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IMPROVED METHOD FOR THE PREPARATION OF VITAMINE-ACTIVATED FULLER'S EARTH.

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Since the discovery several years ago [1] that certain varieties of fuller's earth, particularly the variety from Surrey, England, exert a remarkable adsorptive power for the antineuritic vitamine, this reagent has been exclusively used as the first step in my attempts to isolate vitamine from brewer's yeast. For this purpose the fresh yeast was allowed to autolyze, and the resulting product was filtered. Fuller's earth was then added to the clear liquid and, after thorough agitation, the solid was removed by filtration and was washed and dried. The "activated fuller's earth" thus prepared, on account of its relative uniformity and exceptional stability, was believed to be the most favorable raw material for experiments on the isolation of the antineuritic vitamine.

The most unsatisfactory step in the process of preparing "activated solid" is the extremely slow and wasteful filtration of the autolyzed yeast. Numerous experiments were early made for the purpose of eliminating this very troublesome filtration, but improvements worthy of recommendation were not developed. Recently, however, by making use of an observation of Osborne and Wakeman,[2] a substantial improvement in the method has been made and is now brought to the attention of persons interested in the more precise study of the chemical and physiological properties of the antineuritic vitamine.

It was demonstrated by Osborne and Wakeman that when fresh yeast is added to boiling water, acidified with 0.01 per cent acetic acid, the yeast cells are disrupted, the protein is coagulated, and the vitamine is set free to enter the aqueous solution. This latter can readily be separated from the coagulated protein and insoluble material and is a very much more satisfactory solution for the adsorption of vitamine by fuller's earth than the very complex filtrate from autolyzed yeast.

The advantages resulting from this modification are that the manipulations are greatly shortened and simplified and, what is of

[1] Seidell: Public Health Reports, *31*, 364 (1916).
[2] Osborne and Wakeman: J. Biol. Chem., *40*, 383 (1919).

greater importance, a much better final product is obtained. The basis of the latter claim is that at least one of the interfering substances simultaneously adsorbed with the vitamine is almost, if not entirely, eliminated. This compound is adenine, which is a product of the autolysis and is present in the yeast filtrate and subsequently adsorbed by the fuller's earth. It is, however, not formed to an appreciable extent during the rapid heating of the fresh yeast according to the modified method, and consequently does not become an impurity in the final "activated solid."

The improved method for preparing vitamine-activated fuller's earth on a moderately large scale has been very satisfactorily carried out as follows:

Fresh bottom yeast, as obtained from the brewery, in quantities of 50 or more liters, is diluted with about an equal volume of tap water and heated, while being stirred, in a steam-jacketed kettle until the temperature reaches approximately 90° C. It has been found that if this temperature is exceeded, the mixture is apt to foam excessively and overflow the kettle. After about 5 minutes at 90°, the mixture is cooled to 50° or less, and the coagulated protein is removed by filtration.

The protein can be very effectively and expeditiously removed by means of a large Sharples centrifuge. The protein remaining in the bowl of this machine is of cheese-like consistency and retains a relatively small proportion of the aqueous vitamine solution. This latter is a clear dark-brown liquid. English fuller's earth is added to it in the proportion of 30 grams per liter and the mixture is actively stirred for one-half hour or longer. It is then subjected to filtration or the solid may be removed more conveniently by means of the Sharples centrifuge. The "activated solid" is finally washed with several changes of water and alcohol and then thoroughly dried to prevent subsequent growth of molds, which are very readily nourished by the minute amounts of organic material from the yeast solution, persistently retained by the "activated solid."

Samples of "activated solid" prepared by the above process were found to contain approximately 1.5 per cent of nitrogen instead of slightly more than the 2 per cent usually present in samples prepared by the original method from autolyzed yeast filtrate. The content of antineuritic vitamine, as estimated by feeding experiments on pigeons, was found to be about twice as great as that of the product made by the original method. Complete protection of pigeons against loss in weight on a diet of polished rice, or restoration of such lost weight, was afforded in all cases by doses of 0.1 gram on alternate days. Doses of 0.05 gram prevented all but a very slight diminution in weight for many weeks.

From these tests it is evident that the protective dose for pigeons of 300 grams weight is under 0.1 gram; whereas with samples of "acti-

vated solid," prepared by the original method, adequate protection usually required doses between 0.1 and 0.2 gram. This, taken in connection with the lower nitrogen content and absence of adenine is ample evidence of the greatly improved character of the "activated solid" prepared by the new method.

HAY-FEVER PLANTS OF CALIFORNIA.

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1. PURPOSE OF THE PAPER.

The purpose of the present paper is to assist the members of the medical profession in determining the specific causes of hay fever in their respective districts. The lists here presented are intended to include all of the more important hay-fever plants of California. It is hoped that with the aid of the notes accompanying the catalogue the specialist can inform himself as to the plants that are the most frequent causes in his particular locality. The pollen or pollen extracts of these species may then be obtained and used in skin-reaction tests. In this manner the exact botanical species responsible for the hay fever of the individual may be determined, assuming that the symptoms are not due to some cause other than pollen. The final procedure is the desensitization of the patient through the use of the extracts to which positive reactions have been obtained, this treatment preferably to precede the period of pollination.

The lists here assembled and the principles used in the selection of species are the result of field studies in all parts of the State, extending over a long period of time. In recent years special attention has been given to plants as causes of hay fever, and there has been frequent opportunity for consultation with practicing specialists. The author is especially indebted to Dr. Grant Selfridge of San Francisco, who first called his attention to the subject, and the results of whose studies have been freely available throughout this period. Reports on the results of skin-reaction tests have been submitted also by the following: Dr. William P. Scheppegrell, president of the American Society for the Prevention of Hay Fever; Dr. Charles T. Chamberlain, Portland, Oreg.; Dr. George Piness, Los Angeles, Calif.; Dr. Albert H. Rowe, Oakland, Calif.; and Dr. Samuel H. Watson, Tucson, Ariz. Their findings have been incorporated into the present paper in so far as they apply to Californian plants. The author's thanks are due to these specialists and to many others, both in California and in the Eastern States, for helpful data and advice.

2. PRINCIPLES USED IN THE DETECTION OF HAY-FEVER PLANTS.

The lists here presented have been prepared almost exclusively from the botanical point of view. This is done because it is found in practice that the first requisite in locating the causes of hay fever, and consequently in determining the method of treatment, is a knowledge of the plant species that produce an abundance of wind-carried pollen during the season of attack. It should be remembered, however, that albuminous substances other than pollen sometimes produce the disease. The most frequent of these are animal dandruff, toilet powders of vegetable origin, foods, etc. Such factors are not here included. Certain well-established biological principles are used as a guide in the carrying out of any hay-fever survey. These principles were employed in the preparation of the following lists, and may be enumerated as follows:

1. All important hay-fever plants are anemophilous; i. e., their pollen is distributed by the wind. As a result of adaptation to wind pollination, the flowers are much reduced in size, and are never showy nor provided with nectar glands. Conversely, any plant with conspicuous or highly colored blossoms, and any that secretes nectar or is otherwise developed for the attraction of insects, may be excluded from the lists. Through the application of this principle alone the great majority of plant species is at once removed from consideration and the work much simplified in consequence. Among the numerous plants popularly supposed to cause hay fever, but which are now known to be of very minor importance, if any, because of their adaptation to insect pollination, are locust, goldenrod, roses, sunflower, dandelion, and all of the common fruit trees. The only qualification that need be made to the general statement that entomophilous (i. e., insect-pollinated) plants are innocent, is that they may sometimes produce hay-fever symptoms by direct inhalation, as when carried in bouquets. Even in the few supposedly authentic reports of such cases, it is not impossible that the effect was due to foreign pollen carried by the plants, or to impurities in the pollen extract used in making the tests. The more frequently reported entomophilous species are here indicated in a supplementary list.

2. Certain botanical groups are seldom causative factors, even though anemophilous. This statement is based not upon botanical grounds but upon the results of numerous tests with the pollen extract. The subject is one which is sadly in need of exact scientific experiment. The two principal groups commonly excluded on these grounds are the pines (genus *Pinus*) and the sedges (genus *Carex*). Although numerous tests have been made with pine pollen, only one positive reaction has been reported, and even the authenticity of this has been doubted by some. One species of

juniper (*Juniperus virginiana*), commonly called red cedar, which belongs to the pine family, is said to be occasionally a cause, but no positive records have as yet been obtained for cypress or other allies of the pine and juniper. The sedges comprise a very difficult group of numerous species, and it is hoped that their present record will be maintained. They are grasslike in superficial appearance, but sufficiently distinct from the Gramineae, or grass family, in botanical characters to indicate the probability of fundamental differences in the proteid content of their pollen. Even though the sedges may occasionally be the cause of hay fever, the fact that they seldom grow in abundance near cities renders them of only minor importance. While both the pine and the sedge group should be kept in mind, their importance is not such as to justify their serious consideration except in cases where all other tests yield but negative results.

3. Only those species which are fairly abundant in settled districts need be included in the lists. Therefore the plants which grow in remote mountain or desert regions, or which occur only as scattered individuals or in small colonies, are not here included. The addition of such cases would so greatly swell the list as to render its use impracticable. This principle should be especially borne in mind when testing patients who live in out-of-the-way places, since the cause may be found to be some plant common in the vicinity of the sufferer, but not generally distributed and hence not enumerated. Sometimes, too, the cause will be found to be some unusual plant grown for food or ornament near the patient's home or place of business. This applies particularly to city and suburban dwellers. Such causes can be located only by a close botanical survey of the immediate vicinity, or by examining for other factors than plant pollens.

4. Skin reactions obtained by testing with an extract prepared from the pollen of the plant itself is the final criterion used in forming judgment as to whether or not a suspected species is a cause of hay fever. This presupposes the use of extracts prepared from carefully collected pollen that has been examined microscopically as to its purity and that has been identified by a competent botanist after examination of a specimen plant from which the pollen was obtained. Neglect in this matter has sometimes led to the report that certain species were causative factors, whereas the actual cause of the positive result obtained in the test was the presence of some foreign substance, usually the pollen of some other species which had been unwittingly included in collecting the sample. The absence of positive results in the tests does not necessarily indicate that the species is innocent, but only that it is not the cause in the case of the subjects tested. Perhaps, on further experiment, other patients will be found

who, being sensitive to the specific pollen under consideration, will react to it in a positive way.

5. The size and weight of the individual pollen grain determines to some extent the potential area of the various species. The size of the mature grains is practically constant for any given kind of plant. When the diameter falls below about 20 microns the pollen is easily carried to considerable distances. The common eastern ragweeds, with pollen diameters of about 15 microns, belong to this class; whereas the western ragweed (*Ambrosia psilostachya*), with a pollen diameter of 25 microns, is a factor only when it grows close to places of habitation or during strong winds. Indian corn, or maize, has a very limited potential area because of the very large size of the pollen, which measures 80 microns in diameter. The only people affected are those who have occasion to work in the cornfields during the pollinating season and who are sensitive to this particular kind of pollen. The California black walnut must be classed as of small potential area because of its fairly large pollen; yet it is exceedingly important as a hay-fever plant because of its abundance in certain districts where it is grown in yards, streets, and parks for shade and ornament. The pollen sifts down in great abundance in the spring of the year and seriously affects many people living in the immediate vicinity.

3. ARE SPECIFIC POLLENS ESSENTIAL?

A satisfactory answer to this question has not as yet been given. The original idea that any species of pollen would suffice for any case of pollinosis has given way to the demonstrated principle that pollen of one large group of plants can not be successfully used either for testing or for treatment of hay fever caused by the pollen of another group. The important questions now are, How small must these groups be? and, Do they correspond to the taxonomic groups of the botanist? This subject calls for much more careful and scientifically accurate experimental evidence than has been thus far adduced. It is not improbable, for example, that some of the cases reported of immunization obtained for one species were really due to the presence in the extract used of proteins from an entirely different pollen which had been unintentionally mixed in in the process of collecting. This mixing is especially likely to occur in the case of meadow grasses. Sometimes, too, the pollens have been wrongly identified, or the use of common names has led to confusion. Finally, it must be admitted that the botanists' "species" are not all of the same rank. In the genus *Artemisia*, for example, the tendency to recognize "small species" has become so great that many of the segregates are not species in the old sense, but forms, the chemical constitution of which is probably in many cases identical with that of other forms. It is

therefore apparently necessary to work on the basis of larger species, perhaps with groups of species, or even larger units. If this is found to be a safe method, much time, expense, and confusion may be avoided by ignoring the smaller taxonomic units, sometimes called species. A knowledge of the degree of relationship between different plants will often be of much service.

Thus it is seen that until such time as exhaustive experiments can be carried out between the specialist, the biochemist, and the botanist, the only safe procedure is to test and treat with specific pollens except in those cases where one's own experience dictates a different course. In the present paper a rather large and therefore conservative species concept has been adopted, but the smaller species or varieties within these larger species are also mentioned in most cases.

4. SUGGESTIONS REGARDING THE SECURING OF PURE POLLEN.

At the present time it is impossible to secure from the commercial drug houses more than a very few of the pollens needed for testing and treatment of hay fever in the West, and the few to be had are sometimes incorrectly named or impure. It is hoped that the increasing demand will soon justify a few concerns in proceeding with the collection and preparation of authentically named pollens of all the more common species. It is of the highest importance that the pollen (or its extract) of each species be obtained separately, since mixtures from different species permit neither of specific testing nor of treatment with only the specific pollens that cause the trouble. Until such time it is necessary for each specialist to arrange for his own supply. Trouble and expense are both reduced when exchanges are arranged or when several specialists unite in employing the same collector.

The number of species necessary for the work varies greatly with the locality and with the size of the area from which the patients come. While preliminary studies and even treatments may begin when only a limited number are available, it will be found unsatisfactory to proceed in an authoritative way until most of the important ones have been assembled. The attempt to practice with a limited assortment is responsible for many of the failures to obtain complete desensitization.

The chief requirement in the collection is an accurate identification of the plant. In all cases, no matter how authoritative the collector, an herbarium specimen should be taken. If this and the pollen are assigned the same number, the specimen will always serve as a voucher in case the accuracy of the identification of the pollen is called in question.

The actual collection of the pollen is a tedious but not especially difficult undertaking. The easiest method for plants like walnut,

cottonwood, hazel, etc., that bear their flowers in catkins, is to gather these just as the stamens are opening, spread them out on glass plates or oiled paper in a warm room, and tap the pollen out as it matures; a safety-razor blade and a business card are convenient for gathering up the pollen, which should be cleaned by passing it through silk bolting cloth of the finest mesh obtainable. Small embroidery rings will be found convenient for holding the cloth. Most species, however, require more detailed attention. These are usually gathered in the form of bouquets and the flowers placed in a warm, closed room until the pollen sheds. The bouquets themselves may be set in their containers directly on the glass or paper, or they may be gently lifted from time to time and the pollen tapped out. It is sometimes advisable to use a nutrient solution, such as the one described by Selfridge.[1] This is especially effective with many of the grasses. Special methods will have to be devised in some cases. It will be found also that certain species, particularly of the grasses, pollinate only at regular daily periods, these usually falling in the early morning hours.

Whatever the method of collection, the purifying by means of bolting cloth and, above all, accurate identification and the preservation of an herbarium specimen of each species are matters to be insisted upon. All implements used, especially the sieves, should be thoroughly cleansed when changing from one species to another.

5. HOW TO USE THE LISTS.

All of the genera and species are arranged in alphabetical order under their botanical names, with the exception of a few entomophilous plants of minor importance, which are enumerated at the end of the list. The family name is given in each case, so that all of those belonging to any one group may be assembled if this is desired. The common, or English, names are given in the list and indexed at the end. However, many species of native plants have not as yet been christened with generally accepted English equivalents. Each entry is numbered in the hope that this enumeration will serve as a handy check list. Later insertions may be indicated by the use of letters.

Species of special importance are indicated by an asterisk (*). Relative importance has been determined by field observations as to the abundance of the plants, by the amount and size of the pollen produced, and by reports as to the frequency and extent to which positive results have been obtained in testing with the extracts. This classification will undoubtedly require considerable modification as the work progresses. It should be remembered also that relative importance varies greatly with locality. A species of first rank in one

[1] The Laryngoscope, October, 1920, p. 613.

district may be of minor significance in another, and vice versa. It therefore behooves the practitioner to scan the list carefully, looking for species which, although not starred, may be especially common in his neighborhood. The assistance of local botanists of repute should be obtained wherever possible, since this will greatly aid in the making up of special lists. It is also suggested that intensive local botanical surveys be made for special cases which do not yield to the tests suggested by the present lists nor to tests with proteid substances other than plant pollens.

It is desirable that the list be reduced for any particular locality by elimination of the entries of those species which grow only in other parts of the State. As an aid toward this, special lists have been prepared for the more densely populated districts, namely, San Francisco Bay communities, the Sacramento and San Joaquin Valleys, and the Los Angeles-Pasadena district. In order to conserve space, these special lists have been reduced to the numbers under which the names will be found in the main list. It must be remembered, however, that these local enumerations aim to include only the more important species. The entire series should therefore be considered when working with especially elusive cases. Those operating outside of the special districts mentioned will need to utilize the main list, eliminating those plants known to be absent from their locality.

With the select lists made up for any given locality, the next step is to arrange the species into seasonal groups. Spring, summer, and autumn are suggested. But it must be remembered that the date of blossoming varies somewhat from year to year; also that rains at unusual periods may induce some plants to blossom out of season. At best there will be considerable overlapping, so that many species will need to be entered on two or even all three of the seasonal lists. When the cause can not be located among the plants for the season selected, the more important ones for the season immediately following or immediately preceding should be given a trial.

6. LIST OF HAY-FEVER PLANTS OF CALIFORNIA.[1]

1. AGROPYRON TENERUM. Slender Wheatgrass. Grass Fam. Common only in the mountains, but occurs also at such places as Yreka, Eureka, and Woodland. May-June and into August in the mountains. Related species give positive tests.

2. AGROPYRON, species. Wheatgrass. Grass Fam. Several of these summer-flowering grasses are found in addition to No. 1, but they are restricted to rather sparsely settled districts in the mountains and to the northernmost counties; should be considered at such places as Truckee, Sierra, and Honey Lake Vals., and in Siskiyou and Modoc Cos. The principal species are *A. repens* (rare) (Quackgrass or Couchgrass) and *A. caninum*.

[1] Asterisk (*) indicates species of special importance. The following abbreviations are used in the list: Calif. for California; Co. for County; Fam. for family; Val. for valley; after "Positive," C. for Chamberlain; P. for Piness; R. for Rowe; Sc. for Scheppegrell; Se. for Selfridge; and W. for Watson.

*3. AGROSTIS ALBA (=*A. palustris*). Redtop. Grass Fam. A common pasture and meadow grass of northern Calif.; southward only in the mountains. A frequent cause of hay fever in northwest America and in the Eastern States. June-September. Positive: C., P., Sc., Se., W.

4. AGROSTIS EXARATA (= *A. asperifolia*). Grass Fam. Moist places in the mountains; also occasionally plentiful in the moist coast districts; Monterey, Ukiah, Fort Bragg, Humboldt, etc. Summer.

5. AGROSTIS VERTICILLATA (=*A. stolonifera*). Grass Fam. Along ditches and in other moist places in the warmer districts; important only in southern Calif., where it is common on irrigated land. Spring, summer.

6. AGROSTIS, species. About 15 other sorts occur in the State but mostly as scattered growth.

7. AIRA CARYOPHYLLEA. Grass Fam. A small grass, common on open hills the full length of the State; absent from the desert. Spring. Positive: Sc.

8. ALNUS OREGONA (= *A. rubra*). Red Alder. Birch Fam. Restricted to proximity of the coast from Santa Barbara Co. north. Very closely related to the preceding species. February-April. Positive: C., R.

9. ALNUS RHOMBIFOLIA. White Alder. Birch Fam. A tree restricted to stream banks in the hills, therefore of only local significance. January-March.

10. AMARANTHUS GRAECIZANS. Tumbleweed. Amaranth Fam. Throughout the State, but abundant only in old fields and orchards. Other plants, especially Russian Thistle, are often called Tumbleweed. July-October. Positive: P., Sc., Se.

*11. AMARANTHUS RETROFLEXUS. Rough Pigweed. Amaranth Fam. Barnyards and neglected fields; common around towns. A coarse weed with abundant pollen in the morning. July-October. Positive: C., P., Sc., Se.

*12. AMBROSIA PSILOSTACHYA. Western Ragweed. Composite Fam. General throughout the State, especially on low land and in waste places. Potential area restricted by large size of the pollen grains, which measure about 25 microns in diameter. July-October. Positive: C., P., R., Sc., W.

13. AMBROSIA PUMILA. Dwarf Ragweed. Composite Fam. Known only from the vicinity of San Diego. May-June, as far as known. Positive: P.

14. AMMOPHILA ARENARIA. Beachgrass. Grass Fam. Restricted to the sand dunes along the coast from San Francisco northward; abundant in Humboldt and Del Norte Co. Summer. Positive: P.

