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THE EDUCATION OF HEALTH OFFICERS.¹

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The world stands to-day in great need of competent physicians, nurses, sanitary engineers, and public-health executives. There are medical schools in almost all countries and, though these schools differ in excellence, their programs of study run along the same general lines and include many of the latest developments of medical science. The nursing service is far behind that of medicine, although it is an important adjunct to it. In many countries there are no trained nurses, the service being in low social standing and the hospital conditions being such as to repel the kind of young women needed. Adequate schools for nurses are few in number and the numbers of students in them are small. The profession of sanitary engineering is almost unknown except in a few countries, and yet it is the men in this profession who must be depended upon to construct and safeguard public water supplies, build sewers and drain swamps, manage the disposal of wastes, and solve the problems of plumbing, ventilation, and other matters connected with the healthfulness of man's environment. Sanitary engineering is taught, in part at least and under other names, in schools of engineering, but usually without sufficient attention being given to its public health relations. Opportunities for students to receive instruction in public health administration are still more limited, and the consequence is that, outside of a few countries, there is a great dearth of competent health officers. Yet there are ministries of health, departments of public health, local boards of health, and the like, which are constantly creating new offices to be filled. More and more the need of employing men specially trained for this field of administration is being felt. There are only a few real schools of public health in the world to-day, and these, with one exception, are all small and inadequately endowed.

It is the purpose of this report to describe briefly what constitutes an adequate training for health officials and to outline a program suitable for a course of study in this field.

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Difference Between Public Health Administration and Medical Practice.

At first thought one would naturally say that doctors of medicine ought to make the best health officers and, as compared with the other professions, that is true. There was a time a few generations ago when boards of health were commonly composed of laymen or civil officials, who, by virtue of their office, acted in matters pertaining to the public health. It was a step in advance when the laws were so changed as to bring medically trained men into this service. But conditions have changed. The age of power, with its factory system, its quick transportation, its concentration of people in cities, its larger and higher buildings, has brought with it a greater need of governmental control of sanitation. Science, especially biological science, has brought in new methods of preventive medicine, while medical science itself has become specialized. The spread of education and the rising tide of democracy are offering ever greater opportunities for the people to take active part in the protection of their own health. The health movement has risen like a flood and is overflowing the banks of the medical profession. It is well-nigh impossible for medical students to acquire all the information and skill required for modern curative practice and at the same time keep abreast of the times in the collateral science of preventive medicine and the arts of sanitation.

Furthermore, there is a fundamental difference between the health administrator and the physician. The physician centers his interest upon individuals; he gives personal service; his success lies in his own personality and in his ability to utilize the means which medical science has placed at his disposal. The health administrator, on the other hand, deals not with individuals but with masses of people. His service is impersonal. Sometimes he must even forget individuals in the interest of preserving the health of the community. Medical knowledge he must have, but with it he must have the power to generalize, to think in mathematical, engineering, and legal terms, to understand the relation between community health and community environment. The physician, especially if he be a surgeon, must have skill in minutiae; the health officer must be a sanitary statesman. The physician must possess the quality of human sympathy; the health officer must possess the quality of justice. Health administration does not require a higher type of mind than medical practice; it does require a different type of mind. Numerically the physicians do and probably always will greatly outnumber the health administrators.

Another fact must be taken into account. Greater emphasis than formerly is now being given to the positive side of health. Health is more than the absence of disease; it includes comfort, vigor,

ability to work efficiently, and ability to enjoy life. Amelioration of insanitary conditions for the sake of human comfort, cleanliness for its moral influence, exercise, athletics, and attention to posture and the movements of the body are parts of the modern health movement. So also are the efforts to lessen fatigue in factory labor. These are matters of hygiene, but of a hygiene focused upon normal living and not upon abnormal conditions. They also extend outside the ordinary realm of the physician.

With these ideas in mind it seems probable that the time is near when there will be schools of health side by side with the medical schools and interlocking with them. They will be like two vines twined at the bottom to form a single stalk, but spreading apart gradually as they put forth their leaves and fruit.

General Education of Public-Health Officers.

Before laying out a detailed program of studies and training suitable for students intending to be public-health executives it will be well to consider the subjects in a general way.

First of all, emphasis must be placed on personal qualifications and general education. The men who are to be leaders in public health must by their presence and personality be able to influence people. They will be brought in contact not only with legislation and public officials but with the general public. They will have occasion to meet the educated, and their own education must not fail them; they will have to meet the poor and the ignorant, and their sympathy must not be lacking; they will have to address public audiences, and they must be able to speak effectively; they will have to write reports and scientific papers, and they must be able to do this with accuracy, clearness, and simplicity. They must be themselves in good physical condition, lest people say, "Physician, heal thyself." Too much importance can not be placed on these basic requirements.

The desirable elements of the preliminary education of a public-health official may be classified as follows. Obviously not all of the subjects mentioned can be studied deeply, and great differences must exist between individuals in the emphasis which they give to different subjects. This list, however, will serve to call attention to the need of a solid educational foundation.

I. *Studies which give a knowledge of man and his environment.*—Anatomy, physiology, psychology, religion, anthropology, ethnology, astronomy, meteorology, geography, geology, physics, chemistry, botany, zoology, entomology, etc.

II. *Studies which give potential power.*—History: Of nations, governments, social conditions, sciences. Biography: Especially of men of science. Literature: The classics, general reading, public docu-

ments, etc. Art: Poetry, music, fine arts, architecture. Human relations: Government, economics, business, sociology, law.

III. *Studies which give dynamic power.*—Mathematics: Arithmetic, algebra, geometry, calculus, etc. Language: French, English, German, and other modern languages; also Latin and Greek. Thought: Logic, philosophy, statistics. Self-expression: Writing, public speaking, drawing. Physique: Military discipline, athletics, use of tools.

It will be seen that these are the general requirements for the well-educated man in any profession. No one man can become proficient in all these lines, but every man who aspires to be a health officer should acquire as broad a knowledge as possible of man and his environment and do all that he can to acquire both potential and dynamic power in order that he may make his acquired knowledge useful.

Physics, chemistry, and biology are the foundation of public-health science as well as of medical science. No one is fitted to undertake a course of study in public health unless he understands the general principles of these fundamental sciences. A working knowledge of mathematics—arithmetic, algebra, and geometry, at the very least—is presupposed. Biology includes bacteriology, botany, and zoology. Familiarity with ordinary laboratory procedures and the use of physical and chemical apparatus is essential. Persons beyond the ordinary student age who decide to study for the profession of public health should review their physics, chemistry, and biology, and also spend some time in a laboratory for the purpose of becoming familiar with various instruments and acquiring skill in manipulation. A few weeks spent in this preparatory work will save time and add to the understanding of the subjects studied later on.

Basic Medical Sciences.

The basic medical sciences are anatomy, physiology, and pathology. One can not imagine a well-equipped physician or a well-educated health official who does not understand the mechanism of the human body and its most common diseases. Closely associated with anatomy is histology; closely associated with physiology are embryology and biochemistry; and intimately associated with pathology are parasitology and bacteriology. These fundamental medical studies are usually pursued during the first two years in the ordinary medical school and they should be included also in the program of a school of public health.

Next come the more professional subjects of medicine, surgery, and pharmacology. In medical schools these studies are commonly begun during the second year but continued throughout the program, becoming more and more detailed and specialized in the later years.

The student of public health should study the elements of medicine, surgery, and pediatrics. He will have use for this knowledge, but he will very rarely have occasion to use the specialized knowledge of the practising physician in pharmacology, obstetrics, gynecology, dermatology, orthopedics, otology, ophthalmology, laryngology, neurology, and the other detailed branches of medical science. These special subjects, with their clinics and laboratory courses, usually occupy the medical student one or more years, and this time the student of public health can spend to better advantage in other directions. In a word, the subjects which the medical student ordinarily pursues during the first two or three years of a four-year medical school program should also be pursued by the student of public health.

Two other subjects studied by most medical students are becoming more and more important in medical practice, namely, hygiene and preventive medicine, hygiene being an outgrowth of physiology, and preventive medicine largely an extension of bacteriology. To the student of public health these subjects become professional.

Professional Studies of the Student of Public Health.

In addition to the fundamental sciences of chemistry, physics, and biology, the basic medical sciences of anatomy, physiology, and pathology, and the professional medical subjects of medicine, surgery, and pediatrics, there are five branches of knowledge upon which the health official must depend in the exercise of his usual functions, which may be classified as follows:

1. *Hygiene.*—This treats of the physiological relations of human beings to their environment, the influences of climate, mode of life, and the effect of the conditions found in the home, the school, the factory, and all the other varied conditions under which people live, work, and play. Hygiene differs from sanitation in that it approaches the environmental condition from the physiological standpoint. Hygiene is often subdivided according to age, as prenatal hygiene, infant hygiene, child hygiene, sex hygiene, etc.

2. *Sanitation.*—This also treats of environmental conditions, but it approaches them from the standpoint of the engineer. Sanitation puts into practice the ideas which hygiene suggests. It has to deal, with the forces of nature, with materials, with the use of structures, and even machinery. Specifically, it includes such matters as the purification of water, the pollution of streams, the disposal of sewage, the removal of solid wastes, ventilation, plumbing, heating, lighting, the drainage of swamps, the construction of buildings to make them rat proof. The health officer does not need to study these subjects in the detailed manner required of the sanitary engineer, who must understand the art of designing, but he needs to understand engineer-

ing terms, to be able to read maps and plans, to appreciate the cost of engineering work, to know when desirable hygienic projects are practically possible, to know how to test sanitary devices to assure their proper operation.

3. *Preventive medicine*.—In a broad sense preventive medicine includes the whole subject of preventing the spread of communicable diseases, but viewed as a professional subject it relates especially to the application of bacteriology, protozoology, and parasitic entomology. It deals with laboratory methods of diagnosing disease, with disinfection, with the preparation and use of vaccines and sera, with the transmission of disease germs by vehicles and intermediate hosts. Naturally it interlocks with hygiene, sanitation, and epidemiology.

4. *Statistics*.—This covers the collection, analysis, and practical use of vital statistics—population, births, marriages, deaths, causes of disease, and all of the related facts. The science of statistics is the handmaid of all the other branches of public health work. It is the very foundation of epidemiology. It is a lack of willingness to use mathematics which unfits so many physicians for public health work, and for that very reason it deserves especial attention in a course in public health.

5. *Public health administration*.—This covers the practical work of the executive health official in all its details. It includes the principles of public health law and legislation; the philosophy of organization; public health education; the routine work of health departments, laboratories, hospitals, clinics, dispensaries; the inspection service; legal medicine; analysis of food and drugs.

These five groups of professional subjects might, of course, be arranged in a somewhat different way, according to the definitions given to the terms used. For example, "hygiene" is sometimes made to cover both hygiene and sanitation; "preventive medicine" is sometimes made to include statistics and epidemiology; "administration" might include statistics and preventive medicine. The mere grouping of the subjects is of secondary importance; the main thing is to have all of the subjects covered and given their proper emphasis.

Is the Medical Degree Necessary for Health Officers?

It may be inferred from the preceding paragraphs that the medical degree is not necessary for a person who is to become a public-health executive. From the academic standpoint that is true. The present-day medical student spends nearly two years of his time studying subjects which are of infrequent use in public-health administration. In the interest of efficiency and economy of effort this time could be better spent in studying the professional subjects more definitely

useful, as already pointed out. Some who have studied the subject go so far as to say that the kind of study required of the medical student tends to dull the perception of the broader aspects of public-health work. Whether or not this is true, it seems to be certain that the actual practice of medicine in the ordinary way does make it more difficult for a person to take up the work of public-health administration. In this realm, as in so many others, youth is the time for training.

Educational evolution seems destined to work out a fairly clear-cut difference between curative medicine and preventive medicine. One of two things seems bound to happen. Either the medical profession will have two branches, which Prof. Sedgwick has recently likened to the letter Y, or a new profession of public health will grow up side by side with the medical profession. The writer believes that in the long run the former alternative will yield the better results to the community. It is of the greatest importance to the health of the world that there be no antagonism between public-health officials and physicians, for both are working for the same end—the preservation of life and the amelioration of human suffering. Differences there must be, but the bonds of union must be kept strong enough to overcome the tendencies toward separation.

The time is coming when in well-organized communities this division of labor will be fully recognized and when doctors of public health (they may, perhaps, be given some other title) will be on an equal footing, professionally, with doctors of medicine. But it must not be forgotten that not all of the countries of the world are to-day well organized, and that it is the actual conditions with which we are immediately concerned. Where the social organization is imperfect there is usually a shortage of physicians, and the health officer may have occasion to give professional advice. This is also true in sparsely settled areas. Even when not asked to give advice he may be called upon to visit patients, to make diagnoses, or to confer with the physician in charge. Medical knowledge is, therefore, essential.

Another reason in favor of the medical degree for the health officer is that he must often work with and through the medical practitioners. If he is a regular member of the profession, he finds himself in better standing and can accomplish more than if he is not a doctor of medicine. This is because the guild spirit is strong. The time is coming, however, when doctors of public health and doctors of medicine will regard each other as colleagues, and when the public will look upon them as equals.

In some places the objection to non-medical health officers has been put upon a low plane. The income of the health officer is usually on a salary basis, while that of the practising physician is based on fees. The latter is usually larger. Physicians have feared that young

men, not having the M. D. degree but receiving only some sort of diploma or certificate in public health, might use this as a means of obtaining fees for medical treatment, thus building up unfair competition and casting discredit on the medical profession by giving poor service. So far as the writer has been able to learn, this objection is fanciful rather than real. Quacks and impostors exist around and in all professions. When one considers the character of the studies required by the health officer, it ought to be evident that men capable of securing the degree of doctor of public health must be of equal mentality with those who obtain the degree of doctor of medicine. This argument is one which will vanish when the qualifications required for the health officer and his close association with the practising physician become better known. It will also vanish when the salaries of health officers are placed upon a plane which will give them an income approaching that of the private practitioners, when their tenure of office is secure and respect for their position increased. It must be remembered, however, that service in the interest of the public must, and ought to be, to a large extent, a labor of self-sacrifice. It is not, and ought not to be, a place for making money.

Quite a different objection to non-medical officers of health is that at present such officials are chiefly in the public service, a service which is often disarranged and the personnel changed at the whims of politicians. This puts limits upon the individual. If, however, the incumbent holds a medical degree, he may, if deprived of his official position, engage in the practice of medicine; on the other hand, it may be argued that long practice as a health officer may unfit the individual for private medical practice.

Consideration of these and minor arguments has led the writer to hold the opinion that, for the conditions of the immediate present and looking at the matter as a world problem, the greatest need is for public health executives who have had both a medical degree and some other degree, diploma, or certificate in public health. Whether the medical course be pursued first and followed by a course in public health or whether the public-health studies be interspersed with medical studies is a matter of relatively minor importance. This opinion is frankly pragmatical and based upon the fact that there is an immediate need of health officers in many countries and that the lines of least resistance are in the direction of securing the necessary personnel most readily from the medical profession. At the same time, the writer wishes to register his conviction that the best way to educate health officers is that of specialization along the lines mentioned; that is, with a proper combination of medical studies and professional public health studies. He believes that in the more highly organized countries this method should be adopted as soon as the necessary changes can be brought about.

It was a step in advance when, in some countries many years ago, it was required that health executives be physicians. It was a second step in advance when in England it was required that medical officers of health have not only the medical degree but the diploma of public health. It will be a third step in advance when the degree of doctor of public health will be required with, or in place of, the medical degree. In some places not even the first step has been taken. In many countries the second step has not been taken. Nowhere as yet has the third step been taken. Looking at the matter broadly, it would seem wise to concentrate our major efforts at the present time in attempting to consolidate opinion on the second stage, namely, that of requiring that public health executives be medical men with supplementary training in public health.

If these ideas be sound, it follows that we now have a double problem to solve or, rather, two programs to arrange—a relatively short program of studies which form an adjunct to the present medical course leading to the granting of a certificate or diploma in public health, and another program extending over a longer period leading to the degree of Doctor of Public Health or some similar degree.

Hygiene as Taught in Medical Schools.

In most of the well-conducted medical schools of the world there are professorships of hygiene. Some of the courses given are broad and well arranged, but usually the time allotted to them is far too short. Many of the medical schools are well provided with laboratories and museums. In some places the professor of hygiene is also at the head of a local or regional public-health service, and the laboratories of this service are available for instructional purposes. One result of this combination of executive and educational work is that the professor becomes overworked. As a rule, the courses are given by men who have been trained chiefly along medical lines, and their point of view is not broad enough. Moreover, the courses do not receive proper attention from the students, as their thoughts are centered on their own future practice. In spite of their shortcomings, these departments of hygiene in the medical schools are most important, as they offer an excellent basis for the establishment of schools of public health.

The writer has had the opportunity of visiting some of the departments of hygiene in the universities of America, Canada, England, France, Switzerland, and Rumania, and has received descriptions of the courses from many other countries, including Belgium, Italy, Spain, India, Holland, Denmark, and Sweden. Practically all the medical schools now have courses in bacteriology and facilities for laboratory work. This instruction is sometimes given in connection with that in hygiene.

The Diploma in Public Health in Great Britain.

Most of the English universities provide instruction and give examinations which lead to the granting of a "Diploma in Public Health." Since 1888, this diploma, or its equivalent, has been required of public-health executive officers of sanitary districts which have a population exceeding 50,000. They are known as "Medical Officers of Health." The conditions for the granting of the diploma in sanitary science, public health, or State medicine were first laid down by the General Medical Council in 1902. Committees of the council visit the universities from time to time to inspect the manner in which the courses and the examinations are administered.

The course of study usually requires a full calendar year. The medical degree is prerequisite. The administration of the diploma in public health is in charge of the medical faculties of the universities. The details of the courses vary in the different universities, but in general the following conditions are necessary for the granting of the diploma:

1. The degree in medicine.
2. At least nine month's study which must include:
 - (a) Prescribed courses in a university, college, medical school, or some other acceptable institute, including at least 240 hours of laboratory work.
 - (b) Hospital attendance at least twice a week during three months.
 - (c) Practical public health experience under authorized direction, during six months, or actual service as a medical officer of health.
3. An examination, extending over four days, one of which is devoted to practical work in a laboratory and one to practical examination in subjects which fall within the duties of a medical officer of health.

Inasmuch as the prescribed examination sets the standard for the scope of the instruction, it is important to observe what subjects are covered. At the University of Leeds the calendar gives them as follows:

Part I:

1. Chemistry as applied to public health.
2. Physics, including meteorology, as applied to public health.
3. Etiology of disease.
4. Practical pathology and bacteriology.
5. Microscopy as applied to public health.

Part II:

1. Engineering as applied to public health.
2. Sanitary law and administration.
3. Vital statistics.
4. Sanitary reporting.

In other universities the titles are sometimes phrased differently, but in general the first part of the examination is theoretical and covers general principles, while the second part is practical and covers the application of science to state medicine and the various details of administration. The examination subjects as given above may be regarded as typical of those at other universities.

A more detailed statement of the examination is given in the statutes of the University of Oxford, as follows:

Part I:

- (a) A written paper of three hours in chemistry and physics on the subjects of—
 Air: Examination of air; recognition and determination of impurities.
 Moisture in air.
 Water: Rainfall. Sources and characters of waters. Purification and softening. Methods of analysis. Distribution and supply to consumers.
 Soils: General composition and relation to geological formation. Methods for determination of moisture and water-retaining power.
 Ventilation and warming.
 Removal and disposal of sewage, house refuse, trade refuse.
 Offensive trades in their chemical and physical aspects. Disinfectants.
 Examination of foods by chemical and microscopic methods. Detection of metallic impurities, adulterations, preservatives, or added substances.
- (b) A three-hour practical and *viva voce* examination in chemistry and physics, in which the candidates will be expected to exhibit a practical acquaintance with the ordinary methods of analysis and examination used in investigations concerning the subjects of the written examination.

Part II:

- (a) Two written papers each of three hours, dealing with general hygiene (including sanitary engineering, vital statistics, and the laws relating to public health), which shall comprise—
 The construction, drainage, heating, and ventilation of dwellings, schools, hospitals, and other similar buildings.
 The general sanitation of villages and towns.
 Influences which exercise or threaten to exercise an injurious effect on health and physical development.
 The etiology, symptoms, and methods of prevention of infections and other preventable diseases.
 The effects of food, season, soil, and climate upon health and disease.
 Dangerous and offensive trades.
 The inspection of food.
 The principles and methods of vital statistics.
 The laws, statutes, regulations, memoranda, etc., relating to public health.
- (b) A practical and *viva voce* examination in general hygiene for which candidates will be required to show a practical knowledge of outdoor sanitary work.
- (c) A written paper of three hours in pathology and bacteriology, which shall include the general pathology of infection by any organism (including a general knowledge of parasitology and helminthology; immunity; the principles of prophylactic and curative inoculations; serum therapeutics).
 The special pathological characters of the common human infections;
 The pathology of the diseases of animals transmissible to man;
 The conditions affecting the existence of infective agents outside the animal body;
 The pathology of diseases dependent on occupation.

