	47	1	52	30	22	.....	114
New York	3,300	2,463	838	9	1,193	706	470	17	7,705
North Carolina	2,154	1,130	965	59	482	326	127	29	2,038
North Dakota	176	63	111	2	20	10	10	.....	132
Ohio	1,961	1,193	741	27	3,150	1,674	1,349	127	8,777
Oklahoma	373	207	154	12	224	147	66	11	604
Oregon	684	277	390	17	185	111	73	1	219
Pennsylvania	1,755	916	814	25	1,779	936	818	25	6,754
Rhode Island	2,807	1,939	865	3	189	116	71	2	1,679
South Carolina	1,631	734	779	118	1,305	570	620	115	5,236
South Dakota	153	60	89	4	14	7	7	.....	65
Tennessee	1,784	974	717	93	1,462	870	478	114	4,561
Texas	8,644	4,743	3,494	407	1,764	821	734	209	4,111
Utah	159	43	113	3	105	41	61	3	219
Vermont	146	73	73	.....	67	58	9	.....	392
Virginia	1,210	660	513	37	1,086	636	416	34	4,092
Washington	.....	.....	.....	.....	272	149	121	2	1,195
West Virginia	2,247	1,180	980	87	100	73	27	.....	755
Wisconsin	2,339	1,280	1,056	3	335	145	190	.....	709
Wyoming	82	15	64	3	39	16	22	1	92
Total	71,960	38,535	31,566	1,859	36,218	19,623	15,078	1,517	132,426

[1] No reports received.

EXHIBIT SHOWING ADVANCES IN SANITARY SCIENCE.

The National Committee on Exhibits Showing Advances in Sanitary Science has recently been formed in Washington, D. C., for the purpose of collecting and preparing material for a great popular public health exhibit in the Capital. The members of the committee include—

Surg. Gen. H. S. Cumming, United States Public Health Service, chairman.
Dr. D. B. Armstrong, National Health Council.
Miss Mabel T. Boardman, American Red Cross.
Surg. Gen. M. W. Ireland, United States Army Medical Corps.
Dr. Victor C. Vaughan, National Research Council.
Dr. C. D. Walcott, Smithsonian Institution.
James A. Tobey, National Health Council, secretary.

Space for the proposed exhibit has been placed at the disposal of the Committee by the Smithsonian Institution. This Institution is visited by more than half a million persons annually. Plans are under way to install exhibit material secured from official and voluntary health agencies. The secretary's office is in the national headquarters of the American Red Cross at Washington, D. C.

DEATHS DURING WEEK ENDED JUNE 10, 1922.

Summary of information received by telegraph from industrial insurance companies for week ended June 10, 1922, and corresponding week, 1921. (From the Weekly Health Index, June 13, 1922, issued by the Bureau of the Census, Department of Commerce.)

	Week ended June 10, 1922.	Corresponding week, 1921.
Policies in force	50,014,236	47,093,473
Number of death claims	9,058	8,687
Death claims per 1,000 policies in force, annual rate	9.4	9.6

Deaths from all causes in certain large cities of the United States during the week ended June 10, 1922, infant mortality, annual death rate, and comparison with corresponding week of 1921. (From the Weekly Health Index, June 13, 1922, issued by the Bureau of the Census, Department of Commerce.)

City.	Estimated population July 1, 1922.	Week ended June 10, 1922.		Annual death rate per 1,000, corresponding week, 1921.	Deaths under 1 year.		Infant mortality rate, week ended June 10 1922.[2]
		Total deaths.	Death rate.[1]		Week ended June 10, 1922.	Corresponding week, 1921.	
Total	27,749,821	6,069	11.4	10.7	794	733	.....
Akron, Ohio	[3] 208,435	23	5.8	6.6	6	7	64
Albany, N. Y.	116,223	34	15.3	12.7	3	3	67
Atlanta, Ga.	220,047	61	14.5	14.3	11	6	.....
Baltimore, Md.	762,[illegible]	207	14.2	12.2	26	27	73
Birmingham, Ala.	191,017	42	11.5	16.0	9	5	.....
Boston, Mass.	764,017	164	11.2	13.4	25	32	67
Bridgeport, Conn.	[3] 143,555	27	9.8	8.0	4	3	50
Buffalo, N. Y.	528,163	124	12.2	12.3	15	18	59
Cambridge, Mass.	116,[illegible]44	25	11.7	9.4	3	2	55
Camden, N. J.	121,915	30	12.8	10.9	1	4	15
Chicago, Ill.	2,833,288	560	10.3	9.6	95	78	.....
Cincinnati, Ohio	404,865	94	12.1	12.7	7	14	47
Cleveland, Ohio	854,003	131	8.6	8.4	17	18	44
Columbus, Ohio	253,455	57	11.7	11.9	7	5	74
Dallas, Texas	171,974	40	12.1	12.3	3	5	.....
Dayton, Ohio	161,824	26	8.4	14.2	1	4	17
Denver, Colo.	267,591	77	15.0	11.9	6	8	.....
Detroit, Mich.	[3] 993,678	176	9.2	8.7	36	33	69
Fall River, Mass.	120,790	25	10.8	13.0	4	3	56
Fort Worth, Tex.	114,717	17	7.7	.....	2	.....	.....
Grand Rapids, Mich.	143,572	33	12.0	8.1	6	3	100
Houston, Tex.	150,087	20	6.9	10.5	1	4	.....
Indianapolis, Ind.	333,257	55	8.6	11.0	3	6	23
Jersey City, N. J.	305,911	52	8.9	11.2	8	10	51
Kansas City, Mo.	343,988	74	11.2	10.9	10	11	.....
Los Angeles, Calif.	634,866	165	13.6	13.0	14	10	58
Louisville, Ky.	236,877	51	11.2	14.6	5	3	54
Lowell, Mass.	114,423	25	11.4	8.3	5	2	84
Memphis, Tenn.	167,862	57	17.7	12.0	2	5	.....
Milwaukee, Wis.	476,603	90	9.8	7.6	16	11	78
Minneapolis, Minn.	400,970	87	11.3	9.8	4	14	22
Nashville, Tenn.	122,832	41	17.4	16.2	5	1	.....
New Bedford, Mass.	127,542	16	6.5	10.8	0	7	0
New Haven, Conn.	169,987	33	10.1	10.6	10	5	122
New Orleans, La.	399,616	113	14.7	13.7	12	16	.....
New York, N. Y.	5,839,746	1,284	11.5	9.7	179	139	69
Newark, N. J.	431,792	95	11.5	10.4	14	18	62
Norfolk, Va.	124,915	21	8.8	11.6	3	3	53
Oakland, Calif.	233,279	48	10.7	10.8	5	4	63
Omaha, Nebr.	200,739	53	13.8	13.5	3	9	32
Paterson, N. J.	138,521	26	9.8	12.9	2	4	31
Philadelphia, Pa.	1,894,500	412	11.3	10.3	50	50	59
Pittsburgh, Pa.	607,902	160	13.7	13.3	25	23	80
Portland, Oreg.	269,240	55	10.7	10.8	10	1	99
Providence, R. I.	241,011	50	10.8	11.5	6	8	47
Richmond, Va.	178,365	52	15.2	13.7	3	5	37
Rochester, N. Y.	311,548	79	13.2	8.4	13	4	100
St. Louis, Mo.	795,008	196	12.9	11.0	16	10	.....
St. Paul, Minn.	239,836	58	12.6	9.2	5	3	47
Salt Lake City, Utah	123,918	36	15.1	15.0	2	4	30
San Francisco, Calif.	529,792	146	14.4	13.2	7	5	40
Seattle, Wash.	[3] 315,312	47	7.8	8.4	4	6	34
Spokane, Wash.	104,445	24	12.0	8.0	2	7	43
Springfield, Mass.	140,052	21	7.8	12.3	6	8	89
Syracuse, N. Y.	181,012	45	13.0	12.6	4	6	48
Toledo, Ohio	260,717	68	13.6	8.2	13	4	127
Trenton, N. J.	125,075	40	16.7	11.5	9	9	138
Washington, D. C.	[3] 437,571	106	12.6	12.6	15	9	86
Wilmington, Del.	115,568	24	10.8	10.1	7	0	136
Worcester, Mass.	188,449	28	7.7	13.2	4	8	43
Yonkers, N. Y.	105,422	20	9.9	7.1	1	1	21
Youngstown, Ohio	144,970	23	8.3	8.6	4	2	53

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1921. Cities left blank are not in the registration area for births.
[3] Enumerated population Jan. 1, 1920.

PREVALENCE OF DISEASE.

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

UNITED STATES.

CURRENT STATE SUMMARIES.

Telegraphic Reports for Week Ended June 17, 1922.

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

ALABAMA.	Cases.
Diphtheria	9
Hookworm disease	101
Influenza	7
Malaria	19
Measles	16
Pellagra	8
Poliomyelitis	1
Scarlet fever	8
Smallpox	3
Tuberculosis	12
Typhoid fever	25
Whooping cough	10

ARKANSAS.	
Chicken pox	1
Diphtheria	1
Hookworm disease	2
Influenza	6
Malaria	77
Measles	5
Pellagra	18
Smallpox	6
Tuberculosis	20
Typhoid fever	6
Whooping cough	3

CALIFORNIA.	
Cerebrospinal meningitis:	
Los Angeles	1
Merced County	1
San Francisco	1
Diphtheria	139
Influenza	13
Lethargic encephalitis—Los Angeles	2
Measles	11
Poliomyelitis—Los Angeles	2
Scarlet fever	77
Smallpox:	
Livermore	37
Scattering	24
Typhoid fever	18

COLORADO. (Exclusive of Denver.)	Cases.
Chicken pox	9
Diphtheria	13
Influenza	7
Measles	3
Mumps	1
Pneumonia	1
Rocky Mountain spotted or tick fever	1
Scarlet fever	17
Smallpox	5
Typhoid fever	1

CONNECTICUT.	
Chicken pox	63
Conjunctivitis (infectious)	1
Diphtheria	35
German measles	4
Influenza	1
Malaria	1
Measles:	
Branford	28
Bridgeport	12
East Haddam	11
Greenwich	9
Hamden	18
Hartford	27
New Haven	111
Stamford	11
Stratford	8
Suffield	18
West Haven	41
Scattering	62
Mumps	14
Paratyphoid fever	3
Pneumonia (lobar)	11
Scarlet fever	31
Septic sore throat	1
Smallpox	2
Tuberculosis (all forms)	34
Typhoid fever	6
Whooping cough	24

DELAWARE.	Cases.
Chicken pox	2
Malaria	2
Measles	5
Mumps	1
Scarlet fever:	
Wilmington	9
Scattering	3
Tuberculosis	2
Typhoid fever	1

FLORIDA.	
Diphtheria	6
Influenza	11
Malaria	20
Pneumonia	1
Scarlet fever	1
Smallpox	3
Trachoma	1
Typhoid fever	8

GEORGIA.	
Diphtheria	6
Dysentery (bacillary)	13
Hookworm disease	16
Influenza	2
Malaria	30
Measles	2
Mumps	2
Paratyphoid fever	1
Pellagra	1
Pneumonia	2
Scarlet fever	3
Septic sore throat	1
Smallpox	15
Tuberculosis (all forms)	8
Typhoid fever	41
Whooping cough	23

ILLINOIS.	
Cerebrospinal meningitis:	
Brookfield	1
Chicago	1
Ottawa	1
Saline County—Brushy Township	1
Diphtheria:	
Chicago	131
Scattering	62
Influenza	7
Lethargic encephalitis:	
Chicago	1
Jerseyville	1
Pneumonia	138
Scarlet fever:	
Chicago	71
Scattering	32
Smallpox	23
Typhoid fever	24
Whooping cough	229

INDIANA.	
Cerebrospinal meningitis:	
Grant County	1
St. Joseph County	1
Diphtheria	18
Poliomyelitis—Jennings County	1

INDIANA—continued.	Cases.
Rabies in animals:	
Boone County	1
Jennings County	1
Marion County	1
Scarlet fever	9
Smallpox	19
Typhoid fever	8

IOWA.	
Diphtheria	15
Scarlet fever	25
Smallpox	21

KANSAS.	
Chicken pox	41
Diphtheria	28
Malaria	3
Measles	8
Mumps	8
Pneumonia	7
Scarlet fever	26
Septic sore throat	1
Smallpox	10
Tuberculosis	70
Typhoid fever	4
Whooping cough	48

LOUISIANA.	
Diphtheria	9
Dysentery:	
Rhinehart refugee camp	24
Place not stated	1
Malaria:	
Rhinehart refugee camp	37
Scattering	27
Poliomyelitis	2
Scarlet fever	4
Smallpox	4
Typhoid fever	20
Whooping cough	11

MARYLAND.[1]	
Cerebrospinal meningitis	1
Chicken pox	52
Diphtheria	18
Dysentery	4
German measles	4
Influenza	1
Malaria	1
Measles	218
Mumps	114
Ophthalmia neonatorum	5
Pneumonia (all forms)	27
Scarlet fever	12
Septic sore throat	1
Tuberculosis	65
Typhoid fever	10
Vincent's angina	3
Whooping cough	31

MASSACHUSETTS.	
Cerebrospinal meningitis	3
Chicken pox	75
Conjunctivitis (suppurative)	4

[1] Week ended Friday.

MASSACHUSETTS—continued.

	Cases.
Diphtheria	86
German measles	11
Lethargic encephalitis	1
Malaria	1
Measles	708
Mumps	91
Ophthalmia neonatorum	17
Pneumonia (lobar)	28
Scarlet fever	87
Trachoma	1
Trichinosis	1
Tuberculosis (all forms)	152
Typhoid fever	8
Whooping cough	71

MINNESOTA.