*15. ANDROPOGON HALEPENSIS (=*A. sorghum* var. *halepensis*, *Sorghum halepense*, and *Holcus halepensis*). Johnson grass. Grass Fam. In moist places of the warm interior districts, especially the Sacramento and San Joaquin Vals.; also near Pomona and Los Angeles. A most important grass where it occurs. May–August. Positive: C., P. Sc., Se., W.

16. ANDROPOGON SORGHUM SUDANENSIS. Sudan grass. Grass Fam. An agricultural grass much grown in warm places. So closely related to Johnson grass that the possibility of using the pollen interchangeably should be tested. July–August. Positive: P., Se.

17. ANDROPOGON SORGHUM vars. Kaffir Corn, Egyptian Corn, Milo Maize. Grass Fam. All of these are cultivated extensively in warm interior valleys. Each is a distinct race or variety, but all are members of a single species. Summer. Positive: P., Sc.

18. ANTHOXANTHUM ODORATUM. Sweet Vernal grass. Grass Fam. Only in the cool, moist districts, such as Humboldt and Del Norte Cos.; common only when grown as a meadow grass. May–July. Positive: C., P., Sc.

19. ARISTIDA, species. Triple-awn grass. Grass Fam. Nine species occur, mostly in the warmer and drier parts of the State; none abundant unless locally. Spring.

20. ARTEMISIA BIENNIS. Biennial Wormwood. Composite Fam. Introduced and local. Occurs abundantly as a weed in waste places near towns, as at Berkeley. August–November. Positive: Sc.

*21. ARTEMISIA CALIFORNICA. Coast Sagebrush. Composite Fam. Coast Range only, but there abundant from San Francisco Bay to San Diego. This is not the true Sagebrush of the interior (*Artemisia tridentata*), and the pollens are not equivalent. August–October., but often blossoming out of season. Positive: P., Sc., Se.

22. ARTEMISIA CANA. Hoary Sagebrush. Composite Fam. Only in the northeastern part of the State, especially around Truckee; scattered, on stony slopes. August–November.

23. ARTEMISIA DRACUNCULUS (=*Aromatica* and *A. dracunculoides* of some authors). Dragon Sage. "Indian Hair Tonic." Composite Fam. Common only in the mountains, e. g., Truckee, San Bernardino Mountains, San Jacinto Mountains; also local at Los Angeles, Haywards, and along coast. July–November. Positive: Sc., Se.

24. ARTEMISIA PYCNOCEPHALA. Composite Fam. Only on coastal sand dunes from Monterey Co. north and on the easterly side of San Francisco Bay. Nowhere abundant. June–September.

25. ARTEMISIA SPINESCENS. Bud-sage. Composite Fam. East of the Sierra Nevada only; Mohave Desert from Hesperia and Lancaster north across Owens Val. to Oregon. March–June. Positive: Sc.

*26. ARTEMISIA TRIDENTATA. Sagebrush. Composite Fam. Abundant in the Great Basin, where it is the chief cause of "mountain fever," but occurs in Calif. only to the east of the Sierra Nevada and on areas adjacent to the desert in southern Calif.; common from Newhall to Piru, Ventura Co.; west as far as Coahuila and El Campo, in Riverside and San Diego cos. August–November. Positive: P., R., Sc., Se., W.

*27. ARTEMISIA VULGARIS (including as varieties or synonyms *A. hookeriana*, *A. heterophylla*, *A. suksdorfi*, *A. ludoviciana*, and *A. gnaphalodes*). Mugwort. Sagewort. Composite Fam. Abundant throughout the State, especially on low lands, but also in the hills. The most frequent cause of the fall type. The several varieties enumerated are all so closely similar in botanical features that any difference in the pollen seems improbable. Until this point is definitely determined it is better to use extracts prepared from the particular variety present in the neighborhood. For most parts of Calif. this is subsp. *heterophylla*, which is the same as *A. heterophylla* July–November. Positive: C., R., Sc., Se.

28. ARUNDINARIA FALCATA. Grass Fam. Commonly grown as an ornamental, especially in western middle Calif. *A. falcata* is the name commonly used for these plants, but there is some doubt as to the accuracy of the identification. Summer. Positive: Se.

29. ARUNDO DONAX. Giant Reed. Grass Fam. Commonly cultivated for windbreak or ornament; interior valleys, especially from Stockton to Modesto; San Francisco Bay region; southern Calif.

30. ATRIPLEX ARGENTEA (including subsp. *expansa* and also *A. mohavensis* and *A. trinervata*). Silverscale. Saltbush. Chenopod Fam. Alkaline districts of interior valleys and of southern Calif. Mostly June-July, but some plants pollinating in moist places as late as October. Positive: C. Se.

*31. ATRIPLEX BRACTEOSA (*A. serenana*). Bractscale. Chenopod Fam. Alkaline areas of the interior only; throughout the Sacramento and San Joaquin Vals.; southern Calif. only on alkaline lands, especially in Orange County. Mostly summer, but some plants pollinating as early as April, others as late as October. Positive: P.

32. ATRIPLEX CANESCENS. Chenopod Fam. Chiefly of the desert area east of the mountains; occasionally on the coastal slope from Ventura to San Diego. May–September. Positive: W.

33. ATRIPLEX CONFERTIFOLIA. Spiny Saltbush. Chenopod Fam. Mohave Desert north through Owens Val. to Oregon line; also at a few places along the west side of the San Joaquin Val. as far north as Dos Palos. May–August.

34. ATRIPLEX HYMENELYTRA. Desert Holly. Chenopod Fam. Colorado and Mohave deserts north to Owens Val. Not found west of the mountains. February–April.

35. ATRIPLEX LENTIFORMIS (including *A. breweri* and *A. orbicularis*). Lenscale. Quailbrush. Chenopod Fam. From the alkaline districts of the upper San Joaquin Val. to both deserts, but especially abundant on the Colorado; also along the coast (form=*A. breweri*) from Santa Barbara to Capistrano. June–October.

36. ATRIPLEX PATULA (including var. *hastata*). Spearscale. Fat-hen. Chenopod Fam. Abundant in salt marshes along the coast and in alkaline soils of the interior, running into many forms and races. August–September. Positive: Sc.

37. ATRIPLEX POLYCARPA. Allscale. Chenopod Fam. Alkaline districts of the San Joaquin Val. from near Stockton south; common around Bakersfield and on the Colorado and Mohave deserts, and north to Inyo Co. Summer–autumn.

*38. ATRIPLEX ROSEA. Redscale. Red Orache. Chenopod Fam. An introduced weed becoming abundant in the interior vals. and in southern Calif. August–September. Positive: Se.

39. ATRIPLEX, miscellaneous species. Less important than any of the foregoing Atriplexes are the following, some of which may be occasional factors in alkaline or saline districts: *A. californica*, *A. cordulata*, *A. coulteri*, *A. fruticulosa*, *A. leucophylla*, *A. microcarpa*, *A. parishi*, *A. phyllostegia*, *A. semibaccata*. *A. leucophylla* and *A. microcarpa* are especially common on the coast of San Diego Co.

40. AVENA BARBATA. Grass Fam. Less common than No. 41, but sometimes covering considerable areas in the coastal districts; also in moist places in the interior. Only slightly different from *A. fatua* in botanical characters and perhaps there is no need of distinguishing them in hay-fever work. Spring.

*41. AVENA FATUA. Wild Oat. Grass Fam. Extremely abundant in coast counties, extending the full length of the State; less common in the interior. Spring. Positive: C., P., R.

*42. AVENA SATIVA. Cultivated Oat. Grass Fam. Grown in northern Calif. and escaping along fields and roadsides. It has not yet been determined whether the pollen of these three species of oat may be used interchangeably. Spring. Positive: C., Sc., Se.

43. BETA VULGARIS. Beet. Chenopod Fam. Much grown for sugar, especially in the Sacramento, San Joaquin, Salinas, Owens, and Antelope Vals. and in Ventura Co.; also in vegetable gardens. The plants are mostly harvested before flowering. Spring, summer, fall.

44. BETULA ALBA. White Birch. Birch Fam. A common street tree. Several varieties are planted. A form sometimes called *B. occidentalis* grows sparingly in the mountains and is common on the easterly slopes of the Sierra Nevada. Early spring. Positive: C., R.

45. BRIZA MINOR. Annual Quaking-grass. Grass Fam. Fairly common from middle Calif. northward; important in the Sacramento Val. and in the towns of the north coast district. April–July. Positive: C.

*46. BROMUS CARINATUS (including *B. marginatus*). Bromegrass. Grass Fam. Coastal counties and at middle altitudes in the mountains; almost absent from hot interior valleys; seldom abundant but pollinates profusely; rather common around San Bernardino, Los Angeles, Pasadena, Ukiah, Eureka, and the cities on San Francisco Bay. March–May, and to June in the northwest. Positive: C,. R., Se.

*47. BROMUS HORDEACEUS (=*B. mollis*). Soft Chess. Cheat. Grass Fam. The most abundant grass in the Coast Ranges; introduced from Europe; common near most towns throughout the State. Often called "Poverty-grass." Spring. Positive: R., Sc., Se.

48. BROMUS RUBENS. Red Brome. Grass Fam. An abundant grass of southern Calif. and common in warm vals. as far north as Redding; occasional around San Francisco Bay. February–April. Positive: P.

*49. BROMUS TECTORUM. Downy Bromegrass. Grass Fam. One of the most abundant of introduced grasses in the Western States, especially Nevada, and now

getting established in Calif.; will be restricted to dry soil. Now grows at Ontario, Santa Barbara, Yosemite, Truckee River Val., Sisson, and Yreka. Early spring. Positive; Sc., Se.

50. BROMUS UNIOLOIDES. Rescuegrass. Grass Fam. Common in towns of southern Calif.—even on the desert, where irrigated—and in Owens Val.; less plentiful as far north as Palo Alto, Bakersfield, and Bishop, sometimes as a cultivated grass, often as a weed in warm, moist places. Summer.

*51. BROMUS VILLOSUS (=*B. maximus*). Broncho grass. Grass Fam. Abundant throughout the State; occupies vacant lots and other waste places in all the cities. Apparently one of the worst hay-fever grasses. Spring, especially May–June. Positive: C., P., R., Se.

52. CAREX, species. Sedge. Sedge Fam. There are many species of Carex, a few of them common in moist places, especially mountain meadows, and all are wind-pollinated. However, but two positive reactions have been reported (Se., C.) and it is probable that none is of much importance. They are grasslike in appearance and belong to a family related to the grasses.

53. CANNABIS SATIVA. Hemp. Mulberry Fam. Cultivated abundantly in lower parts of San Joaquin and Sacramento Vals., especially near Stockton; occasionally found elsewhere. Summer.

54. CARYA PECAN. Pecan. Walnut Fam. Occasionally grown in yards and orchards, especially in the Sacramento and San Joaquin Vals., and as a shade tree at Santa Barbara. Spring.

55. CASTANEA CHRYSOPHYLLA. Giant Chinquapin. Beech Fam. Only in the Coast ranges from Monterey Co., northward. Summer.

56. CASTANEA SATIVA. Chestnut. Beech Fam. Grown in some districts for its nuts. Summer.

57. CASTANEA SEMPERVIRENS. Bush Chinquapin. Beech Fam. Only in the mountain above 3,000 feet. Summer, especially July–August.

58. CELTIS OCCIDENTALIS. Hackberry. Elm Fam. Grown as a street tree in Los Angeles and perhaps elsewhere. Other species are occasionally seen in yards. Early spring. Positive: Sc.

59. CENCHRUS PAUCIFLORUS (=*C. tribuloides*). Sandbur. Grass Fam. Only in hot sandy places of the San Joaquin Val. and southern Calif.; apparently nowhere abundant except around Bakersfield. Spring, summer.

*60. CHENOPODIUM ALBUM. Lambs-quarters. Pigweed. White Goosefoot. Chenopod Fam. Common around all towns, occasionally in sufficiently large masses to be important. June–October. Positive: C., P., Ro., Sc., Se.

61. CHENOPODIUM AMBROSIOIDES. Mexican Tea. Chenopod Fam. A weed of neglected fields and near salt marshes or streams. West Berkeley, San Joaquin Val., etc. The Wormseed (*C. anthelminticum*) is a closely related and very similar species, or variety. June–December. Positive: Sc.

62. CHENOPODIUM BOTRYS. Jerusalem Oak. Chenopod Fam. All over the State, but seldom abundant. June–October. Positive: Sc.

63. CHENOPODIUM CALIFORNICUM. Soaproot. Chenopod Fam. Only on moist slopes or in swales or streamways in the foothills. Throughout the State, but not abundant. March–May.

64. CHENOPODIUM LEPTOPHYLLUM. Chenopod Fam. An occasional weed in fields, especially in the San Joaquin Val. Summer, autumn.

65. CHENOPODIUM MURALE. Nettleleaf Goosefoot. Chenopod Fam. Very closely related to *C. album* and the same notes apply, but the plant is less common.

66. CORYLUS ROSTRATA. Hazelnut. Beech Fam. A common bush in the foothills from Santa Barbara and Tulare Cos. north. Usually too remote from towns to be a menace. The western variety (var. *californica*) is but very slightly different from the common hazelnut of the Eastern United States. January–April. Positive: R.

*67. CYNODON DACTYLON. Bermuda grass. Grass Fam. An abundant grass on low, moist lands, especially where slightly alkaline, in all the warmer parts of the State; Sacramento Val. to Berkeley and the southern borders; common around Sacramento, Stockton, Fresno, and Bakersfield, and in Imperial Val. May–October. Positive: Sc., Se.

*68. DACTYLIS GLOMERATA. Orchard grass. Grass Fam. Throughout the State, especially in meadows and pastures of the north and extending through Oregon and Washington; occasionally near towns from San Diego north. Apparently one of the most active of grass pollens. March–August. Positive: C., P. R., Sc., Se., W.

69. DANTHONIA CALIFORNICA. Danthonia. Grass Fam. A common native grass on dry hills of the Coast Ranges from San Luis Obispo north. Spring.

70. DATISCA GLOMERATA. Durango-root. Datisca Fam. Moist places in canyons; not common. Spring.

71. DICORIA CANESCENS. Dicoria. Composite Fam. Restricted to the deserts; Inyo Co. to Palm Springs and eastward. June–November.

72. DIGITARIA SANGUINALIS (=*Panicum sanguinale*=*Syntherisma sanguinale*). Crabgrass. Grass Fam. Along ditches and on low moist land in the warmer districts. July–October. Positive: Sc.

*73. DISTICHLIS SPICATA. Saltgrass. Grass Fam. Abundant on low land, both in the alkaline interior valleys and in saline soil along coast, throughout the State; especially important in San Joaquin Val. towns. Summer and autumn. Positive: P., Sc., Se.

*74. DONDIA FRUTICOSA (=*Suaeda* species). Sea-Blite. Alkali-Blite. Chenopod Fam. Abundant in alkaline districts of the interior and in saline soil along the coast; San Francisco and Humboldt Bays, San Joaquin Val., Perris Val., etc. There are several closely related forms sometimes treated as distinct species. April–October. Positive: P.

*75. ECHINOCHLOA CRUS-GALLI (=*Panicum Crus-galli*). Barnyard grass. Grass Fam. In all the warmer districts on moist lands and along ditches. The most abundant weed in rice fields. July–November. Positive: Sc.

76. ELEOCHARIS PALUSTRIS. Common Spike-rush. Sedge Fam. Abundant in wet or marshy places, especially in the warmer districts, but belongs to a family supposedly innocent. May–June.

*77. ELYMUS CONDENSATUS. Giant Wild-rye. Grass Fam. A very coarse grass, growing in large clumps in somewhat moist places throughout Calif.; usually not in towns, but sometimes in natural parks (e. g., Griffith Park, Los Angeles) and around resorts. June–September. Positive: C., Sc., Se.

*78. ELYMUS GLAUCUS. Glaucous Wild-rye. Western Ryegrass. Grass Fam. Frequent in the coast counties from San Luis Obispo north; also in northeastern Calif. and the Sierra Nevada; scarce in southern Calif., except in the mountains. May–July. Positive: P., Se.

79. ELYMUS SITANION (=*Sitanion* species). Grass Fam. In dry, warm places, especially along railroads and in the hills where not disturbed. The latest authorities recognize *Sitanion* as a genus distinct from Elymus, and credit it with six species from Calif. It is probable that the pollen of all is of uniform chemical composition. May–July. Positive: Se.

*80. ELYMUS TRITICOIDES. Slender Wild-rye. Grass Fam. Common on low or moderately alkaline ground, especially toward the coast in southern Calif., but also at such places as Lancaster, Bakersfield, San Jose, Napa Val., Yreka, Honey Lake Val., etc. May–July. Positive: R., Se.

81. EPHEDRA, species. Desert Tea. Mountain Tea. Gnetum Fam. Chiefly of the desert borders but westerly through Tejon and Tehachapi passes a short distance. Pollen peculiar and perhaps not a cause of hay fever. April–July.

82. ERAGROSTIS, species. Grass Fam. About eight species occur within the State, some of which, such as *E. pilosa* and *E. lugens*, should perhaps be considered, at least in the south, but none is very abundant. Early spring. Positive: R., Sc.

83. EUROTIA LANATA. Winterfat. Chenopod Fam. Only on the desert, but there common; extends sparingly through Tehachapi Pass to San Luis Obispo Co. Erroneously called "White Sage." Spring, summer.

*84. FESTUCA MICROSTACHYS. Grass Fam. Common in the coast counties of northern and middle Calif.; only occasional in the south and in the interior. The species has been broken up by some into several, the characters used being such as to indicate that the resulting segregates probably need not be taken into account as far as the pollen is concerned. The most common of the proposed segregate species are *F. pacifica* and *F. reflexa*. Early spring. Positive: Sc.

*85. FESTUCA MYUROS. Grass Fam. One of the most abundant grasses everywhere except on the deserts; especially important on the coastal slope; occupies vacant lots in towns. Here taken to include *F. bromoides* and *F. megalura;* the three forms are so closely related that they can not be satisfactorily distinguished, even by experts. Early spring. Positive: R.

86. FRANSERIA ACANTHICARPA (=*Gaertneria acanthicarpa*). False Ragweed. Composite Fam. Common in southern Calif. and east of the Sierra Nevada, in warm, sandy soil. August–December (see Pub. Health Repts. *32:* 1147, Fig. 10. 1917). August–September. Positive: Sc.

87. FRANSERIA BIPINNATIFIDA (=*Gaertneria bipinnatifida*). Composite Fam. Only along the seashore, but for the full length of the State. April–December. Positive; Sc.

88. FRANSERIA CHAMISSONIS (=*Gaertneria chamissonis*). Composite Fam. Only along the seashore from middle Calif. northward and on the islands off Southern Calif. Very closely related to *F. bipinnatifida*. August–September. Positive: Sc.

89. FRANSERIA DUMOSA (=*Gaertneria dumosa*). Composite Fam. Very abundant on the hot, dry deserts, but not west of the mountains; important along the railroads crossing both the Mohave and Colorado deserts. March–June. Positive: Sc.

90. FRANSERIA TENUIFOLIA (=*Gaertneria tenuifolia*). Composite Fam. Southern Calif. and eastward; usually not common; dry plains near Los Angeles, San Bernardino, San Jacinto, etc. Late summer and autumn. Positive: Sc., W.

91. FRAXINUS DIPETALA. Flowering Ash. Olive Fam. Hillsides in the foothills; not common near the larger towns. Early spring.

92. FRAXINUS OREGONA. Oregon Ash. Olive Fam. Along val. and foothill streams throughout the State; confined to the mountains in the south. Early spring.

Gaertneria. See *Franseria.*

93. GARRYA ELLIPTICA. Silk-tassel bush. Dogwood Fam. This is the most common of several Garryas, all shrubs of the foothills. None has been tested. February.

94. GASTRIDIUM VENTRICOSUM. Nitgrass. Grass Fam. A small but abundant grass at middle and lower altitudes everywhere except on the desert. May–September.

95. GRAYIA SPINOSA. Chenopod Fam. Mohave Desert and northward east of the Sierra Nevada; especially common around Owens Val. Probably mild. Spring.

Holcus halepensis. See *Andropogon sorghum* var. *halapense.*

*96. HOLCUS LANATUS (=*Notholcus lanatus*). Velvet grass. Grass Fam. An abundant meadow and pasture grass in the north Coast Ranges and Sierra Nevada; absent from the hot interior and southern valleys. Summer-autumn. Positive: C., R., Sc., Se.

97. HORDEUM GUSSONEANUM (=*H. maritimum* var. *gussoneanum*). Very similar to No. 98, but the spikes usually smaller and the glumes not ciliate; much less common but sometimes plentiful, especially on heavy clay soil. Spring.

98. HORDEUM MURINUM. Wall Barleygrass. Grass Fam. Abundant annual in all parts of the State except the mountains and desert; often forms solid stands on vacant

lots and along roadsides as well as in fields. Commonly called "fox-tail," but this name is also used for several other grasses. Spring, especially March-May. Positive: P., R., Sc., Se.