Part II—Continued.

(d) A three-hour practical and *viva-voce* examination in pathology and bacteriology, in which candidates will be expected—

- (1) To be able to demonstrate the existence of infective agents in pathological material;
- (2) To recognize cultures of the ordinary pathogenetic bacteria;
- (3) To exhibit a knowledge of the ordinary methods of bacteriological investigation, and of the special methods applicable to the examination of air, food, water, soil, and sewage;
- (4) To be familiar with the appearances presented by food which for bacteriological reasons is considered unfit for consumption.

The examinations are usually not limited to students in the university which offers them, but may be taken by students of other recognized institutions. At Cambridge, for example, the greater number of the candidates for the diploma in public health comprise doctors who have studied elsewhere. This extra-mural instruction in the English universities has not been altogether successful, and there is said to be a growing feeling that the students should be examined in the institutions where they have studied. The present system tends to direct the teaching too much toward the examination topics and too little to the fundamental truths; too much to the acquiring of information and too little to training in methods of work and investigation; too much to providing potential equipment and too little to dynamic equipment.

The university calendars vary considerably in their published statements of the courses offered. The following may be regarded as typical:

UNIVERSITY OF CAMBRIDGE.

1. *General course of lectures on hygiene* (three times a week for three months).—Geology and surface contour in relation to health questions, meteorology and climate, principles of ventilation, water supply, methods of removal and disposal of refuse and sewage.

2. *Chemistry and physics in their application to hygiene* (lectures and demonstrations three times a week for six months, with laboratories open at other times).—Elementary physics, qualitative and quantitative analysis, technical analysis of foods, including the detection of impurities and adulterations in air, water, foods, and beverages, the analysis of sewage and sewage effluents, and antiseptics and disinfectants.

3. *Bacteriology, protozoology, and preventive medicine* (three times a week for three months with additional practical instruction in the laboratory).—General characters of microorganisms, general considerations relating to infective diseases, the cause, mode, and spread, specific treatment and prevention of certain infective diseases, bacterial intoxication, and practical methods.

4. *Practical courses in bacteriology*, covering standard laboratory procedures.

5. *Lectures on sanitary law and vital statistics* (three times a week for one term).—Exposition of public sanitary administration within the United Kingdom, vital statistics, construction of buildings, including drainage, epidemiology, school hygiene, sound and unsound food, trade processes, mental deficiency.

6. *Practical sanitary administration*.—A course of instruction in the duties, routine and special, of public health administration.

7. *Infectious diseases hospital course*.—Carried on under special arrangements in the Cambridge Infectious Diseases Hospital.

UNIVERSITY OF MANCHESTER.

1. *Principles of public health* (ten hours a week for six months).—The relation of various diseases to public health, general character, distribution and properties of microbes; sterilization and disinfection, aetiology of infectious diseases, relation of air, water, food, clothing, dwellings, soil, refuse, etc., to the spread and prevention of disease.

2. *Practical bacteriology and microscopy* (three months), covering ordinary laboratory practice.

3. *Practical comparative pathology* (three months), covering recognition of animal and vegetable parasites, practical meat inspection, etc.

4. *Chemistry as applied to public health* (six months).—Elements of physical chemistry, heat, light, electricity, use of meteorological instruments, practical work with special reference to the examination of air, water, food, soil.

5. *Animal parasites in relation to public health*.—Course of special lectures given during the vacation periods.

6. *Public health administration* (two hours a week for three months).—Sanitary law and administration, sanitary engineering, drainage, sewerage, and disposal of refuse, control of food supplies, nuisances, vital statistics, preparation of reports.

7. *Factory hygiene* (six lectures).

8. *School hygiene* (six lectures).

9. *Practical study of the duties of medical officers of health*, covering a period of six months under the supervision of a medical officer of health.

10. *Practice in administration of hospitals for infectious diseases* (twice a week for three months).

11. *Practice in a hospital for diseases of children and instruction in methods of the examination of the ear, throat, and eye* (three months for candidates for the special certificate in school hygiene).

UNIVERSITY OF EDINBURGH.

1. Chemical laboratory work and meteorology as applied to public health (four hours a day, 200 hours).

2. Sanitary engineering (30 hours).

3. Lectures on advanced public health (three days a week, 30 hours).

4. Bacteriology (three days a week, 120 hours).

5. Administration of infectious disease hospitals, including the recognition of infectious diseases (two days a week, 20 hours).

6. Duties and practical work of a medical officer of health (three days a week, 60 hours, during three months).

7. Entomology and parasitology, including diseases transmissible to man (about 80 hours).

8. Tuberculosis, clinical and administrative (one day a week, 15 hours).

9. Venereal diseases, clinical and administrative (15 hours).

10. Demonstration course of medical inspection of school children by school medical officer (one day a week, 10 hours).

11. Demonstration course of infant welfare (one day a week, 10 hours).

UNIVERSITY OF GLASGOW.

1. Practical instruction in chemistry, bacteriology, and pathology of the diseases of animals transmissible to man (20 hours during the week for eight months, of which five months must be in the public-health laboratory of the University of Glasgow and the other three either there or in a laboratory of recognized standing).

2. Physics and geology, each course covering three months.

3. A medical course dealing with public health (75 lectures).

4. An engineering course dealing with public health (25 lectures).

5. Six months' service acquiring practical knowledge of the duties of public-health administration under a recognized health officer.
6. Three months' practice in a hospital for infectious diseases (at least twice weekly).
7. Instruction in mensuration and drawing (three months).

The Diploma in Public Health Elsewhere.

Canadian practice in awarding the Diploma in Public Health follows closely after that of England. The medical degree is required. The courses are all under the faculty of medicine.

At the University of Toronto there is a winter session of eight months and a summer session of three months. The winter session is devoted to lecture courses in (a) sanitary chemistry, (b) bacteriology, (c) parasitology, (d) general hygiene, (e) general pathology, including theories of immunity and comparative pathology, (f) elements of geology, meteorology, and climatology, in their relation to public health, (g) sanitary engineering, (h) public-health organization, sanitary legislation, and vital statistics, (i) clinics on communicable diseases, (j) history of preventive medicine and epidemiology. In the summer session there is a course of field work under the supervision of a recognized board of health, which deals with methods of controlling infectious diseases, inspection of schools, factories, and dairies, water supplies, sewage disposal works, and medical inspection of school children. Provision is made for graduates in medicine prior to 1907 who have acted as medical officers of health for two years, to take the examinations and receive the certificate without attending the courses.

At McGill University there is a similar "Diploma Course in Public Health" based on one year's work in residence, the medical degree or other qualifications for practice being required.

In India and other parts of the British Empire the diploma in public health is administered in substantially the same manner as in England. At Liege, Belgium, a "diplôme spécial de médecin hygiéniste" is given after one year's special study of hygiene, bacteriology, sanitary technology, and administrative medicine. At the Institute of Hygiene at Lyon a certificate is given to graduates in medicine after one year's study of public-health subjects.

The Certificate in Public Health in the United States.

The United States has not yet reached the stage where all health officers are required by law to possess certain qualifications, but in some sections custom is rapidly giving this requirement the force of law. During the last ten years notable progress has been made. Several schools of public health have been established and increased attention is being given to the subject in many universities.

At the present time the certificate in public health does not imply that a definite course of instruction has been received. Efforts have

been made to give to the physicians already in office as health officers special training in the newer ideas of preventive medicine by means of short courses of study extending over only a few weeks. This has been useful, but it represents the lowest form of the "certificate." The highest form is represented by the year's instruction as given in the School of Public Health of Harvard University and the Massachusetts Institute of Technology and at the School of Hygiene and Public Health of Johns Hopkins University.

At the Harvard Technology School the medical degree is required of the student who desires to secure the certificate after one year's study, but by attending certain preliminary medical courses in the medical school it is possible for a person to obtain the certificate in public health without a medical degree. It has been found that such persons usually make excellent health officers. The administrative board of the school prefers and recommends that candidates for the certificate shall have the medical degree. The requirements for the certificate are:

1. A medical degree, or sufficient preparation in premedical studies.
2. An approved program of study covering one academic year (eight months), in residence, with an examination in each course.
3. A final oral examination on the general subject.
4. A report of a special investigation, generally in the nature of a sanitary survey.

There is no rigid program of studies, but such subjects as bacteriology, preventive medicine, epidemiology, hygiene, vital statistics, and sanitary engineering form a part of all programs. The courses include hospital clinics, laboratory work, visits to sanitary works, and frequent lectures by officials from the State and local departments of health. All possible efforts are made to tie up the university instruction with actual work. It has been found desirable to allow considerable latitude in the choice of subjects, as many of the students are preparing themselves for special fields of work. Industrial hygiene forms an important and separate branch of the school. Women are admitted on the same terms as men.

At the School of Hygiene and Public Health of Johns Hopkins University the program of studies for the certificate in public health is also varied, but must include epidemiology and such other courses as may be approved by the faculty, the whole amounting to one full academic year's work in residence. The candidates must be either graduates in medicine or graduates in arts or science who have had sufficient previous training in the physical and medical sciences.

There are schools of public health or schools of hygiene created as separate departments of the university at Yale, University of Pennsylvania, Tulane University, and elsewhere, but the above-mentioned notes may be regarded as typical of American practice at the present time.

Miscellaneous Degrees in Public Health.

Practice varies greatly in different universities in the administration of other degrees relating to public health. There are differences in title, in time required, in the subjects taught, and in the methods of teaching. It hardly seems worth while to attempt to standardize them, as at the present time it would serve no useful purpose. It will not be out of place, however, to refer to some of the degrees which are given; for, taken collectively, they indicate a widespread interest in the subject of public health.

In Edinburgh the degree of bachelor of science in public health is given after 18 months' study following the medical degree. The course contains more of the fundamental studies than the diploma course, with much emphasis on engineering subjects. A similar degree is given at Glasgow. At Edinburgh and Glasgow the degree of doctor of science in public health is given, not as the result of following a further prescribed course of study, but after passing an examination and submitting a thesis. This degree is not awarded until five years after the student has received the degree of bachelor of science in public health. At Manchester, Birmingham, and some other English universities the degree of bachelor of science in public health is given. At Durham the degree is called bachelor of hygiene, and there is also a degree of doctor of hygiene given after two years' work of research following the bachelor's degree, which requires an examination and a thesis. At Liverpool the degree of master of hygiene is given after practically two years' work. It should be observed that all of these degrees require the medical degree as a prerequisite.

In the American universities practice in granting degrees in the field of public health has been quite varied, as these degrees have not been administered in response to any single controlling idea. There are numerous branches of the public-health service and many programs of study have been arranged looking toward specific lines of work. Among the degrees given are: Bachelor of science in hygiene, bachelor of science in public health, master of public health, master of science in public health, doctor of science in hygiene, doctor of science in public health, doctor of philosophy in public health, doctor of medical sciences. Allied to these are the bachelor of science in sanitary chemistry, bachelor of science in sanitary engineering, master of science in sanitary engineering, and so on. For these various degrees the degree of doctor of medicine is not usually required, hence these degrees can not be readily compared with the English degrees of somewhat similar titles. It hardly seems worth while to attempt to standardize them, as educational opinion is tending strongly toward the diploma (or certificate) in public health as the minimum requirement for executive public-health positions and

toward the degree of doctor of public health as the highest degree in that field. In a general way the American degree of master of public health, given in one year after the bachelor's degree in a course which includes the basic medical subjects, may be taken as corresponding to the certificate in public health.

Typical One-Year Diploma Course.

After studying critically the various programs of studies leading to the granting of a diploma of public health in the medical faculties of English and Canadian universities, the "certificate" programs in the American schools of public health, and the courses in hygiene in the medical schools of these and other countries, the writer has formulated an outline of studies and training which it is hoped may be regarded as a model worthy of being followed by universities where instruction in public health is not now given. This program is based on the following fundamental ideas:

Candidates for the diploma in public health should be graduates in medicine. If more than about five years have lapsed since receiving their medical degree, it is desirable that they should take a special review course during their first term, as experience has shown that such persons are often rusty on many of the elementary subjects, such as mathematics, chemistry, physics, and methods of laboratory manipulation.

The program should cover one calendar year. There should be about eight months of academic work in residence followed by three months of practical work, preferably in the summer, with an allowance of one month for vacations. The academic work would ordinarily be divided into two terms.

During the first two terms there should be not more than five principal studies in progress at any one time, and these should cover 80 or 90 per cent of the student's working time. In some institutions it might be more convenient to have one subject follow another according to the so-called intensive plan. Some time should be left for extra lectures and special studies of particular interest to the candidate. In the case of physicians who need the review course, this special time should be devoted to it.

The practical work in the third, or summer, term should be varied according to the needs of each candidate. Clinical work in the hospital, work as assistant to a health officer, the inspection of schools or factories, the making of a sanitary survey, the execution of a special laboratory investigation, or even a tour of visits to notable sanitary works should be regarded as fulfilling the requirement.

There should be an examination for each course given by the instructor, and there should be a general oral examination on the

completion of the academic work, given by a special board which should include one or more persons from outside the school engaged in actual public health work.

At the end of the third term and before the diploma is awarded the candidate should submit a report of the work done.

The following is a list of 10 courses arranged for two academic terms, with the proportion of the student's time which should be allotted to them. It is not expected that these courses or the division of time would be followed exactly in any institution, but it is hoped that they will serve to emphasize the principal topics which, under present conditions, need to be studied in preparation for public health administration work.

Model program for a 1-year course for medical graduates leading to the Diploma in Public Health.¹

Required subjects.	Per cent of time devoted to instruction.	Special subjects.	Per cent of time devoted to instruction.
First term (four months): Hygiene..... Microbiology (bacteriology)..... Vital statistics..... Sanitary chemistry and biology..... Public health law and legislation.....	10 25 20 25 10	Review course or special subjects chosen by the candidate.....	10
	90		
Second term (four months): Applied hygiene..... Preventive medicine..... Epidemiology..... Sanitary engineering..... Public health administration.....	25 20 15 15 15	Special subjects chosen by the candidate.....	10
Third (summer) term (three months): Practical experience in hospital work, public health work, sanitary surveys. Tour of visits to sanitary works, or research.	90		

¹ Or Certificate in Public Health.

Inasmuch as the phraseology of the subjects mentioned in the above list is not uniform in different universities, a syllabus has been prepared giving the important topics which should be included in the various courses. The lists given are so long that not all of the topics could be covered in one year without making the instruction too superficial. Variations in different schools must be expected and may even be desirable. Too much standardization is objectionable. Although the technical subjects require more time than those which relate to administration, it must not be inferred that they are more important.

HYGIENE.

Neuromuscular Activity.—Exercise, posture, fatigue, and restoration; rest and sleep; endurance; shock.

Circulation.—Muscular work of heart and blood vessels; vulnerable points of the circulatory apparatus; methods of testing circulatory efficiency; blood pressure.

Blood.—Formation of blood; chemical tests; methods of providing oxygen demand; blood destruction; methods of determining excessive rate of destruction; altered blood pigment. Coagulation.

Respiration.—Modern views of respiration; composition of air. Muscular movements. Effect of high and low barometric pressures; effect of presence of hæmoglobin alterations, carbon monoxide; effect of increased concentrations of carbon dioxide. Lymph drainage of the lungs and phagocytic activity of lung cells. Inhaled foreign particles; their removal; varied effects of carbonaceous and siliceous dusts; biological damage done by dust.

Temperature Regulation.—Supply of heat from food combustion. Loss of heat by conduction, convection, and evaporation. Ventilation; automatic regulation; temperature and humidity of air. Exercise.

Nutrition.—Nature of foods; food values; balanced diet; vitamins; cooking. Physiology and hygiene of digestion. Metabolism: Fats, carbohydrates, proteins, mineral matter, minor substances; methods of study. The rôle of water. Effect of mental conditions, fatigue, and exposure on nutrition. Quantitative discussion of food supply. Effect of chemical preservatives. Tests of gastro intestinal contents.

Excretion.—Waste products, normal and abnormal. Urine formation; renal diseases. Perspiration.

Hygiene of the Skin.—Functions; care of skin surfaces. Bathing. Clothing.

Hygiene of the Eye and Ear.—Light: Eye strain; astigmatism; myopia; influence on general health. Deafness.

Physiology of Reproduction.—Sex hygiene: Education.

Alcohol, Tobacco, and other Habit-Forming Drugs.—Alcohol as a food, medicine, and stimulant. Tobacco, tea, and coffee. Patent medicines. Opium, cocaine, and other drugs.

Oral Hygiene.—Function of air passages. Infection of throat, nose, and ear, and sinuses. Care of teeth; troubles caused by decayed teeth. Relation between oral hygiene and nutrition.

Mental Hygiene.—Mental work; need of rest periods. Nervous strain.

Hygiene of the Feet.—Effect of shoes. Bathing. Flat feet.

Adaptation of the Body.

MICROBIOLOGY (BACTERIOLOGY).

Morphological and Cultural.—Morphology, development, and classification; cultural significance: Media, colonies; cultural features, biochemical features; staining of bacteria; identification of species.

Physiological.—Cell studies. Products of physical and physiological significance: Heat, light, pigments, enzymes, aromatic compounds, toxins, etc., plasmolysis, plasmoptysis. Metabolism: Growth, respiration, nutrition, moisture, temperature of cultivation, composition of media. Identification of species of microorganisms by means of cultural physiologic methods and chemical, physical, and biological tests. Studies in association: Symbiosis, metabiosis, antibiosis. Fermentative changes produced by microorganisms: Enzymes, fermentation. Effect of light, dry and moist heat, cold, thermotaxis, thermotropism, electricity, desiccation, mechanical pressure, mechanical agitation, gravity, chemicals.

Pathogenic Bacteria.—Identification methods; spreads, hanging drop, and special stains. Cultural methods: Tests for agglutination, precipitin, complement fixation,

opsonic index, animal inoculation. Specific pathogenic properties of bacteria: Infections by staphylococci, streptococci, pneumococci, gonococci, meningococci. Infections by bacilli belonging to diphtheria, tubercle, typhoid, colon, dysentery, haemoglobinophilic, glanders, plague, anthrax groups. Anaerobic bacilli, tetanus, botulism. Vibrio infections, cholera. *Spirochaeta recurrentis*, treponema. Diseases of unknown etiology (including filtrable viruses, rabies, smallpox, vaccinia, yellow fever, typhus, trench fever).

Pathogenic Fungi, Yeasts, etc.—Yeasts, blastomycetes, molds, actinomycosis, sporothrix.

Pathogenic Protozoa and other Parasites.—Amebid dysentery, malaria, sleeping sickness, hookworm disease, tapeworms, trichina, etc.

SANITARY CHEMISTRY AND BIOLOGY.

Water and Sewage Analysis.—Collection of samples, choice of containers, shipment, allowable delay in analysis. Microscopic life; plankton, identification of algæ and protozoa; occurrence of organisms; factors influencing growth; effect of organisms on quality of water; quantitative determination of organisms; control of growth. Temperature measurement; temperature changes in large bodies of water; wind currents; circulation and stagnation. Dissolved gases; solubility of gases; carbon dioxide, its source and effect; oxygen, exhaustion and re-aeration, field methods; relation between gases and microscopic organisms; oxygen demand, biological and chemical. Taste and odor; observation; causes; methods of removal. Bacteria; genera; significance of certain forms; culture media; quantitative determination; *B. coli* group; *B. aerogenes*. Color; origin, measurement, significance. Organic matter; organic nitrogen; albuminoid ammonia; oxygen consumed; matter soluble in ether; loss on ignition; oxygen demand; stability. Nitrogen cycle; free ammonia; nitrites; nitrates. Solids: total, suspended, dissolved, fixed, volatile. Turbidity: origin, nature, field methods, laboratory methods. Chlorine: Normal chlorine. Hardness: Causes; significance; soap method; soda reagent method; chemistry of water softening; noncarbonate hardness. Alkalinity: Substances causing alkalinity; excess over hardness; indicators. Iron and manganese: Source; oxidation; effect on quality of water. Lead and poisonous metals: Sources; dangerous amounts. Interpretation of water analyses: Direct and indirect tests; comparates.

Air Analysis.—Temperature and humidity; thermometers; hygrometers; psychrometers; relative humidity; problems of air moisture. Pressure: Barometers. Movement: Anemometers, indicators, smoke clouds, velocities. Carbon dioxide: Index of vitiation; approximate and accurate determinations. Dust: Size and nature of particles; origin of dust; quantitative determinations. Bacteria and molds: Common forms; droplet infection; collection of samples; quantitative determinations.

Food Analysis.—Milk and cream: Fats; solids; gravity tests; preservatives and their detection; microbiological tests. Butter and butter substitutes: Chemical and microscopical tests; wholesome qualities. Flour and bread. Alcoholic beverages: Determination of alcohol; harmful ingredients. Adulteration of food: Substances to be tested for. Microscopical examinations, starch, pepper, mustard, coffee. Shellfish, bacteriological tests. Fermentation and putrefaction of food.