Cerebrospinal meningitis	1
Chicken pox	7
Diphtheria	42
Measles	144
Pneumonia	3
Scarlet fever	79
Smallpox	37
Tuberculosis	143
Typhoid fever	1

MISSISSIPPI.

Diphtheria	6
Poliomyelitis	1
Scarlet fever	3
Smallpox	2
Typhoid fever	25

MISSOURI.

Chicken pox	10
Diphtheria	35
Epidemic sore throat	2
Measles	42
Mumps	6
Pneumonia	8
Scarlet fever	17
Smallpox	1
Tuberculosis	67
Typhoid fever	5
Whooping cough	10

MONTANA.

Diphtheria	2
Rocky Mountain spotted or tick fever:	
Baker	1
Billings	1
Billings (rural)	1
Melstone	1
Pompeys Pillar	1
Scarlet fever	6
Smallpox	4
Typhoid fever	1

NEBRASKA.

Chicken pox	31
Diphtheria	11
Measles:	
Lincoln	23
Omaha	13
Scattering	5
Mumps	15
Poliomyelitis—McCook	1
Scarlet fever	10

NEBRASKA—continued.

	Cases.
Smallpox	2
Tuberculosis	3
Whooping cough	2

NEW JERSEY.

Cerebrospinal meningitis	2
Chicken pox	101
Diphtheria	75
Influenza	37
Malaria	2
Measles	774
Pneumonia	41
Scarlet fever	115
Typhoid fever	12
Whooping cough	126

NEW MEXICO.

Conjunctivitis	1
Diphtheria	26
Malaria	2
Mumps	2
Pneumonia	1
Scarlet fever	12
Tuberculosis	18
Typhoid fever	8
Whooping cough	4

NEW YORK.
(Exclusive of New York City.)

Cerebrospinal meningitis	4
Diphtheria	100
Influenza	15
Lethargic encephalitis	3
Measles	866
Pneumonia	112
Scarlet fever	128
Smallpox	6
Typhoid fever	12
Whooping cough	144

NORTH CAROLINA.

Chicken pox	25
Diphtheria	27
Measles	40
Poliomyelitis	2
Scarlet fever	21
Smallpox	38
Typhoid fever	74
Whooping cough	161

OREGON.

Chicken pox	13
Diphtheria	11
Influenza	3
Measles	1
Mumps	12
Pneumonia	15
Scarlet fever	8
Septic sore throat	2
Smallpox	15
Tuberculosis	4
Typhoid fever	1
Whooping cough	3

SOUTH DAKOTA.

Chicken pox	4
Diphtheria	5
Mumps	1
Poliomyelitis	1

[1] Deaths.

SOUTH DAKOTA—continued.

	Cases.
Scarlet fever	7
Smallpox	15
Tuberculosis	6
Typhoid fever	1
Whooping cough	3

TEXAS.

Diphtheria	15
Measles	22
Pneumonia	2
Poliomyelitis	1
Scarlet fever	6
Smallpox	8
Typhoid fever	13

VERMONT.

Chicken pox	21
Diphtheria	1
Measles	12
Mumps	6
Scarlet fever	9
Typhoid fever	1
Whooping cough	10

WASHINGTON.

Chicken pox	34
Diphtheria	12
Measles	14
Mumps	16
Scarlet fever	7
Smallpox	6
Tuberculosis	19
Typhoid fever	6
Whooping cough	26

WEST VIRGINIA.

Diphtheria	14
Measles:	
Moundsville	10
Scattering	14
Smallpox	1
Tuberculosis	8

WISCONSIN.

Milwaukee:	
Chicken pox	53
Diphtheria	11
German measles	2
Measles	48
Pneumonia	2
Scarlet fever	5
Smallpox	4
Tuberculosis	23
Whooping cough	71
Scattering:	
Chicken pox	72
Diphtheria	19
German measles	20
Influenza	8
Measles	29
Pneumonia	4
Scarlet fever	51
Smallpox	33
Tuberculosis	48
Typhoid fever	10
Whooping cough	54

WYOMING.

Mumps	1
Rocky Mountain spotted or tick fever:	
Big Horn County	1
Natrona County	1
Weston County	2
Scarlet fever	1
Septic sore throat	1
Smallpox	1
Tuberculosis	4
Typhoid fever	1

Delayed Reports for Week Ended June 10, 1922.

CALIFORNIA.

	Cases.
Botulism—San Luis Obispo County	1
Cerebrospinal meningitis—San Francisco	1
Diphtheria	112
Influenza	9
Lethargic encephalitis:	
San Francisco	1
Santa Clara County	1
Measles	36
Scarlet fever	69
Smallpox:	
San Jose	10
Scattering	27
Typhoid fever	16

DISTRICT OF COLUMBIA.

Chicken pox	27
Diphtheria	3
Measles	47
Scarlet fever	2
Tuberculosis	24
Typhoid fever	11
Whooping cough	16

KENTUCKY.

	Cases.
Chicken pox	4
Diphtheria	7
German measles	3
Measles:	
Grant County	13
Scott County	27
Scattering	30
Pneumonia	3
Scarlet fever	2
Septic sore throat	1
Smallpox	1
Tonsillitis	2
Tuberculosis:	
Jefferson County	29
Scattering	5
Typhoid fever	1
Whooping cough	4

MAINE.

Chicken pox	18
Diphtheria	8
Lethargic encephalitis	1
Measles	3

MAINE—continued.

	Cases.
Pneumonia	2
Scarlet fever	20
Tuberculosis	3
Typhoid fever	2
Whooping cough	98

WYOMING.

Chicken pox	3
Diphtheria	2
Pneumonia	5

WYOMING—continued.

	Cases.
Rocky Mountain spotted or tick fever:	
Hot Springs County	1
Natrona County	1
Niobrara County	1
Park County	8
Scabies	1
Scarlet fever	2
Smallpox	5
Tuberculosis	5
Whooping cough	1

SUMMARY OF CASES REPORTED MONTHLY BY STATES.

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

State.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Poliomyelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
May, 1922.										
Connecticut	9	152	47	2	1,652	1	3	270	54	11
District of Columbia	.....	63	1	.....	.....	1	.....	25	10	39
Louisiana	2	38	107	107	89	20	3	16	108	65
Michigan	.....	501	22	.....	2,913	.....	1	552	129	84
New York	33	1,873	294	.....	13,400	.....	15	2,451	20	149
Vermont	1	21	.....	.....	174	.....	1	109	1	1

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922.

CEREBROSPINAL MENINGITIS.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended June 3, 1922. Cases.	Deaths.
Alabama:			
Birmingham	0	.....	1
California:			
Los Angeles	0	2	.....
San Francisco	0	1	.....
Georgia:			
Atlanta	0	.....	2
Massachusetts:			
Boston	2	1	.....
Lynn	0	1	.....
Michigan:			
Detroit	0	2	.....
Muskegon	0	1	.....
New Jersey:			
Perth Amboy	0	.....	1
New York:			
New York	7	4	4
New York—Continued.			
Port Chester	0	1	1
Syracuse	0	.....	1
Ohio:			
Cambridge	.....	1	1
Lancaster	0	.....	1
Oregon:			
Portland	0	.....	1
Pennsylvania:			
Bradford	0	1	.....
Texas:			
El Paso	0	.....	2
Houston	0	1	.....
West Virginia:			
Charleston	0	.....	2
Wisconsin:			
Milwaukee	1	1	.....

DIPHTHERIA.

See p. 1548; also Telegraphic weekly reports from States, p. 1538, and Monthly summaries by States, above.

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

INFLUENZA.

City.	Cases.		Deaths, week ended June 3, 1922.	City.	Cases.		Deaths, week ended June 3, 1922.
	Week ended June 4, 1921.	Week ended June 3, 1922.			Week ended June 4, 1921.	Week ended June 3, 1922.	
California:				Michigan:			
Los Angeles		1		Detroit	1		
Oakland	1			Missouri:			
San Francisco	2	1		Kansas City	1		
Colorado:				New Jersey:			
Denver			2	Harrison	1		
Connecticut:				Newark		3	
New Haven			1	Plainfield			1
District of Columbia:				New York:			
Washington	2			Albany	1		
Florida:				New York	11	9	2
Tampa			1	North Carolina:			
Georgia:				Charlotte			1
Brunswick	3			Ohio:			
Illinois:				Cambridge			1
Chicago	6	1	1	Cincinnati			1
Springfield		1		Cleveland			1
Louisiana:				Norwood		1	1
New Orleans		2		Oregon:			
Maryland:				Portland			1
Baltimore	2			Pennsylvania:			
Cumberland	1			Philadelphia	2	1	2
Massachusetts:				Texas:			
Boston	1	1	1	Dallas			1
Cambridge	1			Virginia:			
Leominster		1		Richmond			1
Saugus	1						
Winthrop	1						

LETHARGIC ENCEPHALITIS.

City.	Cases.	Death.	City.	Cases.	Death.
Texas:					
Galveston		1			

MALARIA.

Alabama:			Illinois:		
Mobile		1	Chicago	2	
Arkansas:			Louisiana:		
Little Rock	4		New Orleans	2	
Florida:			New York:		
Tampa	6		New York	1	
Georgia:			North Carolina:		
Atlanta	1		Salisbury		1
Brunswick		1	Winston-Salem	1	
Savannah		1	Texas:		
Valdosta	1		Dallas	1	
			Houston		1

MEASLES.

See p. 1548; also Telegraphic weekly reports from States, p. 1538, and Monthly summaries by States, p. 1542.

PELLAGRA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Kentucky:		
Birmingham	1	1	Owensboro	1	
Mobile		1	South Carolina:		
Georgia:			Charleston		1
Savannah		1	Virginia:		
			Portsmouth		1

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

PNEUMONIA (ALL FORMS).

City.	Cases.	Deaths.
Alabama:		
Birmingham		5
Mobile		1
Montgomery		1
Arkansas:		
Fort Smith		1
California:		
Los Angeles	17	10
Oakland	5	4
Sacramento		4
San Diego		2
San Francisco	7	4
Colorado:		
Denver		6
Pueblo		1
Connecticut:		
Bridgeport	1	
Hartford	1	
New Haven		5
New London	2	
Waterbury	2	
Delaware:		
Wilmington		2
District of Columbia:		
Washington		3
Georgia:		
Atlanta		2
Savannah		4
Illinois:		
Aurora		1
Chicago	104	38
Danville	4	1
East St. Louis	1	
Freeport	2	1
Oak Park	3	
Peoria		1
Quincy		1
Springfield		2
Indiana:		
Anderson		1
East Chicago		2
Fort Wayne		4
Gary		3
Hammond		1
Indianapolis		7
Mishawaka		1
Muncie		2
South Bend		1
Iowa:		
Burlington		2
Mason City	2	
Kansas:		
Hutchinson	1	
Kansas City	1	
Topeka	1	
Wichita		1
Kentucky:		
Covington		1
Lexington		1
Louisville	7	3
Louisiana:		
New Orleans		13
Maine:		
Biddeford		1
Lewiston		2
Portland		1
Maryland:		
Baltimore	19	10
Cumberland	1	
Massachusetts:		
Amesbury		2
Beverly	1	
Boston		16
Cambridge	5	1
Chelsea	3	
Chicopee		2
Easthampton		1
Everett	2	1
Fall River	2	1
Framingham		2
Massachusetts—Continued.		
Haverhill		2
Holyoke		1
Lawrence	1	
Leominster	1	
Lowell		1
Lynn	2	1
Medford		1
Methuen		1
New Bedford		4
Northampton	1	
Somerville		1
Springfield	1	
Waltham	1	
Watertown		1
Webster		1
Worcester		3
Michigan:		
Ann Arbor		3
Battle Creek	1	
Detroit	37	22
Flint		3
Grand Rapids		1
Highland Park		1
Jackson	1	
Kalamazoo		1
Muskegon		1
Pontiac		1
Port Huron		1
Minnesota:		
Duluth	3	1
Faribault		1
Minneapolis		6
St. Paul		8
Winona		2
Missouri:		
Kansas City		9
St. Joseph		3
Montana:		
Great Falls		1
Nebraska:		
Omaha		6
Nevada:		
Reno		1
New Hampshire:		
Concord		2
Dover		1
New Jersey:		
Asbury Park	1	
Bloomfield	1	
East Orange	4	
Elizabeth		5
Englewood		1
Harrison	3	
Hoboken		7
Jersey City	5	
Montclair	2	
Morristown		1
Newark	37	6
Orange	2	
Passaic		1
Paterson	4	
Plainfield	2	1
Trenton	3	2
New York:		
Albany	6	
Auburn		1
Buffalo		10
Elmira	3	
Fulton		1
Hornell		1
Hudson	1	
Ithaca	3	
Lackawanna		1
Lockport	2	
Mount Vernon	3	1
Newburgh	6	
New York	256	126
Niagara Falls	4	2
Port Chester	1	

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.
New York—Continued.		
Rochester	17	3
Rome		2
Saratoga Springs	2	
Syracuse	9	4
Troy		5
Watertown		1
White Plains	2	
Yonkers		2
North Carolina:		
Salisbury		1
Wilmington		1
Ohio:		
Akron	5	
Canton		1
Cincinnati	1	
Cleveland	21	10
Dayton	1	
East Cleveland		1
Findlay		1
Hamilton		1
Mansfield		1
Toledo		1
Youngstown		3
Oregon:		
Portland		5
Pennsylvania:		
Philadelphia	52	34
Rhode Island:		
Providence		7
South Carolina:		
Charleston		2
South Dakota:		
Sioux Falls		1
Tennessee:		
Memphis		4
Nashville		2
Texas:		
Dallas		1
El Paso		1
Fort Worth		3
Galveston		1
Houston		2
Utah:		
Provo	2	
Salt Lake City		3
Vermont:		
Rutland		2
Virginia:		
Norfolk		1
Portsmouth		1
Richmond		3
West Virginia:		
Huntington		1
Wheeling		1
Wisconsin:		
Janesville		1
Kenosha		2
Wilwaukee	1	
Racine		2
Superior		1
West Allis	1	
Wyoming:		
Cheyenne	2	1

POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended June 3, 1922.	
		Cases.	Deaths.
California:			
San Diego	0	1	
Massachusetts:			
Medford	0	1	
Michigan:			
Grand Rapids	0	1	1
New Hampshire:			
Keene	0		1
New York:			
New York	1	1	
Pennsylvania:			
Philadelphia	0	1	

RABIES IN ANIMALS.