99. HORDEUM NODOSUM. Meadow Barleygrass. Grass Fam. Widely spread but not so abundant as the other species; particularly common in meadows and on low, level land. Spring, summer.

100. HORDEUM VULGARE. Barley. Grass Fam. A common crop in all parts of the State except the mountains and desert. Spring. Positive: Sc.

*101. HUMULUS LUPULUS. Hops. Mulberry Fam. A common cultivated crop in certain interior valleys of northern Calif., especially in Sonoma and Lake Cos. and around Sacramento. June.

102. HYMENOCLEA MONOGYRA. Composite Fam. Very closely related to No. 103. Only along the southern borders of the State from San Diego (common in Mission Val.) east.

*103. HYMENOCLEA SALSOLA. Composite Fam. Chiefly of the desert, where common on the lower hills; on the coastal slope only near Bakersfield and Cuyama, the latter in Santa Barbara Co. Positive: Sc.

*104. IVA AXILLARIS. Poverty weed. Composite Fam. Low land throughout the State. Related to the ragweeds and important in the districts where it occurs. Pollen abundant and easily secured. July-September. Positive: R., Sc., Se.

105. IVA HAYESIANA. Composite Fam. Restricted to western San Diego Co. and Lower Calif.

*106. JUGLANS CALIFORNICA (including var. *hindsi*). California Black Walnut. Walnut Fam. Much grown as a shade and ornamental tree in the Sacramento, Napa, and Russian River Vals.; here the most frequent cause of spring hay fever; less common in the San Joaquin Val. and the south Coast Ranges; occurs native especially at Walnut Creek and in the coastal canyons of southern Calif. from the Santa Ana Mountains north; common in the hills back of Los Angeles and Santa Monica, often near suburban homes. The southern form is var. *hindsi*, but the pollen probably reacts interchangeably with the northern form. Pollen produced in great abundance but not carried far from the trees. Positive and virulent. April, May, and perhaps early June. Positive: R., Sc., Se., W.

107. JUGLANS REGIA. Persian or English Walnut. Walnut Fam. Possesses the botanical features of a hay-fever plant but no cases have been reported. Early spring.

108. JUNCUS, species. Rush. Rush Fam. There are many species of Juncus in Calif., but as yet none has been found to cause hay fever. Some are abundant in salt marshes along the coast, others in mountain meadows, and some along streams. They are grass-like in appearance, although not very closely related to the grasses.

109. KOCHIA AMERICANA (including *K. californica* and *K. vestita*). Chenopod Fam. In strong alkali only; San Joaquin Val. from Madera Co. south; east of the Sierra Nevada from Antelope Val. and Mohave Desert to Oregon.

*110. LAMARCKIA AUREA (=*Achyrodes aureum*). Goldentop. Grass Fam. Abundant in southern Calif., less common northward to San Jose; absent or rare in the San Francisco Bay district and other places along the coast. Spring.

*111. LOLIUM PERENNE. Ryegrass. Raygrass. Grass Fam. One of the most common of pasture and lawn grasses, running wild in districts of moderate or copious rainfall; most important from San Francisco northward and in Oregon. Several varieties are represented. Spring, summer, especially May-June. Positive: C., P., R., Sc., Se.

112. LOLIUM TEMULENTUM. Darnel. Grass Fam. A very distinct species from Raygrass; larger and with more flowers, but fortunately much less common. Orchards and fields of the warmer districts. Spring, summer.

113. MELICA IMPERFECTA. Slender Melicgrass. Grass Fam. Open woods and rocky hillsides; common in the Coast Ranges from the San Francisco Bay district south to San Diego; only scattering in the Sierra Nevada foothills. April, May.

114. MELICA TORREYANA. Torrey Melicgrass. Grass Fam. Middle Calif. from the Sierra foothills to the coast, where plentiful on hillsides. April, May.

115. MELICA, species. About 11 species of less importance also occur.

116. MORUS ALBA. White Mulberry. Mulberry Fam. This and a few other species, especially *M. nigra*, the Black Mulberry, are grown to a limited extent near towns. Probably never a cause of hay fever. Spring, summer.

*117. ORYZA SATIVA. Rice. Grass Fam. Grown almost throughout the Sacramento Val. and at a few places in the San Joaquin, for example, near Oakdale; absent from the coast and from southern Calif. August–September. Positive: Sc.

118. ORYZOPSIS HYMENOIDES (=*O. membranacea* and *Eriocoma cuspidata*). Sandgrass. Grass Fam. Deserts of southern Calif. north to Owens Val. Oregon, etc.

119. PANICUM MILIACEUM. Broomcorn Millet. Grass Fam. Cultivated in the warm interior valleys. Positive: R.

120. PANICUM PACIFICUM. Grass Fam. Moist shores and rock crevices in the foothills.

Panicum. See also *Digitatia* and *Echinochloa.*

121. PASPALUM DISTICHUM. Knotgrass. Grass Fam. Common in low moist land, throughout the State; Riverside, San Joaquin Val., Stockton, Sacramento, and Humboldt and Del Norte coasts. A low grasslike Bermuda grass, but stouter and usually with only two spikes to each inflorescence. Summer, autumn.

122. PENNISETUM RUPPELLI. Crimson Fountaingrass. Grass Fam. In gardens and along borders of parks; Berkeley, Santa Barbara, Los Angeles, San Diego, etc. Spring, summer. *Pennisetum villosum* is also grown as an ornamental grass.

*123. PHALARIS CANARIENSIS. Canarygrass. Grass Fam. An introduced grass, occasionally common in northern and coast cos.; Yreka, Berkeley, near San Jose, Monterey, Santa Catalina Island, San Diego, April–July. Positive: R., Sc.

124. PHALARIS MINOR. Small Canarygrass. Grass Fam. Occasional patches of this vigorous grass are found in the hot interior valleys, in southern Calif., and also along the coast. April–June. Positive: Se.

125. PHALARIS PARADOXA. Gnawed Canarygrass. Grass Fam. Interior valleys and coastal districts, especially on heavy clay soils; rare in southern Calif. April–June.

*126. PHLEUM PRATENSE. Timothy. Grass Fam. Much grown for hay and pasturage in the northern and mountain counties; very important there and in Oregon and Washington; occurs in the warm interior valleys and in southern Calif., only as scattered introductions of no consequence. One of the most frequently reported causes in northern districts. June–August. Positive: C., P., R., Sc., Se.

127. PHOENIX DACTYLIFERA. Date Palm. Palm Fam. A small proportion of staminate trees are grown in the orchards of Coachella and Imperial Vals. Palms of numerous species are grown in Calif. for ornamental purposes but they seldom flower. Spring. Positive: P.

128. PHORADENCHRON FLAVESCENS (including vars. *macrophyllum* and *villosum*). Mistletoe. Mistletoe Fam. This is the common broad-leafed mistletoe on oaks, cottonwoods, sycamores, etc. There are several less common species. None is definitely known to cause hay fever.

129. PISTACIA VERA. Pistache. Sumach Fam. Cultivated sparingly in warm parts of the State. April–May.

*130. PLANTAGO LANCEOLATA. English Plantain. Plantago Fam. Occurs from southern Calif. north but of importance only in the more moist districts, such as the San Francisco Bay region and the north coast counties. Of first rank in Oregon and Washington. April–August. Positive: C., Sc., Se.

131. PLANTAGO MAJOR. Common Plantain. Plantago Fam. Only on low, moist land; nowhere abundant. April–October. Positive: Sc., Se.

132. PLANTAGO PATAGONICA. Plantago Fam. Very common on warm hillsides everywhere. Spring.

*133. PLATANUS ORIENTALIS. Oriental Plane or Sycamore. Plane Fam. A street and park tree. Common in cities; Sacramento, Oakland, San Jose. February–April. Positive: Se.

134. PLATANUS RACEMOSA. California Sycamore. Plane Fam. Along streams, usually remote from towns but in the suburbs of Los Angeles, Pasadena, etc. February–April.

135. PLEURAPHIS RIGIDA (=*Hilaria rigida*). Galleta grass. Grass Fam. Mohave and Colorado Deserts only. Pollination follows desert rains.

136. POA ANNUA. Walkgrass. Grass Fam. A small weed found in nearly all towns, yet not forming an extensive growth, common in lawns. Spring, summer. Positive: R., Sc., W.

*137. POA PRATENSIS. Kentucky bluegrass. Grass Fam. Much used in the north for pasture and hay and throughout the State as a lawn grass. One of the plants called "June-grass" in Eastern States. Spring, summer, autumn. Positive: C., P., Sc., W.

138. POA, species. Nearly 30 other Poas grow within Calif., but their classification is not well worked out. Aside from the two here listed, none is very common except in the mountains and in the northern counties. Positive: R., Sc., Se.

139. POLYPOGON LITTORALIS. Water Beardgrass. Grass Fam. Common in moist places, as along ditches; less common than No. 140. April–September.

*140. POLYPOGON MONSPELIENSIS. Tawny Beardgrass. Grass Fam. Common in moist places, as along ditches and in river bottoms throughout the State, even skirting streams in the desert mountains. April–September.

141. POPULUS FREMONTI. Fremont Cottonwood. Willow Fam. The common cottonwood of river bottoms and canyons from Lake Co. south. Early spring. Positive: R.

142. POPULUS, species. Various other species are grown as ornamental trees and may be an occasional cause of hay fever in the early spring. *P. tremuloides* is the Quaking Aspen of the Sierra Nevada.

143. QUERCUS AGRIFOLIA. Coast Live Oak. Beech Fam. Coastal districts only, from San Diego to Mendocino; abundant around San Francisco Bay, but not common farther northward. Pollen abundant but potential area perhaps restricted. Spring. Positive: P., R.

144. QUERCUS DENSIFLORA (=*Pasania densiflora*). Tanbark oak. Beech Fam. Abundant in the Coast Range Mountains from Monterey Co. north. Summer.

145. QUERCUS DUMOSA. Scrub oak. Beech Fam. Abundant in the foothills throughout the State. Important only to those living in the mountains or in suburbs among the hills. Spring. Positive: Sc., H.

146. QUERCUS LOBATA. Valley Oak. Beech Fam. A tree of the plains. Sacramento, San Joaquin, and Santa Clara Vals., also in smaller valleys of the Coast Ranges, but almost excluded from southern Calif. Early spring.

147. QUERCUS, species. Various additional oaks occur, especially in the mountains, but are relatively unimportant. The commonest species are the California Black Oak (*Q. kelloggi*), the Maul Oak (*Q. chrysolepis*), and the Huckleberry Oak (*Q. vaccinifolia*).

148. RAZOUMOFSKYA OCCIDENTALIS (=*Arceuthobium occidentale*). Pine Mistletoe. Mistletoe Fam. Foothills and mountains on Yellow and Digger Pine. Not positively known to cause hay fever. Late summer.

149. RUMEX ACETOSELLA. Sheep Sorrel. Buckwheat Fam. Common as a weed in lawns and fields. Mostly May-Oct., but often pollinating out of season. Mild. Positive: C., P., R., Sc.

150. RUMEX CONGLOMERATUS. Green Dock. Buckwheat Fam. Low, moist lands throughout the State and up to middle altitudes in the mountains. March-June. Mild. Positive: R., Sc.

151. RUMEX CRISPUS. Curly Dock. Buckwheat Fam. A common weed on low lands and in the mountains to middle altitudes. March-June. Mild. Positive: Sc., Se.

152. RUMEX HYMENOSEPALUS. Canaigre. Buckwheat Fam. Dry sand washes and sandy plains from Kern Co. and Nipomo southward. Formerly abundant in the San Fernando Val. and from Los Angeles to San Bernardino, but now largely crowded out by orchards. Early spring.

153. RUMEX PULCHER. Fiddle Dock. Buckwheat Fam. Common in waste places. Spring.

154. RUMEX SALICIFOLIUS. Willow Dock. Buckwheat Fam. Wet places in valley and mountains. Spring, summer. Mild.

155. RUMEX, species. Additional species but much less common or local are *R. berlandieri* (Imperial Val. only), *R. obtusifolius* (about San Francisco Bay), *R. paucifolius* (only in the mountains), *R. persicarioides* (wet places throughout), and *R. venosus* (only in the northeast, i. e., Honey Lake Val. and north).

156. SALICORNIA AMBIGUA. Pickleweed. Chenopod Fam. Alkaline flats of the interior and saline marshes along the coast; abundant. June-October. *S. subterminalis* is another species to be considered. It is closely related and ranges from Bakersfield south.

* 157. SALSOLA KALI. Russian Thistle. Chenopod Fam. Locally abundant at a few places in the Sacramento and San Joaquin vals., also at widely separated stations, but always where warm and dry; San Diego, Antelope Val., Bakersfield, San Luis Obispo, Gilroy, Tracy, Owens Val., etc. Apparently very important east of the Sierra Nevada and throughout the Great Basin States. Summer and early autumn. Positive: P., Sc., Se., W.

158. SARCOBATUS VERMICULATUS. True Greasewood. Chico. Chenopod Fam. A common green shrub of alkaline flats in the Great Basin, occurring west of the Sierra Nevada only in the San Joaquin Val., as far north as Byron. Not in southern Calif. Many other plants are erroneously called greasewood. May-August. Positive: P., Sc.

159. SECALE CEREALE. Rye. Grass Fam. Cultivated in northern Calif. and to a less extent in the middle and southern parts of the State. Spring. Positive: Sc.

160. SCIRPUS, species. Bulrush. Tule. Sedge Fam. These plants belong to a family related to the grasses, and the flowers are wind pollinated; yet they seem not to cause hay fever. The best known is the common Tule (*S. acutus*) of lowland marshes.

Sitanion. See *Elymus sitanion*.

161. SPARTINA FOLIOSA. Cordgrass. Grass Fam. San Francisco Bay to San Diego; only where reached by tidewater but there often forming pure stands. August-December.

162. SPIROSTACHYS OCCIDENTALIS (=*Allenrolfea occidentalis*). Iodine-bush. Kern Greasewood. Chenopod Fam. Abundant in the alkaline districts of the San Joaquin Val. Wanting elsewhere. Spring.

163. SPOROBOLUS AIROIDES. Alkali Sacaton. Grass Fam. In saline and alkaline soil, San Joaquin Val., Mohave and Colorado Deserts; rarely seen west of the mountains in southern Calif. May-September. Positive: Sc.

164. SPOROBOLUS ASPERIFOLIUS. Grass Fam. Common only on the desert and elsewhere east of the Sierra Nevada; local at a number of places from the upper San Joaquin Val. to Riverside and San Diego. June-September.

165. STIPA LEPIDA (=*S. eminens*). Dry hills throughout the State, but not so common as formerly. March-June.

166. STIPA PULCHRA (=*S. setigera*). Needlegrass. Grass Fam. Formerly abundant throughout the State, now confined mostly to railroad rights of way, cemeteries, and other protected areas. March-June.

167. STIPA, species. Twelve other species occur in the State but they are not abundant.

Suaeda. See *Dondia.*

168. TOXYLON POMIFERUM (=*Maclura pomifera*). Osage-orange. Mulberry Fam. Occasional as a hedge plant or roadside tree; relation to hay fever not known.

169. TRITICUM AESTIVUM (=*T. vulgare* and *T. sativum*). Wheat. Grass Fam. Cultivated in nearly all of the agricultural districts. Usually self-pollinated, but there are always a few plants in a field that throw out a small amount of pollen. Potential area limited by large size of pollen grains. Spring; harmless at time of harvesting for grain. Positive: Sc.

170. ULMUS, species. Elm. Elm Fam. Several species of Elm are grown as street trees and cause a mild form of very early hay fever. The possibility of using pollen from one species in testing and treating for the others has not been determined. Positive: Sc.

171. URTICA GRACILIS (=*U. holosericea*). Common Nettle. Nettle Fam. A weed along creeks and in river bottoms and other wild places; usually not common near towns. May–September.

172. URTICA URENS. Small Nettle. Nettle Fam. In neglected orchards and fields, often in towns, central and southern Calif. Spring, especially May.

173. XANTHIUM PENNSYLVANICUM (=*X. canadense* of some authors). Cocklebur. Composite Fam. On low, weedy ground, especially where moist, throughout the State. Potential area restricted by the large size of the pollen grains. May–September, possibly also earlier. Positive: Sc., Se.

174. XANTHIUM SPINOSUM. Spiny Clotbur. Composite Fam. At low altitudes in all of the warmer parts of the State. Potential area restricted by the large size of the pollen grains. June–October, possibly also earlier. Positive: Sc., Se.

175. ZEA MAYS. Maize. Indian Corn. Grass Fam. Cultivated to a limited extent. The pollen grains are so large that the potential area is restricted to the immediate vicinity of the cornfields. Workers are sometimes affected when the plants are in pollen. Season varies with cultural conditions; mostly summer, autumn. Positive: C., Sc., Se., W.

7. SUPPLEMENTARY LIST.

The plants enumerated in this supplementary list are believed not to be important or frequent causes of hay fever. They are all entomophilous and are here listed merely because of the popular belief that they are causative factors and some because of positive tests that have been obtained for them. The reasons for considering them innocent, except perhaps through direct inhalation, are stated above (p. 804), where also the apparently positive reactions occasionally met with are explained.

176. ACACIA, species. Pea Fam. Popularly supposed to be a cause of spring hay fever, but this is almost impossible except by direct inhalation. The pollen is produced very sparingly and is not easily carried by the wind.

177. CHRYSANTHEMUM LEUCANTHEMUM, and other species. Oxeye Daisy, Shasta Daisy, etc. Composite Fam. The large heads of flowers pollinate rather copiously for an entomophilous species, and the plants are much grown in Calif. gardens. Spring, summer, autumn. Positive: C., P., R., Sc.

178. CITRUS SINENSIS. Orange. Citrus Fam. Commonly reported as a cause of early hay fever, but this is impossible. Pollen scarce and heavy. The navel variety does not produce pollen. Most cases credited to orange are caused by spring grasses or by black walnut.

179. ERIGERON CANADENSIS. Horseweed. Composite Fam. A common weed in warm districts and along streets in towns. Summer. Positive: Sc.

180. HELENIUM PUBERULUM. Sneezeweed. Composite Fam. Moist canyons and bottom lands. Summer. Positive: P., Se.

181. HELIANTHUS ANNUUS. Sunflower. Composite Fam. Widely distributed in the warmer parts of the State.

182. HETEROTHECA GRANDIFLORA. Telegraph Plant. Composite Fam. Common in interior valleys and southern Calif. One positive reaction obtained by Selfridge, but the species has none of the qualities of a hay-fever plant. Summer, autumn.

183. MADIA SATIVA. Tarweed. Composite Fam. This and other sorts of tarweeds, such as species of *Hemizonia*, have entered into hay-fever lists, but are believed to have nothing to do with hay fever.

184. MEDICAGO SATIVA. Alfalfa. Pea Fam. Abundant in all agricultural districts; pollen carefully protected by the flower so that it can not escape into the air unless the flowers are dried and pulverized, as in the curing or baling of hay cut when in bloom. Winds blowing across a field do not carry alfalfa pollen. All seasons.

185. ROBINIA PSEUDACACIA. Locust. Pea Fam. Popularly supposed to be a cause of hay fever, but this absolutely impossible. Most cases reported due to locust are caused by black walnut or by spring grasses.

186. ROSA, species. Rose. Rose Fam. Roses produce but a small amount of pollen. This is especially true of cultivated roses. Positive reactions have been obtained in a few cases where roses bloomed in abundance around the patient's home, but the purity of the extracts used was not verified. Scheppegrell reports the influence of garden roses in hay fever as a "popular myth.". The common wild species is *Rosa californica*.

187. SALIX, species. Willow. There are many species of willow in the State, and some have been admitted to hay-fever lists, but since the pollen is chiefly insect-carried they are doubtlessly of minor importance. Early spring. Positive: C., P., R., Sc.

188. SAMBUCUS CAERULEA. Elderberry. Honeysuckle Fam. A common shrub in rural districts; sometimes accused, but the pollen is heavy and very sparse.

189. SOLIDAGO CALIFORNICA. California Goldenrod. Composite Fam. Scattering throughout the State, especially in the foothills; not so common as goldenrods in the Eastern States. Believed to be of no importance. Summer, autumn. Positive: Se.

190. TANACETUM CAMPHORATUM. Dune Tansy. Composite Fam. Restricted to beach sands from middle Calif. north. *T. vulgare* is occasionally grown in gardens. August–November.

8. DISTRICT LISTS.

In the following lists only those plant species are enumerated that are known to occur in abundance in the respective districts. It should be remembered that these numbers are presented only as a suggestion of the pollens to which attention should first be given. It is probable that others of the main list will be found to be more important than some of those here indicated, and it is not unlikely that some species entirely overlooked will be of considerable importance in some districts. The numbers refer to the entries in the main list.