VITAL STATISTICS.

Statistical Arithmetic.—Collection of data; statistical units; accuracy and precision; inexact numbers. Computation of rates: Logarithms, slide rule. Classification of data: Groups, classes, series. Analyses of data: Grouping, averaging, mechanical devices.

Statistical Graphics.—Appeal to the eye; types of diagrams. Plotting; coordinates; group plotting; choice of scales. Special plotting; summation diagrams; logarithmic scales. Chart construction; legibility; lettering; coloring. Reproduction of diagrams.

Enumeration and Registration.—Population censuses. Registration of births and deaths: Swiss system, English system, etc. Notification of morbidity.

Population.—Methods of estimation—arithmetical, geometrical, graphic. Classification of population. Standard population.

Birth Rates and Death Rates.—General rates; corrected rates; adjusted rates. Specific death rates, by sex, age, race, occupation. Rates for particular diseases. Analysis of death rates.

Statistical Studies of Diseases.—Causes of death; international list. Studies of occurrence of particular diseases; nationality, age, sex, occupation, climate, season.

Advanced Statistical Processes.—Probability; chance; frequency; coefficient of variation. Correlation; causal relations; logical reasoning; mathematical relations.

Life Tables.—Methods of computation. Use of life tables.

Demography.—History of subjects. Importance of national statistics.

PUBLIC HEALTH LAW AND LEGISLATION.

Government.—Sovereignty; centralized governments; democracy; liberty and restraint. Common law; statutory law; constitutions. Executive, legislative, and judicial functions. Federal laws; State laws; local ordinances. Sanitary authority. Centralization *vs.* decentralization.

Police Power.—Police power: Safety, morals, health; source of police power. Check on police power: Due process of law. Use of police power. Delegation of police power.

Nuisances.—Nuisances *in esse* and *in posse*: Determination of nuisances; abatement of nuisances; personal liabilities. Regulation *vs.* prohibition. Licenses; permits.

Enforcement of Public Health Laws.—Civil and criminal actions. Judicial procedures. The nature of evidence; expert testimony. Injunctions. Public responsibility for contracts or negligence of officials. Personal liability of officials. Rules and regulations. Legal forms.

Law of Quarantine.—Origin of power. Conflict of authorities. International agreements. Personal liberty.

Taxing Power of Government.—General taxation. Special assessments. Public service.

Right of Eminent Domain.—Compensation to property owners.

Advisory Powers of Health Departments.

Medical Jurisprudence.

Relation between Economics and Public Health.

Labor and Factory Legislation.

APPLIED HYGIENE.

Infant Welfare.—Prenatal and maternal hygiene. Milk stations.

School Hygiene.—Physical examination. Heating, lighting, ventilation; seats and desks; sanitation. Posture; physical exercise. Medical and nursing service. Hours of study, work, rest. Dental service.

Factory Hygiene.—Employment; physical examinations; classifications. Medical, nursing, and sanitary service. Safeguards against accidents. Heating, lighting, ventilation. The dust problem. Noise, nervous strain, fatigue, hours of work. Welfare work, economic conditions, scientific management, recreation, education. Industrial insurance.

Industrial Toxicology.—Portals of entry for industrial poisons; habits of workers. Lead, arsenic, antimony, brass, mercury, phosphorus. Acids and alkalies; cyanides; carbon monoxide. Alcohols, aldehydes, acetones, acetates, ether, nitroglycerine. Benzene, nitro and amido compounds.

Mercantile Hygiene.—Medical and nursing service; emergency aid. Employment; physical examinations. Dental service. Rest rooms; lunch rooms. Heat, light, ventilation, sanitation.

Food Inspection.—Milk handling; farms, dairies; pasteurization. Markets; bakeries; food shops; restaurants. Delivery and household storage of food. Adulteration of food. Meat inspection. Drug inspections.

Military and Naval Hygiene.

Immunology.—Theories of immunity; natural, acquired, mixed, active, passive; local, general immunity. Virulence of microorganisms. Toxins and antitoxins; enzymes. Carriers; latency; lowered resistance. Antigens and antibodies. Antitoxic immunity; bactericidal immunity; phagocytosis; opsonins; lysins; hemolysis; cytotoxins; complement fixation; precipitins; agglutinins; amboceptors; antigens. Anaphylaxis and its clinical applications. Typing of blood.

Heredity and Eugenics.—General theories; variations; mutation; evolutionary theories; Mendel's law; atavism. Biometry. Heredity *vs.* environment. Hereditary transmission of diseases; inherited immunity; effect of alcohols and other drugs.

Prevention of Communicable Diseases.—Smallpox: Theory and practice of vaccination; duration of immunity. Rabies: Local treatment, Pasteur prophylactic treatment. Venereal prophylaxis; Wassermann tests; use of salvarsan. Preventable blindness; chronic inflammations; trachoma; ophthalmia neonatorum; wood alcohol. Tetanus: Resistance, prophylaxis. Typhoid fever: Modes of infection; use of Widal test; carriers; immunity from preventive inoculation; personal prophylaxis. Cholera: Diagnosis by bacteriological methods; inoculation prophylaxis. Paratyphoid fever; dysenteries; types; immunity; prophylaxis. Tuberculosis: Immunity; personal prophylaxis; sanatoria; segregation; suppression of bovine tuberculosis; tuberculosis in children. Diphtheria: Transmission; carriers; Schick reaction; toxin-antitoxin in active immunization; use of antitoxin. Tetanus: Antitoxin immunization. Measles. Scarlet fever. Whooping cough. Chicken pox. Mumps: Resistance; immunity; prophylaxis. Pneumonia: Diagnosis; types; immunity; prevention. Influenza: Colds; prophylaxis. Cerebrospinal fever. Epidemic meningitis. Anteriorspinal poliomyelitis. Plague: Relation to fleas and rats; vaccine. Typhus fever, relapsing fever, trench fever: Relation to lice. Yellow fever, malaria: Relation to mosquitoes; use of quinine. Miscellaneous diseases: Leprosy, glanders, anthrax, trichina. Tropical diseases: Hookworm disease, amoebic dysentery, sleeping sickness.

Manufacture and use of Vaccines, Sera, Antitoxins, etc.—Smallpox, rabies, typhoid, paratyphoid, plague, cholera, tetanus, diphtheria, botulism.

Manufacture of Arsphenamine (Salvarsan).

Control of Insects and Animals.—Mosquitoes: Life history; habits; classification; methods of control. Flies: Life history; habits; classification; methods of suppression. Fleas: Life history; pulicides; relation to rats. Lice: Life history; methods of disinfection; insecticides; fumigation. Ticks, bedbugs, roaches, and other insects. Rats: Habits and classification; rat-proofing. Intestinal parasites. Diseases of animals transmissible to man: Anthrax, glanders, etc.

Disinfection.—Theories of disinfection: Physical and chemical. Standards: Methods of testing disinfectants; phenol coefficient. Use of gaseous disinfectants: Sulphur dioxide; formaldehyde; hydrocyanic acid; chlorine; ozone. Use of liquid disinfectants: Carbolic acid; bichloride of mercury; lime; chloride of lime. Use of alcohol, acids, and soaps. Effect of drying and exposure to sunlight.

EPIDEMIOLOGY.

Communicable Diseases.—Classification according to modes of transmission. Relative importance.

Historic Epidemic Diseases.—Plague, influenza, cholera, yellow fever; endemic centres; travel of epidemics.

Water-borne Diseases.—Typhoid fever: Notable outbreaks; longevity of *B. typhosus* in water; period of incubation; characteristics of a water-spread epidemic; pollution of river and lake waters; natural purification of water; pollution of wells; seasonal occurrence of water-borne typhoid fever. Dysentery; winter cholera; warning of typhoid epidemic. Cholera; notable outbreaks.

Milk-borne Diseases.—Typhoid fever; characteristics of milk epidemic. Scarlet fever, diphtheria, septic sore throat; notable instances. Tuberculosis.

Air-borne Diseases.—Air infection at short range; coughing; sneezing; mouth spray. Pneumonia; influenza; measles, whooping-cough, colds, etc.

Contact Infection.—Body contact: Shaking hands; kissing; sexual intercourse; touching objects in common; drinking cups, eating utensils, door-knobs; objects passed from person to person.

Insect-borne Diseases.—Physical transmission: Flies, typhoid fever. Blood transfer. Mosquitoes, fleas, lice, insects. Animal parasites: Trichina, tapeworms.

Earth Infection.—Hookworm; soil pollution; bare feet.

Investigation of Epidemics.—Search for common cause; need of statistics; logical use of facts; correlation; the detective's instinct; inductive reasoning. Dates of beginning of outbreaks; rise and fall of the epidemic; seasonal, sex, age, and occupational factors. Testing theories by facts; danger of hasty conclusions.

Early Discovery of Epidemics.—Need of closely following statistics: Maps, charts, and tables. Necessity of knowing normal conditions; use of the endemic median. Exchange of data between different health authorities.

Control of Epidemics.—Quarantine; isolation; segregation; protection against contact. Removal of original cause, if found. Protection against spread of disease by known methods.

Geography of Disease.—Relation to climate; movements of people; transportation; quarantine.

SANITARY ENGINEERING.

Municipal Sanitation.—City plans: Relation of streets to public health; building restrictions. Municipal administration: Appropriations for public works. Contracts and specifications; reading maps and plans; the cost factor in engineering work; measurement of value received. Water consumption; waste of water; variations in water consumption and their effect on design. Rainfall measurement; rainfall records; stream flow; storage; yield of catchment areas; reservoir sites. Effect of storage on quality of water; sanitary protection of watersheds. Geology of ground water; methods of utilizing ground water; pumping water. Requisite quality of public water supplies; principles of water purification; aeration; sedimentation; coagulation; sand filters; mechanical filters; disinfection of water; water softening; iron removal; control of water purification; value of pure water; cost of water purification. Distribution of water: Sale of water. Sewerage systems: Volume and variations of sewage flow; composition of sewage; river and harbour pollutions. Principles of sewage treatment: Physical methods, screening, sedimentation; chemical processes; application to land; biological processes, contact beds, trickling filters, activated sludge; sludge disposal; disinfection. Disposal and treatment of manufacturing wastes. Disposal of solid wastes; street cleaning; garbage incineration; garbage reduction. Smoke prevention; dust.

Rural Sanitation.—Farm buildings: Sites, arrangement, construction. Protection of dug wells; small pumping units. Simple methods of excreta disposal; disposal of

sewage; utilization of human excrement as fertilizer. Methods of handling animal manure; the fly problem. Mosquito control: Swamp drainage.

Building Sanitation.—The housing problem; building materials. Construction; fire protection; rat proofing; insect control. Sunlight; artificial lighting. Heating; the fuel problem. Ventilation: Air purification; air conditioning; recirculation. Plumbing regulation: Distribution and heating water; plumbing fixtures; house drainage; inspection of plumbing; deterioration of plumbing.

PUBLIC HEALTH ADMINISTRATION.

History of Public Health.—Principles of administration: Legal basis; single executive plan vs. boards of health; staff organization and line organizations; organization of departments. Responsibility, accountability, and authority; financial responsibility. The budget system. Executive, legislative, and judicial powers; advisory powers; delegation of police powers. Centralization and decentralization. Full-time service; compensation of health officers; tenure of office; civil service; political and diplomatic considerations.

Public Health Authorities.—Ministries of health; national departments; State departments of health; local boards of health; international health matters.

Medical and Nursing Service.—Relation of medical service to public health authorities. Organization of public health nurses, official, semiofficial, private agencies.

Hospitals and Institutions.—Hospitals: Contagious-disease hospitals; private hospitals. Public institutions: Prisons; homes for the aged; charity homes. Dispensaries: General drug dispensaries; special. Clinics: Tuberculosis; venereal diseases, etc. Day nurseries. Public health education. Research; new discoveries; annual and special reports. Popular education: Printed matter; exhibits; cinemas; health crusades. Sanitary surveys.

Details of Administration.—Equipment of offices and laboratories; inspection service; use of statistics; hearings; reports; dealings with the public; preparedness for emergencies; relief work in connection with fires, floods, and other catastrophes.

Nonofficial Health Agencies.—Red Cross societies; social service; women's clubs; chambers of commerce; and many others.

Offensive Trades.—Inspection, regulation, prohibition; control of nuisances.

Relative Value of Health Activities.

Spirit Versus Program.

The writer realizes the futility of a program like the one proposed unless the instruction is carried on with the proper spirit and unless all the instructors have the public health point of view. It is not satisfactory to have the instruction given in a medical school by medical men whose major interests are connected with the training of physicians. The setting up of a special school of public health is important, if for no other reason than that it focuses the minds of both teachers and students on the main subject. Just as public health is a composite subject, so must the school be a composite school and include not only physicians but sanitary engineers, administrators, and skilled laboratory specialists. Sanitary engineering can be much better taught by an engineer who knows something about preventive medicine than by a doctor of medicine who knows something about engineering. The advances which the American schools of public health have made in recent years are due largely

to this spirit of cooperation between the different professions and to the fact that it has been possible to secure as teachers, doctors, engineers, chemists, lawyers, and others who are willing to direct their expert knowledge to the field of public health and who regard it as one of their major interests in life.

Next in importance is the laboratory method of teaching. Emphasis should be placed upon the laboratory and the part which it is bound to play in public-health administration. In the hands of modern science public health is a living, growing thing. It is a subject which lends itself to the experimental method. There should be not only chemical and biological laboratories but engineering laboratories and laboratories of statistics.

Students must also be brought into contact with actual work. This is necessary in order to get the proper perspective of sanitary works, in order to see how a health official orders his life and his work, and in order to visualize the magnitude of the public-health problems which await solution. This kind of close contact with actual health administration is as necessary for the health officer as internship in a hospital for a young physician or apprenticeship for a young mechanic.

There are four principles, then, which transcend in importance the program of studies above outlined: First, the establishment of a school of public health; second, instruction by specialists in different fields working in cooperation; third, emphasis upon the laboratory method; and, fourth, contact with actual work.

Program Leading to the Degree of Doctor of Public Health.

The degree of doctor of public health should be regarded as the highest degree in this field. At the present time the opinions of educators are divided as to whether the medical degree should be prerequisite or whether there should be a special course of study leading directly to the degree of doctor of public health.

If the medical degree is required, it seems clear that the degree of doctor of public health should require two years' study in residence, or perhaps one year of practical work under suitable direction following the one-year diploma course above mentioned. In the ordinary medical school the last year's studies for the degree of doctor of medicine are largely elective and devoted to practical work; and in the same way the second year of the supplementary course leading to the degree of doctor of public health might be devoted to practical work in some special branch of public health. This arrangement would mean that the student would spend six years getting his two degrees—namely, M. D. and Dr. P. H.—and that two of the years would be spent largely in practical work in two very different fields—curative medicine and public health administration.

If the medical degree is not required, the student, after having received a bachelor's collegiate degree, should be required to pursue two years of approved medical studies, followed by two years of public-health studies along the lines already mentioned, or it might be better for him to devote three years to medical studies and one year to public-health studies. In either case the course would lead to the degree of doctor of public health after four years, and this degree would be the academic equivalent of the degree of doctor of medicine.

In some countries the medical course leading to the degree of doctor of medicine covers five, six, or seven years, instead of four years. Where this is the case the time schedules mentioned in this paper would naturally have to be extended in order to make them apply to local conditions.

It is perhaps too early to lay down a standard program for the four years of medical and public-health studies which should be included in a course leading to the degree of doctor of public health, for the reason that new schools of public health are being organized and educational opinion has not yet crystallized. Furthermore, the diploma (or certificate) course is able to take care of present needs.

The accompanying diagram is a schematic outline of the possible arrangements for such a course as compared with the ordinary courses leading to the degree of doctor of medicine and the diploma (certificate) in public health.

In this diagram the program leading to the diploma (or certificate) in public health is shown on the left, and three alternate programs leading to the degree of doctor of public health are shown on the right. The diploma program provides for premedical work for four years in the medical school and for one year of public-health studies, including an extra summer of practical work. The first program leading to the degree of doctor of public health provides for premedical work for four years in the medical school, two years of public-health studies, including practical work during the summer. The second program requires a bachelor's degree, two years of medical studies followed by two years of public-health studies, provision being made for practical work during the summer. The third program requires the bachelor's degree, three years of medical studies followed by one year of public-health studies, with an extra summer of practical work. The degrees of bachelor of arts and bachelor of science, prerequisite for obtaining the degree of doctor of public health under Plans 2 and 3, may not be given in certain countries of continental Europe. In such cases a preparation equivalent to that obtained by holders of these degrees should be necessary.

These plans are given here merely as a basis of discussion. A committee of the American Public Health Association, appointed to

consider the standardization of public-health training, has recently made a report substantially along the lines above described, and in a few years it may be possible for an acceptable program of study to be set up as a model.

Cooperation of the Universities.

In an article on "World-wide sanitation," published in the first number of the *International Journal of Public Health* (July, 1920), the writer pointed out the great need in all countries of more hygienic living conditions as a foundation for better health and explained the importance of having men trained in medicine, public-health administration, and sanitary engineering. In the long run these men can be educated best in their own countries and in their own language. All the universities in the world must therefore do their part. There should be at least one school of health in every country where men can be educated as public-health executives. This can be brought about in many cases by combining the existing facilities in universities, by the cooperation of medical schools with engineering schools, and by the cooperation of universities with active departments of public health.

SUGGESTED PROGRAMS OF STUDY.

	Diploma in Public Health	Doctor of Public Health Second plan.	Third plan.
Premedical Studies.	Physics, Chemistry, Biology.	Physics, Chemistry, Biology.	Physics, Chemistry, Biology.
Degree.		A. B. or S. B.	A. B. or S. B.
First Year.	Anatomy, Physiology, Bio-chemistry, Histology.	Anatomy, Physiology, Bio-chemistry, Histology.	Anatomy, Physiology, Bio-chemistry, Histology.
Second Year.	Pathology, Bacteriology, Parasitology, Pharmacy, Medicine, Surgery.	Pathology, Bacteriology, Parasitology, Pharmacy, Medicine, Surgery.	Pathology, Bacteriology, Parasitology, Pharmacy, Medicine, Surgery.
Third Year.	Medicine, Surgery, Pediatrics, Obstetrics, Dermatology, etc.	Hygiene, Sanitation, Preventive Medicine, Statistics, etc.	Medicine, Surgery, Pediatrics, Obstetrics, Dermatology, etc.
Fourth Year.	Special Studies in: Medicine, Surgery, Obstetrics, etc.	Special Studies in: Public Health Sciences and Practice, etc.	Hygiene Sanitation, Preventive Medicine, Statistics, etc.
Degree.	M. D.	M. D.	Dr. P. H.
Fifth Year.	Hygiene, Sanitation, Preventive Medicine, Statistics, etc.	Premedical Studies.	
Sixth Year.	Diploma in Public Health (or Certificate in Public Health).	Studies in Medical School.	
Degree.	D. P. H. or C. P. H.	Studies in School of Public Health.	Practical work under direction during summer.

In order to promote the rapid building up of such schools, the practice should be established of sending students or young instructors from the universities where the proper courses of study do not now exist to some of the older schools in Europe or America. After coming in contact with the most modern ideas these students and young instructors would go back to their universities with a new inspiration to found in their own countries courses in public health, to establish laboratories and clinics, to build sanitary works, and to adopt other means of improving the health conditions of their peoples. Later on arrangements should be made for professors in the existing schools to give short courses of lectures in the new schools established in other countries. The Japanese nation has risen rapidly in recent years, largely because of the practice of sending her students and professors to other countries, not only to receive but also to give instruction. This example is one which should be followed by other countries.

At the present time the available textbooks do not cover thoroughly the subjects which are included in the diploma course in public health. This is true of all languages. In English there are excellent books on hygiene, bacteriology, and preventive medicine, but there are no books on public health administration, epidemiology, water analysis, or sanitary engineering which are fully adapted to the program. In German there are satisfactory books in most, but not all, of the subjects. In French there are a few good books on hygiene, which cover a wide field, and there are some well-written engineering books applicable to the diploma program; but there are no adequate books on vital statistics or administration. In the other languages the lack of proper textbooks is greater, although several excellent books in Dutch, Spanish, and Swedish have been brought to the writer's attention. This is a problem which new schools of public health will have to solve. The readiest method of providing textbooks is by translation from one language to another. For example, there is an excellent German book on water analysis which might be translated into English, an American book on vital statistics which is now being translated into Spanish and Japanese, and which might be translated into French, German, and Italian. There are many short articles in Roumanian, Czech, Russian, and other languages which should be made known to the world. The universities have here an excellent opportunity to spread the knowledge of the principles and scientific facts underlying public-health administration throughout the world.

In order to bring about this cooperation it is necessary to have some organization which can serve as a center for collecting and distributing information and for keeping record of the progress of the educational movement in public health in all hands. The League of

Red Cross Societies, with its wide connections, with its staff of experts at Geneva, with its International Journal of Public Health, with its corps of sanitary correspondents scattered through many countries, and with its connections with the League of Nations, is well fitted to perform these functions. The league should maintain at Geneva a complete set of the annual calendars of all universities, lists of courses offered in public health subjects, lists of the textbooks available in the different languages, should provide for translations of works of major importance, and should, in general, act as a clearing house for information on the subject of public health education.