City.	Cases.
California:	
Los Angeles	7
Pasadena	2
Georgia:	
Macon	2
Kentucky:	
Louisville	1

RABIES IN MAN.

City.	Cases.	Deaths.
New York:		
New York	1	1

ROCKY MOUNTAIN SPOTTED OR TICK FEVER.

Montana:		
Billings	1	

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

SCARLET FEVER.

See p. 1548; also Telegraphic weekly reports from States, p. 1538, and Monthly summaries by States, p. 1542.

SMALLPOX.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended June 3, 1922.	
		Cases.	Deaths.
Alabama:			
Mobile	0	4	.....
Arizona:			
Tucson	0	.....	2
California:			
Los Angeles	2	5	1
Sacramento	0	2	.....
San Diego	0	1	.....
Stockton	0	3	.....
Colorado:			
Denver	17	5	.....
Connecticut:			
Bridgeport	0	1	.....
New Haven	.....	1	.....
District of Columbia:			
Washington	2	2	.....
Georgia:			
Atlanta	12	2	.....
Macon	1	3	.....
Savannah	0	1	.....
Illinois:			
Peoria	7	5	.....
Indiana:			
Fort Wayne	1	1	.....
Indianapolis	8	2	.....
Iowa:			
Des Moines	6	5	.....
Muscatine	2	1	.....
Sioux City	4	1	.....
Kansas:			
Coffeyville	1	1	.....
Hutchinson	0	2	.....
Kansas City	2	2	.....
Lawrence	0	1	.....
Kentucky:			
Louisville	1	1	.....
Michigan:			
Detroit	12	1	.....
Flint	2	1	.....
Grand Rapids	1	1	.....
Minnesota:			
Duluth	4	1	.....
Minneapolis	23	1	.....
St. Paul	8	6	.....
Missouri:			
Kansas City	11	2	.....
St. Louis	5	1	.....
Montana:			
Billings	0	1	.....
Great Falls	5	7	.....
New York:			
Niagara Falls	0	21	.....
North Carolina:			
Durham	0	1	.....
North Dakota:			
Grand Forks	0	3	.....
Ohio:			
Alliance	0	1	.....
Canton	2	3	.....
Chillicothe	0	3	.....
Dayton	0	1	.....
Sandusky	0	1	.....
Springfield	0	1	.....
Toledo	3	2	.....
Oklahoma:			
Oklahoma	10	2	.....
Oregon:			
Portland	2	5	.....
South Dakota:			
Sioux Falls	1	5	.....
Texas:			
Dallas	2	1	.....
Fort Worth	4	1	.....
Washington:			
Bellingham	2	1	.....
Everett	0	2	.....
Seattle	5	1	.....
Spokane	4	1	.....
Tacoma	1	1	.....
Walla Walla	0	1	.....
Yakima	0	2	.....
West Virginia:			
Bluefield	2	1	.....
Fairmont	0	1	.....
Wisconsin:			
Milwaukee	6	7	.....
Superior	1	16	.....
Wausau	0	2	.....

TETANUS.

City.	Cases.	Deaths.
California:		
San Diego	1	.....
Florida:		
Tampa	1	.....
Illinois:		
Chicago	.....	1
Maryland:		
Baltimore	.....	2
Michigan:		
Detroit	.....	1
Minnesota:		
Minneapolis	.....	1
North Carolina:		
Durham	.....	1

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

TUBERCULOSIS.

See p. 1548; also Telegraphic weekly reports from States, p. 1538.

TYPHOID FEVER.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended June 3, 1922.	
		Cases.	Deaths.
Alabama:			
Anniston	0	1	
Birmingham	3	2	1
Arkansas:			
Fort Smith	0	3	
Little Rock	0	6	
California:			
Riverside	0	1	1
Sacramento	0	1	1
San Francisco	2	1	
Stockton	0	7	
Colorado:			
Denver	0		1
Connecticut:			
Greenwich	0	1	
New Britain	0	1	
New Haven	1	1	
Delaware:			
Wilmington	0	1	
District of Columbia:			
Washington	1	17	1
Florida:			
Tampa		5	
Georgia:			
Atlanta	1	1	
Brunswick	0	1	1
Macon	1	3	
Savannah	1	2	
Indiana:			
Indianapolis	0		1
Mishawaka	0	1	
Iowa:			
Waterloo	0	2	
Kentucky:			
Louisville	1	2	
Louisiana:			
New Orleans	3	1	1
Maine:			
Portland	1	2	
Maryland:			
Baltimore	4	3	
Massachusetts:			
Boston	3	1	
Danvers	0		1
Fall River	2	1	
Holyoke	0	1	
Lowell	0	1	
New Bedford	0	1	
North Adams	0	1	
Woburn	0		1
Michigan:			
Detroit	5	5	1
Highland Park	0		1
Port Huron	0	3	
Minnesota:			
Minneapolis	1	1	
Rochester	0	2	
Winona	0	1	
Missouri:			
St. Louis	2	2	
Springfield	0		1
Nebraska:			
Omaha	0	1	
New Jersey:			
Newark	0	1	
Trenton	0	1	
New York:			
Albany	0	1	
New York	17	10	2
Ohio:			
Cincinnati	0		1
Cleveland	3	1	
Lima	0	3	
Piqua	0	1	
Oregon:			
Portland	1	1	
Pennsylvania:			
Canonsburg	0	12	
Chester	0	1	
Lancaster	0	2	
Philadelphia	7	6	1
Pittsburgh	2	6	
Washington	0	1	
York	0	2	
South Carolina:			
Greenville	1	1	
Tennessee:			
Memphis	0	5	
Nashville	2	2	
Texas:			
Dallas	1	1	
El Paso	0	1	
Fort Worth	0	2	
Galveston	1		1
Houston	0		1
Utah:			
Salt Lake City	0	1	
Virginia:			
Alexandria	1		1
West Virginia:			
Charleston	0	1	
Wisconsin:			
Oshkosh	0		1

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alabama:										
Anniston	17,734		1						2	
Birmingham	178,270	53	1		3		1		11	6
Mobile	60,151	22								5
Montgomery	43,464	13							2	2
Arizona:										
Tucson	20,292	16								6
Arkansas:										
Fort Smith	28,811	8								
Hot Springs	11,695	4								
Little Rock	64,997								2	
North Little Rock	14,048	1								1
California:										
Alameda	28,806	7	1		1		5			
Eureka	12,923	6			7		1		1	1
Long Beach	55,593	17	6							1
Los Angeles	576,673	177	42	4	5		23		76	21
Oakland	216,361	40	10	1	4		1		4	3
Pasadena	45,354	7	4	1	1		1		1	
Richmond	16,843	1	3							
Riverside	19,341	8							4	3
Sacramento	65,857	17					4			3
San Bernardino	18,721	8	1						1	2
San Diego	74,683	35	2		3		7		4	3
San Francisco	508,410	114	17		18		3		28	12
Santa Ana	15,485	2	1							
Santa Barbara	19,441	5								
Santa Cruz	10,917	4								
Stockton	40,296	6					1			
Vallejo	21,107	4								
Colorado:										
Denver	256,369	77	12	2	4		14			9
Greeley	10,883	1								
Pueblo	42,908	3	2				2		1	
Trinidad	10,906		1							
Connecticut:										
Bridgeport	143,538	36	3		17	1	6		4	6
Bristol	20,620	2								
Derby	11,238	2								
Fairfield	11,475	1			1		1			
Greenwich	22,123				8		2			
Hartford	138,036	20	6		22		1		5	
Manchester	18,370	1			2					
Milford	10,193	1			3					
New Britain	59,316	4								
New Haven	162,519	48	8	1	116	2	1		6	
New London	25,688	8	3		1					
Norwalk	27,700	12						1		
Norwich	22,304	7			1				1	1
Waterbury	91,410	12	1		5		3		2	1
Delaware:										
Wilmington	110,168	25								2
District of Columbia:										
Washington	437,571	88	13	1	31		4		23	12
Florida:										
Tampa	51,252	9	2						5	1
Georgia:										
Albany	11,555		2							
Atlanta	200,616	76	1				6		2	6
Brunswick	14,413	2								
Macon	52,995		1		1					
Rome	13,252		1				1			
Savannah	83,252	37								5
Valdosta	10,783	1								
Idaho:										
Boise	21,393	3								
Pocatello	15,001	2								
Illinois:										
Alton	24,682	2	1				2		1	1
Aurora	36,397	10	1	1	8		1			
Bloomington	28,725								3	1
Centralia	12,491	3								
Chicago	2,701,705	538	93	13	546	6	50	2	139	43
Cicero	44,995	4	1		5					
Danville	33,750	11	1		1		1		4	2

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

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

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Illinois—Continued.										
Decatur	43,818	5	2				2			
East St. Louis	66,740	13			1				1	1
Elgin	27,454	4								1
Evanston	37,215	13			2					
Forest Park	10,768				2					
Freeport	19,669	6	1		1		2		2	
Galesburg	23,834	8			1					
La Salle	13,050	4							1	
Mattoon	13,552	6	1							1
Oak Park	39,830	10	2		16				1	
Peoria	76,121	17	2				3		1	2
Quincy	35,978	11	1		1					
Rockford	65,651	11	2		15		1			1
Rock Island	35,177	10	1						2	4
Springfield	59,183	14							2	
Indiana:										
Anderson	29,767	6			1					
Clinton	10,962	0								
Crawfordsville	10,139	2								
East Chicago	35,967	16								
Fort Wayne	36,549	18	6				1			1
Frankfort	11,585	6							1	1
Gary	55,378	11								
Hammond	36,004	5								1
Indianapolis	314,194	59	4		136		5			1
Kokomo	30,067	5	2	1					1	1
La Fayette	22,486	4					1			
Logansport	21,626	7								1
Mishawaka	15,195	3	1						5	
Muncie	36,624	12								
South Bend	70,983	14	1		25		2		5	1
Terre Haute	66,083	17	3	1	7		4		1	4
Iowa:										
Burlington	24,057								2	
Cedar Rapids	45,566						2			
Clinton	24,151		3							
Council Bluffs	36,162	7	2	1	3					1
Davenport	56,727		2							
Des Moines	126,468		3				15			
Iowa City	11,267		1							
Mason City	20,065	9	1							
Muscatine	16,068	2					1			
Sioux City	71,227		2	1						
Waterloo	36,230						1			
Kansas:										
Coffeyville	13,452	3	1							
Fort Scott	10,693	1								
Hutchison	23,293						1		1	
Kansas City	101,177		1				1			
Lawrence	12,456	4								
Parsons	16,028	4	1							
Salina	15,085	5					1			
Topeka	50,022	10	5				2		4	1
Wichita	72,128	20	11		6		3		1	1
Kentucky:										
Covington	57,121	12			10					
Lexington	41,534	14			38				4	2
Louisville	234,891	64	2		12		1		17	5
Owensboro	17,424		4		1				1	
Louisiana:										
New Orleans	387,219	129	12				2		14	13
Maine:										
Auburn	16,985	7					2		1	
Bath	14,731	6								
Biddeford	18,008	9								
Lewiston	31,791	12					1			
Portland	69,272	18	2				3			
Maryland:										
Baltimore	733,826	174	11	1	183	1	15		67	21
Cumberland	29,837	6			2					1
Massachusetts:										
Amesbury	10,036	5	2							
Arlington	18,665	5			21					
Attleboro	19,731	4			1		1		2	1

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

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

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Massachusetts—Continued.										
Belmont	10,749	5			1		3			
Beverly	22,561	2			10		2		3	
Boston	748,060	193	50	1	206	1	39	1	45	23
Braintree	10,580	3			2		2		1	1
Brookline	37,748	12			29		3		1	1
Cambridge	109,694	18	5		77	2	6		5	3
Chelsea	43,184	5			10		1		2	
Chicopee	36,214	6			4					
Clinton	12,979	0								
Danvers	11,108		1		1					
Dedham	10,792	3					1			
Easthampton	11,261	1			1					
Everett	40,120	8	3				4		3	
Fall River	120,485	37	3		1		3		9	4
Framingham	17,033	6			1					
Gardner	16,971	5			2		1		1	
Greenfield	15,462	0								
Haverhill	53,884	13	1				1		1	2
Holyoke	60,203	13			11		2			
Lawrence	94,270	19	2		16		1		3	1
Leominster	19,744	4	1	1			1		1	
Lowell	112,479	17	4				2		9	1
Lynn	99,148	19	1		14		5			1
Malden	49,103	10	4		5		1	2	3	1
Medford	39,038	2	1		5		1	1		
Melrose	18,204	4			11					
Methuen	15,189	7			6				1	1
New Bedford	121,217	25	8		2		5		8	1
Newburyport	15,618	5			1					
Newton	46,054	13	1		25		10		1	
North Adams	22,282	4								
Northampton	21,951	7			13				1	1
Norwood	12,627	2			20					
Pittsfield	41,751	13	2				3		4	
Plymouth	13,045	3								
Quincy	47,876	10	1		30		1		4	
Somerville	93,091	23	1		20		6		2	
Southbridge	14,245	2			2					
Springfield	129,563	41	1		77	1	1		6	4
Taunton	37,137	13								
Wakefield	13,025	1			1		1		1	
Waltham	30,915	13			4		4		4	
Watertown	21,457	1			1		1			
Webster	13,258	2			12		3		1	
West Springfield	13,443	1								
Westfield	18,604	4							1	
Weymouth	15,057	6								
Winthrop	15,455	2			1					
Woburn	16,574	5								1
Worcester	179,754	41	3				9		7	1
Michigan:										
Alpena	11,101	0								
Ann Arbor	19,516	13	2		1				2	1
Battle Creek	36,164		3		14		1			
Benton Harbor	12,233	7	1				1			
Detroit	993,739	190	42		174	4	48		38	19
Flint	91,599	19			27					1
Grand Rapids	137,634	38	3				2		4	
Hamtramck	48,615	0	2		3				1	
Highland Park	46,499	12			33		3			
Ironwood	15,739	6								1
Jackson	48,374	11			1				11	
Kalamazoo	48,858	19	5		1		6	1		1
Marquette	12,718	4								
Muskegon	36,570	13	1		1					
Pontiac	34,273	10	1		33		5		2	2
Port Huron	25,944	5			6					
Sault Ste. Marie	12,096	3					3	1	2	1
Minnesota:										
Duluth	98,917	8			1				7	
Faribault	11,089	8								2
Hibbing	15,089		1				2			
Minneapolis	380,582	78	6	1	71	2	27		23	13