(*A*) *San Francisco Bay communities.*—

11	12	14	20	21	27	36	40	41	42	45	46	47
51	60	61	66	67	68	73	74	75	80	84	85	94
96	98	100	104	106	111	123	130	133	136	137	143	146
149	150	151	153	156								

(B) Sacramento and San Joaquin valleys.

3	10	11	12	15	16	17	20	27	29	30	31	35
36	37	38	40	41	42	45	46	47	48	49	51	53
54	59	60	61	64	67	68	72	73	74	75	80	85
94	98	99	100	101	104	106	109	110	111	114	117	119
121	123	133	137	140	146	156	157	158	162	169	174	175

(C) Los Angeles-Pasadena district.

5	10	11	12	15	16	20	21	23	27	30	31	38
40	41	46	47	48	49	50	51	60	61	67	68	72
73	74	75	77	80	85	86	90	94	98	99	100	104
106	110	111	112	113	114	121	124	130	131	132	133	134
137	140	143	145	150	151	153	156					

9. INDEX TO COMMON NAMES.

CASES OF INFLUENZA REPORTED BY STATES, 1922.

The accompanying table shows, by weeks, the number of cases of influenza reported by State health officers from January 22 to April 1, 1922.

On pages 640–641 of the Public Health Reports for March 17, 1922, appears a table giving the number of cases of influenza reported by State health officers during the first 10 weeks of the years 1920, 1921, and 1922.

The aggregate estimated population of the 29 States and the District of Columbia is approximately 67,800,000.

Number of cases of influenza reported by States from January 22 to April 1, 1922, inclusive, by weeks.

State.	Number of cases reported during week ended—									
	January.	February—				March—				April
	28	4	11	18	25	4	11	18	25	1
Alabama	3	26	95	29	20	31	185	340	177	410
Arkansas	88	192	232	158	202	371	409	529	1,032	302
California	48	92	845	4,315	10,033	9,917	4,627	3,289	1,169	717
Colorado (exclusive of Denver)	2	4	6	17	12	67	937	755	146	185
Connecticut	22	109	518	1,325	675	711	486	194	146	71
Delaware	2	7	2	2	9	.....	2	16	38	11
District of Columbia	7	5	9	8	7	9	9	3	4	6
Florida	6	15	35	123	118	68	72	74	57	36
Georgia	64	74	81	128	162	179	149	268	470	407
Illinois	125	108	417	633	1,069	809	735	765	686	180
Kansas	121	364	440	480	901	626	557	524	321	352
Kentucky	51	332	640	705	748	1,088	495	548	398	.....
Louisiana	8	10	39	36	368	469	1,603	3,527	3,669	3,232
Maine	14	97	145	131	441	487	352	223	222	158
Maryland	93	110	189	263	431	612	814	728	409	411
Massachusetts	66	398	1,469	1,764	1,285	904	521	292	190	96
Minnesota	.....	2	12	10	44	71	209	245	16	206
Missouri	20	71	99	234	313	406	279	491	303	189
Montana	.....	1	.....	.....	188	178	263	674	435	53
Nebraska	.....	6	6	10	161	66	119	157	164	179
New Jersey	126	426	1,288	1,555	918	512	221	117	97	79
New Mexico	.....	10	14	35	92	304	209	437	1,534	87
New York (exclusive of New York City)	173	694	771	1,577	1,568	1,774	1,973	1,796	1,424	773
New York City	1,230	5,731	7,070	3,284	1,312	592	310	173	120	99
Oregon	7	31	168	442	616	782	250	158	126	48
South Dakota	1	1	1	1	.....	.....	11	51	56	.....
Texas	5	57	141	123	76	353	1,181	240	237	154
Vermont	1	7	2	12	1	2	15	9	9	24
Washington	33	176	1,061	902	360	399	81	116	17	26
West Virginia	.....	.....	62	59	82	446	178	143	98	66
Wisconsin	22	24	37	22	73	129	321	543	772	628
Total	2,338	9,180	15,894	18,383	22,285	22,352	17,573	17,425	14,542	9,185
Number of States reporting cases	25	29	29	29	29	28	30	30	30	28

DEATHS FROM INFLUENZA AND PNEUMONIA COMBINED.

IN CERTAIN LARGE CITIES OF THE UNITED STATES, JANUARY 22 TO APRIL 1, 1922.

The accompanying table gives the number of reported deaths from influenza and pneumonia (all forms) combined, by weeks, from January 22 to April 1, 1922, inclusive, in 63 large cities of the United States.

The data were furnished by city health officers. Use was made of the figures contained in the "Weekly Health Index," issued by the Bureau of the Census, in supplying deficiencies in the figures.

On pages 642–644 of the Public Health Reports for March 17, 1922, appears a table giving the number of deaths from influenza and pneumonia (all forms) combined, in 36 of these cities during the first 10 weeks of the years 1919, 1920, 1921, and 1922.

The population of the 63 cities, estimated as of July, 1921, is approximately 27,500,000.

Number of deaths from influenza and pneumonia (all forms) combined, in large cities, from Jan. 22 to Apr. 1, 1922, inclusive, by weeks.

City.	Number of deaths reported during week ended—									
	January—	February—				March—				April—
	28	4	11	18	25	4	11	18	25	1
Birmingham, Ala.	6	13	4	4	14	9	7	7	10	11
Los Angeles, Calif.	21	26	29	33	79	84	69	64	43	27
Oakland, Calif.	6	8	8	12	12	16	18	11	6	6
San Francisco, Calif.	12	9	15	36	79	51	31	22	9	.....
Denver, Colo.	17	18	16	19	22	26	40	29	26	25
Bridgeport, Conn.	3	4	3	8	19	9	5	9	11	8
Hartford, Conn.	2	.....	3	7	4	6	4	1	4	1
New Haven, Conn.	4	13	10	14	30	27	23	23	15	13
Wilmington, Del.	5	9	8	6	8	8	9	1	7	7
Washington, D. C.	27	25	22	27	26	27	22	21	24	18
Atlanta, Ga.	7	20	17	11	16	13	20	12	33	32
Chicago, Ill.	65	72	80	56	94	139	150	130	92	65
Indianapolis, Ind.	17	29	42	39	38	36	24	20	10	6
Kansas City, Kans.	6	5	5	13	21	16	11	5	7	4
Louisville, Ky.	7	16	24	28	25	19	16	15	11	7
New Orleans, La.	13	19	25	20	19	31	52	37	33	17
Baltimore, Md.	26	29	27	29	40	47	71	63	38	59
Boston, Mass.	28	33	38	51	83	84	61	67	42	34
Cambridge, Mass.	4	7	7	8	9	8	16	4	5	10
Fall River, Mass.	6	5	7	9	22	29	24	15	18	7
Lowell, Mass.	4	4	6	5	13	11	4	5	1	3
New Bedford, Mass.	1	1	5	8	8	25	13	13	11	10
Springfield, Mass.	4	7	0	6	5	8	9	8	8	12
Worcester, Mass.	7	16	16	16	15	13	4	5	4	1
Detroit, Mich.	33	34	54	45	71	93	104	86	70	49
Grand Rapids, Mich.	.....	4	2	1	2	5	3	4	5	2
Minneapolis, Minn.	9	6	9	4	8	19	20	31	11	12
St. Paul, Minn.	3	8	6	6	5	9	18	29	17	.....
Kansas City, Mo.	25	25	28	39	71	52	41	34	22	15
St. Louis, Mo.	42	44	58	68	71	108	83	83	59	37
Omaha, Nebr.	12	16	12	11	17	16	9	6	10	5
Camden, N. J.	7	11	4	3	12	4	7	9	8	6
Jersey City, N. J.	14	25	30	28	34	20	20	14	8	26
Newark, N. J.	20	33	33	46	37	28	20	15	20	24
Paterson, N. J.	8	11	16	19	23	12	11	12	5	6

Number of deaths from influenza and pneumonia (all forms) combined in large cities, from Jan. 22 to Apr. 1, 1922, inclusive, by weeks—Continued.

City.	Number of deaths reported during week ended—									
	January.	February—				March—				April—
	28	4	11	18	25	4	11	18	25	1
Trenton, N. J.	11	22	23	10	24	13	3	8	8	6
Albany, N. Y.	.....	6	13	7	8	10	13	10	9	4
Buffalo, N. Y.	19	21	15	15	20	22	36	31	30	31
New York, N. Y.	302	481	596	576	548	404	331	287	282	253
Rochester, N. Y.	14	6	7	14	11	11	18	26	25	16
Syracuse, N. Y.	6	7	7	7	6	7	3	5	5	5
Yonkers, N. Y.	7	9	12	18	9	7	4	2	4	1
Akron, Ohio	4	4	4	6	11	17	9	10	10	13
Cincinnati, Ohio	19	21	27	41	54	49	42	32	26	18
Cleveland, Ohio	28	25	18	25	60	55	61	62	44	19
Columbus, Ohio	10	8	6	10	11	13	20	19	10	11
Toledo, Ohio	12	7	6	5	6	10	15	19	19	19
Youngstown, Ohio	9	12	11	11	8	13	17	16	19	6
Portland, Oreg.	6	5	15	17	27	32	28	25	21	8
Philadelphia, Pa.	86	85	91	101	162	136	143	134	93	97
Pittsburgh, Pa.	47	60	80	109	99	92	60	38	43	28
Providence, R. I.	17	11	15	26	32	39	19	22	13	12
Memphis, Tenn.	12	10	18	16	21	21	7	13	11	7
Nashville, Tenn.	3	5	5	4	10	17	16	12	15	8
Dallas, Tex.	7	12	9	7	12	19	15	10	14	9
Fort Worth, Tex.	2	11	2	10	9	5	7	9	2	3
Houston, Tex.	3	3	5	3	2	3	7	5	14	5
Salt Lake City, Utah	7	5	11	3	10	7	12	12	9	4
Norfolk, Va.	5	3	3	4	14	12	11	4	7	2
Richmond, Va.	4	8	9	12	21	19	8	8	12	3
Seattle, Wash.	5	18	24	39	17	22	13	8	13	6
Spokane, Wash.	7	3	4	9	9	12	12	4	8	0
Milwaukee, Wis.	8	18	11	14	14	11	18	17	15	18
Total	1,131	1,491	1,716	1,854	2,287	2,186	1,987	1,758	1,484	1,177
Number of cities reporting deaths	61	62	63	63	63	63	63	63	63	61

REQUIREMENTS REGARDING SANITARY CONDITIONS OF WATER SUPPLIES ON VESSELS.

The following Department Circular (No. 282) concerning the requirements for a sanitary system for drinking, and culinary water supplies on vessels has been issued by the Secretary of the Treasury.

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
Washington, March 23, 1922.

To Ship Building and Repairing Companies and Naval Architects of the United States;

All vessels engaged in interstate traffic or handling passengers traveling interstate, or freight which is being transported interstate, are subject to the Interstate Quarantine Regulations of the United States. Special requirements have been prepared for the supervision of the water supplies used for drinking and culinary purposes on such vessels, subject to these regulations. In order that unnecessary and expensive changes, often requiring delay of vessels from their regular business, may be avoided, the following information is herewith prepared for the guidance of naval architects and the managing officials and designing engineers of ship building and repairing companies.

1. If water for drinking and culinary purposes is to be taken by the vessel en route from overboard, it will be necessary that a system of purification be provided which is satisfactory to the United States Public Health Service. Your attention is invited to page 25, Interstate Quarantine Regulations of the United States, relating to this matter.

2. The storage of water on the vessel for drinking and culinary purposes, either when purified aboard or taken from approved supplies ashore, shall be in tanks of adequate capacity for the needs of the passengers and crew; all tanks shall be of such design that they can be readily and completely drained and flushed, and that the water contained therein will be kept free from exposure to contamination. All possible points where leakage may occur shall be eliminated or designed so as to reasonably minimize the possibility of leakage. The covers of all openings into the tanks shall be water-tight.

3. The filling arrangement to such tanks should be so installed as to make it unnecessary that large manholes and other openings be kept uncovered. A small filling pipe with cap should be provided for the purpose of filling the tanks.

4. There shall be no physical connection whatever between the drinking water tanks, pipes, pumps, or any part of the system and any other water system on the vessel, or to the sea cock, bilge pump, fire pump, or boiler feed supply (if other than the drinking water is ever used for this latter purpose).

5. The use of storage tanks, containing drinking or culinary water, built in the fore and aft parts of a vessel by placing a bulkhead across the ship and allowing the hull to form part of the tank is strongly discouraged, because such tanks are difficult of access and in case of leakage are subject to potential contamination.

6. In no case shall soil pipes from water-closets or drainage pipes of any kind pass through storage tanks containing water for drinking and culinary purposes.

7. There should be no water connections in the kitchens whereby it may be possible to draw water from any but the drinking and culinary water supply.

8. All spigots, faucets, or connections whereby it is conveniently available to draw water from other than the regular drinking-water supply on board the vessel shall be posted with permanent signs warning that the water is not safe for drinking.

9. Arrangements should be made for the cooling of drinking water on the vessel so that there can be no contact between the water and the cooling ice. This can be most conveniently accomplished by the use of coils in the ice chest.

10. The use of lead pipe in connection with the drinking-water system on board the vessel is prohibited.

For further explanation of these requirements, you are advised to communicate with the Surgeon General, United States Public Health Service, Washington, D. C. You are requested to acknowledge receipt of this circular.

(Signed) A. W. MELLON,
Secretary.

DEATHS DURING WEEK ENDED MARCH. 25, 1922.

Summary of information received by telegraph from industrial insurance companies for week ended Mar. 25, 1922, and corresponding week, 1921. (From the Weekly Health Index, Mar. 28, 1922, issued by the Bureau of the Census, Department of Commerce.)

	Week ended Mar. 25, 1922.	Corresponding week, 1921.
Policies in force	48,566,234	46,386,036
Number of death claims	10,731	8,372
Death claims per 1,000 policies in force, annual rate	11.5	9.4

Deaths from all causes in certain large cities of the United States during the week ended Mar. 25, 1922, infant mortality, annual death rate, and comparison with corresponding week of 1921. (From the Weekly Health Index, Mar. 28, 1922, issued by the Bureau of the Census, Department of Commerce.)

City.	Estimated population July 1, 1921.	Week ended Mar. 25, 1922.		Annual death rate per 1,000 corresponding week, 1921.	Deaths under 1 year.		Infant mortality rate, week ended Mar. 25, 1922.[2]
		Total deaths.	Death rate.[1]		Week ended Mar. 25, 1922.	Corresponding week, 1921.	
Total	27,496,374	8,070	15.3	13.2	1,089	1,030	.....
Akron, Ohio	[3] 208,435	31	7.8	9.1	7	8	74
Albany, N. Y	115,071	50	22.7	17.2	3	4	67
Atlanta, Ga	[4] 220,047	90	21.3	14.8	13	9	.....
Baltimore, Md	750,864	267	18.5	18.5	29	44	82
Birmingham, Ala	186,133	55	15.4	13.7	5	6	.....
Boston, Mass	757,634	267	18.4	14.5	43	39	115
Bridgeport, Conn	[3] 143,555	39	14.2	9.0	5	6	62
Buffalo, N. Y	519,608	193	19.4	12.0	52	30	205
Cambridge, Mass	110,444	39	18.4	11.8	8	3	146
Camden, N. J	119,672	38	16.6	15.3	7	8	107
Chicago, Ill	2,780,655	704	13.2	12.3	108	125	.....
Cincinnati, Ohio	403,418	119	15.4	11.8	12	7	80
Cleveland, Ohio	831,138	211	13.2	11.7	45	25	116
Columbus, Ohio	245,358	101	21.5	13.2	11	10	116
Dallas, Tex	165,282	58	18.3	9.1	7	4	.....
Dayton, Ohio	[3] 152,559	53	18.1	9.2	7	4	119
Denver, Colo	263,152	135	26.8	17.4	13	10	.....
Detroit, Mich	1,070,450	285	13.9	10.7	65	54	125
Fall River, Mass	120,668	45	19.4	17.3	9	13	126
Fort Worth, Tex	111,423	13	6.1	.....	1	.....	.....
Grand Rapids, Mich	141,197	31	11.4	11.1	3	4	50
Houston, Tex	144,340	45	16.3	13.7	4	4	.....
Indianapolis, Ind	325,632	89	14.3	11.5	8	10	61
Jersey City, N. J	302,788	81	13.9	16.4	15	19	96
Kansas City, Kans	103,884	39	19.6	12.5	5	4	116
Kansas City, Mo	336,157	99	15.4	11.0	6	10	.....
Los Angeles, Calif	614,160	217	18.4	11.7	26	12	108
Louisville, Ky	236,083	78	17.2	13.7	10	6	108
Lowell, Mass	113,757	32	14.7	21.1	8	10	135
Memphis, Tenn	165,656	65	20.5	12.3	3	2	.....
Milwaukee, Wis	468,336	122	13.6	10.4	25	19	122
Minneapolis, Minn	392,815	89	11.8	13.0	9	20	49
Nashville, Tenn	122,035	45	19.2	16.2	7	5	.....
New Bedford, Mass	125,012	40	16.7	14.2	6	10	89
New Haven, Conn	167,007	44	13.7	11.9	7	3	86
New Orleans, La	394,657	137	18.1	16.1	0	17	.....
New York, N. Y	5,751,867	1,580	14.3	12.7	213	171	82
Newark, N. J	424,885	117	14.4	14.6	18	11	80
Norfolk, Va	121,260	38	16.3	9.9	5	3	89
Oakland, Calif	225,472	68	15.7	7.6	11	1	138
Omaha, Nebr	197,066	77	20.4	13.0	7	5	75
Paterson, N. J	137,463	37	14.0	14.4	4	8	62
Philadelphia, Pa	1,836,212	545	15.2	14.7	68	82	81
Pittsburgh, Pa	602,452	167	14.5	16.8	32	25	102
Portland, Oreg	264,859	68	13.4	12.0	3	4	30
Providence, R. I	239,645	83	18.1	17.2	20	13	158
Richmond, Va	175,686	58	17.2	14.8	7	8	85
Rochester, N. Y	305,229	91	15.5	14.9	7	18	54
St. Louis, Mo	786,164	247	16.4	12.3	14	16	.....
St. Paul, Minn	237,781	69	15.1	16.0	2	9	19
Salt Lake City, Utah	121,595	35	15.0	10.7	6	3	89
San Francisco, Calif	520,546	176	17.6	14.6	10	11	58
Seattle, Wash	[3] 315,312	62	10.3	10.0	8	9	68
Spokane, Wash	104,442	29	14.5	11.0	2	0	43
Springfield, Mass	135,877	36	13.8	15.7	5	7	74
Syracuse, N. Y	177,265	46	13.5	15.6	6	9	72
Toledo, Ohio	253,696	71	14.6	12.1	7	6	68
Trenton, N. J	122,760	45	19.1	13.6	5	7	77
Washington, D. C	[3] 437,571	144	17.2	14.4	19	17	109
Wilmington, Del	113,408	32	14.7	10.6	3	4	58
Worcester, Mass	184,972	43	12.1	18.3	4	11	43
Yonkers, N. Y	103,324	21	10.6	8.6	1	3	21
Youngstown, Ohio	139,432	39	14.6	12.7	10	5	132

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births—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.
[4] Estimated population July 1, 1922.

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 April 1, 1922.

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

ALABAMA.

	Cases.
Cerebrospinal meningitis	2
Chicken pox	73
Diphtheria	10
German measles	1
Hookworm disease	131
Influenza:	
Barbour County	166
Coffee County	81
Sumpter County	85
Scattering	78
Malaria	3
Measles	24
Mumps	13
Pellagra	2
Pneumonia	16
Scarlet fever	9
Smallpox	35
Tuberculosis	12
Typhoid fever	2
Whooping cough	12

ARKANSAS.

Chicken pox	20
Diphtheria	2
Hookworm disease	2
Influenza	302
Malaria	28
Measles	1
Pellagra	2
Pneumonia	1
Scarlet fever	2
Tuberculosis	5
Typhoid fever	2

CALIFORNIA.

	Cases.
Beriberi—San Francisco	1
Cerebrospinal meningitis—Stanislaus County	1
Diphtheria	151
Influenza	717
Leprosy—Los Angeles	1
Lethargic encephalitis:	
Eagle Rock	1
Ontario	1
San Diego	1
San Francisco	1
Measles	22
Scarlet fever	92
Smallpox:	
San Jose	11
Scattering	29
Typhoid fever	5

COLORADO.

(Exclusive of Denver.)

Chicken pox	19
Diphtheria	10
Glanders	1
Influenza	185
Measles	2
Mumps	5
Pneumonia	13
Scarlet fever	29
Smallpox	10
Tuberculosis	182
Typhoid fever	1

CONNECTICUT.

Cerebrospinal meningitis	5
Chicken pox	57
Conjunctivitis (infectious)	1

CONNECTICUT—continued.