Underlying Motives.

In conclusion the writer wishes to emphasize the fact that this movement, which looks forward to a more effective public health service, is in line with the spirit of the times which demands better living conditions for all the people, especially the people who work with their hands and who, through ignorance, poverty, or neglect, can not or do not protect themselves as they might against the ravages of controllable diseases. It is in line with the demand for improved industrial conditions, for the better development of the natural resources of the world, and for closer commercial relations between the nations. But more than all this, it looks forward to a betterment of humanity. If the materialism of western civilization, so dominant as a result of the use of power, remains an end in itself, civilization will have retrograded; but if modern science is used not only to construct things mechanical but to improve the bodies and souls of human beings and bring health and happiness into their lives, civilization will have made its greatest step forward. The crisis rests upon the present generation. Disease will always exist in the world, for it is man's fate to die. The physician will always be needed. But science is teaching us how to mitigate suffering, how to prevent disease, and how to strengthen human bodies and keep them sound, and hence the coming century will demand not only schools of medicine but schools of public health.

THE NOVEMBER HEALTH INSTITUTE IN NEW YORK CITY.

The first of a series of health institutes is to be given in New York City during the five days from November 8 to 12, 1921. This institute differs from the other regional institutes, which are to be held by the United States Public Health Service, in that it is sponsored not only by the Public Health Service but also by the American Public Health Association, the New York State Department of Health, the New York City Department of Health, the New York Academy of Medicine (public health committee), and the National

Health Council. It will be held during the week immediately preceding the Fiftieth Annual Meeting of the American Public Health Association.

This November Health Institute will consist entirely of demonstrations. Those enrolling will be given an opportunity to see the actual operation of the established methods of public health procedure. Each demonstration will be given under the supervision of one of the leading health experts in the country. The committee in charge of the institute is as follows:

- Dr. W. A. Evans, health editor of the Chicago Tribune, chairman.
- Dr. L. K. Frankel, vice president, Metropolitan Life Insurance Co.
- Dr. H. S. Cumming, surgeon general, United States Public Health Service.
- Dr. H. M. Biggs, health commissioner, State of New York.
- Dr. R. C. Copeland, health commissioner, city of New York.
- Dr. E. H. L. Corwin, executive secretary, public health committee, New York Academy of Medicine.
- A. W. Hedrich, secretary, American Public Health Association.
- Dr. D. B. Armstrong and Mr. James A. Tobey, of the National Health Council, are director and assistant director, respectively, of the institute.

The sections and section chairmen are as follows:

- Vital Statistics:* Prof. R. E. Chaddock, Columbia University.
- Hygiene of Mother and Child:* Dr. S. Josephine Baker, director, Bureau of Child Hygiene, New York City Health Department.
- Public Health Nursing:* Miss Elizabeth Gregg, director, Bureau of Public Health Nursing, New York City Health Department.
- Socio-Health Activities:* Mr. Bailey B. Burritt, New York Association for Improving the Condition of the Poor.
- Sanitary Engineering:* Mr. Kenneth Allen, sanitary engineer, New York City Board of Estimate and Apportionment.
- Communicable Diseases:* Dr. L. I. Harris, director, Bureau of Preventable Diseases, New York City Health Department.
- Laboratory:* Dr. W. H. Park, director, Bureau of Laboratories, New York City Health Department.
- Food and Drugs:* Dr. Payne B. Parsons, chief bacteriologist, New York Laboratory, United States Bureau of Chemistry.
- Industrial Hygiene:* Dr. C. E. Ford, medical director, General Chemical Co., New York.

Conference members of the committee are:

- Dr. A. K. Aldinger, director of physical education, New York City Board of Education.
- Dr. A. J. McLaughlin, assistant surgeon general, United States Public Health Service.
- Dr. T. W. Salmon, director, National Committee for Mental Hygiene.
- Dr. W. F. Snow, general director, American Social Hygiene Association.

Program.

A program has been arranged as follows:

TUESDAY, NOVEMBER 8.

Morning.

Mechanical devices, hand tabulation methods, research, results, etc.; at the Metropolitan Life Insurance Co., statistical department, 1 Madison Avenue. Direction of Dr. L. I. Dublin. (No. 1; for statisticians.)

Demonstration of prenatal work at Red Cross Health Center; 343 East One hundred and sixteenth Street, by Maternity Center Association. Direction of Miss Ann Stevens. (No. 12; for Section of Hygiene of Mother and Child.)

System of garbage disposal at Hog Farm, Newark, N. J. Direction of Dr. C. V. Craster. (No. 24; for sanitary engineers.)

Round Table—Epidemiology; city health department, 505 Pearl Street. Direction of Dr. L. I. Harris. (No. 29; for Communicable Disease Section.)

Visit to Rockefeller Institute, Avenue A and Sixty-sixth Street. Direction of Dr. Simon Flexner. (No. 30; for Laboratory and Food and Drugs Sections.)

Industrial hygiene and welfare work of New York Telephone and Telegraph Co., 15 Dey Street. Direction of Dr. F. L. Rector. (No. 39; for Industrial Hygiene Section.)

Afternoon.

Community health work, including preschool clinics, of the Mulberry Community House of the Association for Improving the Condition of the Poor, 256 Mott Street. Direction of Mr. John C. Gebhart. (No. 17; for section on Socio-Health, Public Health Nursing, and Hygiene of Mother and Child.)

Trip to Kensico dam chlorination and aeration plant, Valhalla, White Plains, N. Y. Direction of Dr. F. C. Hale. (No. 21A; for sanitary engineers.)

Typical clinics: Rabies, typhoid, tuberculosis, venereal disease, occupational, etc.; various localities according to final program. Direction of Dr. L. I. Harris. (No. 25; for section on Communicable Diseases.)

Boat trip to Federal quarantine station, Staten Island. Direction of Dr. S. B. Grubbs. (No. 33; for Laboratory Section.)

Demonstration of milk pasteurization methods, Sheffield Farms Station. (No. 35; Food and Drugs Section.)

Industrial hygiene work of the New York City Health Department, 505 Pearl Street, and various stations. Direction of Dr. S. Dana Hubbard. (No. 37; Industrial Hygiene Section.)

WEDNESDAY, NOVEMBER 9.

Morning.

Sanitary areas for administrative and research purposes in New York City—Exhibit of maps and charts; Clergy Club of New York and Neighborhood and 1920 Census Committee for New York City, 200 Fifth Avenue. Direction of Mr. Walter Laidlaw. (No. 2; for statisticians.)

School medical inspection, including morning inspection, physical examination, consultation with parents, Little Mothers' League, Health League, and various clinics; Public School No. 21, 216 Mott Street. Direction of Dr. S. Josephine Baker. (No. 9; for sections on Hygiene of Mother and Child, Public Health Nursing, Communicable Diseases, and Socio-Health Activities.)

Visit to Mount Prospect Laboratory, Underhill Avenue, Brooklyn. Direction of Dr. F. E. Hale. (No. 21D; for sanitary engineers.)

Control of communicable disease methods, New York City Health Department, Stuyvesant Unit, 540 East Thirteenth Street. Direction of Dr. L. I. Harris. (No. 26; Communicable Disease Section.)

Laboratory procedure at New York City Laboratory, foot of East Sixteenth Street, direction of Dr. W. H. Park; State Laboratory, 38 East Twenty-sixth Street, direction of Dr. A. B. Wadsworth; Bellevue Hospital Laboratory, foot of East Twenty-sixth Street, direction of Dr. D. Summers. (No. 32, for Laboratory and Food and Drugs Sections.)

Industrial hygiene work of American Telephone and Telegraph Co., 161 Broadway. Direction of Dr. C. H. Watson. (No. 41; Industrial Hygiene Section.)

Afternoon.

Central exhibit of all types of record forms applicable to every branch of public health work; National Health Council Conference Room, 370 Seventh Avenue. Direction of Mr. L. Marcus. (No. 4; for statisticians and all sections.)

Demonstration of the Schick Test; public schools to be selected. Direction of Drs. A. Zingher and E. C. Schroeder. (No. 11; for sections on Hygiene of Mother and Child, Communicable Diseases, and Laboratory.)

Visiting nursing service, Henry Street Settlement, 265 Henry Street (lower East Side). Direction of Miss Lillian D. Wald. (No. 15; Public Health Nursing and Socio-Health sections.)

Symposium on harbor pollution and garbage disposal. Exhibits; American museum of Natural History, Columbus Avenue and Seventy-seventh Street. Direction of Mr. Kenneth Allen. (No. 22A; for sanitary engineers.)

Union health center; medical department and industrial clinics of a national labor union, 131 East Seventeenth Street. Direction of Dr. G. W. Price. (No. 40; Industrial Hygiene Section.)

THURSDAY, NOVEMBER 10.

Morning.

Division of Vital Statistics, New York City Health Department: Methods of birth and death registration; mechanical and hand tabulation and analysis; 505 Pearl Street. Direction of Dr. W. H. Guilfooy. (No. 3; for statisticians.)

Baby health stations, New York City Health Department: Child Hygiene Work, 197 Hester Street (and other stations according to number of registrants). Direction of Dr. S. Josephine Baker and assistants. (No. 6; for sections on Hygiene of Mother and Child, Public Health Nursing, and Socio-Health.)

Trip to Little Falls, N. J., Water Filtration Plant. Direction of Mr. G. W. Fuller. (No. 21B; for sanitary engineers.)

Visits to various contagious disease hospitals, including Willard Parker, foot of East Sixteenth Street; also discussion of control of specific diseases. Direction of Dr. R. W. Wilson. (No. 27; Communicable Disease Section.)

Afternoon.

Bellevue Hospital School for Midwives, 223 East Twenty-sixth Street, Miss Agnes Aikman, supervisor. (No. 7; for section on Hygiene of Mother and Child.)

Opening ceremonies of the East Harlem Health Center; demonstrations of various phases of public health work and cooperative arrangements between the score or more participating agencies; address by Gov. Miller and other prominent persons; 343 East One hundred and sixteenth Street. Direction of Mr. Kenneth D. Widdemer. (No. 18; for sections on Socio-Health, Public Health Nursing, Statistics, and all others interested.)

Trip to Wanaque, N. J., Dam (under construction). Direction of Mr. M. N. Baker. (No. 21C; for sanitary engineers.)

Regional conference on venereal disease control; auspices of New Jersey State Department of Health, Jersey City Hospital. Direction of Dr. A. J. Casselman. (No. 28; for Communicable Disease, Laboratory and Industrial Hygiene sections.)

Inspection and supervision of markets, New York City Health Department. Direction of Mr. Edwin J. O'Malley. (No. 36; Food and Drugs Section.)

National Industrial Conference Board, 10 East Thirty-ninth Street. Exhibits; Discussions. (No. 42; for Industrial Hygiene Section.)

FRIDAY, NOVEMBER 11.

Morning.

Tuberculosis statistics, New York Tuberculosis Association, 10 East Thirty-ninth Street. Direction of Mr. G. J. Drolet. (No. 5; for statisticians and tuberculosis workers.)

Class for cardiac children; school to be selected; Dr. R. Halsey. Nutritional class; P. S. 43, One hundred and twenty-ninth Street and Amsterdam Avenue; Prof. Mary Swartz Rose of Teachers College. (No. 8; for Hygiene of Mother and Child Section.)

Tenement house department, City of New York: Inspections, handling of complaints and violations. Visit to Municipal Lodging House, 432 East Twenty-fifth Street. Direction of Mr. J. J. Murphy. (No. 20; for Socio-Health Section.)

Dyckman Street Sewage Screening Plant. Direction of Mr. G. T. Hammond. (No. 22B; for sanitary engineers.)

Industrial welfare work of Metropolitan Life Insurance Co., 1 Madison Avenue. Direction of Dr. L. K. Frankel; also Guaranty Trust Co. (No. 38; for Industrial Hygiene Section.)

Afternoon.

Nutritional work, graduation exercises of nutrition class, discussion of hospital social service, children's and general clinics; Bellevue Hospital, foot of East Twenty-sixth Street. Direction of Miss Mary E. Wadley. (Nos. 12 and 19; for sections on Hygiene of Mother and Child, and Socio-Health.)

Day nurseries and institutions; to be selected. Direction of Dr. Henry G. MacAdam. (For Hygiene of Mother and Child Section.)

Street cleaning apparatus and methods, East Twenty-fourth Street; water front refuse dump, East One hundred and thirty-ninth Street. Direction of Mr. Kenneth Allen. (No. 23; for sanitary engineers.)

City department of health, industrial hygiene work. (No. 42; for Industrial Hygiene Section.)

All day.

Trip to Lederle Laboratories, Pearl River, N. Y., or Squibbs Laboratories, New Brunswick, N. J. (or both); the manufacture and testing of biological products. Direction of Dr. W. H. Park. (No. 31; for Laboratory, Public Health Nursing, Food and Drugs, and Communicable Disease sections.)

SATURDAY, NOVEMBER 12.

Morning.

Through the cooperation of Dr. R. C. Copeland, New York City health commissioner, and officials of the department, of docks of New York, all sections will participate in a boat trip around Manhattan Island. Points of particular interest to health workers, such as Ellis Island, will be visited. An opportunity will also be given to see New York City's entire water front, sky line, the harbor, and numerous other interesting features.

Various Institutions and Health Work of Special Interest.

Although the schedule as given above is rather complete and will require practically all the time of members of the institute, there will be opportunities to visit other institutions or agencies of special interest.

Available in the field of mental hygiene, for instance, are such activities as the following: The Wards Island Psychiatric Institute; the Neurological Institute; the mental clinic and psychiatric social work at the Vanderbilt Clinic; the juvenile delinquency court work; and the Letchworth Village Model Institute for the Feeble-Minded.

In the tuberculosis field, classified in general under communicable diseases with the venereal diseases and other activities mentioned in the foregoing outline, there are available in New York City unique institutions, demonstrations, and experiments, such as the following: The Home Hospital for Tuberculous Families, in The Bronx; the Vocational Work Shops for the Tuberculous, in Astoria, Long Island; the Sea View Hospital, on Staten Island; Day and Night Camps, etc.

In the school field, in addition to methods of physical education, recreation, and the school clinical and nursing work, as classified in the tentative program, varieties of special class work are available, including classes for crippled children, outdoor classes, open-air schools, classes for the blind, sight-conservation classes, cardiac classes, nutrition classes, and classes for mentally deficient children.

A complete list of public health facilities will be given in the formal program of the health institute, which will be ready early in November.

Headquarters for the institute will be at the Hotel Astor, New York City. All public health workers are eligible to attend. A certificate of attendance will be presented to those who attend full sessions. A nominal fee of \$10 will be charged for the New York Institute, but no fee will be required for the Regional Public Health Institute held by the Public Health Service and State boards of health.

Further information may be obtained from Dr. D. B. Armstrong, National Health Council, 370 Seventh Avenue, New York City.

PRINCIPAL CAUSES OF DEATH COMPARED.

DEATH RATES FOR PRINCIPAL CAUSES FOR JULY AND AUGUST, 1921, AND AUGUST AND YEAR, 1920, IN A GROUP OF INSURED PERSONS.

The accompanying table is reprinted from the Statistical Bulletin of the Metropolitan Life Insurance Co. for September, 1921. It presents the mortality data of the industrial department of the company for the months of July and August, 1921, and August and the year, 1920. The figures are based on a strength of approximately 13,000,000 insured persons.

Although these rates apply to a more or less selected group, they are very good indices of the comparative mortality conditions of the general population.

Death rates (annual basis) per 100,000 lives exposed, for principal-causes, July and August, 1921, and August and year, 1920.

[Industrial Department, Metropolitan Life Insurance Co.]

Cause of death.	Death rate per 100,000 lives exposed.			
	August, 1921.	July, 1921.	August, 1920.	Year, 1920.
Total, all causes	809.0	768.5	825.5	980.4
Typhoid fever.....	10.3	7.2	8.2	6.7
Measles.....	1.1	2.9	3.2	8.5
Scarlet fever.....	3.7	4.6	3.3	6.0
Whooping cough.....	4.3	3.5	6.7	6.6
Diphtheria.....	14.3	13.0	12.2	22.1
Influenza.....	2.5	2.6	5.9	53.5
Tuberculosis (all forms).....	113.5	106.3	121.2	137.9
Cancer.....	72.3	68.1	68.0	60.8
Meningitis (all forms).....	6.2	5.2	6.2	5.2
Cerebral hemorrhage.....	48.0	51.1	51.5	61.3
Organic diseases of heart.....	100.9	98.8	95.9	117.0
Pneumonia (all forms).....	26.8	28.1	32.0	106.1
Other respiratory diseases.....	9.9	8.8	12.2	18.2
Diarrhea and enteritis.....	31.3	20.7	30.4	15.8
Bright's disease.....	60.7	58.4	61.3	70.8
Puerperal state.....	16.3	16.4	20.2	23.0
Suicides.....	8.0	6.9	6.0	6.1
Homicides.....	6.3	6.2	6.8	5.8
Other external causes (excluding suicides and homicides).....	70.2	75.3	76.9	60.1
Traumatism by automobile.....	13.8	10.4	14.6	11.1
All other causes.....	202.5	184.4	197.4	188.9

ORDINANCE PROHIBITING COMMUNICABLE DISEASE HOSPITALS HELD INVALID.¹

The Supreme Court of California recently declared invalid, and enjoined the enforcement of, an ordinance of East San Diego which prohibited the maintenance within the city limits of any hospital for the treatment of contagious or infectious diseases.

Injunction proceedings were brought against the city by the San Diego Tuberculosis Association, which owned and operated a hospital in the city for the treatment of persons afflicted with tuberculosis. In its opinion the court said:

Two questions are presented: First, is the ordinance invalid? and second, even if it is, can its enforcement by the city officials be enjoined? The answer to both of these questions seems to us plain.

The ordinance can be justified only as an exercise of the city's police power. This power is, of course, very broad, but it is not without limitation. One limitation enforced in numerous cases is that an ordinance purporting to be an exercise of the city's police power "may not be arbitrary or unreasonable. The exercise of the police power can not be made a mere cloak for the arbitrary interference with or suppression of a lawful business." * * *

¹San Diego Tuberculosis Assn. v. City of East San Diego et al., 200 Pac., 393.

Such being the law, was the present ordinance a reasonable one in its essential feature, that of prohibiting within the city any hospital for the treatment of contagious or infectious diseases? Such prohibition is very different from regulation, and can be justified only on the ground that such a hospital, no matter how well conducted, is a menace to the public peace, morals, health, or comfort. That a well-conducted, modern hospital, even one for the treatment of contagious and infectious diseases is not such a menace, but, on the contrary, one of the most beneficent of institutions, needs no argument. There is not the slightest danger of the spread of disease from it, and this is the only possible ground on which objection could be made to it. We have no hesitation in holding an ordinance prohibiting the maintenance anywhere within a city of an institution so necessary in our modern life and so beneficent, to be wholly unreasonable and invalid. * * *

It is evident in the present case that the enforcement of the ordinance would cause substantial and irreparable injury to the plaintiff's property, and that against the threat of its enforcement by the repeated prosecutions which the ordinance permits, the plaintiff has no adequate remedy. The case, therefore, comes within the rule stated in *Abbey Land Co. v. San Mateo*, and upon the facts alleged in the complaint the plaintiff was entitled to have the enforcement of the ordinance enjoined.

DEATHS DURING WEEK ENDED OCT. 8, 1921.

Summary of information received by telegraph from industrial insurance companies for week ended Oct. 8, 1921, and corresponding week, 1920. (From the Weekly Health Index, Oct. 11, 1921, issued by the Bureau of the Census, Department of Commerce.)

	Week ended Oct. 8, 1921.	Corresponding week, 1920.
Policies in force.....	47, 794, 871	44, 692, 241
Number of death claims.....	7, 305	6, 988
Death claims per 1,000 policies in force.....	8.0	8.2

Deaths from all causes in certain large cities of the United States during the week ended Oct. 8, 1921, infant mortality, annual death rate, and comparison with corresponding week of preceding years. (From the Weekly Health Index, Oct. 11, 1921, issued by the Bureau of the Census, Department of Commerce.)