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

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

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Minnesota—Continued.										
Rochester	13,722	18								
St. Cloud	15,873						3			
St. Paul	234,595	50	5		70		14		7	2
Winona	19,143	8			12					
Missouri:										
Independence	11,686	2								
Kansas City	324,410	97	2		17	1	1		13	11
St. Joseph	77,939	33								
St. Louis	772,897	150	18		8		12		44	6
Springfield	39,631	5								
Montana:										
Billings	15,100	3								1
Great Falls	24,121	5	3						1	1
Missoula	12,668	7							1	
Nebraska:										
Lincoln	54,934	4			23		1			
Omaha	191,601	38	5		23		1			3
Nevada:										
Reno	12,016	3	2							
New Hampshire:										
Berlin	16,104	3	1	1						
Concord	22,167	11			6					2
Dover	13,029	5			1					
Keene	11,210	5			1		1			1
Portsmouth	13,569				6					
New Jersey:										
Asbury Park	12,400	3			8		2			
Atlantic City	50,682	14			4		1		1	
Bayonne	76,754				7		1		6	
Belleville	15,660				15		1		1	
Bloomfield	22,019	18			13		3		1	
Clifton	26,470	2	1		13	1	6		2	
East Orange	50,710		2		28		1		2	1
Elizabeth	95,682		7		25		5		2	1
Englewood	11,627	3	1		17				2	
Garfield	19,381	0	1		8		3		1	
Hackensack	17,667	5			25					
Harrison	15,721		2		3				1	
Hoboken	68,166	21	4		4		2			1
Jersey City	297,864		11		15		18		4	
Montclair	28,810	2			2		2			
Morristown	12,548	3			3		2			
Newark	414,216	99	8	3	241	1	30		27	8
Orange	33,268	4			14		2		2	
Passaic	63,824	11	2	1	27		4			
Paterson	135,866		2		93		5			
Perth Amboy	41,707	6	4		10		5		2	
Phillipsburg	16,923	5							5	
Plainfield	27,700	10	2		31	1	2		3	
Summit	10,174	1			23		1			
Trenton	119,289	30	5	1	60	2	2		4	3
Union	20,651		1		2		3		1	
West New York	29,926	1	3		3					
West Orange	15,573	4			9		2			1
New Mexico:										
Albuquerque	15,157	5	1				6		2	1
New York:										
Albany	113,344		3		5		2		2	
Auburn	36,192	12							1	
Buffalo	506,775	119	8		3		23		30	9
Elmira	45,305	5	1		12		2			
Fulton	13,043	2								
Geneva	14,648	4								
Hornell	15,025	2			25					
Hudson	11,745	2	1							
Ithaca	17,004	7							1	
Lackawanna	17,918	4	1				3			1
Lockport	21,308		1				1			
Mount Vernon	42,726	6	1	1	27		1		1	
Newburgh	30,366	8	1	1	50					1
New York	5,621,151	1,324	244	17	1,399	44	218	2	[1] 229	[1] 104

[1] Pulmonary tuberculosis only.

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

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

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
New York—Continued.										
Niagara Falls	50,760	11	1		49		11		1	3
North Tonawanda	15,482	4					2			1
Ogdensburg	14,609	10								1
Olean	20,506	6					1		1	
Peekskill	15,868	5							1	
Port Chester	16,573	3			17					
Rochester	295,750	68	7	1	125	5	1			3
Rome	26,341	11	3				1			3
Saratoga Springs	13,181	1								
Schenectady	88,723	21	2	1			1		2	2
Syracuse	171,717	47	19	1	4		7		6	2
Troy	72,013	28	1						1	1
Watertown	31,285	7					1			
Watervliet	16,073	4								1
White Plains	21,031	2			6					
Yonkers	100,226	16	2	1	42		8			1
North Carolina:										
Charlotte	46,338	25								2
Durham	21,719	9							1	1
Rocky Mount	12,742	6								2
Salisbury	13,884	5								
Wilmington	33,372	13			1					
Winston-Salem	48,395	14							5	1
North Dakota:										
Fargo	21,961	0								
Grand Forks	14,010						1			
Ohio:										
Akron	208,435	23	3		104		2		11	
Alliance	21,603	2			3					
Ashtabula	22,062	1								1
Barberton	18,811	3								
Bucyrus	10,425	1								
Cambridge	13,104	6	1		4					
Canton	87,091	18	1		14		1			1
Chillicothe	15,831	2								
Cincinnati	401,247	82	12		93	1	4		14	15
Cleveland	796,836	149	20	1	441	7	21	2	37	12
Cleveland Heights	15,236				15		1			
Columbus	237,031	46	2		37				6	3
Dayton	152,559	30	3		9		3		3	
East Cleveland	27,292	4			16					
Findlay	17,021	7								
Fremont	12,468	4								
Hamilton	39,675	12			1					
Kenmore	12,683				20					
Lancaster	14,706	7					1			1
Lima	41,306	4	1							
Mansfield	27,824	7	2	1					1	
Marion	27,891		1							
Martins Ferry	11,634	4			1					
Middletown	23,594	4								2
Newark	26,718	4			2		1			1
Niles	13,080	1	6						1	
Norwood	24,966	3	1		3		1		2	
Piqua	15,044	3								
Salem	10,305	3			17		1		1	1
Sandusky	22,897	5			1				2	1
Springfield	60,840	14	1						3	2
Steubenville	28,508	8							1	
Tiffin	14,375	5								
Toledo	243,109	44	19		120	1	2		7	5
Youngstown	132,358		3	1	39	1	1		4	2
Zanesville	29,569	6	3				2			1
Oklahoma:										
Oklahoma	91,258	15		1			4		11	2
Oregon:										
Portland	258,288	55	4	1					5	4
Pennsylvania:										
Allentown	73,502		2							
Altoona	60,331				2		1			
Berwick	12,181				21					

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

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

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Pennsylvania—Continued.										
Bethlehem	50,358		5		13				1	
Braddock	20,879		3		3					
Bristol	10,273				30		1			
Butler	23,778		1				1		1	
Canonsburg	10,632		1		2		1			
Carlisle	10,916		1		10					
Carnegie	11,516				1					
Carrick	10,504		2		1					
Chester	58,030				12		6		2	
Connellsville	13,804		1							
Duquesne	19,011				1					
Easton	33,813		2		8				6	
Erie	93,372		1		4		1		4	
Farrell	15,586						1			
Harrisburg	75,917				31		1			
Hazleton	32,277		1		4					
Homestead	20,452				1					
Jeannette	10,627				2					
Johnstown	67,327		4		59		2			
Lancaster	53,150		3				4		2	
Lebanon	24,643		1				2			
McKeesport	45,975		1		29					
McKee's Rocks	16,713		3		11					
Mahanoy City	15,599						1			
Monessen	18,179		1							
Nanticoke	22,614		1							
New Castle	44,938		1		14		1			
New Kensington	11,987				1					
Norristown	32,319		1							
North Braddock	14,928				2					
Oil City	21,274								2	
Olyphant	10,236								1	
Philadelphia	1,823,158	433	56	8	170	2	86	1	80	46
Pittsburgh	588,193		29		365		26		19	
Pittston	18,497				1					
Plymouth	16,500				1					
Pottsville	21,876		1		1					
Reading	107,784		1		52		2		4	
Scranton	137,783		3		8					
Shamokin	21,204				26					
Sharon	21,747				1					
Shenandoah	24,726				5					
Steelton	13,428						1			
Sunbury	15,721				2					
Swissvale	10,908		1		24					
Tamaqua	12,363				15					
Uniontown	15,692		1		2		1			
Washington	21,480		1				1			
West Chester	11,717		1		1					
Wilkes-Barre	73,833		2		15		4		2	
Wilkinsburg	24,403				23		2			
Williamsport	36,198		1		9		1			
York	47,512		1		1					
Rhode Island:										
Cranston	29,407	3								
Newport	30,255	4					3			
Pawtucket	64,248	9								
Providence	237,595	51	6		4		5			2
South Carolina:										
Charleston	67,957	24								3
Columbia	37,524		1						5	
Greenville	23,127	6								1
South Dakota:										
Sioux Falls	25,176	8								
Tennessee:										
Knoxville	77,818				5				3	3
Memphis	162,351	58	2		1		1		12	6
Nashville	118,342	33	1				4		11	5

CITY REPORTS FOR WEEK ENDED JUNE 3, 1922—Continued.

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

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Texas:										
Beaumont	40,422	7								
Corpus Christi	10,522	4							1	
Dallas	158,976	34	4	1	55		4		5	2
El Paso	77,543	46			1		3			12
Fort Worth	106,482	26	1		2		1		4	2
Galveston	44,255	12	1							2
Houston	138,076	45								2
Waco	38,500	4								
Utah:										
Provo	10,303	1								
Salt Lake City	118,110	24	7				1			1
Vermont:										
Burlington	22,779	4								
Rutland	14,954	8			1					2
Virginia:										
Alexandria	18,060	7								
Danville	21,539	7							2	
Lynchburg	29,956	4	1						1	
Norfolk	115,777						1		3	
Petersburg	31,002	12	1						1	
Portsmouth	54,387	18								2
Richmond	171,667	45			62	1	2		21	5
Roanoke	50,842	15	2							2
Washington:										
Everett	27,644		1							
Seattle	315,652		2		1		3		20	
Spokane	104,437		1		1		6			
Tacoma	96,965		1		2				2	
Yakima	18,539		1							
West Virginia:										
Bluefield	15,282	10	1							
Charleston	39,608	14	1							1
Clarksburg	27,869	5								
Fairmont	17,851		1							
Huntington	50,177	18								1
Martinsburg	12,515				2					
Moundsville	10,669	4			5		1			
Parkersburg	20,050	9								1
Wheeling	54,322	12	4		2		1		7	1
Wisconsin:										
Appleton	19,561		1							
Beloit	21,284	6								
Eau Claire	20,880		1				1			
Fond du Lac	23,427	7								
Green Bay	31,017		2							
Janesville	18,293	2								
Kenosha	40,472	6	3							
La Crosse	30,363				12		3			
Manitowoc	17,563		1							
Milwaukee	457,147		2		14		7		10	
Oshkosh	33,162	8								
Racine	58,593	4	1		2				3	1
Sheboygan	30,955		6				1		1	
Superior	39,624	7					2		1	
West Allis	13,765								2	
Wyoming:										
Cheyenne	13,829	6								

FOREIGN AND INSULAR.

SMALLPOX ON VESSELS.

Steamships "Bonna" and "Comeric"—Sydney, Australia.

Two cases of smallpox were reported landed at quarantine, Sydney, Australia, April 16 and 13, 1922, one case each occurring on the steamships *Bonna* and *Comeric* from Shanghai, China, via ports. The *Bonna* left Shanghai March 12, and Moji (Japan) March 26, 1922. On April 2 the vessel arrived at Guam with a case of mild smallpox on board in the person of an officer of the vessel. At Sydney 9 of the crew whose vaccinations were not satisfactory were landed at quarantine. The *Bonna* left Sydney April 19 with 22 members of the crew under surveillance.

The steamship *Comeric* left Shanghai for Newcastle, Australia, March 25, 1922. On April 8 smallpox developed in a Malay sailor. The vessel was ordered to proceed direct to Sydney, where the crew were vaccinated and the vessel was disinfected. On April 24 two of the crew were isolated for observation. The *Comeric* was released from quarantine April 19, 1922.

CHINA.

Plague—Foochow—April, 1922.

Plague was reported present at Foochow, China, during the month of April, 1922, with 21 cases and 12 deaths notified during the period April 16 to 29, and 13 cases with 9 deaths notified during the week ended April 22, 1922.

GREAT BRITAIN.

Foot and Mouth Disease—Birmingham.

Prevalence of foot-and-mouth disease among swine forwarded to market was reported, June 13, 1922, at Birmingham, England.

JAMAICA.

Alastrim.

During the period April 30 to May 27, 1922, 59 new cases of alastrim were reported in the Island of Jamaica.

Typhoid Fever—Kingston and Vicinity.

During the period under report 17 cases of typhoid fever were reported in Kingston, Jamaica, and 77 cases in the surrounding country.

MEXICO.

Plague-Infected Rodent—Tampico.

During the week ended June 10, 1922, 1 plague-infected rodent was reported found at Tampico, Mexico, making a total of 18 plague-infected rodents found at that place from January 1 to June 10, 1922.

Smallpox—Mexicali—May, 1922.

Information dated June 3, 1922, shows the prevalence of smallpox at Mexicali, Lower California, Mexico, during the month of May, 1922, with 100 reported cases and 15 deaths from the disease. The type of the disease was stated to be virulent.