	Cases.
Diphtheria:	
Bridgeport	14
Hartford	15
Scattering	26
German measles	9
Influenza	71
Lethargic encephalitis	1
Measles:	
Bridgeport	12
Hartford	26
New Haven	30
New London	12
Stamford	23
West Hartford	11
Scattering	17
Mumps	30
Pneumonia (lobar)	58
Scarlet fever:	
Bridgeport	9
New Haven	18
Scattering	51
Smallpox	16
Trachoma	3
Tuberculosis (pulmonary)	33
Typhoid fever	4
Whooping cough	56

DELAWARE.

Chicken pox	10
Diphtheria	2
Influenza	11
Measles	2
Pneumonia	2
Scarlet fever:	
Wilmington	71
Scattering	12
Tuberculosis	3
Typhoid fever	3

FLORIDA.

Diphtheria	13
Influenza	36
Malaria	21
Pneumonia	6
Poliomyelitis	1
Scarlet fever	3
Smallpox	22
Typhoid fever	11

GEORGIA.

Chicken pox	23
Diphtheria	4
Dysentery (bacillary)	1
Hookworm disease	8
Influenza	407
Malaria	16
Measles	1
Mumps	13
Pneumonia	27
Scarlet fever	12
Smallpox	11
Tetanus	1
Tuberculosis (pulmonary)	20
Typhoid fever	1
Whooping cough	3

ILLINOIS.

	Cases.
Cerebrospinal meningitis—Chicago	3
Diphtheria:	
Aurora	9
Chicago	137
Scattering	76
Influenza	180
Lethargic encephalitis:	
Batavia	1
Chicago	4
Rock Island	1
Pneumonia	416
Scarlet fever:	
Chicago	105
Rockford	10
Scattering	81
Smallpox	29
Typhoid fever	14
Whooping cough	89

INDIANA.

Cerebrospinal meningitis—Boone County	1
Diphtheria	49
Poliomyelitis:	
Allen County	1
Jackson County	1
Rabies in animals—Morgan County	1
Scarlet fever	101
Smallpox	26
Typhoid fever	2

IOWA.

Diphtheria	21
Scarlet fever	71
Smallpox	36

KANSAS.

Cerebrospinal meningitis	1
Chicken pox	43
Diphtheria	49
German measles	3
Influenza	352
Measles	9
Mumps	20
Pneumonia	61
Scarlet fever	85
Septic sore throat	1
Smallpox	14
Tuberculosis	92
Typhoid fever	2
Whooping cough	83

LOUISIANA.

Diphtheria	10
Influenza	3,232
Scarlet fever	6
Smallpox	25
Typhoid fever	7

MARYLAND.[1]

Cerebrospinal meningitis	1
Chicken pox	80
Diphtheria	43
German measles	12
Influenza	411
Lethargic encephalitis	5
Malaria	2

[1] Week ended Friday.

MARYLAND—continued.

	Cases.
Measles	286
Mumps	158
Pneumonia (all forms)	167
Scarlet fever	74
Septic sore throat	4
Trachoma	1
Tuberculosis	71
Typhoid fever	5
Whooping cough	32

MASSACHUSETTS.

Cerebrospinal meningitis	3
Chicken pox	102
Conjunctivitis (suppurative)	9
Diphtheria	143
German measles	17
Influenza	96
Lethargic encephalitis	5
Malaria	1
Measles	671
Mumps	102
Ophthalmia neonatorum	16
Pneumonia (lobar)	154
Poliomyelitis	2
Scarlet fever	201
Septic sore throat	4
Trachoma	2
Tuberculosis (all forms)	178
Typhoid fever	7
Whooping cough	99

MINNESOTA.

Cerebrospinal meningitis	2
Chicken pox	6
Diphtheria	56
Influenza	206
Measles	51
Pneumonia	7
Poliomyelitis	2
Scarlet fever	167
Small pox	59
Tuberculosis	50
Typhoid fever	11
Whooping cough	1

MISSISSIPPI.

Cerebrospinal meningitis	1
Diphtheria	16
Scarlet fever	5
Smallpox	22

MISSOURI.

Chicken pox	43
Diphtheria	62
Epidemic sore throat	4
Influenza	189
Measles	4
Mumps	22
Pneumonia	37
Scarlet fever	58
Smallpox	22
Trachoma	7
Tuberculosis	52
Typhoid fever	2
Whooping cough	22

MONTANA.

	Cases.
Diphtheria	9
Influenza	53
Scarlet fever	9
Smallpox	22
Typhoid fever	1

NEBRASKA.

Chicken pox	20
Diphtheria	21
German measles	2
Influenza	179
Measles	114
Mumps	27
Pneumonia	3
Poliomyelitis—McCook	2
Scarlet fever:	
Cedar County	12
Saunders County	20
Scattering	56
Smallpox:	
Dundy County	19
Scattering	6
Tuberculosis	2
Typhoid fever	2
Whooping cough	2

NEW JERSEY.

Cerebrospinal meningitis	2
Chicken pox	149
Diphtheria	112
Influenza	79
Measles	757
Pneumonia	179
Scarlet fever	291
Typhoid fever	8
Whooping cough	117

NEW MEXICO.

Chicken pox	13
Diphtheria	24
Hookworm disease	2
Influenza	87
Measles	2
Pneumonia	23
Scarlet fever	5
Septic sore throat	1
Smallpox	2
Tuberculosis	15
Typhoid fever	2
Whooping cough	18

NEW YORK.

(Exclusive of New York City.)

Cerebrospinal meningitis	1
Diphtheria	142
Influenza	773
Lethargic encephalitis	2
Measles	441
Pneumonia	510
Scarlet fever	258
Typhoid fever	8
Whooping cough	158

NORTH CAROLINA.

	Cases.
Chicken pox	134
Diphtheria	20
German measles	2
Measles	54
Ophthalmia neonatorum	1
Scarlet fever	22
Septic sore throat	5
Smallpox	57
Typhoid fever	4
Whooping cough	190

OREGON.

Chicken pox	10
Diphtheria	10
Influenza	48
Measles	2
Mumps	10
Scarlet fever	15
Septic sore throat	28
Smallpox:	
Portland	8
Scattering	4
Tuberculosis	16
Typhoid fever	2
Whooping cough	7

SOUTH DAKOTA.

Chicken pox	2
Diphtheria	1
Measles	1
Mumps	1
Pneumonia	4
Poliomyelitis	1
Scarlet fever	11
Smallpox	4
Tuberculosis	3

TEXAS.

Diphtheria	16
Influenza	154
Measles	101
Pellagra	3
Pneumonia	28
Scarlet fever	16
Smallpox	11
Typhoid fever	6

VERMONT.

Chicken pox	11
Diphtheria	4
Influenza	24
Measles	6
Mumps	6

VERMONT—continued.

	Cases.
Pneumonia	7
Scarlet fever	37
Whooping cough	9

WASHINGTON.

Cerebrospinal meningitis	1
Chicken pox	60
Diphtheria	26
Influenza	26
Measles	4
Mumps	96
Pneumonia	5
Poliomyelitis	1
Scarlet fever	26
Smallpox:	
Everett	8
Spokane	9
Scattering	32
Tuberculosis	11
Typhoid fever	4
Whooping cough	70

WEST VIRGINIA.

Diphtheria	12
Influenza:	
Fairmont	30
Scattering	36
Scarlet fever	5
Smallpox	1

WISCONSIN.

Milwaukee:	
Cerebrospinal meningitis	2
Chicken pox	32
Diphtheria	15
Measles	2
Pneumonia	17
Scarlet fever	23
Tuberculosis	31
Whooping cough	50
Scattering:	
Cerebrospinal meningitis	1
Chicken pox	71
Diphtheria	27
German measles	7
Influenza	628
Measles	7
Ophthalmia neonatorum	1
Pneumonia	10
Poliomyelitis	1
Scarlet fever	73
Smallpox	32
Tuberculosis	26
Typhoid fever	5
Whooping cough	18

Delayed Reports for Week Ended March 25, 1922.

DISTRICT OF COLUMBIA.

	Cases.
Chicken pox	50
Diphtheria	15
Influenza	4
Measles	9
Scarlet fever	11
Smallpox	2
Tuberculosis	26
Whooping cough	3

KENTUCKY.

	Cases.
Cerebrospinal meningitis—Hopkins County	1
Chicken pox	6
Diphtheria	17
Influenza:	
Allen County	24
Breckinridge County	37
Caldwell County	23
Hopkins County	25

KENTUCKY—continued.	Cases.
Influenza—Continued.	
Logan County	38
Pike County	32
Scattering	219
Lethargic encephalitis—Jefferson County	1
Measles:	
Fayette County	14
Jefferson County	33
Scattering	3
Mumps	6
Pneumonia	65

KENTUCKY—continued.	Cases.
Scarlet fever	9
Septic sore throat	3
Smallpox:	
Adair County	8
Scattering	13
Trachoma	8
Tuberculosis:	
Jefferson County	46
Scattering	10
Typhoid fever	2
Whooping cough	8

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.
February, 1922.										
California	21	809	19,528	11	83	.....	2	628	376	32
Delaware	.....	10	16	1	27	.....	.....	381	.....	5
Kansas	5	311	2,556	.....	21	.....	1	481	193	7
Ohio	5	906	1,364	.....	1,246	.....	5	1,480	377	63
Oregon	1	82	1,351	.....	13	.....	.....	68	212	3
Pennsylvania	17	1,379	.....	1	1,723	1	9	1,947	27	77
Virginia	6	221	10,038	108	401	11	3	193	120	19
Wyoming	.....	15	952	.....	11	.....	.....	16	37	13

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922.

ANTHRAX.

City.	Cases.	Deaths.
California:		
Los Angeles	.....	1
Massachusetts:		
Boston	1	.....
New Jersey:		
Hoboken	1	.....

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 Mar. 18, 1922.		City.	Median for previous years.	Week ended Mar. 18, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
California:				Minnesota:			
San Bernardino	0	.....	1	St. Paul	0	1	.....
Connecticut:				Nebraska:			
Hartford	0	1	.....	Omaha	0	.....	1
Florida:				New Jersey:			
Tampa	.....	.....	1	Trenton	0	1	1
Illinois:				New Mexico:			
Chicago	4	2	1	Albuquerque	.....	.....	1
Peoria	0	.....	1	New York:			
Indiana:				Buffalo	0	.....	2
Indianapolis	1	.....	1	Ithaca	0	.....	1
Kansas:				New York	6	6	3
Wichita	0	.....	1	Peekskill	.....	.....	1
Massachusetts:				Ohio:			
Fall River	0	1	2	Martins Ferry	.....	1	1
Melrose	0	1	1	Wisconsin:			
Michigan:				Milwaukee	2	2	.....
Detroit	2	.....	1	Racine	0	.....	1

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

DIPHTHERIA.

See p. 840; also Telegraphic weekly reports from States, p. 828, and Monthly summaries by States, p. 832.

INFLUENZA.

City.	Cases.		Deaths, week ended Mar. 18, 1922.
	Week ended Mar. 19, 1921.	Week ended Mar. 18, 1922.	
Alabama:			
Anniston	1		
Birmingham		8	4
Mobile			1
Montgomery		3	1
Arizona:			
Tucson			1
Arkansas:			
Fort Smith		2	
Little Rock		27	
North Little Rock		5	
California:			
Alameda		1	
Bakersfield	1		
Berkeley	11		
Long Beach		26	1
Los Angeles	8	478	28
Oakland	3	2	1
Pasadena		72	
Riverside		46	
Sacramento	3	13	1
San Diego		119	16
San Francisco	33	50	11
Santa Ana		6	
Santa Cruz		1	1
Stockton		90	1
Colorado:			
Denver			5
Connecticut:			
Bridgeport		6	3
Derby			1
Greenwich	1		
Hartford			1
Meriden		9	
District of Columbia:			
Washington	5	3	1
Florida:			
Tampa		7	
Georgia:			
Atlanta	5	168	1
Lagrange	1		
Macon		2	
Rome		7	
Idaho:			
Boise		4	
Illinois:			
Alton		5	
Aurora		1	
Bloomington			2
Chicago	13		
Cicero		5	
East St. Louis		1	2
Elgin			1
Freeport		1	
Quincy		14	
Rock Island		2	1
Rockford		5	
Springfield		1	
Indiana:			
Anderson			1
Elkhart		4	
Huntington			2
Indianapolis			3
La Fayette			1
Logansport			1
Muncie			1
Terre Haute			1
Iowa:			
Burlington		1	
Kansas:			
Atchison	2		
Hutchinson		1	
Salina		3	
Topeka			2
Kentucky:			
Covington			2
Louisville		24	1
Louisiana:			
Baton Rouge		54	
New Orleans	1	64	13
Maine:			
Bath		3	
Biddeford		2	1
Portland		1	1
Sanford		54	
Maryland:			
Baltimore	106	252	8
Cumberland	1	11	1
Massachusetts:			
Arlington		2	
Attleboro		5	
Boston	6	33	4
Braintree		1	
Brookline		1	
Cambridge	2	20	1
Chelsea		1	
Clinton		1	
Everett		6	1
Fall River	2	15	3
Haverhill	1	8	1
Leominster		1	
Lowell		1	
Lynn	4		
New Bedford		7	
North Adams	6	1	
Quincy		11	
Saugus	3		
Somerville		6	
Springfield		1	
Webster		7	
Weymouth			1
Winthrop		2	
Worcester	6		
Michigan:			
Detroit	1	63	11
Grand Rapids		9	
Ishpeming		11	
Marquette		50	
Pontiac		8	1
Minnesota:			
Duluth		8	
Minneapolis	2		15
Rochester		1	
St. Paul	1		9
Winona		6	
Missouri:			
Independence			1
Kansas City	2	12	9
St. Joseph			2
St. Louis		21	6
Springfield			1
Montana:			
Billings		17	
Great Falls			3
Missoula		130	

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

INFLUENZA—Continued.

City.	Cases. Week ended Mar. 19, 1921.	Cases. Week ended Mar. 18, 1922.	Deaths, week ended Mar. 18, 1922.
Nebraska:			
Lincoln			2
Nevada:			
Reno		1	1
New Hampshire:			
Dover		1	
New Jersey:			
Belleville	6		
Bloomfield	1	1	
Clifton	3		
Harrison	1		
Jersey City	1	2	
Kearny	2	2	
Montclair	1	1	
Newark	22		
Orange		1	
Passaic		2	
Paterson	1		
Plainfield			1
Trenton	3	1	
West Hoboken			1
West Orange		4	
New Mexico:			
Albuquerque		75	3
New York:			
Albany		86	
Auburn		1	
Binghamton	2		
Buffalo		39	4
Cohoes		7	
Elmira		1	1
Fulton		1	
Ithaca			1
Jamestown		4	
Middletown		6	
Mount Vernon		3	
New York	154	173	34
North Tonawanda		2	
Peekskill		2	
Poughkeepsie		10	1
Rochester			4
Saratoga Springs	2	134	
Schenectady		2	1
Syracuse		11	
Watertown		44	
Watervliet			1
North Carolina:			
Salisbury	2		
Wilmington		1	1
Winston-Salem			3
Ohio:			
Akron		7	
Barberton		1	
Cambridge		1	
Canton			2
Cincinnati		5	9
Cleveland		56	7
Columbus		40	3
Ohio—Continued.			
East Cleveland		1	
Hamilton		2	
Ironton		1	
Lima		1	
Mansfield		13	
Norwood		1	1
Springfield		3	
Toledo		3	6
Youngstown		2	2
Oregon:			
Portland		8	15
Pennsylvania:			
Philadelphia	9	32	20
Rhode Island:			
Providence			4
South Carolina:			
Greenville		2	
South Dakota:			
Sioux Falls		14	
Tennessee:			
Chattanooga		1	
Memphis			3
Nashville			3
Texas:			
Beaumont		5	1
Dallas	1	13	2
El Paso			4
Houston		100	2
Utah:			
Provo		35	
Salt Lake City		15	5
Vermont:			
Burlington			1
Virginia:			
Danville			2
Norfolk		1	
Petersburg		24	
Richmond	3		1
Roanoke	8	1	
Washington:			
Vancouver		1	
Walla Walla		8	
West Virginia:			
Bluefield		1	1
Charleston		13	1
Clarksburg		1	
Fairmont		31	
Morgantown		2	
Wisconsin:			
Beloit		4	
Eau Claire		2	
Kenosha	2	1	
Manitowoc		2	
Milwaukee	1	4	
Oshkosh			1
Wyoming:			
Casper		14	

LEPROSY.

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

LETHARGIC ENCEPHALITIS.

Massachusetts:		
Lawrence	1	

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

MALARIA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Georgia:		
Birmingham	1		Savannah	1	
Arkansas:			Kansas:		
Little Rock	3		Lawrence	1	
Florida:			Virginia:		
Tampa	5		Richmond	1	

MEASLES.

See p. 840; also Telegraphic weekly reports from States, p. 828, and Monthly summaries by States, p. 832.

PELLAGRA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
North Carolina:			Texas:		
Durham		1	Dallas	1	
Tennessee:			Galveston		1
Nashville		1			

PNEUMONIA (ALL FORMS).

Alabama:			Illinois:		
Birmingham		3	Alton		2
Mobile		3	Aurora	11	4
Montgomery		1	Bloomington		2
Arizona:			Chicago	412	101
Tucson		7	Cicero	4	
Arkansas:			East St. Louis		6
Little Rock	3		Elgin	2	1
North Little Rock	1		Evanston	4	
California:			Galesburg		3
Alameda		1	Kewanee	3	
Long Beach		6	La Salle		2
Los Angeles	105	36	Mattoon	7	1
Oakland		10	Oak Park		4
Pasadena	9	3	Pekin	1	
Richmond		1	Peoria		7
Sacramento	5		Quincy	6	1
San Bernardino		2	Rock Island		1
San Diego	3	2	Rockford		3
San Francisco		11	Springfield	13	6
Santa Ana		2	Indiana:		
Santa Cruz		3	Crawfordsville		2
Stockton		8	East Chicago		2
Colorado:			Elkhart	3	
Denver		24	Hammond		3
Connecticut:			Huntington		2
Bridgeport	6	2	Indianapolis		17
Bristol	2	1	La Fayette		1
Hartford	9		Logansport		2
Manchester	3		Terre Haute		4
Meriden		1	Iowa:		
New London		2	Burlington	5	
Norwich		3	Council Bluffs		2
Delaware:			Kansas:		
Wilmington		1	Coffeyville	1	
District of Columbia:			Kansas City	4	
Washington		20	Leavenworth	2	
Florida:			Parsons	3	1
Tampa		1	Pittsburg		1
Georgia:			Topeka	9	2
Albany	1		Wichita	6	5
Atlanta		11	Kentucky:		
Augusta	1		Covington		7
Savannah		3	Lexington		3
Valdosta	1		Louisville		14
Idaho:			Louisiana:		
Boise		5	Baton Rouge	3	2
Pocatello		3	New Orleans	29	24

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.
Maine:		
Bangor	1	
Bath		1
Biddeford		1
Portland		5
Sanford		4
Maryland:		
Baltimore	135	55
Cumberland	6	2
Massachusetts:		
Adams	2	
Arlington	2	
Beverly		4
Boston		63
Braintree		1
Cambridge	6	3
Chelsea		4
Clinton	2	
Easthampton	8	3
Everett		1
Fall River	18	12
Framingham	2	
Gardner		1
Greenfield	2	1
Haverhill		3
Holyoke		2
Leominster	2	
Lowell		5
Lynn	8	3
Malden		5
Melrose		1
Methuen		1
New Bedford		13
Newburyport		1
Newton	2	
North Adams	3	1
Norwood	2	1
Pittsfield		2
Plymouth		3
Quincy		3
Salem	4	
Somerville	5	2
Southbridge	2	
Springfield	14	4
Waltham	3	
Watertown	1	
Webster	1	
Winthrop		1
Woburn		2
Worcester	6	5
Michigan:		
Alpena	2	1
Ann Arbor	10	5
Benton Harbor	3	
Detroit	237	75
Flint		3
Grand Rapids	14	4
Hamtramck	7	
Ironwood		3
Jackson		3
Kalamazoo	3	1
Marquette	5	1
Pontiac	4	3
Port Huron	6	4
Sault Ste. Marie	1	
Minnesota:		
Duluth	15	7
Minneapolis		16
St. Paul		20
Missouri:		
Independence		3
Kansas City	32	25
St. Joseph		11
Springfield		1
Montana:		
Billings		7
Great Falls	2	1
Missoula	10	5
Nebraska:		
Lincoln		4
Omaha		6
Nevada:		
Reno		3
New Hampshire:		
Keene		1
New Jersey:		
Asbury Park	1	
Atlantic City	8	5
Belleville	1	
Bloomfield	3	
Clifton	1	
Englewood	4	1
Garfield	4	1
Hackensack	2	
Harrison	1	
Hoboken		5
Jersey City	12	
Kearny	3	2
Montclair		1
Morristown	1	
Orange	11	1
Passaic	1	
Paterson	10	
Phillipsburg		1
Plainfield	11	2
Summit	1	
Trenton	11	5
West New York		1
West Orange	1	
New Mexico:		
Albuquerque		4
New York:		
Albany	23	
Auburn	2	
Buffalo	107	27
Cohoes	4	1
Elmira	9	3
Fulton	1	
Hornell	5	2
Hudson		2
Ithaca		3
Jamestown	2	1
Lackawanna	9	1
Lockport	2	
Middletown	2	
Mount Vernon	9	2
Newburgh	2	1
New York	475	253
Niagara Falls	2	
North Tonawanda		2
Ogdensburg		1
Olean		1
Peekskill	8	1
Plattsburg		1
Port Chester	4	3
Poughkeepsie		1
Rochester	34	22
Rome	4	1
Saratoga Springs	6	1
Schenectady	12	6
Syracuse	15	5
Troy		7
Watertown		1
White Plains	2	
Yonkers	4	2
North Carolina:		
Raleigh		2
Wilmington		5
Winston-Salem		1
Ohio:		
Akron	12	
Ashtabula		3
Barberton		2
Bucyrus		1
Cambridge		5
Canton		6
Cincinnati		23
Cleveland	95	55
Columbus		16
Coshocton	1	
Dayton	2	
East Youngstown		1

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.
Ohio—Continued.		
Hamilton		1
Ironton		3
Kenmore	1	
Lakewood		1
Lancaster		4
Lima		3
Mansfield	7	2
Marion	1	
Martins Ferry		2
Middletown		2
New Philadelphia	1	
Sandusky		4
Springfield		5
Tiffin		1
Toledo		13
Youngstown		14
Zanesville		4
Oklahoma:		
Oklahoma		6
Oregon:		
Portland		10
Pennsylvania:		
Philadelphia	156	105
Rhode Island:		
Cranston		4
Pawtucket		4
Providence		18
South Carolina:		
Charleston		3
South Dakota:		
Sioux Falls		1
Tennessee:		
Chattanooga	1	
Memphis		10
Nashville		9
Texas:		
Austin		2
Beaumont		1
Texas—Continued.		
Corpus Christi	1	
Dallas	10	8
El Paso		27
Fort Worth		9
Galveston		2
Houston		3
Waco		2
Utah:		
Provo	5	
Salt Lake City		7
Vermont:		
Burlington		2
Virginia:		
Alexandria		1
Danville		1
Lynchburg		1
Norfolk		4
Petersburg		3
Portsmouth		3
Richmond		7
Roanoke	5	4
West Virginia:		
Charleston		2
Clarksburg		4
Huntington		4
Wheeling		8
Wisconsin:		
Eau Claire	1	
Fond du Lac	1	
Janesville		1
Milwaukee	9	
Oshkosh		2
Racine		1
Superior		4
Wyoming:		
Casper	7	2
Cheyenne		2

POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 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 Mar. 18, 1922.	
		Cases.	Deaths.
Illinois:			
Chicago	1	1	
Maryland:			
Baltimore	0		1
Michigan:			
Benton Harbor	0	1	
New Jersey:			
Trenton	0	2	
New York:			
Middletown	0	1	1
New York	0	3	1
Ohio:			
Hamilton	0		1
Texas:			
Fort Worth	0	1	1

RABIES IN ANIMALS.