City.	Estimated population, July 1, 1921.	Week ended Oct. 8, 1921.		Average annual death rate per 1,000. ²	Deaths under 1 year.		Infant mortality rate, week ended Oct. 8, 1921. ³
		Total deaths.	Death rate. ¹		Week ended Oct. 8, 1921.	Previous year or years. ³	
Akron, Ohio.....	229,195	33	7.5	46.8	7	3	67
Albany, N. Y.....	115,071	36	16.3	C 19.2	3	4	67
Atlanta, Ga.....	207,473	72	18.7	C 17.2	5	12	-----
Baltimore, Md.....	752,663	198	13.7	A 15.0	36	39	101
Birmingham, Ala.....	188,153	45	12.6	A 12.2	8	5	-----
Boston, Mass.....	757,634	170	11.7	A 15.2	25	44	67
Bridgeport, Conn.....	146,867	24	8.3	A 13.0	7	7	88
Buffalo, N. Y.....	519,608	101	10.1	C 10.9	30	22	116
Cambridge, Mass.....	116,444	12	5.7	A 13.1	0	6	0
Camden, N. J.....	119,672	20	8.7		6		90
Chicago, Ill.....	2,780,655	504	9.5	A 12.5	94	119	-----
Cincinnati, Ohio.....	403,418	92	11.9	C 11.2	10	8	66
Cleveland, Ohio.....	331,138	131	8.2	C 10.3	28	37	75
Columbus, Ohio.....	245,358	61	12.0	C 13.7	7	9	81
Dallas, Tex.....	165,282	26	8.2	A 9.4	1	2	-----
Dayton, Ohio.....	158,119	36	11.9	C 10.8	4	9	66
Denver, Colo.....	268,152	66	13.1	A 11.5	7		-----
Detroit, Mich.....	1,070,450	185	9.0	C 9.3	37	41	70
Fall River, Mass.....	120,668	35	15.1	C 20.8	12	11	180
Grand Rapids, Mich.....	141,97	21	7.8	C 11.6	7	9	118
Houston, Tex.....	144,040	39	14.1		5		-----
Indianapolis, Ind.....	325,215	87	13.9	C 13.6	11	8	85
Jersey City, N. J.....	302,788	74	12.7	C 12.0	16	16	110
Kansas City, Kans.....	103,884	29	14.6	C 13.3	4	8	95
Kansas City, Mo.....	336,157	78	12.1	C 10.0	6	22	-----
Los Angeles, Calif.....	611,921	151	12.9	A 11.9	16	9	76
Louisville, Ky.....	236,083	58	12.8	C 11.1	7	9	81
Lowell, Mass.....	113,757	23	10.5	A 16.2	6	13	97
Memphis, Tenn.....	163,389	47	14.8	C 17.2	5	5	-----
Milwaukee, Wis.....	468,386	83	9.2	A 11.0	17	18	82
Minneapolis, Minn.....	392,815	94	12.5	C 10.6	9	12	51
Nashville, Tenn.....	122,036	41	17.5	C 12.7	6	5	-----
New Bedford, Mass.....	125,012	20	8.3	A 15.2	5	14	77
New Haven, Conn.....	167,007	37	11.6	C 9.5	3	3	36
New Orleans, La.....	394,657	103	13.6	A 17.0	9	14	-----
New York, N. Y.....	5,751,867	966	9.0	C 9.7	159	169	62
Newark, N. J.....	424,885	83	10.2	C 9.4	11	13	49
Norfolk, Va.....	121,260	24	10.3		2		35
Oakland, Calif.....	226,472	48	11.1	A 12.1	5	5	63
Omaha, Nebr.....	197,066	50	13.2		7		81
Paterson, N. J.....	137,463	24	9.1		4		68
Philadelphia, Pa.....	1,866,212	399	11.1	12.7	62	76	75
Pittsburgh, Pa.....	602,452	126	10.9	C 12.3	26	33	92
Portland, Oreg.....	264,859	49	9.6	C 10.0	4	4	40
Providence, R. I.....	239,645	54	11.8	C 12.3	7	8	57
Richmond, Va.....	175,686	55	16.3	C 15.1	8	16	97
Rochester, N. Y.....	305,229	56	9.6	C 8.7	10	5	78
St. Louis, Mo.....	786,164	158	10.5	C 10.0	9	22	-----
St. Paul, Minn.....	237,731	42	9.2	C 8.6	3	6	30
Salt Lake City, Utah.....	121,595	26	11.1	A 9.4	3		46
San Francisco, Calif.....	520,548	120	12.0	C 10.6	7	11	41
Seattle, Wash.....	327,227	41	6.5	A 8.6	4	5	33
Spokane, Wash.....	104,442	25	12.5	C 8.5	2	0	44
Springfield, Mass.....	135,877	35	13.4	C 13.9	5	7	75
Syracuse, N. Y.....	177,265	32	9.4	C 12.9	6	5	72
Toledo, Ohio.....	253,696	59	12.1	A 16.3	10	11	101
Trenton, N. J.....	122,760	29	12.3	A 16.8	6	8	91
Washington, D. C.....	454,026	94	10.8	A 14.1	12	14	70
Wilmington, Del.....	113,408	20	9.2	C 11.7	4		-----
Worcester, Mass.....	184,972	39	11.0	C 13.2	8	22	86
Yonkers, N. Y.....	103,324	15	7.6	A 12.1	3	6	68

¹ Annual rate per 1,000 population.

² "A" indicates data for the corresponding week of the years 1913 to 1917, inclusive. "C" indicates data for the corresponding week of the year 1920.

³ Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1920. Cities left blank are not in the registration area for births.

⁴ Data based on statistics of 1915, 1916, and 1917.

PREVALENCE OF DISEASE.

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

UNITED STATES.

CURRENT STATE SUMMARIES.

Telegraphic Reports for Week Ended Oct. 15, 1921.

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

ALABAMA.	Cases.		CONNECTICUT.	Cases.
Chicken pox.....	1		Chicken pox.....	7
Diphtheria.....	75		Diphtheria:	
Malaria.....	39		Bridgeport.....	12
Measles.....	5		Hartford.....	9
Scarlet fever.....	35		New Haven.....	11
Smallpox.....	6		Killingly.....	9
Tuberculosis.....	10		Scattering.....	51
Typhoid fever.....	45		Dysentery (bacillary).....	1
			Influenza.....	2
			Measles:	
ARKANSAS.			Willimantic.....	14
Chicken pox.....	9		Scattering.....	6
Diphtheria.....	38		Mumps.....	2
Influenza.....	1		Pneumonia (lobar).....	11
Malaria.....	281		Polomyelitis.....	6
Measles.....	1		Scarlet fever:	
Pellagra.....	9		Woodstock.....	11
Scarlet fever.....	15		Scattering.....	30
Tuberculosis.....	16		Tetanus.....	1
Typhoid fever.....	14		Tuberculosis (pulmonary).....	19
			Typhoid fever.....	12
CALIFORNIA.			Whooping cough.....	25
Anthrax—Los Angeles.....	1			
Cerebrospinal meningitis—Santa Rosa.....	1		DELAWARE.	
Influenza.....	25		Diphtheria.....	5
Leprosy—Los Angeles.....	1		Measles.....	1
Lethargic encephalitis—San Francisco.....	2		Mumps.....	1
Polomyelitis:			Pneumonia.....	2
Rio Vista.....	1		Scabies.....	1
San Francisco.....	1		Scarlet fever.....	9
Stockton.....	1		Tuberculosis.....	12
Smallpox.....	25		Typhoid fever.....	8
Typhoid fever.....	20		Whooping cough.....	1
COLORADO.			FLORIDA.	
(Exclusive of Denver.)			Diphtheria.....	26
Chicken pox.....	1		Influenza.....	26
Diphtheria.....	71		Malaria.....	49
Influenza.....	1		Pneumonia.....	17
Pneumonia.....	1		Scarlet fever.....	5
Scarlet fever.....	37		Smallpox.....	2
Smallpox.....	10		Typhoid fever.....	19
Tuberculosis.....	13			
Typhoid fever.....	11			
Whooping cough.....	1			

GEORGIA.		INDIANA.	
	Cases.		Cases.
Dengue.....	4	Diphtheria.....	384
Diphtheria.....	82	Scarlet fever.....	132
Dysentery (bacillary).....	1	Smallpox.....	1
Hookworm disease.....	128	Typhoid fever.....	31
Influenza.....	15		
Malaria.....	55	IOWA.	
Measles.....	6	Cerebrospinal meningitis—Kellerton.....	1
Mumps.....	1	Diphtheria.....	101
Pneumonia.....	1	Poliomyelitis.....	3
Poliomyelitis.....	1	Scarlet fever.....	80
Scarlet fever.....	37		
Septic sore throat.....	6	KANSAS.	
Smallpox.....	2	Cerebrospinal meningitis.....	5
Tuberculosis (pulmonary).....	5	Chicken pox.....	11
Typhoid fever.....	41	Diphtheria.....	599
		German measles.....	2
		Influenza.....	2
ILLINOIS.		Lethargic encephalitis.....	1
Cerebrospinal meningitis:		Measles.....	2
Blue Island.....	1	Mumps.....	3
Chicago.....	1	Pneumonia.....	15
Kankakee County—Yellowhead Township.....	1	Poliomyelitis.....	6
LaGrange.....	1	Scabies.....	1
Rock Island.....	1	Scarlet fever.....	239
Diphtheria:		Smallpox.....	5
Aurora.....	11	Tuberculosis.....	15
Bloomington.....	11	Typhoid fever.....	47
Chicago.....	259	Whooping cough.....	10
Cicero.....	13		
Decatur.....	9	LOUISIANA.	
Evanston.....	9	Diphtheria.....	25
Peoria.....	13	Influenza.....	3
Rockford.....	18	Pellagra.....	2
Scattering.....	28	Scarlet fever.....	14
Influenza.....	12	Septic sore throat.....	1
Lethargic encephalitis—Chicago.....	1	Typhoid fever.....	15
Pneumonia.....	97		
Poliomyelitis:		MAINE.	
Beardstown.....	1	Chicken pox.....	2
Bond County—Pleasant Mound Township.....	2	Diphtheria.....	22
Chicago.....	5	Mumps.....	2
Edgar County—Kansas Township.....	1	Pneumonia.....	1
Elgin.....	1	Poliomyelitis.....	1
Fulton County—Farmington Township.....	1	Scarlet fever.....	15
Iroquois County—Ash Grove Township.....	1	Smallpox.....	2
LaGrange.....	1	Tuberculosis.....	3
Lincoln.....	2	Typhoid fever.....	1
Livingston County—Owego Township.....	1		
Macon County—Friends Creek Township.....	1	MARYLAND. ¹	
Momence.....	1	Cerebrospinal meningitis.....	1
Mount Carmel.....	2	Chicken pox.....	7
Ogle County—Pine Creek Township.....	3	Cholera infantum.....	1
Peoria.....	2	Diphtheria.....	70
Silvis.....	1	Dysentery.....	1
Whiteside County—Genesee Township.....	2	Influenza.....	5
Winnebago County—Rockford Township.....	1	Lethargic encephalitis.....	1
Scarlet fever:		Malaria.....	17
Chicago.....	100	Measles.....	7
Danville.....	18	Mumps.....	2
Peoria.....	12	Pneumonia (all forms).....	29
Scattering.....	124	Poliomyelitis.....	12
Smallpox.....	8	Scarlet fever.....	52
Typhoid fever:		Tetanus.....	1
Chicago.....	9	Tuberculosis.....	50
Scattering.....	50	Typhoid fever.....	51
Whooping cough.....	40	Whooping cough.....	22

¹ Week ended Friday.

MASSACHUSETTS.		NEBRASKA.	
	Cases.		Cases.
Cerebrospinal meningitis.....	2	Diphtheria:	
Chicken pox.....	25	Lincoln.....	13
Conjunctivitis (suppurative).....	11	Omaha.....	40
Diphtheria.....	181	Scattering.....	17
Dysentery.....	2	Lethargic encephalitis—Omaha.....	1
German measles.....	5	Malaria.....	2
Influenza.....	7	Measles.....	9
Lethargic encephalitis.....	3	Mumps.....	1
Malaria.....	2	Poliomyelitis:	
Mumps.....	30	Cedar County.....	1
Ophthalmia neonatorum.....	11	Elk Creek.....	1
Pneumonia (lobar).....	34	Fillmore Cour ty.....	2
Poliomyelitis.....	3	Firth.....	1
Scarlet fever.....	80	Howard County.....	4
Septic sore throat.....	1	Plainview.....	1
Smallpox.....	2	St. Paul.....	1
Tetanus.....	2	Scarlet fever:	
Trachoma.....	1	Gage County.....	25
Tuberculosis (all forms).....	105	Scattering.....	48
Typhoid fever.....	20	Smallpox.....	5
Whooping cough.....	28	Typhoid fever.....	9
MINNESOTA.		NEW JERSEY.	
Chicken pox.....	14	Anthrax.....	1
Diphtheria.....	218	Cerebrospinal meningitis.....	2
Measles.....	8	Chickenpox.....	18
Pneumonia.....	1	Diphtheria.....	147
Poliomyelitis.....	18	Influenza.....	5
Scarlet fever.....	121	Malaria.....	1
Smallpox.....	22	Measles.....	14
Tuberculosis.....	62	Pneumonia.....	37
Typhoid fever.....	20	Poliomyelitis.....	11
Whooping cough.....	9	Scarlet fever.....	70
MISSISSIPPI.		Trachoma.....	1
Diphtheria.....	105	Typhoid fever.....	35
Scarlet fever.....	18	Whooping cough.....	55
Typhoid fever.....	11	NEW MEXICO.	
MISSOURI.		Chicken pox.....	5
Cerebrospinal meningitis.....	1	Conjunctivitis.....	1
Chicken pox.....	6	Diphtheria:	
Diphtheria.....	372	Belen.....	8
Epidemic sore throat.....	23	Scattering.....	28
Influenza.....	13	Malaria.....	3
Measles.....	3	Malta fever.....	6
Ophthalmia neonatorum.....	4	Measles.....	1
Poliomyelitis.....	10	Paratyphoid fever.....	2
Rabies.....	8	Pellagra.....	1
Scarlet fever.....	144	Pneumonia.....	1
Smallpox.....	20	Scarlet fever.....	3
Tetanus.....	1	Tuberculosis.....	48
Trachoma.....	4	Typhoid fever.....	15
Tuberculosis.....	39	Whooping cough.....	8
Typhoid fever.....	54	NEW YORK.	
Whooping cough.....	10	(Exclusive of New York City.)	
MONTANA.		Anthrax.....	1
Diphtheria.....	11	Cerebrospinal meningitis.....	3
Poliomyelitis:		Diphtheria.....	227
Billings.....	1	Influenza.....	4
Kalispell.....	1	Lethargic encephalitis.....	4
Lewiston.....	1	Measles.....	21
Libby.....	1	Paratyphoid fever.....	4
Scarlet fever.....	11	Pneumonia.....	97
Smallpox.....	20	Poliomyelitis.....	33
Typhoid fever.....	4	Scarlet fever.....	156
		Tetanus.....	2
		Typhoid fever.....	74
		Whooping cough.....	80

NORTH CAROLINA.		Cases.	VIRGINIA.		Cases.
Chicken pox.....		32	Poliomyelitis—Henrico County.....		1
Diphtheria.....		339	Smallpox—Giles County.....		13
Measles.....		2	WASHINGTON.		
Ophthalmia neonatorum.....		1	Chicken pox.....		28
Poliomyelitis.....		1	Diphtheria.....		31
Scarlet fever.....		117	Measles.....		5
Septic sore throat.....		7	Mumps.....		4
Smallpox.....		5	Poliomyelitis:		
Typhoid fever.....		40	Chehalis.....		1
Whooping cough.....		53	Clarke County.....		1
OHIO.			Cowlitz County.....		1
Diphtheria:			Deming.....		15
Month of September.....		2,077	Grant County.....		1
October 1-15—			King County.....		2
Akron.....		45	Latah.....		1
Cincinnati.....		78	Okanogan County.....		1
Hamilton.....		24	Pierce County.....		1
Marietta.....		36	Snohomish County.....		1
Marion.....		29	Seattle.....		1
Nelsonville.....		32	Spokane.....		1
Port Clinton.....		12	Tekos.....		1
Springfield.....		154	Scarlet fever:		
Wellston.....		14	Spokane.....		8
Wood County—Rossford.....		13	Scattering.....		20
Zanesville.....		23	Smallpox:		
OREGON.			Spokane.....		16
Chicken pox.....		13	Scattering.....		23
Diphtheria:			Typhoid fever.....		17
Portland.....		21	Whooping cough.....		3
Scattering.....		6	WEST VIRGINIA.		
Measles.....		3	Diphtheria:		
Mumps.....		5	Charleston.....		16
Poliomyelitis:			Clarksburg.....		9
Deschutes.....		1	Elkins.....		25
Josephine County.....		1	Montgomery.....		8
La Grande.....		1	Wellsburg.....		12
Pendleton.....		1	Wheeling.....		13
Polk County.....		1	Scattering.....		33
Portland.....		1	Scarlet fever.....		26
Scarlet fever.....		16	Smallpox.....		1
Smallpox.....		9	Typhoid fever.....		9
Tuberculosis.....		11	WISCONSIN.		
Typhoid fever.....		6	Milwaukee:		
Whooping cough.....		6	Chicken pox.....		18
SOUTH DAKOTA.			Diphtheria.....		38
Diphtheria.....		38	German measles.....		1
Measles.....		3	Measles.....		2
Poliomyelitis.....		3	Poliomyelitis.....		1
Scarlet fever.....		30	Scarlet fever.....		14
Smallpox.....		2	Smallpox.....		1
Trachoma.....		1	Tuberculosis.....		23
Tuberculosis.....		3	Whooping cough.....		8
Typhoid fever.....		5	Scattering:		
TEXAS.			Cerebrospinal meningitis.....		2
Diphtheria.....		43	Chicken pox.....		14
Scarlet fever.....		12	Diphtheria.....		132
Smallpox.....		13	Influenza.....		5
Typhoid fever.....		17	Measles.....		2
VERMONT.			Pneumonia.....		1
Chicken pox.....		23	Poliomyelitis.....		9
Diphtheria.....		8	Scarlet fever.....		130
Measles.....		3	Smallpox.....		22
Mumps.....		7	Tuberculosis.....		23
Poliomyelitis.....		1	Typhoid fever.....		12
Scarlet fever.....		51	Whooping cough.....		35
Smallpox.....		1			
Typhoid fever.....		5			
Whooping cough.....		9			

Reports for Week Ended Oct. 8, 1921.

CONNECTICUT.	Cases.	KENTUCKY—continued.	Cases.
Cerebrospinal meningitis.....	2	Diphtheria—Continued.	
Diphtheria:		Hart County.....	13
Bridgeport.....	8	Jefferson County.....	84
Hartford.....	8	Knox County.....	8
New Haven.....	14	Livingston County.....	9
Scattering.....	45	Logan County.....	11
Dysentery.....	1	Madison County.....	9
Influenza.....	4	Marion County.....	11
Malaria.....	1	Scattering.....	80
Measles.....	15	Dysentery.....	2
Mumps.....	3	Influenza.....	4
Pneumonia (lobar).....	9	Lethargic encephalitis—Jefferson County....	1
Poliomyelitis.....	3	Malaria.....	1
Scarlet fever.....	31	Mumps.....	10
Septic sore throat.....	1	Pellagra.....	2
Tuberculosis (all forms).....	30	Poliomyelitis.....	1
Typhoid fever.....	9	Fleming County.....	13
Whooping cough.....	36	Mason County.....	1
		Scarlet fever.....	36
DISTRICT OF COLUMBIA.		Septic sore throat.....	14
Chicken pox.....	1	Smallpox.....	4
Diphtheria.....	16	Tonsillitis.....	4
Lethargic encephalitis.....	1	Tuberculosis.....	10
Measles.....	2	Typhoid fever:	
Pellagra.....	1	Fleming County.....	8
Poliomyelitis.....	3	Knox County.....	8
Scarlet fever.....	3	Scattering.....	67
Tuberculosis.....	27	Whooping cough.....	2
Typhoid fever.....	3		
Whooping cough.....	9		
		NORTH CAROLINA.	
KENTUCKY.		Cerebrospinal meningitis.....	1
Cerebrospinal meningitis:		Chicken pox.....	6
Breckinridge County.....	1	Diphtheria.....	293
Knox County.....	1	Measles.....	6
Chicken pox.....	1	Scarlet fever.....	88
Diphtheria:		Septic sore throat.....	5
Clark County.....	13	Smallpox.....	3
Daviss County.....	22	Typhoid fever.....	33
Graves County.....	9	Whooping cough.....	58
Hardin County.....	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.
1921.										
Arkansas (September).....	3	75	3	928	8	59	6	34	1	129
Connecticut (September).....	7	226	5	5	37	18	100	17	2	82
District of Columbia (September).....	49	4	4	2	4	7	9	12	13	24
Idaho (August).....	9	9	14	10	201	2	54	279	12	13
Massachusetts (September).....	8	526	14	10	201	2	54	279	12	129
Michigan (September).....	965	965	48	31	168	566	46	353	1	16
Vermont (September).....	43	43	31	31	9	140	1	16	1	16
West Virginia (September).....	7	400	23	63	10	218	23	361	23	361

RECIPROCAL NOTIFICATION:

Cases of communicable diseases referred to other State health departments by Departments of Health of the States of Connecticut and Massachusetts.

Connecticut—September, 1921.