VIRGIN ISLANDS.

Contagious Diseases—February, March, and April, 1922.[1]

The occurrence of contagious diseases in the Virgin Islands during the months of February, March, and April, 1922, has been reported as follows:

February, 1922.

Island and disease.	Cases.	Remarks.
In St. Thomas and St. John:		
Chancroid	1	
Dysentery	2	Unclassified.
Gonococcus infection	2	1 imported.
Measles	14	St. John, 4.
Syphilis	3	1 imported.
In St. Croix:		
Chancroid	1	
Filariasis	7	Bancrofti.
Gonococcus infection	1	
Syphilis	5	
Trachoma	60	
Tuberculosis	1	Chronic pulmonary.
Uncinariasis	1	Necator Americanus.

March, 1922.

Island and disease.	Cases.	Remarks.
In St. Thomas and St. John:		
Chancroid	5	1 imported.
Chicken pox	14	
Dengue	1	
Gonococcus infection	5	
Mumps	1	
Sprue	1	
Syphilis	2	1 imported.
Tuberculosis	1	Chronic pulmonary.
Uncinariasis	1	Necator Americanus.
In St. Croix:		
Chicken pox	5	
Dengue	4	
Gonococcus infection	3	
Filariasis	4	Bancrofti.
Schistosomiasis	2	
Syphilis	1	
Trachoma	6	
Tuberculosis	1	Chronic pulmonary.

[1] Public Health Reports, Mar. 17, 1922, p. 674.

April, 1922.

Island and disease.	Cases.	Remarks.
In St. Thomas and St. John:		
Chancroid	2	
Chicken pox	16	
Gonococcus infection	6	2 imported.
Measles	2	St. John, 1.
Trachoma	3	
Tuberculosis	3	St. John, 1. Chronic pulmonary.
In St. Croix:		
Chancroid	1	
Chicken pox	1	
Dysentery	4	Entamebic.
Filariasis	2	Bancrofti.
Gonococcus infection	3	
Syphilis	4	
Trachoma	71	

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

Reports Received During Week Ended June 23, 1922.[1]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy	Apr. 23–29			One suspect case.
India:				
Calcutta	Apr. 29–May 6	128	107	
Rangoon	Mar. 5–18	16	16	
Indo-China:				
Saigon	Apr. 2–22	9	9	
Siam:				
Bangkok	Apr. 16–29	5	3	

PLAGUE.

Ceylon:				
Colombo	Apr. 30–May 6	2		
China:				
Amoy	Apr. 24–May 6		24	
Foochow	Apr. 16–29	21	12	Apr. 3–15: Present.
Hongkong	June 4–10	66	35	Chinese, 65 cases, Hindu, one case; deaths, Chinese, 34; Hindu, 1. Missing reports received show: Apr. 23–May 13, cases, 322; deaths, 198.
India				Apr. 9–22, 1922: Cases, 4,049; deaths, 3,268.
Bombay	Apr. 9–15	52	45	
Calcutta	Apr. 30–May 6	16	16	
Karachi	May 7–13	58	40	
Rangoon	Mar. 5–18	318	228	
Indo-China:				
Saigon	Apr. 2–8	3	1	Apr. 16–22: One plague rat.
Java				Mar. 1–31, 1922: Including Island of Madoera—cases, 761; deaths, 785.
East Java—				
Soerabaya	Apr. 9–15	1	1	
Mexico:				
Tampico				June 4–10, 1922: 1 plague-infected rodent found.
Peru	Apr. 1–30	73	32	
Siam:				
Bangkok	Apr. 16–29	2	1	
Turkey:				
Constantinople	May 7–13		1	

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

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

Reports Received During Week Ended June 23, 1922—Continued.

SMALLPOX.

Place.	Date.	Cases.	Deaths.	Remarks.
Asia Minor:				
Smyrna	May 6-13	3		
Brazil:				
Para	May 22-28		1	
Rio de Janeiro	May 7-13	9	1	
Canada:				
British Columbia—				
Vancouver	May 21-27	1		
New Brunswick—				
Madawaska County	May 21-June 3	4		
Ontario—				
Hamilton	June 4-10	3		
Niagara Falls	do	1		
Quebec—				
Montreal	May 21-27	35	24	
Ceylon:				
Colombo	Apr. 23-29	2		
China:				
Amoy	do		1	Apr. 30-May 6, 1922: Present.
Canton	Apr. 1-30			Present.
Chungking	Apr. 30-May 6			Do.
Hankow	Apr. 30-May 13	2	1	
Harbin	Apr. 17-May 7	2		Manchuria.
Hongkong	Apr. 23-May 13	40	33	
Mukden	Apr. 14-May 6			Manchuria: Present.
Shanghai	May 1-7		1	Chinese.
Tsingtau	Apr. 30-May 7	2	1	
Chosen (Korea):				
Fusan	Apr. 1-30	88	30	
Seoul	do	7	3	
Cuba:				
Matanzas	May 1-10	1		
Dominican Republic:				
San Pedro de Macoris	May 7-13			In city and vicinity, 57 cases present; 2 deaths.
Santo Domingo	May 27-June 3	6	6	
Egypt:				
Port Said	May 14-20	1		
Great Britain:				
Nottingham	May 7-20	4		
India:				
Bombay	Apr. 9-15	4	2	
Calcutta	Apr. 30-May 6	28	24	
Karachi	May 7-13	14	8	
Rangoon	Mar. 5-18	13	2	
Indo-China:				
Saigon	Apr. 2-22	11	8	
Java:				
West Java—				
Batavia	Apr. 21-27	6		Province.
Mexico:				
Manzanillo	May 23-29	4	1	
Mexicali	May 1-31	100	15	
Portugal:				
Lisbon	May 14-20	17	1	
Spain:				
Seville	Apr. 23-May 20		50	
Valencia	May 6-13	1		
Syria:				
Aleppo	Apr. 30-May 20			Present.
Turkey:				
Constantinople	May 6-20	7	2	
Union of South Africa:				
Cape Province	Apr. 2-15			Outbreaks.
Natal	do			Do.
Southern Rhodesia	Apr. 20-May 10	45		
Transvaal	Apr. 2-8			Do.
On vessels:				
S. S. Bonna	Apr. 16	1		At Sydney from Shanghai and Moji. Case developed en route to Guam. Vessel released at Sydney, Apr. 19.
S. S. Comeric	Apr. 13	1		At Sydney from Shanghai. Case occurred in Malay sailor. Vessel released at Sydney, Apr. 19.

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

Reports Received During Week Ended June 23, 1922—Continued.

TYPHUS FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Bulgaria:				
Sofia	May 14-20	2		
China:				
Harbin	Apr. 17-30	5		Manchuria.
Czechoslovakia:				
Prague	May 7-13	1		
Egypt:				
Alexandria	May 14-20	2		
Hungary:				
Budapest	May 7-13		1	
Portugal:				
Oporto	May 21-27	2	1	
Rumania:				
Galatz	Apr. 1-30	1		
Spain:				
Seville	May 8-14		1	
Tunis:				
Tunis	May 21-27	1	1	
Turkey:				
Constantinople	May 7-20	16		
Union of South Africa:				
Cape Province	Apr. 9-15			Outbreaks.
Transvaal—				
Johannesburg	Mar. 1-31	2	4	

Reports Received from December 31, 1921, to June 16, 1922.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India				Oct. 2-Dec. 31, 1921: Deaths, 37,749. (Corrected report.) Jan. 1-Feb. 11, 1922: Deaths, 4,324.
Bombay	Oct. 30-Nov. 5	1		
Do	Jan. 29-Apr. 1	2	1	
Calcutta	Oct. 23-Dec. 31	71	60	
Do	Jan. 1-Apr. 22	734	616	
Karachi	Nov. 6-12		1	
Madras	Dec. 11-31	4	1	
Do	Jan. 1-Apr. 8	15	9	
Rangoon	Oct. 1-Dec. 31	30	24	
Do	Jan. 1-Apr. 22	87	67	
Indo-China:				
Saigon	Nov. 6-12	1	1	
Do	Jan. 29-Mar. 18	34	30	Including 100 km. surrounding country
Java:				
West Java—				
Batavia	Nov. 1-7	2	2	At Lebak
Philippine Islands:				
Manila	Nov. 13-Dec. 31	49	18	
Do	Jan. 1-Apr. 15	84	28	
Province—				
Bulacan	Dec. 25-31	1		
Do	Feb. 12-Mar. 11	3	3	
Cavite	Jan. 1-7	1	1	
Cebu	Jan. 8-14	1		
Pampanga	Dec. 25-31	1		
Rizal	Jan. 15-28	18	12	
Zambales	Dec. 11-31	31	18	
Do	Jan. 1-7	5	4	
Poland				Aug. 14-Sept. 10, 1921: Cases, 4; deaths, 1.
Warsaw	Jan. 29-Feb. 25	1		
Russia				Including the Ukraine; outbreaks reported, May 2, 1922. Present.
Kharkoff	Jan. 28			
Kief	Dec. 15-Jan. 11	259		
Lettonia—				
Riga				At quarantine station in October, 1921; 1 case.

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Russia—Continued.				
Lithuania				Present, Feb. 19, 1922, with 30 cases and mortality of 33 per cent, Kovno and vicinity.
Odessa	Jan. 28			Present.
Siam:				
Bangkok	Oct. 23–Dec. 24	8	4	
Do	Jan. 29–Apr. 8	14	6	Corrected report.
Syria				Apr. 16–22, 1922: Reported present in interior cities.

PLAGUE.

Asia Minor:				
Smyrna	Nov. 27–Dec. 3	1	1	
Do	Apr. 9–15	1		
Australia:				
New South Wales—				
Sydney	Nov. 27–Dec. 3	2	1	Dec. 7–13, 1921: 4 plague rats.
Do	Jan. 29–Apr. 29	15	2	Jan. 15–21, 1922: 1 plague rat.
Queensland—				
Aramac	Mar. 19–25	1	1	Inland town on railroad about 150 miles from coast.
Brisbane	Oct. 30–Dec. 31	27	20	Total, Aug. 22–Dec. 31, 1921: Cases, 41; deaths, 27. Total infected rats, 54. Total cases,
Do	Jan. 1–Mar. 18	10		Jan. 1–Apr. 29, 1922: 10. Total infected rats, 17.
Bundaberg	Mar. 5–11	1		
Cairns	Oct. 30–Dec. 31	6	3	Plague rats, 9.
Do	Jan. 1–7		1	Pestis minor.
Cooktown	Oct. 30–Nov. 5	1		
Ingham				Nov. 6–Dec. 24, 1921: Plague rats, 14. Jan. 1–14, 1922: 2 plague rats.
Inisfail				Nov. 27–Dec. 3, 1921: 1 plague rat.
Ipswich	Dec. 11–17	1	1	
Port Douglas	Nov. 13–19	1	1	
Townsville	Nov. 20–Dec. 3	2	2	Total cases, 27; deaths, 18.
Do	Jan. 1–14		2	To Jan. 14, 1922: Cases, 32; deaths, 21.
Azores:				
Islands—				
Fayal	Jan. 16–22	2	2	
Horta	Feb. 2–8	4	2	
St. Michael				Nov. 27–Dec. 31, 1921: Cases, 23; deaths, 9. Jan. 1–May 6, 1922: Cases, 91; deaths, 54; occurring at localities 3 to 9 miles from port of Ponta Delgada.
Arrifes	Dec. 25–31	1	1	3 miles from port.
Do	Jan. 1–7	1		
Fenaes d'Ajuda	Nov. 27–Dec. 3			Present. 6 miles from port.
Do	Jan. 15–21	3	2	
Ribeira Grande	Nov. 13–Dec. 10	19	8	9 miles from port.
Do	Jan. 8–14	9	6	
Livramonto	Dec. 4–10	2		Vicinity of Ponta Delgada.
Ponta Delgada	do	1		
Brazil:				
Bahia	Oct. 30–Dec. 31	13	12	
Do	Jan. 1–Mar. 25	16	12	
Para	Feb. 6–12		1	
Pernambuco	Feb. 26–Mar. 4	1	1	
Porto Alegre	Feb. 12–18	3	2	
Rio de Janeiro	Jan. 22–28	1	1	
British East Africa:				
Uganda	Aug. 1–Dec. 31	256	229	Aug. 1–Oct. 31, 1921: Reports of inspectors, deaths, 343; reports of chiefs, deaths, 651.
Do	Jan. 1–31	57	56	
Kenya Colony—				
Nairobi	Apr. 2–8	2	2	
Cape Verde Islands:				
St. Vincent	Mar. 16			Present. No plague mortality reported during previous 5-month period. August, 1921: Cases, 6; deaths, 3.