City.	Cases.
Massachusetts:	
Medford	2

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

RABIES IN MAN.

City.	Cases.	Deaths.
Virginia:		
Richmond	.....	1

SCARLET FEVER.

See p. 840; also Telegraphic weekly reports from States, p. 828, and Monthly summaries by States, p. 832.

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 Mar. 18, 1922.	
		Cases.	Deaths.
Alabama:			
Mobile	2	1	.....
Arizona:			
Tucson	0	.....	3
California:			
Alameda	0	1	.....
Oakland	1	1	.....
San Francisco	5	6	.....
Stockton	0	1	.....
Colorado:			
Denver	23	7	1
Connecticut:			
Bridgeport	0	5	.....
Fairfield	.....	1	.....
Georgia:			
Augusta	0	1	.....
Macon	2	1	.....
Illinois:			
Chicago	2	2	1
Peoria	6	12	.....
Indiana:			
Anderson	0	1	.....
Bloomington	1	2	.....
Elkhart	4	2	.....
Indianapolis	6	1	.....
Terre Haute	2	1	.....
Iowa:			
Burlington	0	4	.....
Clinton	2	2	.....
Davenport	10	1	.....
Des Moines	4	1	.....
Muscatine	0	2	.....
Sioux City	3	2	.....
Kansas:			
Hutchinson	1	2	.....
Kansas City	3	2	.....
Wichita	7	5	.....
Maine:			
Waterville	1	1	.....
Michigan:			
Alpena	0	1	.....
Jackson	1	1	.....
Kalamazoo	0	1	.....
Minnesota:			
Duluth	2	1	.....
Faribault	.....	1	.....
Hibbing	0	1	.....
Minneapolis	23	12	.....
Rochester	6	1	.....
St. Paul	13	28	.....
Virginia	0	3	.....
Winona	3	1	.....
Missouri:			
Kansas City	15	4	2
St. Louis	5	2	.....
Montana:			
Great Falls	0	10	.....
Nebraska:			
Omaha	16	1	.....
North Carolina:			
Durham	0	3	.....
Winston-Salem	5	2	.....
Ohio:			
Akron	0	1	.....
Cincinnati	1	1	.....
Dayton	3	2	.....
Hamilton	2	1	.....
Springfield	0	15	.....
Toledo	4	3	.....
Oklahoma:			
Oklahoma	11	3	.....
Oregon:			
Portland	2	27	.....
South Dakota:			
Sioux Falls	3	1	.....
Tennessee:			
Memphis	5	1	.....
Nashville	0	1	.....
Texas:			
Beaumont	0	3	.....
Dallas	11	10	.....
El Paso	0	3	.....
Houston	2	1	.....
Waco	4	1	.....
Utah:			
Salt Lake City	10	3	.....
Virginia:			
Danville	0	1	.....
Washington:			
Aberdeen	1	1	.....
Bellingham	0	3	.....
Everett	0	2	.....
Spokane	33	7	.....
Tacoma	1	6	.....
Walla Walla	0	2	.....
West Virginia:			
Bluefield	8	1	.....
Wisconsin:			
Ashland	.....	1	.....
Manitowoc	0	1	.....
Milwaukee	8	4	.....
Superior	1	5	.....
Wausau	0	3	.....
West Allis	.....	1	.....

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

TETANUS.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Connecticut:			Massachusetts:		
Bridgeport	1	1	Pittsfield	1	1
Georgia:			Pennsylvania:		
Savannah	1	1	Philadelphia	1	.....

TUBERCULOSIS.

See p. 840; also Telegraphic weekly reports from States, p. 828.

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 Mar. 18, 1922.		City.	Median for previous years.	Week ended Mar. 18, 1922.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Minnesota:			
Birmingham	2	2	.....	Minneapolis	1	2	.....
Mobile	0	1	.....	Missouri:			
California:				Independence	2	1	.....
Los Angeles	1	2	.....	St. Joseph	0	.....	1
Sacramento	0	.....	1	St. Louis	4	.....	2
San Francisco	3	3	.....	New York:			
District of Columbia:				Buffalo	2	.....	1
Washington	1	1	.....	Middletown	0	1	.....
Florida:				New York	9	.....	2
Tampa	3	3	.....	Ohio:			
Georgia:				Cambridge	.....	.....	1
Savannah	0	1	.....	Cleveland	2	1	1
Valdosta	0	1	.....	Tiffin	0	1	.....
Illinois:				Toledo	2	1	1
Chicago	6	2	.....	Oregon:			
Kewanee	0	1	.....	Portland	0	1	.....
Quincy	0	1	1	Pennsylvania:			
Indiana:				Philadelphia	5	2	.....
East Chicago	.....	1	.....	Washington	0	2	.....
Hammond	0	3	.....	Rhode Island:			
Kansas:				Pawtucket	0	1	.....
Kansas City	0	1	.....	Tennessee:			
Topeka	0	1	.....	Knoxville	0	1	1
Kentucky:				Texas:			
Louisville	0	1	.....	Dallas	1	1	.....
Massachusetts:				Galveston	1	2	.....
Adams	0	1	.....	Virginia:			
Gardner	0	1	.....	Norfolk	0	1	.....
Lawrence	0	1	.....	Washington:			
Michigan:				Seattle	0	2	.....
Alpena	2	2	.....	Wisconsin:			
Kalamazoo	0	1	.....	Milwaukee	1	1	.....
				Racine	0	1	.....

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City.	Population January 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								2	
Birmingham	178,270	50			4				4	2
Mobile	60,151	32								2
Montgomery	43,464	15	1							3
Arizona:										
Tucson	20,292	26								10
Arkansas:										
Fort Smith	28,811	14	1				1			2
Hot Springs	11,695	4								
Little Rock	64,997		1				1		2	
California:										
Alameda	28,806	9			2		10			1
Long Beach	55,593	26					1		1	
Los Angeles	576,673	268	49	4	3		32		66	38
Oakland	216,361	68	14	4	4		3		4	1
Pasadena	45,354	31	1		2		6		2	4
Richmond	16,843	2	1							
Riverside	19,341	3							5	
Sacramento	65,857	23	3				2	1	6	1
San Bernardino	18,721	18	1						2	
San Diego	74,683		1	1			13		6	6
San Francisco	508,410	161	42	2	3		15		37	12
Santa Ana	15,485	6								1
Santa Cruz	10,917	6					1			
Stockton	40,296	20	3				1			3
Colorado:										
Denver	256,369	119	20	1	5		10			15
Connecticut:										
Bridgeport	143,538	36	6	1	3	1	13		1	1
Bristol	20,620	1	1				2			
Derby	11,238	1								
Fairfield (town)	11,475	2	1						1	
Greenwich (town)	22,123						8			
Hartford	138,036	48	8		33		4		5	
Manchester (town)	18,370	3			1		2		3	
Meriden (city)	29,842		1	1			1			
Milford (town)	10,193	1	2							
New London	25,688	7			11				1	
Norwich (city)	22,304	9	1	1	1				2	1
Stamford (city)	35,086				50		2		1	
Delaware:										
Wilmington	110,168	23	3				52			1
District of Columbia:										
Washington	437,571	151	7		6		13		35	19
Florida:										
Tampa	51,252	17	4							1
Georgia:										
Atlanta	200,616	62					4		2	8
Augusta	52,548						1			
Brunswick	14,413	2								1
Macon	52,995				8		1			
Rome	13,252		1							
Savannah	83,252	33					1			2
Valdosta	10,783	2	1							
Idaho:										
Boise	21,393	8					1			
Pocatello	15,001	8								
Illinois:										
Alton	24,682	8					3			
Aurora	36,397	11	3		6	1	1		2	
Bloomington	28,725	15					3			
Blue Island	11,424	5	1	1	4		1			
Centralia	12,491	4								
Champaign	15,873				1		2			
Chicago	2,701,705	803	155	16	267	5	121	1	279	50
Cicero	44,995	7	1		1		2		8	1
East St. Louis	66,740	16			2				2	
Elgin	27,454	11							1	1
Evanston	37,215	7	1		1		1			
Forest Park	10,768		1		8					
Freeport	19,669	4	1				2			
Galesburg	23,834	9	1		1					1
Kewanee	16,026	4			1		2		3	

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

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

City.	Population January 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.										
La Salle	13,050	3								
Mattoon	13,552	4					2			
Oak Park	39,830	10	2		12				1	
Pekin	12,086						2		1	
Peoria	76,121	26	2		1		1		2	1
Quincy	35,978	9	1				2			
Rockford	65,651	19	3		4		12			2
Rock Island	35,177	5	1		1		1		5	
Springfield	59,183	28	1				3		4	2
Indiana:										
Anderson	29,767	5					1		1	
Bloomington	11,595	3								
Crawfordsville	10,139	3								1
East Chicago	35,967	9	3		1				2	
Elkhart	24,277	4								
Fort Wayne	86,549	18	3		11		2			1
Frankfort	11,585	5					1			
Hammond	36,004	14	3		1		2			
Huntington	14,000	6	1							
Indianapolis	314,194	111	14	3	54		3		13	7
La Fayette	22,486	10								
Logansport	21,626	7	1							1
Mishawaka	15,195	2	2				2		6	
Muncie	36,624	11	3	2						1
Richmond	26,765	9	1							
South Bend	70,983	14	2	1			2		8	
Terre Haute	66,083	24	1		1		8			3
Iowa:										
Burlington	24,057	11								
Cedar Rapids	45,566				4					
Clinton	24,151	1	4	1						
Council Bluffs	36,162	9	3		2		1			
Davenport	56,727		1				1			
Des Moines	126,468		2				12			
Dubuque	39,141						2			
Mason City	20,065	6	1				3			1
Muscatine	16,068	15								
Ottumwa	23,003						2			
Sioux City	71,227		10				3	1		
Waterloo	36,230						2		1	1
Kansas:										
Atchison	12,630						6			
Coffeyville	13,452	4	2				2		1	
Fort Scott	10,693	4	3						16	
Hutchinson	23,293		2				1		1	
Kansas City	101,177		2				3		3	
Lawrence	12,456	5	1						1	1
Parsons	16,028	5								
Pittsburg	18,052	6	3							
Salina	15,085	8					1			
Topeka	50,022	20					1			1
Wichita	72,128	32	3				12			1
Kentucky:										
Covington	57,121	22	2		11					2
Lexington	41,534	22	1		5		2			2
Louisville	234,891	70	10		20		1		12	6
Paducah	24,735		1				6			
Louisiana:										
Baton Rouge	21,782	10	1						1	1
New Orleans	387,219	149	12		1		9		25	16
Maine:										
Auburn	16,985	0					2			
Bangor	25,978		1				2			
Bath	14,731	4								
Biddeford	18,008	9					1			
Lewiston	31,791	15	1						1	
Portland	69,272	24	5	1			19			3
Sanford	10,691	10								
Waterville	13,351				1					
Maryland:										
Baltimore	733,826	290	32	5	199	2	47	1	34	30
Cumberland	29,837	19	1	1					2	2

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

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

City.	Population January 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Massachusetts:										
Adams	12,967	3	2							
Amesbury	10,036	2			1					
Arlington	18,665	5			3					
Attleboro	19,731	4								
Belmont	10,749	3	1		2		1			
Beverly	22,561	7	1		2		1		3	
Boston	748,060	302	48	1	125		55	1	70	18
Braintree	10,580	5					1			2
Brookline	37,748	6			3		2			
Cambridge	109,694	30	2		48		10		11	2
Chelsea	43,184	12			1		3		2	
Chicopee	36,214	8	3		1					
Clinton	12,979	2								1
Dedham	10,792	4								
Easthampton	11,261	3			1		1			
Everett	40,120	11	2		13		2			
Fall River	120,485	66	3		1		2		5	5
Framingham	17,033	9							1	2
Gardner	16,971	8					3		4	1
Greenfield	15,462	3	2		4		1			
Haverhill	53,884	18	7	1			2		3	1
Holyoke	60,203	13	5		26				1	
Lawrence	94,270	22	2		16				4	3
Leominster	19,744	6					1		2	
Lowell	112,479	35	2		10		1		5	3
Lynn	99,148	24	1				6		4	2
Malden	49,103	11	3		4		4		1	1
Medford	39,038	7	1		12					
Melrose	18,204	7		1						
Methuen	15,189	5	1		19				1	
New Bedford	121,217	48	12	1			11	1	6	2
Newburyport	15,618	6					2		1	1
Newton	46,054	16			4		7		1	
North Adams	22,282	5					1		1	
Northampton	21,951	16	2				1		2	
Norwood	12,627	1								
Peabody	19,552				18		2		2	
Pittsfield	41,751	15	1				3			2
Plymouth	13,045	6								
Quincy	47,876	9	5	1	22		2		2	
Salem	42,529	14		1	3		7	1	1	
Somerville	93,091	17	3		29		3		2	
Southbridge	14,245	3								
Springfield	129,563	45	6	1	14		1		4	7
Taunton	37,137	19							3	2
Wakefield	13,025	1	5		1		1			1
Waltham	30,915	7			12		3			
Watertown	21,457	3								
Webster	13,258	3			1					
West Springfield	13,443	4								
Westfield	18,604	10			23				4	1
Weymouth	15,057	3								
Winthrop	15,455	3	1	1	1					
Woburn	16,574	7								
Worcester	179,754	57	5		1		5		6	3
Michigan:										
Alpena	11,101						2	1		
Ann Arbor	19,516	20	2		1					
Benton Harbor	12,233	2					1			
Detroit	993,739	309	58	4	284	21	49		44	20
Flint	91,599	19	6		1		5			
Grand Rapids	137,634	38	5		2		9			
Hamtramck	48,615	0	1		5				1	
Ironwood	15,739	6								
Ishpeming	10,500	3								
Jackson	48,374	24	5		1				3	2
Kalamazoo	48,858	15	12	1			29		4	2
Marquette	12,718	3								
Pontiac	34,273	12	4		41		1		1	1
Port Huron	25,944	9	1				2			
Sault Ste. Marie	12,096	1					1		1	

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

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

City.	Population January 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Minnesota:										
Austin	10,118								1	
Duluth	98,917	24					13		2	1
Faribault	11,089	3					1			1
Hibbing	15,089	1	1				4			
Mankato	12,469						8			
Minneapolis	380,582	143	11	1	18		37	2	17	8
Rochester	13,722	14								
St. Cloud	15,873						4			
St. Paul	234,595	103	6	1	1		29		11	5
Winona	19,143						1			
Missouri:										
Cape Girardeau	10,252		1				2			
Independence	11,686	6								
Joplin	29,855						1			
Kansas City	324,410	111	6		1		3		9	8
St. Joseph	77,939	44	1				2			2
St. Louis	772,897	272	34	2	4		21		26	15
Springfield	39,631	18								1
Montana:										
Billings	15,100	11							3	
Great Falls	24,121	10	7	1	1					
Missoula	12,668	9								1
Nebraska:										
Lincoln	54,934	23	1	1	17		1		2	
Omaha	191,601	57	3		22		3			5
Nevada:										
Reno	12,016	6								
New Hampshire:										
Berlin	16,104	3							4	
Concord	22,167	9			2		3			2
Dover	13,029	3			9					
Keene	11,210	3					1			
Nashua	28,379	4								1
New Jersey:										
Asbury Park	12,400	2	1				2			
Atlantic City	50,682	21	1				6		3	1
Bayonne	76,754		2		9		3		3	
Bloomfield	22,019	2	1		37		1		1	
Clifton	26,470	3	1	1	2		2			
Englewood	11,627	4					1		1	
Garfield	19,381	3			1					
Hackensack	17,667	2					2			
Harrison	15,721				1		1			
Hoboken	68,166	16	5	2	8		5		1	
Jersey City	297,864		22		98		22		25	
Kearny	26,724	10			2		3		1	2
Montclair	28,810	4					3		2	
Morristown	12,548	4			1		2			
Orange	33,268	5	1		4		4		3	
Passaic	63,824	17	2		2		9		1	
Paterson	135,866		7		57		10			
Perth Amboy	41,707	5			11		6		2	2
Phillipsburg	16,923	6	1	1						
Plainfield	27,700	8			3		4			
Rahway	11,042	1		1						
Summit	10,174	1			2		1			
Trenton	119,289	40	1	1	33		9		6	6
Union	20,651		1		11		2		1	
West Hoboken	49,068	5	1		14		4			
West New York	29,926	5	1		5		3	1		
West Orange	15,573	2					2		1	
New Mexico:										
Albuquerque	15,157	15	2				14	2	12	3
New York:										
Albany	113,344		5		2		2		7	
Auburn	36,192	11	3	1			1		1	2
Buffalo	506,775	175	13		2		42	1	21	16
Cohoes	22,987	5					2			
Elmira	45,305	25			91		3			1
Fulton	13,043	4								
Geneva	14,648	1								
Hornell	15,025	6			1					1
Hudson	11,745	5	3		2		3			

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

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

City.	Population January 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.										
Ithaca	17,604	9	3				4			
Jamestown	38,917	14	1		21		2		4	1
Lackawanna	17,918	3	3						3	
Lockport	21,308	4			1		2			
Middletown	18,420		1							
Mount Vernon	42,726	14	1	1	3		7		3	2
Newburgh	30,366	10					1		1	
New York	5,621,151	1,607	268	27	1,842	39	404	11	[1]256	[1]138
Niagara Falls	50,760	10	4		8		7		1	1
North Tonawanda	15,482	7	1				3			1
Ogdensburg	14,609	9								1
Olean	20,506	4								
Peekskill	15,868	5	4	1	59				1	
Plattsburg	10,909	8								
Port Chester	16,573	5	1							
Poughkeepsie	35,000	9			49					
Rochester	295,750	98	12	2	4		6	1	9	2
Rome	26,341	3	2		2		1			1
Saratoga Springs	13,181	4								
Schenectady	88,723	29	3	1	1		10		3	1
Syracuse	171,717	43	17		1		15		4	1
Troy	72,013	36	1				1		5	3
Watertown	31,285	18	1				1		2	1
Watervliet	16,073	5								1
White Plains	21,031	6			20		1		1	
Yonkers	100,226	23	1	1	7		14			
North Carolina:										
Durham	21,719	5							1	1
Greensboro	19,861	4								
Raleigh	24,418	9							1	1
Rocky Mount	12,742	2								
Salisbury	13,884	4								
Wilmington	33,372	19	1				1			2
Winston-Salem	48,395	11	1							1
Ohio:										
Akron	208,435	47	4		43		14		7	
Ashtabula	22,082	4								
Barberton	18,811	7							1	
Bucyrus	10,425	3								
Cambridge	13,104	12	1							
Canton	87,091	25	3		71		1			2
Cincinnati	401,247	144	9	1	112	2	2		20	
Cleveland	796,836	227	35	1	141		79		48	18
Columbus	237,031	86	12		2		1		4	10
Coshocton	10,847						2			
Dayton	152,559	28								
East Cleveland	27,292	7	1		2					
East Youngstown	11,237	2								1
Findlay	17,021	4		1			1		1	
Fremont	12,468	2								
Hamilton	39,675	10								
Ironton	14,007	9							2	1
Lakewood	41,732	7			11		8		1	1
Lancaster	14,706	8					1			2
Lima	41,306	15	3							3
Lorain	37,295						4			
Mansfield	27,824	7					3			
Marion	27,891		1							
Martins Ferry	11,634	7	1						19	
Middletown	23,594	6					1			
Newark	26,718	8	3							
Niles	13,080	3	3	1	1		4			
Norwood	24,966	3								
Piqua	15,044	8					1		1	
Salem	10,305	3					6			
Sandusky	22,897	16					4		1	
Springfield	60,840	18	3		1					2
Steubenville	28,508	11							1	
Tiffin	14,375	6								
Toledo	243,109	84	11	2	23		10		3	5
Youngstown	132,358	39	4	1	5		6		3	
Zanesville	29,569	12	3				3		1	1

[1] Pulmonary tuberculosis only.