Disease and locality of notification.	Referred to health authority of—	Why referred.
Diphtheria: Hartford, Conn.....	Massachusetts Department of Public Health, Boston, Mass.	Diphtheria contact found to be a "carrier" after leaving Hartford, Conn., for Fall River, Mass.
East Haddam, Conn.....	New York Department of Health, Albany, N. Y.	Patient violated quarantine and went to his home in New York City.
Poliomyelitis: Hartford, Conn.....	.....do.....	Onset of disease 2 weeks after returning to Hartford, Conn., from Little Moose Lake, N. Y.
Scarlet fever: Milford, Conn.....	.....do.....	Patient violated quarantine and went to her home in New York City.
Tuberculosis (pulmonary): Rockville, Conn.....	New Jersey Department of Health, Trenton, N. J.	Patient was ill in Camden, N. J., before arriving in Connecticut.
Southington, Conn.....	Texas Department of Health, Austin, Tex.	Patient was ill in Fort Bliss, Tex., before arriving in Southington, Conn.
Hartford, Conn.....	New York Department of Health, Albany, N. Y.	Patient left Hartford for New York City.
Typhoid fever: Hartford, Conn.....	Massachusetts Department of Public Health, Boston, Mass.	Onset of disease 13 days after returning home from Marlborough, Mass., after a 2 weeks' visit.
Do.....	.....do.....	Patient visited in West Cummington, Mass., within 2 weeks of onset of disease.
New Haven, Conn.....	New York Department of Health, Albany, N. Y.	Onset of disease within 2 weeks after visiting his home in Kingston, N. Y., where there had been 5 typhoid fever cases during 1917 and 1918.
Greenwich, Conn.....	.....do.....	Three persons were brought from Port Chester, N. Y., to Greenwich, Conn., for hospitalization.
Hartford, Conn.....	New Jersey Department of Health, Trenton, N. J.	Onset of disease 2 weeks after returning to Hartford, Conn., from Asbury Park, N. J.

Massachusetts—August, 1921.

Scarlet fever: Sandisfield, Mass.....	State health department, Albany, N. Y.	Father, mother, and two children at boarding house in Sandisfield. When case of scarlet fever was discovered in house family returned to Brooklyn to avoid quarantine.
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Massachusetts—September, 1921.

Typhoid fever: Gloucester, Mass.....	State health department, New Haven, Conn.	Widal positive while patient was visiting at Annisquam (Gloucester). Returned at once to New Haven.
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CITY REPORTS FOR WEEK ENDED OCT. 1, 1921.

ANTHRAX.

City.	Cases.	Deaths.
Massachusetts: Chelsea.....	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 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Oct. 1, 1921.		City.	Median for previous years.	Week ended Oct. 1, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
Georgia: Atlanta.....	0		1	New Mexico: Albuquerque.....			1
Indiana: Mishawaka.....		1	1	New York: New York.....	4	8	2
Maryland: Baltimore.....	0	1		Troy.....	0		1
Massachusetts: Boston.....	1	1		Ohio: Hamilton.....			1
Michigan: Hamtramck.....			1	Rhode Island: Cumberland.....		1	1
Missouri: St. Louis.....	0	1		Pawtucket.....	0	1	
New Jersey: Elizabeth.....	0	1		Providence.....	0		1
Newark.....	0	1	1	West Virginia: Huntington.....	0		1
				Wisconsin: Oshkosh.....	0		1

DIPHTHERIA.

See p. 2642; also Telegraphic weekly reports from States, p. 2631, and Monthly summaries by States, p. 2635.

INFLUENZA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama: Birmingham.....		1	Massachusetts: Attleboro.....	1	
California: Alameda.....	1		Boston.....	1	
San Diego.....	1		Everett.....	1	
San Francisco.....	1		Waltham.....	1	
Connecticut: Bridgeport.....	1		Webster.....	1	
Greenwich.....	1		Worcester.....	1	
New Britain.....	1		Minnesota: Minneapolis.....		1
District of Columbia: Washington.....	2		Missouri: St. Joseph.....	1	
Florida: Tampa.....	4		New Jersey: Newark.....	1	
Georgia: Atlanta.....	2		New York: New York.....	14	5
Illinois: Chicago.....	1	1	Ohio: Cincinnati.....		1
Kentucky: Louisville.....	1		Cleveland.....	1	
Louisiana: New Orleans.....	1		Pennsylvania: Philadelphia.....	2	
Maryland: Baltimore.....	1		West Virginia: Martinsburg.....	1	

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

LETHARGIC ENCEPHALITIS.

City.	Cases.	Deaths.
Nebraska: Omaha.....		3

MALARIA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Maryland:		
Anniston.....	2		Baltimore.....	1	
Birmingham.....	1		Massachusetts:		
Tuscaloosa.....	1		Chelsea.....	2	
Arkansas:			Michigan:		
Little Rock.....	9		Pontiac.....	1	1
California:			Missouri:		
Pasadena.....	1		Kansas City.....	1	1
Sacramento.....	2	1	New Jersey:		
Connecticut:			Bloomfield.....	1	
Greenwich.....	1		Trenton.....	1	
Florida:			New York:		
Tampa.....	6		New York.....	5	
Georgia:			Ohio:		
Atlanta.....	2		Cleveland.....	1	
Brunswick.....	4		South Carolina:		
Savannah.....	3		Charleston.....		1
Illinois:			Tennessee:		
Chicago.....	1	1	Memphis.....		6
Indiana:			Nashville.....		1
Bloomington.....	1		Texas:		
Kentucky:			Beaumont.....		1
Louisville.....	1				
Louisiana:					
New Orleans.....	3				

MEASLES.

See p. 2642; also Telegraphic weekly reports from States, p. 2631, and Monthly summaries by States, p. 2635.

PELLAGRA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Oklahoma:		
Birmingham.....		1	Oklahoma City.....		1
Georgia:			Pennsylvania:		
Brunswick.....	1	1	Philadelphia.....		1
Louisiana:			Tennessee:		
New Orleans.....	2	2	Memphis.....	2	2
Massachusetts:			Virginia:		
Boston.....	1		Norfolk.....		1
North Carolina:					
Raleigh.....		2			

PNEUMONIA (ALL FORMS).

Alabama:			Colorado:		
Birmingham.....		2	Denver.....		7
Mobile.....		1	Connecticut:		
Montgomery.....		1	Bridgeport.....		1
California:			Greenwich.....	1	
Long Beach.....		1	Manchester.....	1	
Los Angeles.....	9	4	New Haven.....	1	
Oakland.....	3	2	New London.....		1
Riverside.....		1	Waterbury.....		1
Sacramento.....		2	Georgia:		
San Bernardino.....		1	Atlanta.....		4
San Diego.....		1	Savannah.....		2
San Francisco.....	12	4	Illinois:		
Stockton.....		1	Bloomington.....		1
Vallejo.....		1	Chicago.....	75	22

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Illinois—Continued.			New Jersey—Continued.		
Cicero.....		1	Hackensack.....	2	
Danville.....		1	Hoboken.....		2
East St. Louis.....		1	Irrington.....	1	
Freeport.....	1		Newark.....	28	2
Galesburg.....	1		Orange.....	2	
Jacksonville.....		1	Passaic.....		1
Oak Park.....	2		Perth Amboy.....		1
Peoria.....		1	Plainfield.....		1
Springfield.....		2	Trenton.....	3	1
Indiana:			New Mexico:		
East Chicago.....		3	Albuquerque.....		1
Gary.....		1	New York:		
Hammond.....		1	Albany.....	2	
Indianapolis.....		6	Binghamton.....	1	
South Bend.....	1		Buffalo.....	7	3
Iowa:			Cohoes.....		1
Council Bluffs.....		1	Elmira.....	1	
Kansas:			Geneva.....		1
Wichita.....		3	Ithaca.....	2	
Kentucky:			Lackawanna.....	1	
Covington.....		1	Middletown.....	1	
Louisville.....	5	4	Mount Vernon.....	3	
Louisiana:			New York.....	191	65
New Orleans.....	6	4	Peekskill.....	1	
Maine:			Rochester.....		7
Biddeford.....		1	Schenectady.....	4	1
Portland.....		2	Syracuse.....		3
Maryland:			Troy.....	2	
Baltimore.....	16	6	White Plains.....	1	
Massachusetts:			North Carolina:		
Arlington.....		1	Charlotte.....		2
Boston.....		10	Raleigh.....		1
Brockton.....	1		Ohio:		
Cambridge.....		1	Akron.....	1	
Frammingham.....		1	Barberton.....		1
Haverhill.....		2	Canton.....		1
Lawrence.....		1	Chillicothe.....		1
Lowell.....		1	Cincinnati.....		4
Malden.....		1	Cleveland.....	12	
Newton.....		2	Columbus.....		3
Quincy.....		1	Dayton.....	1	
Salem.....		1	Lima.....		1
Somerville.....		1	Springfield.....		1
Springfield.....	3	1	Steubenville.....	1	
Wakefield.....	2	1	Toledo.....		2
Webster.....	1		Oklahoma:		
Worcester.....		4	Oklahoma.....		2
Michigan:			Oregon:		
Ann Arbor.....	3		Portland.....		6
Detroit.....		12	Pennsylvania:		
Flint.....		1	Philadelphia.....	39	18
Grand Rapids.....	2		Rhode Island:		
Kalamazoo.....		1	Providence.....		6
Pontiac.....		1	South Carolina:		
Port Huron.....	1		Charleston.....		2
Minnesota:			Tennessee:		
Minneapolis.....		7	Memphis.....		2
St. Paul.....		1	Texas:		
Missouri:			Galveston.....		1
Cape Girardeau.....		1	Waco.....		1
Kansas City.....		2	Utah:		
St. Joseph.....		1	Salt Lake City.....		1
Springfield.....		3	Vermont:		
Montana:			Rutland.....		1
Butte.....		1	Virginia:		
Great Falls.....	2	1	Alexandria.....		1
New Hampshire:			Richmond.....		2
Keene.....		1	West Virginia:		
Manchester.....		1	Huntington.....		2
New Jersey:			Wisconsin:		
Bayonne.....	2		Janesville.....		1
Clifton.....		1	Madison.....		2
East Orange.....	2		Racine.....		1
Elizabeth.....		4			

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

POLIOMYELITIS (INFANTILE PARALYSIS).

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

City.	Median for previous years.	Week ended Oct. 1, 1921.		City.	Median for previous years.	Week ended Oct. 1, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
California:				Minnesota:			
Sacramento.....	0	2		Duluth.....	0	1	
San Francisco.....	0	7	1	Minneapolis.....	0	2	1
Vallejo.....	0	1		Rochester.....		1	
Connecticut:				St. Paul.....	1	4	1
Bridgeport.....	0	2	1	Missouri:			
New Haven.....	0	1		Kansas City.....	0	3	1
Waterbury.....	0	1		St. Louis.....	0	1	1
District of Columbia:				Montana:			
Washington.....	0	2	1	Butte.....		1	
Idaho:				Great Falls.....	0	2	
Boise.....		1		Nebraska:			
Illinois:				Lincoln.....	0		1
Chicago.....	5	15	1	New Jersey:			
Decatur.....	0	1		Bayonne.....	0	2	
Mattoon.....		2		Elizabeth.....	0	1	
Oak Park.....	0	1	1	Hoboken.....	0	1	
Peoria.....	0	1	1	Jersey City.....	0	1	
Indiana:				Trenton.....	0	2	1
Fort Wayne.....	0	1	1	Union.....		1	
Frankfort.....		1		West Hoboken.....	0	1	
Indianapolis.....	0	1		New York:			
Iowa:				New York.....	7	55	20
Des Moines.....	0	1		Peekskill.....		1	
Sioux City.....	0	2		Rochester.....	0	3	1
Maryland:				Rome.....		1	
Baltimore.....	1	9	2	Syracuse.....	0	2	
Massachusetts:				Yonkers.....	0	1	1
Boston.....	1	4		Ohio:			
Cambridge.....	0	1		Akron.....	0	1	
Haverhill.....	0	2		Canton.....	0	1	
Newburyport.....	0	1		Pennsylvania:			
Pittsfield.....	0	1	1	Erie.....	0	1	
Quincy.....	0	1		Philadelphia.....	0	7	
Saugus.....	0		1	Utah:			
Springfield.....	0		1	Salt Lake City.....	0	1	
Michigan:				Virginia:			
Battle Creek.....	0	1		Norfolk.....	0	1	
Detroit.....	1	5					
Flint.....	1	3					
Kalamazoo.....	0	7					
Pontiac.....	0	1	1				

RABIES IN ANIMALS.

City.	Cases.
Missouri:	
Kansas City.....	4
Tennessee:	
Memphis.....	2

RABIES IN MAN.

City.	Cases.	Deaths.
Rhode Island:		
Providence.....		1

SCARLET FEVER.

See p. 2642; also Telegraphic weekly reports from States, p. 2631, and Monthly summaries by States, p. 2635.

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

SMALLPOX.

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

City.	Median for previous years.	Week ended Oct. 1, 1921.		City.	Median for previous years.	Week ended Oct. 1, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Minnesota:			
Mobile.....	0	2		St. Paul.....	2	5	
California:				Missouri:			
Long Beach.....	0	1		Independence.....	0	1	1
Los Angeles.....	0	1		Kansas City.....	1	6	2
Oakland.....	0	1		Montana:			
San Francisco.....	0	2		Great Falls.....	0	5	
Santa Cruz.....	0	2		New Hampshire:			
Georgia:				Manchester.....		4	
Atlanta.....	0	1		New York:			
Illinois:				New York.....	0	1	
Galesburg.....	0	1		Ohio:			
Indiana:				Cincinnati.....	0	1	
Bloomington.....	0	1		Fremont.....	0	1	
Kansas:				Tennessee:			
Hutchinson.....	0	2		Nashville.....	0	1	
Kansas City.....	1	1					
Michigan:							
Alpena.....		1					

TETANUS.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Connecticut:			Massachusetts:		
New Haven.....	1		Boston.....	1	
Illinois:			Missouri:		
Chicago.....	2		St. Louis.....	2	1
Indiana:			North Carolina:		
Indianapolis.....		1	Greensboro.....		1

TUBERCULOSIS.

See p. 2642; also Telegraphic weekly reports from States, p. 2631.

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 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Oct. 1, 1921.		City.	Median for previous years.	Week ended Oct. 1, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Florida:			
Anniston.....	0	2		Tampa.....		2	
Birmingham.....	9	4		Georgia:			
Arkansas:				Atlanta.....	4	4	
Little Rock.....	2	3		Macon.....	1	4	5
California:				Savannah.....	2	3	
Long Beach.....	1	1		Valdosta.....		1	
Los Angeles.....	6	7		Idaho:			
Oakland.....	0	1		Boise.....	0	1	
San Francisco.....	2	3	1	Illinois:			
Colorado:				Alton.....	0	1	
Denver.....	12	7		Bloomington.....	0	4	
Trinidad.....		3		Chicago.....	14	4	1
Connecticut:				Danville.....	0		2
Bridgeport.....	1	1		Jacksonville.....	0	3	
New Haven.....	4	2		Kewanee.....	1	5	1
District of Columbia:				Rockford.....	0	1	
Washington.....	8	4	1	Springfield.....	1	3	1

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

TYPHOID FEVER—Continued.

City.	Median for previous years.	Week ended Oct. 1, 1921.		City.	Median for previous years.	Week ended Oct. 1, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
Indiana:				New York—Continued.			
Crawfordsville.....		1		Peekskill.....	0	1	
Fort Wayne.....	1	1		Rochester.....	3	1	
Indianapolis.....	6	5		Syracuse.....	5	2	
Kokomo.....	1	1		Troy.....	0	2	
La Fayette.....	1	1		North Carolina:			
Kansas:				Charlotte.....	3	1	
Fort Scott.....	0	1		Durham.....	4	2	
Kansas City.....	2	1		Raleigh.....	0	2	
Wichita.....	4	2		Winston-Salem.....	5	1	
Kentucky:				Ohio:			
Covington.....	1	1		Akron.....	2	1	
Louisville.....	5	4	1	Bucyrus.....	0	2	
Paducah.....	1	1		Chillicothe.....	0	5	1
Louisiana:				Cleveland.....	2	1	
New Orleans.....	3	4	1	Columbus.....	2	1	
Maine:				Cuyahoga Falls.....	0	1	
Portland.....	3	3		Dayton.....	3	1	
Waterville.....	1	1		Findlay.....	1	1	
Maryland:				Fremont.....	0	1	
Baltimore.....	23	11	1	Newark.....	1	2	
Cumberland.....	2	1		Niles.....	1	1	
Massachusetts:				Piqua.....	1	1	
Boston.....	4	5		Sandusky.....	0	1	
Cambridge.....	0	1		Springfield.....	1	1	
Clinton.....	0	1		Steubenville.....	0	1	
Fall River.....	3	2		Teledo.....	5	8	
Malden.....	0	1		Oklahoma:			
Southbridge.....	1	1		Oklahoma City.....	0	2	
Wakefield.....	0	1		Oregon:			
Michigan:				Portland.....	3	1	
Detroit.....	21	12		Pennsylvania:			
Flint.....	4	1		Lancaster.....	1	3	
Grand Rapids.....	1	3		Lebanon.....	0	1	
Hamtramck.....	1	1	1	New Castle.....	1	1	
Kalamazoo.....	0	1		Oil City.....	0	1	
Port Huron.....	0	2		Philadelphia.....	22	13	2
Minnesota:				Fittsburgh.....	8	9	
Mankato.....	0	1		Scranton.....	1	2	
Rochester.....	2	3		Uniontown.....	0	2	
St. Paul.....	2	3		Washington.....	0	1	
Missouri:				Wilkes-Barre.....	0	1	
Kansas City.....	2	9	1	Rhode Island:			
St. Joseph.....	2	2		Pawtucket.....	0	1	1
St. Louis.....	17	8	1	Providence.....	4	5	
Nebraska:				South Carolina:			
Omaha.....	3	3	1	Charleston.....	2	6	2
New Hampshire:				Columbia.....	0	2	
Berlin.....	0	2		Tennessee:			
Manchester.....	0	1		Memphis.....	4	3	
New Jersey:				Nashville.....	6	3	
Bayonne.....	0	3		Utah:			
East Orange.....	0	1		Salt Lake City.....	3	2	2
Elizabeth.....	1	1		Virginia:			
Hackensack.....	0	1		Danville.....	0	2	1
Jersey City.....	0	3		Lynchburg.....	0	1	
Morristown.....	0	1	1	Norfolk.....	1	2	
Rahway.....	0	1		Petersburg.....	2	3	1
Trenton.....	1	23		Portsmouth.....	1	2	
New Mexico:				Roanoke.....	1	1	
Albuquerque.....		2		West Virginia:			
New York:				Bluefield.....	0	2	
Albany.....	1	1		Fairmont.....	0	2	
Buffalo.....	2	5	3	Huntington.....	0	2	2
Elmira.....	0	9		Martinsburg.....	0	2	
Geneva.....	0	1	1	Wheeling.....	1	1	
Glens Falls.....	0	2		Wisconsin:			
Mount Vernon.....	0	1		Madison.....	0	3	
New York.....	56	33					
Niagara Falls.....	0	1					

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alabama:										
Anniston.....	17,734		2							
Birmingham.....	178,270	41	10		3		7	1	4	5
Mobile.....	60,161	16	5							1
Montgomery.....	43,464	12							3	1
Tuscaloosa.....	11,966		1				1			
Arizona:										
Tucson.....	20,292	9		1				1		1
Arkansas:										
Hot Springs.....	11,695	6								
Little Rock.....	64,997		1				1			
North Little Rock.....	14,048						1			
California:										
Alameda.....	28,806	1	2							
Long Beach.....	55,593	15	1		1		1		1	1
Los Angeles.....	576,673	163	76	2		15		70		12
Oakland.....	216,361	40	3	1	1	2				2
Pasadena.....	45,354	15								1
Richmond.....	16,943	3								
Riverside.....	19,341	3								
Sacramento.....	65,857	21	3		1	3	1	3		2
San Bernardino.....	18,721	4	1					1		2
San Diego.....	74,683	21			2	3		7		2
San Francisco.....	506,410	128	30	2	5	8		22		7
Santa Barbara.....	19,441	5								1
Santa Cruz.....	10,917	3								
Stockton.....	40,296	14	4			1		1		1
Vallejo.....	21,107	1								
Colorado:										
Denver.....	256,369	64	19	2	1	3				14
Pueblo.....	42,908		11			1		1		3
Connecticut:										
Bridgeport.....	143,538	23	7		3	4		1		3
Bristol.....	20,620	4	2							
Derby.....	11,236	2								
Fairfield (town).....	11,473	0								
Greenwich (town).....	22,123		1							
Hartford.....	158,036	30	4			3				
Manchester (town).....	18,376	4				1		1		
Meriden (town).....	34,789		1		1	1				
New Britain.....	59,316	6	2		1	1				1
New Haven.....	162,519	23	14			2		16		1
New London.....	25,688	3				1				
Norwalk.....	27,700	3								
Stonington.....	10,236	2								
Waterbury.....	91,410	17	3			2		3		
Delaware:										
Wilmington.....	110,168	22	5	1		8				
District of Columbia:										
Washington.....	437,571	96	8		1	7		33		10
Florida:										
Tampa.....	51,252	8	4							2
Georgia:										
Atlanta.....	200,616	52	13		1	5	1	3		3
Brunswick.....	14,413	3						1		
Macon.....	52,995	5	11		1					
Savannah.....	83,252	34	3			1		1		2
Valdosta.....	10,783	0	2							
Idaho:										
Boise.....	21,393	7	1			3				
Illinois:										
Alton.....	24,682	3	4		1					
Aurora.....	36,397	14	26		1	1		7		
Bloomington.....	28,725	10	3	1		1		2		1
Centralia.....	12,491	3	1							
Chicago.....	2,701,705	529	194	8	3	61	3	182		37
Cicero.....	44,995	10	10	1		2		2		
Danville.....	33,750	15								
Decatur.....	43,818	10	9	1		1				1
East St. Louis.....	66,740	12	6	1		1				1
Elgin.....	27,454	7	4	2				2		1
Evanston.....	37,215	1	2		1					
Freeport.....	19,669	8	3							
Galesburg.....	23,834	7	1							
Herrin.....	10,986	1	1							