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Ceylon:				
Colombo	Oct. 30-Dec. 31	13	10	Oct. 30-Dec. 24, 1921: Rodent plague, 6.
Do	Jan. 1-Apr. 15	31	29	Infected rats, 12.
Chile:				
Antofagasta				Mar. 5-11, 1922: 1 plague rat.
China:				
Amoy	Feb. 18-Mar. 4			Present in surrounding country.
Hongkong	Nov. 20-Dec. 17	6		Apr. 16-22, 1922: Deaths, 7.
Do	Jan. 1-May 27	817	456	
Ecuador:				
Guayaquil	Nov. 16-Dec. 31	18	6	Rats examined, 2,958; found infected, 90. Total, July-Dec. 15, 1921: Cases, 28. Jan. 1-May 15, 1922: Rats examined, 27,000; found infected, 747.
Do	Jan. 1-Apr. 15	43	15	
Naranjito	Mar. 1-15	1		
Egypt				Jan. 1-Dec. 31, 1921: Cases, 356; deaths, 153. Jan. 1-May 11, 1922: Cases, 126; deaths, 55.
City—				
Alexandria	Dec. 5-30	7	2	Feb. 12-18, 1922: 1 plague rodent.
Do	Jan. 17-May 7	17	11	Mar. 12-16, 1922: 1 case, 1 death.
Port Said	Dec. 20	1		
Do	Mar. 15-May 6	3	4	Septicemic, 3 cases, 3 deaths.
Suez	Nov. 22-Dec. 31	16	9	
Do	Jan. 2-May 11	22	9	
Province—				
Assiout	Mar. 25-May 9	6	6	Septicemic.
Assouan	Feb. 28	1	1	Do.
Benisouef	Apr. 24-May 8	6	1	
Fayoum	Feb. 17-Mar. 10	7	2	
Gharbieh	Feb. 17-May 11	15	2	
Girgeh	Jan. 12-Mar. 30	5		Do.
Keneh	Dec. 1	1		Do.
Do	Jan. 21-Feb. 28	5	3	Pneumonic, 1 case, 1 death; septicemic, 1 case.
Minieh	Feb. 21-May 11	8	4	Septicemic.
France:				
Dunkirk	Mar. 24		1	In hospital, from steamship City of Genoa, from Bombay.
Great Britain:				
Liverpool				Mar. 31, 1922: Finding of 3 plague-infected rats reported in warehouse in which material from steamship Warwickshire was stored.[1]
Greece:				
Preveza	Feb. 8			Outbreak. Port on the Ionian sea.
India				Oct. 23-Dec. 31, 1921: Cases, 11,229; deaths, 8,465. Jan. 1-Apr. 8, 1922: Cases, 35,739; deaths, 28,219.
Bombay	Oct. 23-Dec. 24	7	6	
Do	Jan. 1-Apr. 8	273	216	
Calcutta	Jan. 29-Apr. 22	65	62	Corrected report.
Karachi	Nov. 6-Dec. 31	5	5	
Do	Jan. 1-May 6	651	509	
Madras	Dec. 11-17	1		
Madras Presidency	Nov. 13-Dec. 31	2,047	1,438	
Do	Jan. 1-May 6	4,262	2,973	
Rangoon	Oct. 1-Dec. 31	139	129	
Do	Jan. 1-Apr. 22	608	557	
Indo-China:				
Saigon				Nov. 6-Dec. 24, 1921: Rodent plague, 10. Jan. 8-Mar. 18, 1922: Rodent plague, 12.
Italy:				
Catania	Nov. 27	1	1	Total, Oct. 16-Nov. 27, 1921: Cases, 8 (of which 1 doubtful); deaths, 5. Jan.-Feb., 1922; 28 plague-infected rats found.
Naples (Province)—				
Torre Annunziata	Oct. 22-Dec. 27	2		17 miles from city of Naples.
Venice	Oct. 27	1		

[1] Public Health Reports, Mar. 31, 1922, p. 784.

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Java				Islands of Java and Madoera: Nov. 1-Dec. 31, 1921: Deaths, 1,781. Jan. 1-Feb. 28, 1922; Deaths, 2,571.
East Java—				
Semerang—				
Koedoes district	Apr. 11			Epidemic.
Soerabaya	Oct. 30-Dec. 10	11	12	
Do	Jan. 1-Mar. 25	16	16	
Soerakarta—				
Karangnonka dist.	Apr. 11			Epidemic.
Kemalang district	do			Do.
Madagascar:				
Tamatave	Feb. 6-12	1	1	
Tananarive	Jan. 23-Feb. 19	16	55	Bubonic, pneumonic, and septicemic, Nov. 23, 1921-Feb. 27, 1922: Cases, 49; deaths, 30.
Mauritius (Island)				Jan. 23-Feb. 16, 1922: Cases, 13; deaths, 3.
Port Louis	Oct. 29-Dec. 30	241	142	Plague-infected rats, 176; plague-infected cats, 36. (Corrected report.) Dec. 1-30, 1921: Dead rats found, 155; dead cats, 4.
Do	Dec. 31-Jan. 22	16	6	Dead rats found, Dec. 31, 1921-Jan. 11, 1922, 17.
Mesopotamia:				
Bagdad	Oct. 1-31	1	1	
Do	Feb. 1-Mar. 31	3	2	
Mexico:				
Tampico				Dec. 18-31, 1921: Infected rodents found, 5; total, Jan. 1-Dec. 3, 1921, infected rodents, 322. Jan. 1-May 20, 1922, 17 plague-infected rodents.
Vera Cruz				One infected rodent caught Dec. 5, 1921. Apr. 4-28, 1922: 3 infected rodents found.
Peru				Nov. 17-Dec. 31, 1921: Cases, 94; deaths, 35. Occurring in Callao, Huacho, Huaras, Lima, Magdalena Vieja, Paita, Salaverry, and Sechura. Jan. 1-Feb. 28, 1922: Cases, 141; deaths, 62. (Corrected report to Feb. 15, 1922.) Mar. 16-31, 1922: Cases, 28; deaths, 14.
Localities—				
Bambamarca	Jan. 1-15			Present. Rural.
Barranco	Jan. 16-31	1		
Callao	Jan. 1-Feb. 28	7	4	Rural. Year, 1921: Deaths, 30.
Casma	Feb. 1-28	11	3	
Chiclayo	Jan. 16-Feb. 28	19	16	
Chilca	Jan. 16-Feb. 15	11	2	
Cutervo	Jan. 1-15	1		Rural.
Guadalupe	Jan. 1-31	7	2	
Huacho	Jan. 1-Feb. 15	3		
Hualgayoc	Jan. 16-31			Province. Present.
Huaral	Jan. 1-15	2		
Jayanca	do			Present.
Lambayeque	Jan. 16-Feb. 15	3	1	
Lima	Jan. 1-Feb. 28	14	4	In district, 20 cases, 6 deaths.
Mollendo	Feb. 1-28	3		
Pacasmayo	do	1		
Payta	Jan. 1-Feb. 28	28	21	
Piura	Feb. 1-15	1		
Salaverry	Jan. 16-31	1		
San Pedro	Jan. 1-15	1		
Sullana	Jan. 1-Feb. 28	3	3	
Trujillo	Feb. 1-15			Present.
Tumbez	do	4		
Portugal:				
Lisbon	Dec. 15	1	1	
Do	Feb. 1-28	6		Pneumonic; occurring in one family.

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Portuguese West Africa:				
Angola—				
Loanda	Oct. 9–Nov. 5		2	
Do	Jan. 29–Feb. 4		2	
Mossamedes	Feb. 14			Present. In vicinity Mar. 1-22, 1922: Cases, 11. No cases reported in city since Feb. 28, 1922.
Rhodes (Island) (Aegean Sea)	Oct. 13	3	1	
Senegal:				
Dakar	Jan. 1–Mar. 31	4	1	
Siam:				
Bangkok	Oct. 23–Dec. 31	7	6	
Do	Jan. 8–Apr. 15	45	34	
Straits Settlements:				
Singapore	Nov. 6–Dec. 31	3	3	
Do	Jan. 15–Apr. 15	42	22	
Syria:				
Beirut	Oct. 9–Nov. 20	10	4	
Do	Mar. 27–Apr. 23	4		
Turkey:				
Constantinople	Jan. 1–7	1		Mar. 26–Apr. 1, 1922: One death.
Union of South Africa:				
Orange Free State—				
Boschrand farm	Jan. 15	3	3	10 miles from Kroonstad.
Bothaville	Nov. 19			Plague-infected mouse found.
Geluksfontein farm	Feb. 25			Plague mortality among rodents.
Granville farm	Mar. 1–15	4	4	Winburg district, vicinity of Ventersburg Road Station.
Hoopstad	Dec. 4–10	1		In native herd boy.
Klipfontein farm	Feb. 10	1	1	12 miles from Bothaville. Plague infection found in rats on adjoining farm, week ended Feb. 4, 1922.
Rietfontein farm	Feb. 17			Plague-infected squirrel found.
On vessels:				
S. S. City of Genoa	Mar. 9–15	4	2	At Suez and Port Said, Egypt, from Karachi and Bombay, India, for Plymouth, England. One fatal case at sea en route to Suez; 1 case on arrival. At Port Said, 2 cases, of which 1 fatal. At Dunkirk, France, Mar. 24, 1922: Several cases on arrival; 1 fatal case in hospital at Dunkirk.
S. S. Elpenor	Apr. 16–May 6			At Liverpool, England, from oriental ports; 1 plague rat, 1 plague mouse.
S. S. Polycarp	Feb. 3	1		At Para, Brazil, from Ceara, via Manaos, Maranham, and Para for New York.
S. S. Tango Maru	Dec. 31	1		At Thursday Island Quarantine, Australia, from Kobe, via Nagasaki, Hongkong, Manila, and Zamboanga.
S. S. Warwickshire	Feb. 12			At Liverpool, England, from Rangoon. Plague rats, 27; 1 plague mouse.

SMALLPOX.

Algeria:				
Algiers	Jan. 1–Mar. 31	4		
Arabia:				
Aden	Dec. 25–31		1	
Do	Jan. 8–May 6		6	
Asia Minor:				
Kovlitza	Apr. 23–29	27		Interior.
Panderma	....do	2		Do.
Smyrna	Jan. 15–Apr. 15	9		In district.
Bolivia:				
La Paz	Aug. 1–Dec. 31	60	41	
Do	Jan. 1–Feb. 28	32	21	

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Bahia	Nov. 6-Dec. 17	4		
Do	Jan. 8-Feb. 4	2		
Pernambuco	Apr. 2-8	1		
Rio de Janeiro	Nov. 13-Dec. 31	13	2	
Do	Jan. 1-May 6	83	28	
Santos	Feb. 20-26		1	
Sao Paulo	Oct. 31-Dec. 25	11		
Do	Dec. 26-Jan. 8	2		
British East Africa:				
Kenya Colony—				
Nairobi	Mar. 26-Apr. 20	9		
Uganda	Aug. 1-Dec. 31	33	6	
Do	Jan. 1-31	36	3	
Canada:				
British Columbia—				
Vancouver	Dec. 25-31	3		
Do	Jan. 29-Feb. 4	1		
Victoria	Mar. 12-18	1		
Manitoba				Year 1921: Cases, 71.
Winnipeg	Nov. 20-Dec. 3	2		
Do	Apr. 2-8	3		
New Brunswick—				
Charlotte County				Dec. 17, 1921: 31 cases occurrin at Andersonville and Blacks Harbor. Dec. 18-24, 1921: Cases, 3. Dec. 25-31, 1921: Cases, 2. Feb. 19-May 13, 1922: Cases, 3.
St. Stephen	Dec. 11-17	2		
Madawaska County	Apr. 30-May 13	5		
Restigouche County				Dec. 11-31, 1921: Cases, 3. Feb. 12-25, 1922: Cases, 4.
Charlo	Feb. 19-25	2		20 miles from Campbellton.
Westmoreland County	Mar. 5-Apr. 1	22		
York County	Dec. 11-17	1		
Do	Jan. 29-Feb. 4	1		
Ontario				Dec. 1-31, 1921: Cases, 128. Jan. 1-31, 1922: Cases, 170. Feb. 1-Apr. 30, 1922: Cases, 377.
Fort William and Port Arthur	Jan. 1-21	3		
Hamilton	Jan. 22-Mar. 25	4		
Kingston	Jan. 17-Feb. 11	5		Jan. 16-20, 1922: Two cases reported.
Niagara Falls	Dec. 11-24	2		
Do	Jan. 15-June 3	53		Feb. 19-25, 1922: Cases, 6.
North Bay	Feb. 12-May 13	4		
Ottawa	Dec. 11-24	17		
Do	Jan. 1-June 3	60		
Sault Ste. Marie	Jan. 15-21	1		
Toronto	Dec. 11-24	4		
Do	Jan. 1-June 3	122		
Windsor	Jan. 8-Mar. 4	3		
Quebec—				
Montreal	Dec. 11-24	1		
Saskatchewan—				
Regina	Jan. 1-Feb. 11	4		
Saskatoon	Dec. 1-18	6		
Do	Feb. 5-18	3		
Canal Zone:				
Ancon				Admitted to hospital by transfer from Panama, Nov. 30, 1921, 1 case. Arrived on sailing vessel from a village on south coast.
Ceylon:				
Colombo	Nov. 27-Dec. 3	1		Port case.
Do	Jan. 29-Apr. 22	9		One port case.
Chile				Jan.-Sept., 1921: Cases, 5,500 (approximately); deaths, 2,500 (approximately). Nov. 15-21, 1921: Diffused in southern Provinces; not epidemic.
Concepcion	Nov. 23-Dec. 26		25	Nov. 15-21, 1921: Present. In vicinity at Hualqui, cases, 32; deaths, 5. Dec. 4-17, 1921: Present.
Do	Dec. 27-Mar. 13		42	
Coronel	Nov. 15-Dec. 17			Present.
Curanilahue	Nov. 15-21	4		
Lota				Oct. 28, 1921-Jan. 31, 1922: Cases, 879; deaths, 338.