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

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

City.	Population January 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Oklahoma:										
Oklahoma	91,258	22	4	.....	1	.....	3	.....	1	1
Tulsa	72,075	.....	.....	.....	15	.....	2	.....	.....	.....
Oregon:										
Portland	258,288	73	11	2	1	.....	6	.....	4	3
Pennsylvania:										
Allentown	73,502	.....	3	.....	.....	.....	2	.....	3	.....
Altoona	60,331	.....	.....	.....	.....	.....	2	.....	.....	.....
Beaver Falls	12,802	.....	2	.....	.....	.....	.....	.....	.....	.....
Berwick	12,181	.....	.....	.....	20	.....	.....	.....	.....	.....
Bethlehem	50,358	.....	1	.....	1	.....	3	.....	1	.....
Braddock	20,879	.....	.....	.....	.....	.....	.....	.....	1	.....
Bradford	15,525	.....	.....	.....	.....	.....	1	.....	.....	.....
Butler	23,778	.....	.....	.....	.....	.....	1	.....	.....	.....
Carlisle	10,916	.....	2	.....	.....	.....	.....	.....	.....	.....
Carrick	10,504	.....	.....	.....	.....	.....	1	.....	.....	.....
Chambersburg	13,171	.....	.....	.....	1	.....	.....	.....	.....	.....
Chester	58,030	.....	.....	.....	.....	.....	5	.....	.....	.....
Connellsville	13,804	.....	1	.....	.....	.....	1	.....	.....	.....
Dickson City	11,049	.....	.....	.....	.....	.....	1	.....	.....	.....
Dubois	13,681	.....	2	.....	.....	.....	1	.....	.....	.....
Easton	33,813	.....	1	.....	.....	.....	.....	.....	.....	.....
Erie	93,372	.....	4	.....	1	.....	2	.....	5	.....
Farrell	15,586	.....	.....	.....	.....	.....	2	.....	.....	.....
Greensburg	15,033	.....	.....	.....	.....	.....	6	.....	.....	.....
Harrisburg	75,917	.....	6	.....	2	.....	2	.....	.....	.....
Hazleton	32,277	.....	1	.....	29	.....	.....	.....	.....	.....
Homestead	20,452	.....	.....	.....	.....	.....	.....	.....	4	.....
Johnstown	67,327	.....	6	.....	5	.....	.....	.....	.....	.....
Lancaster	53,150	.....	7	.....	.....	.....	13	.....	1	.....
Lebanon	24,643	.....	.....	.....	1	.....	2	.....	2	.....
McKees Rocks	16,713	.....	.....	.....	.....	.....	.....	.....	1	.....
Mahanoy City	15,509	.....	.....	.....	1	.....	.....	.....	.....	.....
Monessen	18,179	.....	.....	.....	.....	.....	1	.....	.....	.....
Mount Carmel	17,469	.....	.....	.....	2	.....	1	.....	.....	.....
Nanticoke	22,614	.....	1	.....	.....	.....	.....	.....	.....	.....
New Castle	44,938	.....	2	.....	11	.....	.....	.....	2	.....
New Kensington	11,987	.....	.....	.....	1	.....	.....	.....	.....	.....
North Braddock	14,928	.....	1	.....	.....	.....	.....	.....	.....	.....
Philadelphia	1,823,158	619	76	4	27	.....	105	3	53	47
Pittsburgh	588,193	.....	19	.....	43	.....	39	.....	20	.....
Pittston	18,497	.....	1	.....	.....	.....	.....	.....	.....	.....
Plymouth	16,500	.....	.....	.....	19	.....	1	.....	.....	.....
Pottstown	17,431	.....	2	.....	.....	.....	1	.....	.....	.....
Pottsville	21,876	.....	.....	.....	5	.....	1	.....	.....	.....
Reading	107,784	.....	3	.....	3	.....	4	.....	.....	.....
Scranton	137,783	.....	4	.....	2	.....	2	.....	6	.....
Shamokin	21,204	.....	2	.....	.....	.....	.....	.....	.....	.....
Sharon	21,747	.....	.....	.....	1	.....	2	.....	.....	.....
Shenandoah	24,726	.....	1	.....	2	.....	1	.....	.....	.....
Steelton	13,428	.....	.....	.....	.....	.....	3	.....	.....	.....
Sunbury	15,721	.....	.....	.....	3	.....	.....	.....	.....	.....
Swissvale	10,908	.....	1	.....	1	.....	.....	.....	.....	.....
Tamaqua	12,363	.....	.....	.....	3	.....	.....	.....	.....	.....
Uniontown	15,692	.....	1	.....	.....	.....	2	.....	.....	.....
Washington	21,480	.....	1	.....	13	.....	.....	.....	2	.....
West Chester	11,717	.....	.....	.....	.....	.....	.....	.....	1	.....
Wilkes-Barre	73,833	.....	1	.....	5	.....	.....	.....	2	.....
Wilkinsburg	24,403	.....	.....	.....	1	.....	2	.....	.....	.....
Williamsport	36,198	.....	2	.....	1	.....	.....	.....	.....	.....
Woodlawn	12,495	.....	.....	.....	.....	.....	1	.....	.....	.....
York	47,512	.....	5	.....	.....	.....	.....	.....	.....	.....
Rhode Island:										
Cranston	29,407	11	1	.....	.....	.....	.....	.....	.....	2
East Providence (town)	21,793	.....	1	.....	.....	.....	.....	.....	.....	.....
Newport	30,255	6	.....	1	.....	.....	2	.....	.....	1
Pawtucket	64,248	19	1	.....	.....	.....	1	.....	.....	2
Providence	237,595	77	10	.....	1	.....	2	.....	.....	2
South Carolina:										
Charleston	67,957	21	.....	.....	.....	.....	1	.....	.....	4
Columbia	37,524	.....	1	.....	.....	.....	.....	.....	.....	.....
South Dakota:										
Sioux Falls	25,176	8	1	.....	5	.....	2	.....	.....	.....

CITY REPORTS FOR WEEK ENDED MARCH 18, 1922—Continued.

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

City.	Population January 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Tennessee:										
Chattanooga	57,895						6			
Knoxville	77,818				30				2	2
Memphis	162,351	84	10				3		13	8
Nashville	118,342	39	4				4		1	1
Texas:										
Austin	34,876	25		1						4
Beaumont	40,422	8	1							1
Corpus Christi	10,522	3							1	
Dallas	158,976	38	6		98		2		2	2
El Paso	77,543	76	1		1		1			17
Fort Worth	106,482	25	6				2		1	1
Galveston	44,255	8		1						
Houston	138,076	49								4
Waco	38,500	10	1				1			1
Utah:										
Provo	10,303	0							1	
Salt Lake City	118,110	45	5	1	3		4			2
Vermont:										
Barre	10,008						4			
Burlington	22,779	14					7			
Rutland	14,954	4					1			
Virginia:										
Alexandria	18,060	7			1				1	1
Danville	21,539	6			8					
Lynchburg	29,956	6	2						5	
Norfolk	115,777		1				4		6	3
Petersburg	31,002	13							4	2
Portsmouth	54,387	15					1			1
Richmond	171,667	54	2		14		3			1
Roanoke	50,842	15	4							1
Washington:										
Bellingham	25,570								6	
Everett	27,644				1		2			
Seattle	315,652		2		1		8		26	
Spokane	104,437		1				7			
Tacoma	96,965		3		2					
Vancouver	12,637		1							
Walla Walla	15,503								5	
West Virginia:										
Bluefield	15,282	5	1				1			
Charleston	39,608	12	1							
Clarksburg	27,869	9	7	1	5					
Fairmont	17,851				1		1			
Huntington	50,177	17	2							
Martinsburg	12,515				18					
Morgantown	12,127						1		1	
Moundsville	10,669	6			4		2			
Wheeling	54,322	23	3						14	
Wisconsin:										
Appleton	19,561		1				1			
Beloit	21,284	3					5			
Eau Claire	20,880						1			
Fond du Lac	23,427	10	3							
Green Bay	31,017	6	2							
Janesville	18,293	3								
Kenosha	40,472	7	4		1		1			
La Crosse	30,363								2	
Madison	38,378						3			
Milwaukee	457,147		13		1		25		14	
Oshkosh	33,162	6					1			
Racine	58,596	13	2				14		1	1
Stevens Point	11,371						2			
Superior	39,624	11	1				1		2	
Waukesha	12,558						3			
Wyoming:										
Casper	11,447	4					1			
Cheyenne	13,829	8					2		1	

FOREIGN AND INSULAR.

AUSTRALIA.

Plague.

During the week ended April 1, 1922, six to ten cases[1] of plague with one death were reported at Sydney, New South Wales.

During the week ended March 25, 1922, plague was reported in Australia, as follows: New South Wales, Sydney—one case, one death; Queensland, Aramac—one case, one death.

AZORES.

Plague—St. Michael Island.

During the period January 22 to March 4, 1922, plague was reported in St. Michael Island, Azores, with a total of 51 cases with 25 deaths, occurring at localities situated from 3 to 9 miles from the port of Ponta Delgada.

ITALY.

Plague-Infected Rats—Catania.

During the months of January and February, 1922, out of 1,000 rats taken in various parts of the city of Catania, Italy, 28 rats were reported found plague-infected. The sanitary authorities of Catania were stated to be of opinion that the infection was a continuation of infection introduced during the year 1914.[2]

PERU.

Plague—Feb. 16–28, 1922.

During the period February 16 to 28, 1922, 34 cases of plague with 21 deaths were reported in Peru. The occurrence was distributed in 8 localities as compared with 15 localities in which occurrence was reported during the previous two-week period.

PORTUGUESE WEST AFRICA.

Plague—Mossamedes.

Plague was reported present, February 14, 1922, at Mossamedes, Angola, Portuguese West Africa.

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[1] As stated by code.

[2] Public Health Reports, Sept. 25, 1914, p. 2547.

RUSSIA.

Communicable Diseases—Esthonia.

Communicable diseases have been notified in the Province of Esthonia, Russia, as follows:

January 1–31, 1922.

Disease.	Cases.	Remarks.
Cerebrospinal meningitis	3	
Diphtheria	52	
Measles	711	
Scarlet fever	70	
Smallpox	15	
Tuberculosis	156	
Typhoid fever	118	Paratyphoid fever, 10.
Typhus fever	36	Recurrent typhus, 29.

SWITZERLAND.

Influenza—Basel—Zurich.[1]

Influenza has been reported in Switzerland as follows: *Basel*—January 1 to 28, 1922, cases, 5,472; January 29 to February 25, 1922, 2,741 cases. *Zurich*—Two weeks ended February 25, 1922, 314 cases, with 13 deaths; total from January 1 to February 25, 1922, 4,623 cases, with 50 deaths.

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

Reports Received During Week Ended April 7, 1922.[a]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India				Nov. 27–Dec. 31, 1921: Deaths, 7,377.
Bombay	Jan. 29–Feb. 4	1	1	
Calcutta	Feb. 12–18	21	18	
Rangoon	Feb. 5–11	3	3	
Philippine Islands:				
Manila	Feb. 12–18	2	1	
Siam:				
Bangkok	Jan. 29–Feb. 4	2	2	

PLAGUE.

Australia:				
New South Wales—				
Sydney	Mar. 19–25	1	1	
Do				Mar. 26–Apr. 1, 1922, 6 to 10 cases; one death.
Queensland—				
Aramac	Mar. 19–25	1	1	Inland town, on railroad, about 150 miles from coast.
Azores:				
St. Michael Island				Jan. 22–Mar. 4, 1922: Cases, 51, deaths, 25; occurring at Arrifes, Capelas, Fenaes, Ribeira Grande, and Santo Antonio; distance from port of Ponta Delgada, 3 to 9 miles.

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

[1] Public Health Reports, Feb. 10, 1922, p. 321, and Mar. 24, 1922, p. 729.

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

Reports Received During Week Ended April 7, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Ceylon:				
Colombo	Feb. 5-11	4	2	
Egypt				Jan. 1-Mar. 2, 1922: Cases, 34; deaths, 17.
City—				
Alexandria	Feb. 26	1	1	Feb. 12-18, 1922: One plague rodent.
Province—				
Assouan	Feb. 28	1	1	Septicemic.
Fayoum	Feb. 17	2		
Gharbieh	Feb. 17-28	4		
Keneh	Feb. 21	1	1	Pneumonic.
Minieh	Feb. 21-28	2	2	Septicemic.
India				Jan. 22-Feb. 4, 1922: Cases, 4,721; deaths, 3,550.
Bombay	Jan. 29-Feb. 4	14	13	
Karachi	Feb. 12-18	9	5	
Madras Presidency	do	569	393	
Rangoon	Feb. 5-11	31	28	
Indo-China:				
Saigon				Jan. 15-28, 1922: 3 plague-infected rats.
Italy:				
Catania				Jan.-Feb., 1922: 28 plague-infected rats found.
Java:				
East Java—				
Soerabaya	Jan. 22-28	1	1	
Peru				Feb. 16-28, 1922: Cases, 34; deaths, 21.
Casma	Feb. 16-28	6	3	
Callao	do	1	2	
Chiclayo	do	4	6	
Lima (city)	do	10	3	
Lima (country)	do	7	3	
Mollendo	do	2		
Payta	do	2	2	
Sullana	do	2	2	
Portuguese West Africa:				
Angola—				
Mossamedes	Feb. 14			Present.
Siam:				
Bangkok	Jan. 22-Feb. 4	7	5	
Straits Settlements:				
Singapore	Feb. 5-11	1	1	

SMALLPOX

Algeria:				
Algiers	Feb. 1-28	1		
Canada:				
British Columbia—				
Victoria	Mar. 12-18	1		
Ontario—				
Hamilton	Mar. 19-25	1		
Chile:				
Talcahuano	Feb. 12-18	2		
Dominican Republic:				
San Pedro de Macoris	Feb. 26-Mar. 4			In vicinity; 50 cases, estimated.
India				Nov. 27-Dec. 31, 1921: Deaths, 533.
Bombay	Feb. 26-Mar. 4	2		
Calcutta	Feb. 12-18	18	17	
Madras	do	79	16	
Rangoon	Feb. 5-11	44		
Indo-China:				
Saigon	Jan. 15-21	3		
Italy:				
Catania				Feb. 20-26, 1922: One case in Province.
Japan:				
Taiwan Island	Feb. 14-20	1	1	
Java:				
West Java—				
Batavia Province	Feb. 3-9	10	1	

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

Reports Received During Week Ended April 7, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Mexico:				
Mexico City	Feb. 5–18	50		Including municipalities in Federal district.
Portuguese West Africa:				
Angola—				
Loanda	Jan. 1–14		3	
Russia:				
Esthonia	Jan. 1–31	15		
Straits Settlements:				
Singapore	Feb. 5–11	5	3	
Syria:				
Aleppo	Feb. 19–Mar. 4			Present.
Turkey:				
Constantinople	Feb. 12–25	27	8	

TYPHUS FEVER.

Algeria:				
Algiers	Feb. 21–28	1		
Oran	Mar. 1–10	13	2	
Chile:				
Talcahuano	Feb. 12–18	1		
Egypt:				
Alexandria	Feb. 19–25	2	2	
Cairo	Jan. 1–7	1		
Finland:				
Helsingfors	Jan. 1–31	1		In courier from Moscow.
Mexico:				
Mexico City	Feb. 5–18	46		Including municipalities in Federal district.
Palestine:				
Jerusalem	Feb. 21–27	1		
Portugal:				
Oporto	Mar. 5–11	7		
Russia:				
Esthonia	Jan. 1–31	36		Recurrent typhus, 29 cases.
Tunis:				
Tunis	Feb. 19–Mar. 4	2	1	
Turkey:				
Constantinople	Feb. 12–25	16		
Yugoslavia:				
Zagreb	Feb. 19–25	1		

YELLOW FEVER.

Mexico:				
Jalisco (State)—				
Puerta Vallarta	Jan. 31		1	Formerly Las Penas.

Reports Received from December 31, 1921, to March 31, 1922.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India				Oct. 2–Dec. 10, 1921: Deaths, 34,199.
Bombay	Oct. 30–Nov. 5	1		
Calcutta	Oct. 23–Dec. 31	71	60	
Do	Jan. 1–Feb. 11	95	84	
Karachi	Nov. 6–12		1	
Madras	Dec. 11–31	4	1	
Do	Jan. 1–Feb. 4	10	7	
Rangoon	Oct. 1–Dec. 31	30	24	
Do	Jan. 1–Feb. 4	21	18	
Indo-China:				
Saigon	Nov. 6–12	1	1	

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

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

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Java:				
West Java—				
Batavia	Nov. 1-7	2	2	
Philippine Islands:				At Lebak.
Manila	Nov. 13-Dec. 31	49	18	
Do	Jan. 1-Feb. 11	74	23	
Province—				
Bulacan	Dec. 25-31	1	.....	
Pampanga	do	1	.....	
Zambales	Dec. 11-31	31	18	
Poland	.....	.....	.....	Aug. 14-Sept. 10, 1921. Cases, 4; deaths, 1.
Russia:				
Kharkoff	Jan. 28	.....	.....	Present.
Kieff	Dec. 15-Jan. 11	259	.....	
Latvia—				
Riga	.....	.....	.....	At quarantine station in October 1921: One case.
Odessa	Jan. 28	.....	.....	Present.
Siam:				
Bangkok	Oct. 23-Dec. 24	8	4	

PLAGUE.

Asia Minor:				
Smyrna	Nov. 27-Dec. 3	1	1	
Australia:				
New South Wales—				
Sydney	do	2	1	Dec. 7-13: 4 plague rats. Jan. 15-21, 1922: 1 plague rat.
Do	Jan. 29-Mar. 18	6	.....	
Queensland—				
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-Mar. 18, 1922: 9. Total infected rats, 10.
Bundaberg	Mar. 5-11	1	.....	
Cairns	Oct. 30-Dec. 31	6	3	Plague rats: 9.
Do	Jan. 1-7	.....	1	
Cooktown	Oct. 30-Nov. 5	1	.....	Pestis minor.
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	
St. Michael	.....	.....	.....	Nov. 27-Dec. 31, 1921: Cases, 23; deaths, 9. Jan. 1-21, 1922: Cases, 13; deaths, 8.
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. 1-28	12	9	
Para	Feb. 6-12	.....	1	
Rio de Janeiro	Jan. 22-28	1	1	
British East Africa:				
Uganda	Aug. 1-Nov. 29	169	140	Aug. 1-Oct. 31, 1921: Reports of inspectors, deaths, 343; reports of chiefs, deaths, 651.
Ceylon:				
Colombo	Oct. 30-Dec. 31	13	10	Oct. 30-Dec. 24, 1921: rodent plague, 6.
Do	Jan. 1-Feb. 4	14	15	Infected rats, 10.