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

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

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Illinois—Continued.										
Jacksonville.....	15,713	3								
Kewanee.....	16,026	7	5				2			
La Salle.....	13,050	1								
Mattoon.....	13,532	1	7							
Oak Park.....	39,830	13	2		2		1			
Pekin.....	12,066		1							
Peoria.....	76,121	15	8	1			9			
Quincy.....	35,978	5					1		2	
Rockford.....	65,651	15	12	1			7			
Springfield.....	59,183	25					4		1	1
Indiana:										
Bloomington.....	11,595	1					1			
Crawfordsville.....	10,139	2								
East Chicago.....	35,967	14		1						
Elkhart.....	24,277	5	2				3		3	
Fort Wayne.....	36,549	13	14	1			1			
Frankfort.....	11,585	2					1		2	
Gary.....	55,378	14	3							1
Hammond.....	36,004	9	10	1			7		1	
Huntington.....	14,000	1	2				3			1
Indianapolis.....	314,194	69	90	3	4		5		4	3
Kokomo.....	30,067	10					2			1
La Fayette.....	22,486	8	1				2			
Logansport.....	21,626	5								1
Marion.....	23,737	3								
Mishawaka.....	15,195	3	1				2		1	
Richmond.....	26,765	4	1				3			
South Bend.....	70,983	7	3				1		2	
Terre Haute.....	66,083	21	31	2			3			2
Iowa:										
Burlington.....	24,057	6								
Cedar Rapids.....	45,566						1			
Council Bluffs.....	36,162	5	1							
Davenport.....	56,727						3			
Des Moines.....	126,468		20	1			5			
Iowa City.....	11,267		2							
Mason City.....	20,065	3					2			
Muscatine.....	16,068	7					1			
Ottumwa.....	23,003	1	1	1			12			
Sioux City.....	71,227		6				1			
Kansas:										
Atchison.....	12,630		2				1			
Coffeyville.....	13,452	0	5						1	
Fort Scott.....	10,693	6	3							
Hutchinson.....	23,298		9				3			
Kansas City.....	101,177		19				3		1	
Lawrence.....	12,456	6	2	1	1		1			
Leavenworth.....	16,912		10							
Parsons.....	16,028	5	3							
Salina.....	15,085	5					1			
Topeka.....	50,022	9	46	1					4	
Wichita.....	72,128	21	20		2		8		2	1
Kentucky:										
Covington.....	57,121	10	3				1			
Lexington.....	41,534	15	2				3			2
Louisville.....	234,891	51	28	1	1		5		9	4
Paducah.....	24,735		1							
Louisiana:										
Lake Charles.....	13,088	4								1
Monroe.....	12,675	4								
New Orleans.....	387,219	115	7	1			6		16	13
Maine:										
Auburn.....	16,985	2					2			
Bangor.....	25,978		2				1		2	
Bath.....	14,731	1								
Biddeford.....	18,008	10								
Lewiston.....	31,791	6							6	1
Portland.....	69,272	21	1							
Sanford.....	10,691	1								
Waterville.....	13,351								2	
Maryland:										
Baltimore.....	733,826	156	21		2		15		33	18
Cumberland.....	29,837	8	1				10		1	1

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

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

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Massachusetts:										
Adams.....	12,967	6					5		6	
Amesbury.....	10,036	0								
Arlington.....	18,665	8							4	1
Attleboro.....	19,731	3	2				1		1	1
Balmont.....	10,749	1	1							
Beverly.....	22,561	5					1			
Boston.....	748,080	198	27	1	12		15	2	67	22
Braintree.....	10,580	4							1	
Brookton.....	68,138	4	4				2		3	
Brookline.....	37,748	5	1						1	
Brookline.....	37,748	5	1						1	
Cambridge.....	109,694	33	4		1		2		4	3
Chelsea.....	43,184	13							4	
Chicopee.....	36,214	6							1	
Clinton.....	12,979	1							1	
Danvers.....	11,109	1							2	
Dedham.....	10,792	2								
Easthampton.....	11,261	2								
Everett.....	40,120	6	4		1					1
Fall River.....	129,485	4	1	1			4		3	1
Frammingham.....	17,033	25	4				1		5	1
Gardner.....	16,971	3	1							
Greenfield.....	15,462	3	1				2			
Haverhill.....	53,884	16	7				1		2	2
Lawrence.....	94,270	27	1				1	1	5	4
Leominster.....	19,744	4	1						1	1
Lowell.....	112,479	22	3	1					14	1
Lynn.....	98,148	18	12	1	3		1		1	
Malden.....	49,103	18					4		2	
Medford.....	39,038	11	1		1				2	1
Melrose.....	18,204	3							1	
Methuen.....	15,189	2					1		2	
New Bedford.....	121,217	21	8	1			1		7	1
Newburyport.....	15,618	6	1	1					1	
Newton.....	46,654	10	7				1		1	
Northampton.....	21,951	4	1						2	
Pittsfield.....	41,751	11	2				1	1	2	1
Plymouth.....	13,645	2								
Quincy.....	47,876	4	1		2				1	1
Salem.....	42,529	10	1				5		1	
Saugus.....	10,874	1								
Somerville.....	93,091	15	3				3			
Southbridge.....	14,245	5								1
Springfield.....	129,563	24	12		1				2	1
Wakefield.....	13,625	4					1		1	
Waltham.....	36,915	3					1			
Watertown.....	21,457	3	1		1				1	
Webster.....	13,258	2							1	1
Westfield.....	18,604	6	1						1	
Winthrop.....	15,455	1							1	
Woburn.....	16,574	5								
Worcester.....	179,754	34	8		1		5		6	2
Michigan:										
Alpena.....	11,161		1				4			
Ann Arbor.....	19,516		2				2		1	
Battle Creek.....	36,164		14							
Benton Harbor.....	12,233		1							
Detroit.....	993,739	176	73	2	5		32	1	43	16
Flint.....	91,590	31	44	4			22	1		2
Grand Rapids.....	137,634	33	9		2		6		4	
Hamtramck.....	48,615	15	7	1				1	2	
Highland Park.....	46,499	11	2				2			
Holland.....	12,166	0	2				2			
Ironwood.....	15,739	2								
Ishpeming.....	10,500	6	1							
Kalamazoo.....	48,858	18	27				3		1	2
Marquette.....	12,718	3							1	
Muskegon.....	36,570	10	8	1						
Pontiac.....	34,273	11	11				9		1	
Port Huron.....	25,944	7					3			
Saginaw.....	61,903	12	3				2			
Sault Ste. Marie.....	12,096	3					1	1		

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

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

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Minnesota:										
Austin.....	10, 118	2					1			
Duluth.....	98, 917	13	5			10		2		
Hibbing.....	15, 089		1		1					
Minneapolis.....	380, 582	65	62	1	1	36	1	30	5	
Rochester.....	15, 573	19	1						1	
St. Cloud.....	15, 875		2							
St. Paul.....	234, 593	50	19			9		5	4	
Winona.....	19, 143	5	2			5				
Missouri:										
Cape Girardeau.....	10, 252	4	9							
Independence.....	11, 686	3								
Joplin.....	29, 855									
Kansas City.....	324, 410	97	34	5	1	9		3	5	
St. Joseph.....	77, 939	25	9			6				
St. Louis.....	772, 837	156	66	4		11		34	8	
Springfield.....	39, 631	15	1						1	
Montana:										
Billings.....	15, 100	4						1		
Butte.....	41, 611	12	1		1					
Great Falls.....	24, 121	4							2	
Missoula.....	12, 668	6						4		
Nebraska:										
Lincoln.....	54, 934	10				3		1	2	
Omaha.....	191, 601	49	46	2		6			1	
Nevada:										
Reno.....	12, 016	2								
New Hampshire:										
Berlin.....	16, 104	6				1				
Concord.....	22, 167	4				1				
Dover.....	13, 029	2								
Kennebunk.....	11, 210	4						2		
Manchester.....	78, 384	16	22	1	2	1	1			
Nashua.....	28, 379	8	2							
New Jersey:										
Asbury Park.....	12, 400	1	1							
Bayonne.....	76, 754	2	2			2				
Bloomfield.....	22, 019	2	1		3					
Clifton.....	26, 470	6	4	1		1	1			
East Orange.....	50, 710	1	1			1		1	1	
Elizabeth.....	95, 682	1	1	1		2		3		
Gardfield.....	19, 351	3	4			1				
Gloucester City.....	12, 162	3	2			1				
Hackensack.....	17, 667	3	1					1		
Hoboken.....	68, 166	10	1						1	
Jersey City.....	297, 864	17	17		1	1		23	1	
Kearny.....	26, 724	5				1		1	1	
Montclair.....	28, 810	4								
Morristown.....	12, 548	6							1	
New Brunswick.....	32, 779	6	4							
Newark.....	414, 216	71	9		3	14		38	6	
Orange.....	33, 268	4						2		
Passaic.....	63, 824	14	5			5		1	1	
Paterson.....	135, 866	11	11			5		7		
Perth Amboy.....	41, 707	10	9	1		2	1			
Phillipsburg.....	16, 923	4								
Plainfield.....	27, 700	5	5			1				
Rahway.....	11, 042	1								
Summit.....	10, 174	1								
Trenton.....	119, 289	36	8			2		3	5	
Union.....	20, 651	3						1		
West Hoboken.....	40, 068	3						2		
West New York.....	29, 926	5								
West Orange.....	15, 573	1	1					1		
New Mexico:										
Albuquerque.....	15, 157	12						2	1	
New York:										
Albany.....	113, 344		16			1		3		
Auburn.....	36, 192	14	9	1						
Binghamton.....	66, 900	17	5	1					2	
Buffalo.....	506, 775	118	31	2	2	12	1	23	15	
Cohoes.....	22, 987	5	1							
Elmira.....	45, 205	13	3		1	1		1		

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

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

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
New York—Continued.										
Geneva.....	14,648	6								
Glens Falls.....	16,638	5							1	
Ithaca.....	17,004	8	9				2			
Jamestown.....	38,917	8	14		1		8		5	1
Lackawanna.....	17,918	3							2	
Lockport.....	21,308	2	5				1		2	
Middletown.....	18,420						1			
Mount Vernon.....	42,726		2				3			
Newburgh.....	30,366	11	1				1		1	
New York.....	5,621,151	1,044	121	6	21		69	1	1,273	180
Niagara Falls.....	50,760	12	3		1		3		1	
North Tonawanda.....	15,482	1								
Ogdensburg.....	14,609	3	3							
Olean.....	20,508	4								
Peekskill.....	15,668	5	1				1			
Plattsburg.....	10,909	6	1							
Port Chester.....	16,573	2								
Rochester.....	295,750	70	24	1			5	1	15	3
Rome.....	26,341	6	4				1			
Saratoga Springs.....	13,181	7		1					5	
Schenectady.....	98,723	13	5				4		7	
Syracuse.....	171,717	37	13		3		13		3	1
Troy.....	72,013	17	5				1		1	
Watervliet.....	16,073	1								
White Plains.....	21,031	9								
Yonkers.....	100,226	18					3	1		1
North Carolina:										
Charlotte.....	46,338	8	39						4	
Durham.....	21,719	10	1				1			
Greensboro.....	19,991	8								
Raleigh.....	24,418	12	8							1
Rocky Mount.....	12,742	4								2
Wilmington.....	33,372	8	2				2			
Winston-Salem.....	48,395	7	3						4	
North Dakota:										
Fargo.....	21,961	0	1				6		1	
Grand Forks.....	14,010		4							
Ohio:										
Akron.....	208,435	36	32				15		2	
Alliance.....	21,603	3	1							
Barberton.....	18,811	3	1						2	
Bucyrus.....	10,425	3					1			
Canton.....	87,091	14	14				7		1	2
Chillicothe.....	15,831	4	6							
Cincinnati.....	401,247	4	23		1		4		11	6
Cleveland.....	796,836	75	43		5		28		6	3
Columbus.....	237,031	54	95	2			6		4	
Cuyhoga Falls.....	10,200	0	1							
Dayton.....	152,559	29	9		2		5		1	
East Cleveland.....	27,292	5								
Findlay.....	17,021	3	2							
Fremont.....	12,468	1								
Hamilton.....	39,675	9	3	1			3			
Ironton.....	14,007	1	7				3			
Lima.....	41,306	6	9							
Lorain.....	37,895	2	2				1		4	
Mansfield.....	27,824	8							1	1
Marion.....	27,891		22	1	1					
Middletown.....	23,594	2	11	1						
Newark.....	26,718	10	18	1			6		1	
New Philadelphia.....	10,718		3							
Niles.....	13,080	1								
Norwood.....	24,906	1								
Piqua.....	15,044	2								
Salem.....	10,305	3								
Sandusky.....	22,897	3							1	
Springfield.....	60,840	22	115	2			2			1
Steubenville.....	28,508	9	3				1			
Tiffin.....	14,375	4							1	
Toledo.....	243,109	57	60				6		3	6
Zanesville.....	29,569	11	12							1

¹ Pulmonary tuberculosis only.

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

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

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Oklahoma:										
Oklahoma City.....	91,258	20	4						3	
Oregon:										
Portland.....	258,288	49	30	5	1		7		13	2
Pennsylvania:										
Allentown.....	73,502		1						1	
Ambridge.....	12,730		7							
Berwick.....	12,381		2							
Canonsburg.....	10,632						1			
Carnegie.....	11,516		1							
Chester.....	58,030						1			
Donora.....	14,131									
Duquesne.....	19,011						9		1	
Easton.....	33,813		2							
Erie.....	93,372				1		2		3	
Farrell.....	15,596				3					
Harrisburg.....	75,917		4							
Johnstown.....	67,327		3							
Lancaster.....	53,150		10		1		1			
Lebanon.....	24,643		1						1	
McKeesport.....	45,975		1				1		1	
McKee's Rocks.....	16,713		1						2	
Mount Carmel.....	17,469		1							
Nanticoke.....	22,614		2							
New Castle.....	44,938				2					
Norristown.....	32,319		2							
Olyphant.....	10,236								1	
Philadelphia.....	1,823,158	357	46		3		67		97	37
Phoenixville.....	10,484		2				1			
Pittsburgh.....	588,193		35		3		28		10	
Pittston.....	18,497						2			
Pottstown.....	17,431		3							
Pottsville.....	17,431		1		1		1			
Reading.....	107,784		1							
Scranton.....	137,783		10						5	
Shamokin.....	21,204		1							
Steelton.....	13,428		1							
Tamaqua.....	12,363		1				1			
Warren.....	14,356		4				1		1	
West Chester.....	11,717								1	
Wilkes-Barre.....	73,833		2							
Woodlawn.....	12,495						2			
York.....	47,512		4							
Rhode Island:										
Cranston.....	29,407	7	1		1		1			
Cumberland (town).....	10,077	1					1			
East Providence (town).....	21,798		1				2			
Newport.....	30,255	4					6			
Pawtucket.....	64,248	18	5				1			1
Providence.....	237,595	58	8	1						5
South Carolina:										
Charleston.....	67,957	30	1				3			3
Columbia.....	37,524		7				2		2	
South Dakota:										
Sioux Falls.....	25,176	4					1			
Tennessee:										
Knoxville.....	77,818		10	1			1		2	2
Memphis.....	162,351	52	22		1		1			3
Nashville.....	118,342	30	16				2		1	
Texas:										
Beaumont.....	40,422	3								
Corpus Christi.....	10,522	3								
Galveston.....	44,255	12					1			2
Waco.....	33,500	8	2							1
Utah:										
Salt Lake City.....	118,110	30	6	1			10			
Vermont:										
Barre.....	10,008		1				1			
Burlington.....	22,779	4	3				3			
Rutland.....	14,954	5								
Virginia:										
Alexandria.....	18,060	6								1
Danville.....	21,539	6					1			
Lynchburg.....	29,956	15					1		3	1

CITY REPORTS FOR WEEK ENDED OCT. 1, 1921—Continued.

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

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Virginia—Continued.										
Norfolk.....	115,777		4		1				8	4
Petersburg.....	31,002	7	2		1		4		2	2
Portsmouth.....	54,337	11	3	1					3	1
Richmond.....	171,667	48	9	1	1	10			11	6
Roanoke.....	50,842	8	23		1	8				3
West Virginia:										
Bluefield.....	15,282		5			3				
Charleston.....	39,608	11	9	1						
Fairmont.....	17,851		2			1				
Huntington.....	50,177	22	7							2
Martinsburg.....	12,515					1				
Morgantown.....	12,127		1			1				
Moundsville.....	10,669	3	4			1				
Parkersburg.....	20,050	5	5			1				
Wheeling.....	54,322	13	10		1	6				3
Wisconsin:										
Appleton.....	19,561		4							
Beloit.....	21,284	1	1			1				
Eau Claire.....	20,880					2				
Fond du Lac.....	23,427	2	3							
Janesville.....	18,293	4								
Kenosha.....	40,472	10	11			1				
Madison.....	38,378	11	5	1						
Oshkosh.....	33,162	8	4			1			1	
Racine.....	58,593	8	4			19				
Superior.....	39,624	13	2			13				
Wyoming:										
Cheyenne.....	13,829	6				2		1		1

FOREIGN AND INSULAR.

CUBA.

Communicable Diseases—Habana.

Communicable diseases have been notified in Habana, Cuba, as follows:

Disease.	Sept. 11-30, 1921.		Re- main- ing under treat- ment Sept. 30, 1921.	Disease.	Sept. 11-30, 1921.		Re- main- ing under treat- ment Sept. 30, 1921.
	New cases.	Deaths.			New	Deaths.	
Cerebrospinal meningitis.....	1	.....	2	Paratyphoid fever.....	2	1	1
Chicken pox.....	1	.....	2	Pollomyelitis.....	.....	1	.....
Diphtheria.....	7	.....	13	Smallpox.....	6	.....	* 7
Leprosy.....	.....	.....	11	Typhoid fever.....	16	3	* 31
Malaria.....	76	2	* 91				

¹ From the interior, 1.

² From the interior, 66.

³ From the interior, 5.

⁴ From the interior, 17; from abroad, 2.

ITALY.

Plague—Naples.

An isolated case of plague was reported in Naples, Italy, September 4, 1921, in the person of a mill worker.

One dead rat found on the mill premises was plague infected. Eradicative measures were instituted.

JAMAICA.

Infectious Disease (Alastrim, or Kaffir Pox).

During the week ended September 24, 1921, 54 new cases of alastrim, or Kaffir pox, were reported in the island of Jamaica.

Typhoid Fever—Kingston and Vicinity.

For the same period stated above, 9 cases of typhoid fever were reported in Kingston. From January 1 to May 31, 1921, 187 cases of typhoid fever were reported in Kingston; and from May 1 to June 30, 49 cases were reported in the surrounding country.

MEXICO.

Yellow Fever—Tuxpam.

Under date of October 14, 1921, one case of yellow fever was reported in Tuxpam, Mexico, stated to have been imported from the district south of Tuxpam.

UNION OF SOUTH AFRICA.

Smallpox—Typhus Fever—July, 1921.

Information dated August 30, 1921, shows the occurrence of smallpox and typhus fever in the Union of South Africa during July, 1921, as follows:

Smallpox.—Among natives: 129 cases with 2 deaths, of which 117 occurred in the Cape Province, 11 in the Transvaal, and 1 in Natal. One case was reported in the white population in the Cape Province.

Typhus-fever.—Among natives: 868 cases with 121 deaths, of which 844 cases and 112 deaths occurred in the Cape Province, and the remainder in the Orange Free State and Natal. Among whites, 15 cases and 2 deaths were reported, of which 14 cases and 1 death were in the Cape Province, and 1 case and 1 death in the Orange Free State.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.¹

Reports Received During Week Ended Oct. 21, 1921.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy.....	Aug. 28-Sept. 3.....		2	Cases represent those among non-Chinese population only in the International Settlement.
Shanghai.....	Aug. 28-Sept. 10.....	11	4	
India:				
Bombay.....	Aug. 14-27.....	17	13	
Calcutta.....	Aug. 21-27.....	14	14	
Karachi.....	Aug. 28-Sept. 3.....	17	14	
Rangoon.....	Aug. 21-27.....	1	1	
Indo-China:				
Saigon.....	Aug. 21-27.....	3	3	Isolated cases in vicinity of Saigon and in surrounding area of 100 kilometers.
Siam:				
Bangkok.....	July 30-Aug. 6.....	1	1	

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

PLAGUE.