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Chile—Continued.				
Ollague	Mar. 12-25	1		Reported Mar. 16.
Osorno				From beginning of outbreak to Feb. 15, 1922: Cases, 87.
Talcahuano	Nov. 15-Dec. 24	6		Jan. 8-28, 1922. Present.
Do	Jan. 29-Feb 18	5		From beginning of outbreak to Feb. 15, 1922: Cases, 122.
Temuco	Nov. 15-21	9		
Valparaiso	Oct. 23-Dec. 31		91	
Do	Jan. 1-Mar. 25		39	
China:				
Amoy	Nov. 16-Dec. 31		7	Nov. 23-29, 1921: Present. Jan. 22-28, 1922: Present.
Do	Jan. 1-Apr. 22		22	
Antung	Nov. 28-Dec. 18	4	1	
Do	Mar. 19-26	1		
Canton	Dec. 1-31			Present.
Do	Feb. 1-Mar. 31			Do.
Changsha	Jan. 16-22	1		
Chungking	Nov. 6-Dec. 31			Do.
Do	Jan. 1-Apr. 22			Do.
Dairen	Mar. 13-Apr. 9	3		Manchuria.
Foochow	Nov. 6-Dec. 31			Present.
Do	Jan. 1-Apr. 1			Do.
Hankow	Nov. 13-Dec. 31			Do.
Do	Jan. 1-21	2		
Harbin	Nov. 14-Dec. 11	5		
Do	Dec. 26-Apr. 16	7		Manchuria.
Hongkong	Dec. 3-31	5		
Do	Jan. 1-Apr. 22	108	81	
Mukden	Nov. 20-Dec. 31			Manchuria. Present.
Do	Jan. 15-Apr. 15			Do.
Nanking	Nov. 20-Dec. 17			Present.
Do	Jan. 15-Apr. 22			Do.
Shanghai	Oct. 31-Dec. 31	23	194	Cases, foreign; deaths, Chinese and foreign. Population: Native, 790,000; foreign, 24,000. Corrected report.
Do	Jan. 2-Apr. 30	35	510	Cases, foreign; deaths, native. Jan. 14, 1922: Seriously prevalent.
Tientsin	Dec. 11-17	2		In Mission Hospital.
Tsingtau	Jan. 1-Apr. 9	38	14	
Chosen (Korea):				
Fusan	Dec. 1-31	3	1	
Do	Jan. 1-Apr. 30	214	59	
Gensan	Feb. 1-28	1		
Seoul	Jan 1-Mar. 31	12	5	
Colombia:				
Cartagena	Nov. 22-28		1	
Santa Marta	Feb. 19-25			Present.
Cuba				Dec. 4-31, 1921: Cases, 361. Jan. 1-31, 1922: Cases, 257.
Antilla	Dec. 12-31	3		At Preston.
Do	Jan. 8-Feb. 4	13	1	
Cienfuegos	Jan. 22-May 13	15	1	Two cases from outside city limits. Apr. 16-22, 1922: Cases 6, found at Senado, about 25 miles distant.
Matanzas				In Province, Apr. 16-30, 1922.
Nuevitas	Apr. 10-16	3		
Santiago	Jan 1-May 31	21	1	
Dominican Republic				Oct. 1-31, 1921: Cases, 653; deaths, 54. Jan. 2-Feb. 4, 1922: Cases, 6,922; deaths, 185. May 14-20, 1922: Cases, 258; deaths, 22.
Puerto Plata	Jan. 13	100	5	In district, widely diffused, with 1,000 estimated cases, with 100 deaths.
San Pedro de Macoris	Nov. 20-Dec. 31	31	1	Estimate of about 500 cases of smallpox in the district of Macoris: of these, 50 within the city limits.
Do	Jan. 14-May 20	250	9	Including vicinity. In surrounding country, Feb. 15-25: 66 cases. Feb. 23-Apr. 1: About 60 cases; Apr. 30, 75 cases; May 6-13: 63 cases (estimated) present.

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Dominican Republic—Contd.				
Santo Domingo	Nov. 15–Dec. 5			In district, 401 cases, estimated. Dec. 17–24, 1921: Present in vicinity. Jan. 9–16, 1922: In surrounding country, 1,745 cases (estimated). Mar. 19–Apr. 1. 1922: About 20 cases, with 1 death, in surrounding country.
Do	May 14–20	72		Apr. 2–15, 1922: Cases, 25; deaths, 8. Apr. 23–29: Cases, 29; deaths, 4. Apr. 30–May 6, 1922: Present, with 4 reported deaths.
Ecuador:				
Guayaquil	Nov. 16–Dec. 3	7		And vicinity.
Do	Jan. 1–Apr. 15	5		
Egypt:				
Alexandria	Nov. 26–Dec. 2	1	1	
Cairo	do	2		
Port Said	Dec. 20–26	1		Dec. 16–23, 1921: 1 case.
Do	Jan. 22–Apr. 29	2		
Finland				Nov. 16–30, 1921: 1 case.
Do				Feb. 4–15, 1922: Cases, 19. Mar. 1–Apr. 30, 1922: Cases, 38.
Fiume				Dec. 27, 1921–Jan. 2, 1922: Cases, 2.
France:				
Bordeaux	Mar. 31–Apr. 6		1	
Great Britain:				
Liverpool	May 14–20	2		One case from vessel and one contact.
Manchester	Jan. 1–7	4		
Nottingham	Dec. 4–31	18		
Do	Jan. 8–May 6	15		
Sheffield	Apr. 23–29	3		
Swansea	Jan. 17–23	2		Imported on vessel from Persian Gulf.
Greece:				
Saloniki	Mar. 19–Apr. 9	14	9	
Haiti				Jan. 22–May 6, 1922: Present.
Cape Haitien	Dec. 11–24	8		
Do	Jan. 1–Feb. 18	21	1	
Port au Prince	Dec. 11–31			Present.
Do	Jan. 15–21	2		
India				Oct. 2–8, 1921: Deaths, 28. Oct. 23–Nov. 19, 1921: Deaths, 266. Nov. 27–Dec. 31, 1921: Deaths, 533. Jan. 1–28, 1922: Deaths, 700. Mar. 29–Feb. 11, 1922: Deaths, 540.
Bombay	Oct. 23–Dec. 31	3	2	
Do	Jan. 1–Apr. 8	43	15	
Calcutta	Nov. 13–Dec. 31	37	28	
Do	Jan. 1–Apr. 22	430	297	
Karachi	Nov. 11–Dec. 31	28	9	
Do	Jan. 1–May 6	306	178	
Madras	Nov. 13–Dec. 31	183	59	
Do	Jan. 1–May 6	1,709	615	
Rangoon	Oct. 1–Dec. 31	6		
Do	Jan. 15–Apr. 22	110	8	
Indo-China:				
Saigon	Dec. 18–24	1	1	City and district.
Do	Jan. 8–Mar. 18	17	8	Do.
Italy:				
Catania	Feb. 20–26	1		In Province.
Genoa	Nov. 10–20	1		
Messina—				
Messina	Nov. 28–Dec. 4	1		
Pettino	Nov. 14–Dec. 4	2		
Venice	Jan. 30–Feb. 5	2		
Japan:				
Kobe	Jan. 23–Apr. 30	2	2	
Nagasaki	Mar. 13–Apr. 30	2		
Taiwan Island	Dec. 1–31	2	1	
Do	Feb. 14–Mar. 10	2	1	
Yokohama	Jan. 9–Apr. 23	4		Corrected report.
Java:				
East Java—				
Soerabaya	Jan. 1–7	4		

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Java—Continued.				
West Java—				
Bandoeng	Nov. 18–Dec. 8	2		
Batavia	Nov. 18–Dec. 22	11	9	City and Province.
Do	Dec. 30–Apr. 20	7	4	In Province: Cases, 23; deaths, 4; 13 cases, with 3 deaths, not locally stated. Feb. 3–Mar. 30, 1922: Cases, 21; deaths, 5.
Buitenzorg	Nov. 25–Dec. 8	7	1	
Krawang	Nov. 18–24	1		
Lebak	Nov. 18–Dec. 8	7	4	
Pandeglang	Nov. 25–Dec. 1		1	
Tangerang	Nov. 18–Dec. 8	5	1	
Liberia:				
Grand Bassa County	Nov. 30			Present at Lower Buchannan.
Mesopotamia:				
Bagdad	Oct. 1–Nov. 30	117	50	Epidemic, with high mortality, November, 1921.
Do	Feb. 1–28	6	4	
Mexico:				
Chihuahua	Dec. 5–11		1	
Do	Jan. 23–Feb. 19		2	
Guadalajara	Nov. 1–Dec. 31	6		
Do	Jan. 1–Apr. 30	41	7	
Manzanillo	Apr. 25–May 1		1	
Mexico City	Nov. 20–Dec. 31	64		Including municipalities in Federal District.
Do	Jan. 1–Apr. 22	312		Do.
Monterey	Apr. 12		2	Epidemic. Apr. 28, estimated about 16 deaths daily. Apr. 25–May 1, 1922: 9 deaths, in children. May 10–16, 2 deaths.
Saltillo	Jan. 29–May 6		9	From San Salvador, Zacatecas, 1; from Tampico, 1.
San Luis Potosi	Dec. 18–24		2	
Do	Jan. 8–May 20		20	
Torreon	Dec. 1–31		134	
Do	Jan. 1–Feb. 28		82	
Newfoundland:				
St. John	Feb. 4–10	1		
Nicaragua:				
Managua	Mar. 5			Present.
Palestine:				
Jerusalem	Jan. 10–Feb. 20	27		
Panama:				
Bocas del Toro Province—				
Susuba	Jan. 18–Feb. 8	11		Village 24 miles from Almirante.
Chiriqui Province	Dec. 22			Present.
Do	Jan. 26			Present with center of prevalence at Boquete Bajo. At Boquete Bajo, Jan. 22–Mar. 23, 1922, 59 admissions to lazaretto. On Mar. 20, 1922, 16 cases of smallpox, confluent type.
Panama	Dec. 14	1		On Dec. 21, 1921, 1 additional case from country district of Sabanas admitted to hospital. Total admissions, Jan. 1–Dec. 21, 1921, 207.
Do	Apr. 26–May 11	2		1 case imported May 11 from Chiriqui Province.
Persia:				
Teheran				May 22–Nov. 22, 1921: Deaths, 23.
Peru:				
Lima	Nov. 1–Dec. 31		3	
Poland				Aug. 14–Dec. 31, 1921: Cases, 578; deaths, 146. Jan. 1–Mar. 25, 1922: Cases, 677, deaths, 182. Exclusive of Brest-Litovsk, Minsk, and Wilno districts.
Silesia	May 2			Epidemic.
Portugal:				
Lisbon	Nov. 13–Dec. 31	48	12	
Do	Jan. 1–May 13	215	9	1 death in January, 1 in February, 7 deaths in March.
Portuguese East Africa:				
Lourenco Marques	Oct. 1–Nov. 5	2	4	
Portuguese West Africa:				
Angola—				
Loanda	Oct. 9–Dec. 31		7	
Do	Jan. 1–Mar. 25		6	

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Rumania:				
Bucharest	Nov. 1–30		33	
Cahul	Jan. 1–31	1		District.
Chisinau	Dec. 1–31	33		Do.
Do	Feb. 1–28	17		Do.
Russia:				
Esthonia	Oct. 1–Dec. 31	38		
Do	Feb. 1–Mar. 31	7		
Lettonia	do	75		Name of country officially changed from Latvia to Lettonia.
Do	Jan. 1–Feb. 28	38		
Senegal:				
Dakar	do	5	3	
Serbia:				
Belgrade	Oct. 2–Nov. 26	16	4	
Siam:				
Bangkok	Oct. 23–Nov. 5	1		
Do	Mar. 19–25	1		
Siberia:				
Vladivostok	Feb. 22–Mar. 31	3	1	
Spain:				
Barcelona	Jan. 8–14		1	
Corunna	Apr. 2–May 6		2	
Huelva	Oct. 1–Dec. 31		3	
Do	Jan. 1–Mar. 31	1	3	
Malaga	Nov. 1–Dec. 31		60	
Do	Jan. 1–31		8	
Seville	Nov. 16–Dec. 31		7	
Do	Jan. 8–Apr. 20		82	
Valencia	Jan. 27–Mar. 25	5	1	Mar. 9–15, 1922: One case.
Straits Settlements:				
Singapore	Nov. 6–Dec. 24	49	13	
Do	Jan. 1–Apr. 22	223	47	
Switzerland:				
Glarus, Canton	Dec. 10			Epidemic.
Lucerne	Feb. 1–28	12		
St. Gall	Feb. 12–18	1		
Zurich	Dec. 10	2		In vicinity.
Do	Mar. 12–Apr. 8	6		Apr. 1–30: Cases, 38.
Syria:				
Adana	Dec. 18–24			Present.
Do	Jan. 1–14			Do.
Aleppo	Dec. 18–24			Do.
Do	Jan. 1–Apr. 15			Do.
Alexandretta	do			Do.
Beirut	Oct. 9–Nov. 13	5	2	
Do	Jan. 8–Apr. 16	25	11	Dec. 29, 1921–Jan. 4, 1922: Cases, 14; deaths, 2.
Cilicia	Jan. 8–Feb. 4			Present.
Diarbekir	Dec. 18–24			Do.
Do	Jan. 1–Feb. 4			Do.
Mersina	Dec. 18–24			Do.
Do	Jan. 1–7			Do.
Urfa	Dec. 18–24			Do.
Do	Jan. 1–Feb. 4			Do.
Tunis:				
Tunis	Nov. 26–Dec. 23	17	15	
Do	Jan. 1–Apr. 8	4	6	
Turkey:				
Constantinople	Nov. 27–Dec. 24	20	4	
Do	Jan. 15–May 6	151	30	
Union of South Africa				Nov. 1–Dec. 31, 1921: Cases, 342; deaths, 6 (colored); white, 10 cases. Jan. 1–Feb. 28, 1922: Cases, 37; deaths, 3.
Cape Province	Nov. 5–Dec. 31			Outbreaks. Nov. 1–Dec. 31, 1921: Cases, 42; death 1 (colored).
Do	Jan. 8–Apr. 1			Outbreaks.
Natal	do			Outbreaks. Nov. 1–Dec. 31, 1921:
Durban	Apr. 2–8	1		Cases, 209; deaths, 5 (colored).
Orange Free State	Oct. 23–Dec. 24			Outbreaks. Nov. 1–Dec. 31, 1921: Cases, 8 (colored).
Do	Feb. 5–25			Outbreaks.
Southern Rhodesia	Dec. 29–Apr. 19	330		Natives.