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

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

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Hongkong	Nov. 20–Dec. 17	6	.....	
Do	Jan. 1–Feb. 4	16	8	
Ecuador:				
Guayaquil	Nov. 16–Dec. 31	18	6	Rats examined, 2,958; found infected, 90. Total, July–Dec. 15, 1921; Cases, 28. Jan. 1–31, 1922: Rats examined, 6,200; found infected, 153.
Do	Jan. 1–31	20	9	
Egypt				Jan. 1–Dec. 31, 1921: Cases, 356; deaths, 153. Jan. 1–Feb. 9, 1922: Cases, 14; deaths, 8.
City—				
Alexandria	Dec. 5–30	7	2	
Do	Jan. 17–Feb. 7	4	2	
Port Said	Dec. 20	1	.....	
Suez	Nov. 22–Dec. 31	16	9	
Do	Jan. 2–29	4	2	
Province—				
Girgeh	Jan. 12	1	.....	Septicemic.
Keneh	Dec. 1	1	1	Do.
Do	Jan. 21–Feb. 8	3	2	1 case septicemic.
Greece:				
Preveza	Feb. 8	.....	.....	Outbreak. Port on the Ionian Sea.
India				Oct. 23–Dec. 31, 1921: Cases, 8,690; deaths, 6,458 (Reports, weeks ended Dec. 3 and 17, 1921, missing), Jan. 1–21, 1922: Cases 5,525; deaths, 4,292.
Bombay	Oct. 23–Dec. 24	7	6	
Do	Jan. 1–7	1	1	
Calcutta	Jan. 29–Feb. 11	2	2	
Karachi	Nov. 6–Dec. 31	5	5	
Do	Jan. 1–Feb. 11	36	25	
Madras	Dec. 11–17	1	.....	
Madras Presidency	Nov. 13–Dec. 31	2,047	1,438	
Do	Jan. 1–Feb. 11	1,965	1,419	
Rangoon	Oct. 1–Dec. 31	139	129	
Do	Jan. 1–Feb. 4	175	158	
Indo-China:				
Saigon				Nov. 6–Dec. 24, 1921: Rodent plague, 10. Jan. 8–14, 1922: Rodent plague, 1.
Italy:				
Catania	Nov. 27	1	1	Total, Oct. 16–Nov. 27, 1921: Cases, 8 (of which 1 doubtful); deaths, 5.
Naples (Province)—				
Torre Annunziata	Oct. 22–Dec. 27	2	.....	17 miles from city of Naples.
Venice	Oct. 27	1	.....	
Java				Islands of Java and Madoera, Nov. 1–Dec. 31, 1921; deaths, 1,781.
East Java—				
Soerabaya	Oct. 30–Dec. 10	11	12	
Do	Jan. 1–7	2	2	
Madagascar:				
Tananarive	Mar. 2	38	.....	Among natives. Entire city reported infected. Feb. 4: Present.
Mauritius (Island):				
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. 11	7	2	Dead rats found, 17.
Mesopotamia:				
Bagdad	Oct. 1–31	1	1	
Mexico:				
Tampico				Dec. 18–31, 1921: Infected rodents found, 5; total, Jan. 1–Dec. 31, 1921, infected rodents, 222; Jan. 1–Mar. 18, 1922, 12 plague-infected rodents.
Vera Cruz				One infected rodent caught Dec. 5, 1921.
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. 15, 1922: Cases, 107; deaths, 41. (Corrected report.)

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

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

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Peru—Continued.				
Localities—				
Bambamarca	Jan. 1-15			Present. Rural.
Barranco	Jan. 16-31	1		
Callao	Jan. 1-Feb. 15	6	2	Rural. Year, 1921: Deaths, 30.
Casma	Feb. 1-15	5		
Chiclayo	Jan. 16-Feb. 15	15	10	
Chilca	do	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. 15	4	1	In district, 13 cases; 3 deaths.
Mollendo	Feb. 1-15	1		
Pacasmayo	do	1		
Payta	Jan. 1-Feb. 15	26	19	
Piura	Feb. 1-15	1		
Salaverry	Jan. 16-31	1		
San Pedro	Jan. 1-15	1		
Sullana	Jan. 1-Feb. 15	1	1	
Trujillo	Feb. 1-15			Present.
Tumbez	do	4		
Portugal:				
Lisbon	Dec. 15	1	1	
Portuguese West Africa:				
Angola—				
Loanda	Oct. 9-Nov. 5		2	
Rhodes (Island) (Aegean Sea)	Oct. 13	3	1	
Senegal:				
Dakar				Jan. 1-31, 1922: 1 rodent plague.
Siam:				
Bangkok	Oct. 23-Dec. 31	7	6	
Do	Jan. 8-21	7	4	
Straits Settlements:				
Singapore	Nov. 6-Dec. 31	3	3	
Do	Jan. 15-Feb. 4	5	4	
Syria:				
Beirut	Oct. 9-Nov. 20	10	4	
Turkey:				
Constantinople	Jan. 1-7	1		
Union of South Africa:				
Orange Free State—				
Boschrand Farm	Jan. 25	3	3	10 miles from Kroonstad.
Bothaville	Nov. 19			Plague-infected mouse found.
Hoopstad	Dec. 4-10	1		In native herd boy.
On vessel:				
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.

Arabia:				
Aden	Dec. 25-31		1	
Do	Jan. 8-14		1	
Asia Minor:				
Smyrna	Jan. 15-21	1		In district.
Algeria:				
Algiers	Jan. 1-31	1		
Bolivia:				
La Paz	Aug. 1-Dec. 31	60	41	
Do	Jan. 1-31	15	9	
Brazil:				
Bahia	Nov. 6-Dec. 17	4		
Do	Jan. 8-14	1		
Rio de Janeiro	Nov. 13-Dec. 31	13	2	
Do	Jan. 1-28	16	4	
Sao Paulo	Oct. 31-Dec. 25	11		
Do	Dec. 26-Jan. 1	1		

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

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

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
British East Africa:				
Uganda	Aug. 1-Nov. 30	22	3	Reports of inspectors: Cases, 4.
Canada:				
British Columbia—				
Vancouver	Dec. 25-31	3		
Do	Jan. 29-Feb. 4	1		
Manitoba				Year 1921: Cases, 71.
Winnipeg	Nov. 20-Dec. 3	2		
New Brunswick—				
Charlotte County				Dec. 17, 1921: 31 cases previously reported, occurring at Andersonville and Blacks Harbor. Dec. 18-24, 1921: Cases, 3. Dec. 25-31, 1921: Cases, 2. Feb. 19-20, 1922: Cases, 2.
St. Stephen	Dec. 11-17	2		
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. 5-11	7		
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. 1-28, 1922: Cases, 185.
Fort William and Port Arthur	Jan. 1-21	3		
Hamilton	Jan. 22-28	3		
Kingston	Jan. 17-Feb. 11	5		Jan. 16-20, 1922: Two cases reported.
Niagara Falls	Dec. 11-24	2		
Do	Jan. 15-Mar. 4	25		
North Bay	Feb. 12-18	1		
Ottawa	Dec. 11-24	17		
Do	Jan. 1-Mar. 18	32		
Sault Ste. Marie	Jan. 15-21	1		
Toronto	Dec. 11-21	4		
Do	Jan. 1-Mar. 11	47		
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-Feb. 4	1		
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-Jan. 30		21	
Coronel	Nov. 15-Dec. 17			Present.
Curanilahue	Nov. 15-21	4		
Lota				Oct. 28, 1921-Jan. 31, 1922: Cases, 879; deaths, 338.
Osorno				From beginning of outbreak to Feb. 15, 1922: Cases, 57.
Talcahuano	Nov. 15-Dec. 24	6		
Do	Jan. 29-Feb. 11	3		Jan. 8-28, 1922: Present.
Temuco	Nov. 15-21	9		From beginning of outbreak to Feb. 15, 1922: Cases, 80.
Valparaiso	Oct. 23-Dec. 31		94	
Do	Jan. 1-21		39	
China:				
Amoy	Nov. 16-Dec. 31		7	Nov. 23-29, 1921: Present. Jan. 22-28, 1922: Present.
Do	Jan. 1-21		4	
Antung	Nov. 28-Dec. 18	4	1	
Canton	Dec. 1-31			Present.
Changsha	Jan. 16-22	1		
Chungking	Nov. 6-Dec. 31			Do.
Do	Jan. 1-21			Do.

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

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

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China—Continued.				
Foochow	Nov. 6–Dec. 31			Present.
Do	Jan. 1–Feb. 11			Do.
Hankow	Nov. 13–Dec. 31			Do.
Do	Jan. 1–21	2		
Harbin	Nov. 14–Dec. 11	5		
Do	Dec. 26–Jan. 1	2		
Hongkong	Dec. 3–31	5		
Do	Jan. 1–Feb. 4	11	7	
Mukden	Nov. 20–Dec. 31			Do.
Do	Jan. 15–21			Do.
Nanking	Nov. 20–Dec. 17			Do.
Do	Jan. 15–Feb. 4			Do.
Shanghai	Oct. 31–Dec. 31	67	194	Cases, foreign; deaths, Chinese and foreign. Populations: Native, 790,000; foreign, 24,000.
Do	Jan. 2–Feb. 19	31	181	Cases, foreign; deaths, native. Jan. 14, 1922: Seriously prevalent.
Tientsin	Dec. 11–17	2		In Mission Hospital.
Tsingtau	Jan. 1–Feb. 12	14	10	
Chosen (Korea):				
Fusan	Dec. 1–31	3	1	
Do	Jan. 1–31	21	4	
Seoul	....do	1	1	
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–Mar. 4	5	1	Two cases from outside city limits.
Santiago	Jan. 1–Feb. 28	8	1	
Czechoslovakia:				
Prague	Dec. 18–24		42	
Dominican Republic				Oct. 1–31, 1921: Cases, 653; deaths, 54. Jan. 2–Feb. 4, 1922: Cases, 6,022; deaths, 185.
Puerta 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 this amount 50 within the city limits.
Do	Jan. 14–Feb. 4	122		In surrounding country. Feb. 12–25: 66 cases.
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).
Ecuador:				
Guayaquil	Nov. 16–Dec. 31	7		And vicinity.
Do	Jan. 1–15	1		
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. 22–28	1		
Finland				Nov. 16–30, 1921: 1 case.
Do				Feb. 1–15, 1922: Cases, 19.
Fiume				Dec. 27, 1921–Jan .2, 1922: Cases, 2.
Great Britain:				
Manchester	Jan. 1–7	4		
Nottingham	Dec. 4–31	18		
Do	Jan. 8–28	3		
Swansea	Jan. 17–23	2		Imported on vessel from Persian Gulf.
Haiti				Jan. 22–28, 1922: A few cases.
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. 10, 1921: Deaths, 168.
Bombay	Oct. 23–Dec. 31	3	2	
Do	Jan. 1–14	3		
Calcutta	Nov. 13–Dec. 31	37	28	
Do	Jan. 1–Feb. 11	82	75	

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

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

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
India—Continued.				
Karachi	Nov. 11-Dec. 31	28	9	
Do	Jan. 1-Feb. 11	35	14	
Madras	Nov. 13-Dec. 31	183	59	
Do	Jan. 1-Feb. 11	358	128	
Rangoon	Oct. 1-Dec. 31	6	.....	
Do	Jan. 15-Feb. 4	19	.....	
Indo-China:				
Saigon	Dec. 18-24	1	1	City and district.
Do	Jan. 8-14	1	1	Do.
Italy:				
Genoa	Nov. 10-20	1	.....	
Messina—				
Messina	Nov. 28-Dec. 4	1	.....	
Pettineo	Nov. 14-Dec. 4	2	.....	
Venice	Jan. 30-Feb. 5	2	.....	
Japan:				
Kobe	Jan. 23-29	3	1	
Taiwan Island	Dec. 1-31	2	1	
Yokohama	Jan. 9-29	3	.....	Corrected report.
Java:				
East Java—				
Surabaya	Jan. 1-7	4	.....	
West Java—				
Bandoeng	Nov. 18-Dec. 8	2	.....	
Batavia	Nov. 18-Dec. 22	11	9	City and Province.
Do	Dec. 30-Jan. 26	3	3	In Province: Cases, 23; deaths, 4; 13 cases, with 3 deaths, not locally stated.
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.
Mexico:				
Chihuahua	Dec. 5-11	.....	1	
Do	Jan. 23-Feb. 19	.....	2	
Guadalajara	Nov. 1-Dec. 31	6	.....	
Do	Jan. 1-31	11	2	
Mexico City	Nov. 20-Dec. 31	64	.....	Including municipalities in Federal District.
Do	Jan. 1-21	57	.....	Do.
Saltillo	Jan. 29-Feb. 4	.....	1	From San Salvador, Zacatecas.
San Luis Potosi	Dec. 18-24	.....	2	
Do	Jan. 8-Mar. 11	.....	10	
Torreon	Dec. 1-31	134	.....	
Do	Jan. 1-Feb. 28	.....	82	
Newfoundland:				
St. Johns	Feb. 4-10	1	.....	
Palestine:				
Jerusalem	Jan. 10-Feb. 20	27	.....	
Panama:				
Bocas del Toro Province—				
Sursuba	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.
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.
Peru:				
Lima	Nov. 1-Dec. 31	.....	3	
Poland		.....	.....	Aug. 14-Dec. 31, 1921: Cases, 578; deaths, 146. Exclusive of Brest-Litovsk, Minsk, and Wilno districts.
Portugal:				
Lisbon	Nov. 13-Dec. 31	48	12	
Do	Jan. 1-28	46	1	
Portuguese East Africa:				
Lourenco Marques	Oct. 1-Nov. 5	2	4	
Portuguese West Africa:				
Angola—				
Loanda	Oct. 9-Dec. 31	.....	7	
Rumania:				
Bucharest	Nov. 1-30	.....	33	

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

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

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Russia:				
Esthonia	Oct. 1-Dec. 31	38		
Latvia	do	75		
Senegal:				
Dakar	Jan. 1-31	2		
Serbia:				
Belgrade	Oct. 2-Nov. 26	16	4	
Siam:				
Bangkok	Oct. 23-Nov. 5	1		
Spain:				
Barcelona	Jan. 8-14		1	
Huelva	Oct. 1-Dec. 31		3	
Malaga	Nov. 1-Dec. 31		60	
Seville	Nov. 16-Dec. 31		7	
Do	Jan. 8-Feb. 25		18	
Valencia	Jan. 22-28	1		
Straits Settlements:				
Singapore	Nov. 6-Dec. 24	49	13	
Do	Jan. 1-Feb. 4	50	18	
Switzerland:				
Glarus, Canton	Dec. 10			Epidemic.
Zurich	do	2		In vicinity.
Lucerne	Feb. 1-28	12		
Syria:				
Adana	Dec. 18-24			Present.
Do	Jan. 1-14			Do.
Aleppo	Dec. 18-24			Do.
Do	Jan. 1-Feb. 18			Do.
Alexandretta	do			Do.
Beirut	Oct. 9-Nov. 13	5	2	
Do	Jan. 8-28	8		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-Feb. 4	4	5	
Turkey:				
Constantinople	Nov. 27-Dec. 24	20	4	
Do	Jan. 15-28	16	5	
Union of South Africa				Nov. 1-Dec. 31, 1921: Cases 326; deaths, 6 (colored). White, 10 cases.
Cape Province	Nov. 5-Dec. 31			Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 42; deaths, 1 (colored).
Do	Jan. 8-14			Outbreaks.
Natal	do			Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 209; deaths, 5 (colored).
Orange Free State	Oct. 23-Dec. 24			Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 8 (colored).
Southern Rhodesia	Dec. 29.-Jan. 18,	16		
Transvaal	Oct. 23-Dec. 31			Outbreaks.
Do	Jan. 1-14			December, 1921: Cases, 15. Nov. 1-Dec. 31, 1921: Cases, 22 (colored). Among white population, 8 cases, State not designated.
Johannesburg District	Dec. 1-31	1		
Do	Jan. 1-7			Outbreaks.
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		
Slavonia	July 3-9	1		
Voivodina	do	3		
On vessel:				
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.

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

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

TYPHUS FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Algeria:				
Algiers	Nov. 1-Dec. 31	3		
Do	Jan. 11-Feb. 10	2		
Oran	Dec. 21-31	1		
Do	Jan. 1-Feb. 28		2	
Asia Minor:				
Brousa	Jan. 15-21	1		
Austria:				
Vienna	Dec. 4-31	10		
Do	Jan. 1-28	9	1	
Bolivia:				
La Paz	Aug. 1-Dec. 31	121	98	
Do	Jan. 1-31	15	12	
Bulgaria:				
Sofia	Dec. 18-24	1		
Do	Feb. 12-18	1		
Chile:				
Concepcion	Nov. 22-Dec. 26		3	
Do	Jan. 3-30		3	
Talcahuano	Jan. 29-Feb. 5	2		
Valparaiso	Oct. 23-Nov. 26		6	
Do	Jan. 1-7		1	
China:				
Antung	Dec. 26-Jan. 1	1		
Do	Feb. 6-12	1		
Harbin	Nov. 7-Dec. 25	12		
Do	Dec. 26-Jan. 29	17		Jan. 23, 1922: Reported extending from Soviet Russia, along railway line to maritime provinces.
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-Feb. 18	15	3	
Cairo	Oct. 1-Dec. 31	18	14	
Port Said	Jan. 22-Feb. 11	2		
Germany:				
Breslau	Dec. 25-31	2	1	
Do	Jan. 1-Feb. 5	55	8	Including district.
Frankfort-on-Oder	Feb. 16	26		In persons returning from Russia.
Hamburg	Dec. 11-17	4		
Great Britain:				
Glasgow	Dec. 25-31	1		
Greece:				
Saloniki	Jan. 23-29	1		
Italy:				
Palermo	Jan. 15-28	3	1	
Mesopotamia:				
Bagdad	Oct. 1-Dec. 31	3	9	
Mexico:				
Mexico City	Nov. 20-Dec. 31	242		Including municipalities in Federal District.
Do	Jan. 1-21	123		Do.
San Luis Potosi	Dec. 18-24		1	Dec. 25-31, 1921: Present.
Do	Jan. 8-Feb. 25			Present. One death.
Palestine:				
Jerusalem	Dec. 27-Feb. 20	8		
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. 1-7, 1922: Cases, 1,322. (All figures are exclusive of Brest-Litovsk, Minsk, and Wilno districts.) Jan. 1-7, 1922: Cases, 61.
District—				
Bialystok	Nov. 20-Dec. 10	116	3	
Do	Jan. 1-7	253		
Galicia—				
Lemberg	Jan. 3	229		
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 March 31, 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		
Portugal:				
Oporto	Jan. 8-Mar. 4	15	2	
Rumania:				
Bucharest	Nov. 1-30	3		
Chisinau	do	7		
Russia				Nov. 28-Dec. 10, 1921: In Soviet Russia, cases, 7, 661.
Esthonia	Oct. 1-Dec. 31	53		(Corrected report) Oct. 1-Nov. 30, 1921: Cases, 127.
Latvia	do	341		
Libau	Jan. 15-Feb. 1	4		
Perm	Nov. 23-Dec. 10	1,408		Oct. 1-31, 1921: Cases, 539; Nov. 1-30, 1921: Cases, 2,326.
Saratov District—				
Markstadt				Sept. 1-Dec. 31, 1921: Cases, 1,987; 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	
Spain:				
Madrid	Dec. 1-31	1		
Do	Jan. 1-31	2		
Tunis:				
Tunis	Feb. 5-18	1	2	
Turkey:				
Constantinople	Nov. 20-Dec. 31	19		
Do	Jan. 1-Feb. 11	41		
Union of South Africa				Nov. 1-Dec. 31, 1921: Cases, 1,368; deaths, 205 (colored). White, 20 cases: deaths, 4.
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. 1-14, 1922: Outbreaks.
East London	Oct. 30-Dec. 24	3		One death in European at Jensenville, Dec. 6, 1921.
Natal	Nov. 5-Dec. 17			Outbreaks. Stated to be prevalent only in Newcastle District. Nov. 1-Dec. 31, 1921: Cases, 135; deaths, 25 (colored).
Orange Free State	Nov. 13-Dec. 31			Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 158; deaths, 21 (colored).
Do	Jan. 1-14			Outbreaks.
Transvaal	Jan. 8-14			Outbreaks. Nov. 1-Dec. 31, 1921: Cases, 35; deaths, 4 (colored). White, one case, one death.
Johannesburg District	Jan. 12-18	26	4	
Venezuela:				
Maracaibo	Dec. 20-26		1	
Yugoslavia				July 3-30, 1921: Cases, 13.
Bosnia Herzegovina	July 3-9	1		
Croatia—				
Zagreb	Jan. 1-14	2		
Montenegro	July 3-9	2		

YELLOW FEVER.

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	
Tonila	Aug. 31	1	1	

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

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

YELLOW FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Mexico—Continued.				
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 Pablo (Papantla)	Sept. 12	1		
San Ildefonso	Oct. 17	2		
Tierra Blanca	Sept. 24–Nov. 12	4	3	
Tlacotalpan	Sept. 14	1	1	
Tuxpam	Jan. 3	8	2	
Vera Cruz	Jan. 15	18	7	Two of these cases imported Dec. 20–26, 1921: Cases, 1; deaths, 1. Imported.