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Union of South Africa—Contd.				
Transvaal	Oct. 23–Dec. 31			Outbreaks.
Do	Jan. 1–Mar. 25			Outbreaks. Dec., 1921: Cases, 15. Nov. 1–Dec. 31, 1921: Cases, 22 (colored) Among white population, 8 cases, State not designated.
Johannesburg District	Dec. 1–31	2		
Do	Jan. 1–Feb. 28			Outbreaks.
Venezuela:				
Ciudad Bolivar	Mar. 22	3		
Virgin Islands:				
St. Thomas	June 6	1		
Yugoslavia				July 3–30, 1921: Cases, 37.
Bosnia Herzegovina	July 3–9	2		
Croatia Slavonia	do	1		
Dalmatia	do	1		
Serbia	do	3		
Belgrade	Dec. 11–17	4		
Do	Jan. 1–Feb. 18	6		
Slovenia	July 3–9	1		
Voivodina	do	3		
On vessels:				
S. S. Empire State	Apr. 7	1		At Honolulu, Hawaii, Mar. 31. In Chinese woman, embarked at Hongkong, Mar. 15, unvaccinated; arrived Shanghai Mar. 19, states did not go ashore; at Kobe Mar. 22; left Yokohama Mar. 24. Case was passed on inspection; developed Apr. 5, 1922.
S. S. Victoria	Jan. 16	1	1	At Thursday Island Quarantine, Australia. Vessel left Hongkong Jan. 3; case isolated Jan. 10. Vessel left for Townsville, Sydney, and Melbourne. Released at Melbourne Feb. 4, 1922.
S. S. West O'Rowa	Jan. 5–8	3	1	At Kobe, Japan, from Shanghai, China.
S. S. ——	Jan. 17–23	2		At Swansea, Wales, from Persian Gulf.
S. S. ——	May 14–20	2		At Liverpool, England; from vessel.

TYPHUS FEVER.

Algeria:				
Algiers	Nov. 1–Dec. 31	3		
Do	Jan. 11–May 10	20	1	
Oran	Dec. 21–31	1		
Do	Jan. 1–Apr. 20	24	14	
Argentina:				
Rosario	Mar. 1–31		1	
Asia Minor:				
Brousa	Jan. 15–21	1		
Smyrna	Apr. 15–21	1		
Austria:				
Vienna	Dec. 4–31	10		
Do	Jan. 1–Apr. 15	10	1	
Bolivia:				
La Paz	Aug. 1–Dec. 31	121	98	
Do	Jan. 1–31	15	12	
Brazil:				
Sao Paulo	Feb. 6–12	12	2	
Bulgaria:				
Sofia	Dec. 18–24	1		
Do	Feb. 12–Apr. 8	3		
Chile:				
Concepcion	Nov. 22–Dec. 26		3	
Do	Jan. 3–30		3	
Talcahuano	Jan. 29–Feb. 18	3		
Valparaiso	Oct. 23–Nov. 26		6	
Do	Jan. 1–7		1	

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Antung	Dec. 26-Jan. 1	1		
Do	Feb. 6-Apr. 9	9		
Harbin	Nov. 7-Dec. 25	12		
Do	Dec. 26-Apr. 16	45		Jan. 23, 1922: Reported extending from Soviet Russia along railway line to maritime Provinces.
Czechoslovakia:				
Prague	Jan. 22-Apr. 15	4		
Danzig (free city)	Feb. 23	1		In district, at Zoppot. In merchant from Warsaw.
Egypt:				
Alexandria	Nov. 19-Dec. 31	3	1	
Do	Jan. 15-Apr. 22	23	6	
Cairo	Oct. 1-Dec. 31	16	14	Corrected report.
Do	Jan. 1-Mar. 4	18	8	
Port Said	Jan. 22-Apr. 8	3		
Finland:				
Helsingfors	Jan. 1-31	1		In courier from Moscow.
Germany:				
Berlin	Apr. 8-22		3	
Breslau	Dec. 25-31	2	1	
Do	Jan. 1-Apr. 30	56	9	Including district.
Frankfort-on-Oder	Feb. 16	26		In persons returning from Russia.
Hamburg	Dec. 11-17	4		
Königsberg	Apr. 16-22		1	
Great Britain:				
Birkenhead	Apr. 6	13	3	Vicinity of Liverpool.
Glasgow	Dec. 25-31	1		
London	Apr. 29	1		Stated to have probably been contracted in Warsaw.
Greece:				
Patras	Apr. 3-9			One death, recurrent typhus.
Saloniki	Jan. 23-Apr. 30	122	30	Among Russian refugees, 16 cases, 5 deaths.
Mesopotamia:				
Bagdad	Oct. 1-Dec. 31	3	9	
Do	Feb. 1-Mar. 31	1	3	
Mexico:				
Mexico City	Nov. 20-Dec. 31	242		Including municipalities in Federal District.
Do	Jan. 1-Apr. 22	330		Do.
San Luis Potosi	Dec. 18-24		1	Dec. 25-31, 1921: Present.
Do	Jan. 8-Feb. 25			Present, 1 death.
Palestine:				
Jerusalem	Dec. 27-May 1	18		
Poland				Aug. 14-Nov. 5, 1921: Cases, 2,399; deaths, 173. Nov. 6-Dec. 3, 1921: Cases, 1,512; deaths, 105. Nov. 20-Dec. 10, 1921: Cases, 1,162; deaths, 89. Dec. 4-31, 1921: Cases, 3,600; deaths, 313. Jan. 1-28, 1922: Cases, 6,452; deaths, 643; recurrent typhus—cases, 6,268; deaths, 330. Jan. 29-Mar. 25, 1922: Cases, 13,825; deaths, 1,027. Recurrent typhus: Cases, 15,944; deaths, 587. All statistics are exclusive of Brest-Litovsk, Minsk, and Wilno districts.
District—				
Bialystok	Nov. 20-Dec. 10	116	3	
Do	Jan. 1-7	253		
Galicia—				
Lemberg	Jan. 3	229		Jan. 1-7, 1922: Cases, 61.
Kielce	Nov. 20-Dec. 10	31	8	
Do	Jan. 1-7	28		
Krakow	Nov. 20-Dec. 10	45	6	
Do	Jan. 1-7	53		
Lodz	Nov. 20-Dec. 10	67		
Do	Jan. 1-7	41		
Lublin	Nov. 20-Dec. 10	59		
Do	Jan. 1-7	147		
Lwow	Nov. 20-Dec. 10	121	16	
Nowogrod	do	249	15	
Polesia	do	83	5	
Do	Jan. 1-7	450		
Posen	do	1		

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Poland—Continued.				
District—Continued.				
Stanislawow	Nov. 20–Dec. 10	88	8	
Do	Jan. 1–7	54		
Tarnopol	Nov. 20–Dec. 10	86	17	
Do	Jan. 1–7	28		
Volhynia	Nov. 20–Dec. 10	89	4	
Do	Jan. 1–7	107		
Warsaw	Nov. 20–Dec. 10	81	2	
Do	Jan. 1–7	32		
Warsaw City	Nov. 20–Dec. 10	47	5	
Do	Jan. 1–7	67		Feb. 26–Apr. 22, 1922: Cases, 255. Occurring in permanent and transient residents.
Portugal:				
Oporto	Jan. 8–May 6	46	2	
Rumania:				
Bucharest	Nov. 1–30	3		
Cahul	Jan. 1–Feb. 28	7		District.
Chisinau	Nov. 1–Dec. 31	28		District. Dec. 1–31, 1921: Recurrent typhus; cases, 19.
Do	Feb. 1–28	10		
Russia				Nov. 28–Dec. 10, 1921: In Soviet Russia, cases, 7,681.
Esthonia	Oct. 1–Dec. 31	53		
Do	Jan. 1–Mar. 31	97		Recurrent typhus, 51 cases.
Lettonia	Oct. 1–Dec. 31	341		Corrected report Oct. 1–Nov. 30, 1921: Cases, 127.
Do	Jan. 1–Feb. 18	456		
Libau	Jan. 15–Feb. 1	4		
Lithuania	Jan. 1–31	814	73	Recurrent typhus: Cases, 357; deaths, 12. Typhus: Feb. 19, 1922, 400 cases, vacinity of Kovno, with mortality of 7 per cent.
Perm	Nov. 23–Dec. 10	1,403		Oct. 1–31, 1921: Cases, 830. Nov. 1–30, 1921: Cases, 2,330.
Saratov District—				
Markstadt				Sept. 1–Dec. 31, 1921: Cases, 1,967; mortality, about 10 per cent; hospital cases.
Serbia:				
Belgrade	Oct. 2–Nov. 26	3	2	
Siberia				Jan. 23, 1922: Present in western districts.
Chita	Dec. 26			Epidemic.
Vladivostok	Dec. 25–31	5	1	
Do	Mar. 25–31	2	1	
Spain:				
Madrid	Dec. 1–31		1	
Do	Jan. 1–Apr. 30		24	Corrected report.
Syria				Apr. 16–22, 1922: Reported present in the interior cities.
Aleppo	Mar. 19			Present. Apr. 23–May 13, 1922: Present in interior localities.
Diarbekir	Mar. 5–Apr. 15			Present.
Mardin	do			Do.
Tunis:				
Tunis	Feb. 5–Mar. 25	4	3	
Turkey:				
Constantinople	Nov. 20–Dec. 31	19		
Do	Jan 1–May 6	131	2	
Union of South Africa				Nov. 1–Dec. 31, 1921: Cases, 1,368; deaths, 205 (colored). White 20 cases; deaths, 4. Jan. 1–30, 1922: Cases, 945; deaths, 131, occurring in native population; 14 cases with 4 deaths occurring in white population.
Cape Province				Oct. 23–Dec. 24, 1921: Outbreaks, Nov. 1–Dec. 31, 1921: Cases, 1,053; deaths, 158 (colored). Among white population, 19 cases, 3 deaths.
Do				Jan. 1–Mar. 25, 1922: Outbreaks. Jan. 1–Feb. 23, 1922: Cases, 688; deaths, 90 (colored); cases, 11; deaths, 4 (among white population).
East London	Oct. 30–Dec. 24	3		One death of European at Jensenville, Dec. 6, 1921.
Do	Jan. 29–Feb. 11	2		Natives.

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

Reports Received from December 31, 1921, to June 16, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Union of South Africa—Contd.				
Natal	Nov. 5-Dec. 17			Outbreaks. Stated to be prevalent only in Newcastle district. Nov. 1-Dec. 31, 1921: Cases, 125; deaths, 25 (colored). Jan. 1-Feb. 28, 1922: Cases, 41; deaths, 10 (colored). Among white population 3 cases, 1 death.
Durban	Jan. 15-21	1		Imported.
Orange Free State	Nov. 13-Dec. 31			Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 158; deaths 21, (colored).
Do	Jan. 1-Apr. 1			Outbreaks, Jan. 1-Feb. 28, 1922: Cases, 176; deaths, 25.
Transvaal	Jan. 8-Apr. 1			Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 35; deaths, 4 (colored). White, 1 case, 1 death. Jan. 1-Feb. 28, 1922: Cases, 40; deaths 3 (colored).
Johannesburg District	Jan. 12-Feb. 28	35	11	
Venezuela:				
Maracaibo	Dec. 20-26		1	
Yugoslavia				July 3-30, 1921: Cases, 13.
Bosnia-Herzegovina	July 3-9	1		
Croatia Slavonia—				
Zagreb	Jan. 1-Mar. 25	4		
Montenegro	July 3-9	3		

YELLOW FEVER.

Brazil:				
Bahia	Apr. 16-22	1	1	
Pernambuco	Feb. 19-Mar. 18	3	2	
Mexico				Year 1921: Cases, 115; deaths, 53.
Colima (State)				Year 1921: Cases, 7; deaths, 4.
Colima	Oct. 27	4	3	
Manzanillo	Aug. 21	3	1	
Jalisco (State)				Year 1921: Cases, 13; deaths, 7.
Guadalajara	Nov. 1-30	1	1	Imported.
Puerta Vallarta (Las Penas).	Oct. 5-Dec. 17	13	5	
Do	Jan. 22-31	3	1	
Tonila	Aug. 31	1	1	
Oaxaca (State)—				
Rincon Antonio	Jan. 10	1	1	
Quintana Roo (Territory)—				
Payo Obispo	Aug. 8	1	1	
Sinaloa (State)				Year 1921: Cases, 18; deaths, 9.
Culiacan	Sept. 17	4	1	
Guamuchil	Oct. 10	1		
Mazatlan	Aug 21	1	1	Imported.
Palmar de los Leales	Sept. 30	12	7	
Tamaulipas (State)				Year 1921: Cases, 1; deaths, 1.
Tampico	Jan. 11	1	1	
Vera Cruz (State)				Year 1921: Cases, 75; deaths, 31.
Alamo	June 21	4	1	Oil camp.
Alvarado	July 3	1	1	
Barra de Penn	July 18	1	1	
Cordoba	Sept. 22	5	3	
Cosamaloapam	July 18	14	6	
Nogales	Oct. 28	1	1	
Orizaba	do	1		
Papantla	Jan. 14	6	3	
Providencia	Oct. 28	3		
Purga	Feb. 7	1	1	
Rancho de Santa Rosa	Oct. 8	2		
Rancho "El Jaguey"	Sept. 14	2	2	
San Cristobal	Mar. 24	1		
San Pablo (Papantla)	Sept. 12	1		
San Ildefonso	Oct. 17	2		
Tierra Blanca	Sept. 24-Nov. 12	4	3	
Tlacotalpan	Sept. 14	1	1	
Tuxpan	Jan. 3	8	2	
Vera Cruz	Jan. 15	18	7	Two of these cases imported. Dec. 20-26, 1921: Cases, 1; deaths, 1, imported. March, 1922: One case on plantation 105 miles from port of Vera Cruz.

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