Azores:				
Horta Fayal.....	Sept. 4-10.....	1		
St. Michael Island— Ribeira Grande.....	Sept. 11-24.....	11	3	10 miles from Ponta Delgada.
Brazil:				
Bahia.....	Aug. 14-27.....	1	1	
Ceylon:				
Colombo.....	Aug. 21-27.....	1	1	
China:				
Amoy.....	Aug. 28-Sept. 3.....		2	
Hongkong.....	July 24-Aug. 20.....	11	8	
Egypt:				
Alexandria.....	Sept. 10-16.....	2		
Port Said.....	Sept. 10-23.....	4	1	
India:				
Bombay.....	Aug. 14-27.....	12	8	Aug. 14-27, 1921: Cases, 897; deaths, 623. Surrounding territory, 115 deaths out of 161 cases.
Karachi.....	Aug. 28-Sept. 3.....	2	1	
Madras Presidency.....	Aug. 28-Sept. 10.....	283	215	
Rangoon.....	Aug. 28-Sept. 3.....	68	60	
Central Provinces.....	Aug. 14-20.....	27	16	

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

Reports Received During Week Ended Oct. 21, 1921—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Indo-China: Saigon.....	Aug. 14-27.....	8	7	Isolated cases in vicinity of Saigon.
Italy: Naples.....	Sept. 4.....	1		Worker in mill. Plague-infected rat found on premises.
Mexico: Tampico.....				Oct. 2-8, 1921, 8 plague-infected rats found.
Portugal: Lisbon.....	Aug. 28-Sept. 3....	2		
Russia: Siberia— Vladivostok.....	July 1-31.....		4	Plague-infected rats found.
Senegal: Dakar.....	Aug. 1-31.....	12	9	
Siam: Bangkok.....	July 31-Aug. 13....	6	6	
Syria: Beirut.....	Aug. 22-Sept. 4....	6		
Beyrouth.....	Aug. 8-14.....	2		

SMALLPOX.

Brasil: Rio de Janeiro.....	Aug. 28-Sept. 10..	24	5	
Chile: Valparaiso.....	July 3-Sept. 10.....		21	
China: Amoy.....	Aug. 28-Sept. 3.....		1	
Hongkong.....	July 24-Aug. 20.....	3	1	
Cuba: Antilla.....	Sept. 25-Oct. 1.....	2		
Santiago de Cuba.....	Sept. 1-30.....	16		
India: Bombay.....	Aug. 14-27.....	7	5	
Madras.....	Aug. 28-Sept. 10....	8	4	
Indo-China: Saigon.....	Aug. 21-27.....	1	1	
Java: West Java— Batavia.....	Aug. 4-Sept. 1.....	89	22	
Mexico: Mexico City.....	Aug. 28-Sept. 3.....	18		Including municipalities in Federal District.
Torreón.....	Sept. 1-30.....	2		
Portugal: Lisbon.....	Aug. 28-Sept. 17....	8	1	
Oporto.....	Sept. 11-17.....	1		
Serbia: Belgrade.....	Aug. 7-20.....	2	1	Mar. 24-May 21: Cases, 206; deaths, 41.
Spain: Madrid.....	Aug. 1-31.....		1	
Straits Settlements: Singapore.....	Aug. 21-27.....	2		
Switzerland: Basel.....	Sept. 11-17.....	3		
Syria: Beirut.....	Aug. 8-14.....	1	1	
Tunis: Tunis.....	Sept. 10-23.....	3	1	
Union South Africa: Cape Province.....	July 1-31.....	118		July 1-31, 1921: Natives—Cases, 129; deaths, 2. White—1 case. Aug. 28-Sept. 3, outbreaks in Cape Province, Orange Free State, and Transvaal. District.
Natal.....	do.....	1		
Durban.....	Aug. 21-27.....	1		
Transvaal.....	July 1-31.....	11		
Johannesburg.....	Sept. 1-7.....	31	11	

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

Reports Received During Week Ended Oct. 21, 1921—Continued.

TYPHUS FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Bahia.....	Aug. 7-13.....	1	1	
Chile:				
Concepcion.....	Aug. 16-Sept. 5.....		4	Aug. 16-29, 1921: Stated to have reappeared in epidemic form; 30 cases in hospital and about 100 cases in city.
Valparaiso.....	July 3-Sept. 10.....		1	
China:				
Antung.....	Aug. 29-Sept. 4.....	1		
Egypt:				
Alexandria.....	Sept. 10-16.....	3	3	
Cairo.....	June 24-July 22.....	44	22	
Java:				
West Java—				
Batavia.....	Aug. 4-25.....	29	3	
Mexico:				
Mexico City.....	Aug. 29-Sept. 3.....	9		
Russia:				
Siberia—				
Vladivostok.....	July 1-31.....	4	3	
Serbia:				
Tunis.....	Sept. 3-9.....		1	Mar. 24-May 21, 1921: Cases, 70; deaths, 7.
Turkey:				
Constantinople.....	Sept. 11-17.....	5		
Union of South Africa:				
Cape Province.....	July 1-31.....	858	113	July 1-31, 1921: Natives—Cases, 868; deaths, 121. Whites—Cases, 15; deaths, 2. Orange Free State and Natal: Cases, 25; deaths, 10. Aug. 28-Sept. 3, outbreaks.
East London.....	Aug. 21-27.....	1		
Orange Free State.....				

YELLOW FEVER.

Mexico:				
Manzanillo.....	Sept. 24-30.....	1		
Tuxpam.....	Oct. 14.....	1		
Vera Cruz.....	Sept. 19-25.....	5	2	

Reports Received from July 2 to Oct. 14, 1921.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy.....	July 3-Aug. 6.....		10	Cases: Chinese, 34; foreign, 3. Deaths: Chinese, 5; foreign, 3. 18 Chinese, 6 foreign.
Hongkong.....	Aug. 22-28.....	37	8	
Shanghai.....	Aug. 1-21.....	24	1	
Swatow.....	Aug. 14-20.....	1	1	
India:				
Bombay.....	May 1-June 18.....	11	10	Mar. 6-June 25, 1921: Deaths, 75,281. July 3-23, 1921: Deaths, 29,736.
Do.....	June 26-Aug. 13.....	54	30	
Calcutta.....	May 8-June 25.....	597	521	
Do.....	June 26-Aug. 20.....	130	110	
Karachi.....	July 10-Aug. 27.....	84	80	
Madras.....	May 15-June 25.....	3	2	
Do.....	June 26-Aug. 27.....	13	6	
Rangoon.....	Apr. 24-June 25.....	18	17	
Do.....	June 26-Aug. 20.....	17	10	
Indo-China:				
City—				
Cholon.....	June 6-12.....	5	4	Jan. 1-31, 1921: Cases, 80; deaths, 15. May 29-June 12, 1921: Cases, 251; deaths, 202.
Saigon.....	May 9-June 12.....	65	44	
Do.....	July 4-31.....	100	91	Disseminated in neighboring Provinces.
Province—				
Anam.....	Jan. 1-31.....	42		In January, 1920: No cases.
Cambodia.....	do.....	8	2	January, 1920: Cases, 27; deaths, 14.
Cochin-China.....	do.....	18	9	January, 1920: Cases, 13; deaths, 10.
Tonkin.....	do.....	12	4	January, 1920: No cases.

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

Reports Received from July 2 to Oct. 14, 1921—Continued.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Philippine Islands:				
Manila.....	May 22-June 25...	4		
Do.....	July 3-Aug. 27....	29	2	
Province—				
Batangas.....	June 12-18.....	2	1	
Do.....	July 3-23.....	7	3	
Cavite.....	July 10-Aug. 6....	2	1	
Cebu.....	June 26-July 2....	1		
Laguna.....	June 19-25.....	1		
Do.....	July 3-6.....	1	1	
Mindoro.....	June 12-18.....	1	1	
Pampanga.....	June 5-11.....	1	1	
Tarlac.....	June 19-25.....	1	1	
Union.....	June 26-Aug. 13...	3	1	
Poland:				
Baranowicze.....	Aug. 18.....			Present.
Bialystok.....	July 25.....			Do.
Pinsk.....	do.....			Do.
Russia.....				
				Jan. 1—Aug. 10, 1921: Cases, 78,011. City of Moscow, cases, 289.
Districts—				
Astrakhan.....	Jan. 1-Aug. 10....	5,132		
Black Sea.....	do.....	3,152		
Kazan.....	Jan. 1-July 13....	434		
Kharkov.....	do.....	257		
Kursk.....	Jan. 1-Aug. 10....	1,227		
Moscow.....	Jan. 1-July 13....	1,296		
Orel.....	Jan. 1-Aug. 10....	1,968		
Rjasan.....	Jan. 1-July 13....	1,129		
Samara.....	Jan. 1-Aug. 10....	5,315		
Saratov.....	do.....	7,201		
Simbirsk.....	do.....	1,160		
Tambov.....	do.....	2,561		
Tzaritsyn.....	do.....	3,028		
Ufa.....	do.....	5,196		
Voronezh.....	do.....	3,621		
Petrograd.....	July 6.....	6		
Republics—				
Bashkir.....	Jan. 1-Aug. 10....	1,038		
Kirghiz.....	do.....	5,687		
Tartar.....	do.....	1,178		
Tchuvash.....	do.....	233		
Rostov-on-Don.....	June 1.....	747		
Territories—				
Azerbeidjan.....	Jan. 1-Aug. 10....	614		
Don.....	do.....	2,006		
Turkestan.....	do.....	5,583		
Ukraine.....	do.....			Very prevalent; reports incomplete.
Siberia.....	do.....	1,264		Far Eastern Republic.
Siam:				
Bangkok.....	Apr. 24-June 11...	19	4	
Do.....	June 26-July 23...	3		
Straits Settlements:				
Singapore.....	June 12-18.....	1	1	

PLAGUE.

Algeria:				
Algiers.....	Aug. 1-31.....	1	1	
Aumale district.....	May 31-July 3....	71	22	Native district about 140 kilometers from Algiers.
Donar Megnine.....	May 31-Aug. 24....	185	97	
Asia Minor:				
Smyrna.....	June 19-25.....	1		In suburbs.
Do.....	July 3-Sept. 3....	4		
Azores:				
St. Michael Island—				
Capelas.....	Aug. 6-12.....	1	1	
Ribeira Grande.....	Aug. 6-Sept. 3....	22	7	10 miles from port of Ponta Delgada.

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

Reports Received from July 2 to Oct. 14, 1921—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Bahia.....	May 15-June 18...	3	2	
Do.....	July 31-Aug. 6....	1	1	
Maranhao.....	June 23.....	1	1	
Pindobassu.....				Locality 200 miles west of Bahia; plague reported epidemic in August, 1921, with 60 deaths.
British East Africa:				
Kenya Colony—				
Kisumu.....	Apr. 24-May 21....			Present.
Do.....	June 28-Aug. 6....			Do.
Uganda.....	Mar. 1-June 30....	133	101	Reports of native chiefs show 2,709 deaths during same period.
Cape Verde Islands:				
St. Vincent.....	Aug. 12-18.....	6	3	
Ceylon:				
Colombo.....	May 8-June 11....	2	2	
Do.....	June 26-Aug. 13....	4	4	7 cases rodent plague.
China:				
Amoy.....	May 15-June 25....	7	2	
Do.....	July 3-Aug. 27....		38	
Foochow.....	May 15-21.....			Present.
Hongkong.....	Apr. 24-June 25....	81	59	May 1-7, 1921: Plague rats found.
Do.....	June 26-Aug. 20....	30	22	
Manchuria—				
Harbin.....	May 3-22.....	46		
Ecuador:				
Guayaquil.....	May 1-June 15....	10	1	
Do.....	July 16-Aug. 31....	3	1	Plague rats found: Aug. 1-15, 1921, 18; Aug. 16-31, 1921, 36. Jan. 1-Sept. 1, 1921: Cases, 266; deaths, 107.
Egypt:				
City.....				
Alexandria.....	May 21-June 24....	10	3	
Do.....	July 1-Aug. 30....	36	7	
Port Said.....	June 16-27.....	4	2	
Do.....	July 1-Aug. 20....	18	6	
Suez.....	May 20-June 30....	9	5	
Do.....	July 1-18.....	5	3	
Province.....				
Assiout.....	May 24-June 16....	9	7	
Do.....	July 30.....	1		
Beni-Souef.....	July 10.....	1		
Gharbieh.....	June 2-25.....	7		
Do.....	July 8-Sept. 1....	9		
Girgeh.....	July 6-13.....	5	4	
Minieh.....	May 28-June 10....	2	1	
Do.....	July 13-Aug. 18....	7	3	
Greece:				
Piræus.....	Sept. 23.....	3		
Hawaii:				
Honokaa.....				Plague rat found, Sept. 8, 1921.
Kalopa.....	July 15-19.....	1	1	
Fasuhau.....	May 21.....	1		
India:				
Bombay.....	May 1-June 25....	287	204	May 1-June 25, 1921: Cases, 2,003; deaths, 1,624. June 26-Aug. 13, 1921: Cases, 2,119; deaths, 1,553.
Do.....	June 26-Aug. 13....	43	31	
Calcutta.....	May 8-June 18....	11	11	
Do.....	July 24-Aug. 6....	23	21	
Karachi.....	May 8-June 25....	18	14	
Do.....	June 26-July 30....	2	2	
Madras.....	Aug. 20-27.....	1	1	
Madras Presidency.....	May 22-June 25....	112	72	
Do.....	June 26-Aug. 27....	726	439	
Rangoon.....	Apr. 24-June 25....	162	142	
Do.....	June 26-Aug. 20....	355	304	
Indo-China:				
Saigon.....	May 23-June 12....	4	1	Jan. 1-31, 1921: Cases, 57; deaths, 51. May 8-15, 1921: 1 plague rat. July 10-31, 1921: Rodent—Cases, 8.
Do.....				
Java:				
East Java—				
Soerabaya.....	July 10-16.....	4	2	
Madagascar:				
Tananarive.....	June 20-July 24....	49	45	Pneumonic.
Mauritius:				
Port Louis.....	Aug. 24.....			Present.

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

Reports Received from July 2 to Oct. 14, 1921—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Mesopotamia:				
Bagdad.....	Apr. 1-May 31....	32	35	
Do.....	July 1-31.....	1	1	
Mexico:				
Ciudad Victoria.....	June 7.....	1		In State of Tamaulipas: Case confirmed June 20, 1921.
Progreso.....				Plague rat reported found Sept. 10, 1921.
Tampico.....	June 11-30.....	36		
Do.....	July 1-Aug. 21....	21	8	Infected rodents found July 1-Sept. 25, 1921, 146.
Morocco:				
Spanish Zone.....				Reported present in epidemic form Sept. 29, 1921.
Peru.....				Mar. 1-31, 1921: Cases, 76; deaths, 44. Apr. 1-30, 1921: Cases, 43; deaths, 26. June 1-30, 1921: Cases, 14; deaths, 10. July 1-15, 1921: Cases, 9; deaths, 3.
Department—				
Arequipa.....	Mar. 1-31.....	2		At Mollendo.
Callao.....	do.....	7	1	At Callao.
Lambayeque.....	do.....	2	1	At Chiclayo.
Libertad.....	do.....	12	7	In 5 localities.
Lima.....	do.....	32	16	At Lima city, 20 cases, 13 deaths.
Piura.....	do.....	21	19	At Payta, Piura, and Sullana.
Ancachs.....	Apr. 1-30.....	4	1	At Huarmey.
Arequipa.....	do.....	3	3	At Mollendo.
Callao.....	do.....	8		At Callao.
Lambayeque.....	do.....	1	1	At Chiclayo.
Libertad.....	do.....	16	5	In 5 localities.
Lima.....	do.....	6	3	In Lima city, 3 cases, 1 death.
Piura.....	do.....	5	7	At Payta, Sullana, and Talara.
Libertad—				
Salaverry.....	June 1-15.....	1		
Trujillo.....	do.....	2	3	
Piura—				
Piura.....	do.....	1		
Talara.....	do.....	4	3	
Callao—				
Callao.....	June 16-30.....	1		
Do.....	July 1-15.....	5	1	
Lima—				
Lima.....	June 1-30.....	5	4	
Do.....	July 1-15.....	2	2	
Molendo.....	do.....	2		
Poland.....				Department of Arequipa. In border Province, Aug. 9, 1921: Cases, 8.
Porto Rico.....				Total plague-infected rats found from beginning of outbreak to July 9, 1921: 90.
Caguas.....	Aug. 7-20.....	4	2	Aug. 28-Sept. 3, 1921: One plague rat found.
Fajardo.....				
Manati.....	July 17-23.....	1	1	
Martin Pena.....	July 3-9.....	1		Suburb coextensive with San-turce.
San Juan.....				Plague rat on steamship San Luis, in San Juan harbor, Sept. 9, 1921.
Portugal:				
Lisbon.....	July 29-Aug. 30....	5		
Portuguese West Africa:				
Angola—				
Loanda.....	Apr. 24-June 18....	16		
Do.....	July 17-23.....		1	
Russia:				
Siberia—				
Vladivostok.....	May 1-31.....	141	155	
Senegal:				
Dakar.....	May 1-June 30....	54	47	
Do.....	July 1-31.....	105	84	
Siam:				
Bangkok.....	Apr. 24-June 18....	7	6	
Do.....	July 24-30.....	1	1	
Straits Settlements:				
Singapore.....	May 8-June 18....	5	5	
Do.....	June 26-Aug. 20....	4	4	

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

Reports Received from July 2 to Oct. 14, 1921—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Syria:				
Alexandretta.....	July 10-Aug. 6....	18	4	
Beirut.....	May 31-June 30....	2		
Do.....	July 1-Aug. 7.....	9		
Turkey:				
Constantinople.....	July 10-Sept. 10...	4	2	
Union of South Africa.....				January-April, 1921: Cases (white), 6; deaths, 4. Cases (native), 13; deaths, 6. Occurring in the Orange Free State.
On vessels:				
Steamship Kishenev.....	May 2.....	1		At Chefoo, China. Plague death en route. Vessel sent to quarantine, Kentucky Island, where to May 6 a total of 16 deaths was reported. (Public Health Reports, July 1, 1921, p. 1534.)
Steamship Oreland.....				At Genoa, Italy, June 12, 1921; from La Plata, Argentina. Two fatal cases plague in crew en route.
Steamship Ralph Moller.....	June 8.....	4	1	At Chefoo, China, from Vladivostok, Siberia. Three fatal cases en route. One case with fatal termination removed at Vladivostok.
Steamship San Luis.....	Sept. 9.....			In harbor, San Juan, Porto Rico, Sept. 9, 1921; 1 plague rat.
Steamship Tenyo Maru.....				En route between Nagasaki and Kobe, Japan, June 28, 1921, 1 fatal case.

SMALLPOX.

Algeria:				
Algiers.....	May 1-June 30....	3		
Oran.....	Sept. 1-10.....	1		
Asia Minor:				
Smyrna.....	May 22-28.....	1		On the steamship Nicholas.
Do.....	July 24-30.....	2		
Australia:				
Victoria—				
Geelong.....	May 5-16.....	2		Mild.
Do.....	July 12-29.....	2		
Melbourne.....	Apr. 9-23.....	4	1	Mild epidemic.
Do.....	July 17-23.....	1	1	Slight epidemic reported.
Bolivia:				
La Paz.....	Apr. 1-30.....	5	4	
Brazil:				
Pernambuco.....	Mar. 28-May 22....	28	4	
Rio de Janeiro.....	May 8-June 18....	11	2	
Do.....	June 26-Aug. 27....	68	13	
Sao Paulo.....	May 23-June 26....	7	2	
Do.....	June 27-Aug. 7....	12	2	
British East Africa:				
Kenya Colony—				
Zanzibar.....	May 8-14.....	12	4	Origin, India.
Bulgaria:				
Sofia.....	May 15-31.....	6		
Canada:				
Alberta—				
Calgary.....	May 26-June 18....	3		
British Columbia—				
Vancouver.....	May 28-June 25....	8		
Manitoba—				
Winnipeg.....	.....do.....	6		
Do.....	June 28-Sept. 17...	13		
New Brunswick—				
Charlotte County.....	July 10-Sept. 10....	9		
Madawaska County.....	Aug. 7-13.....	1		
Restigouche County.....	June 19-25.....	1		
Westmoreland County.....	June 26-July 2.....	2		

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

Reports Received from July 2 to Oct. 14, 1921—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Canada—Continued.				
Nova Scotia—				
Sydney.....	June 5-18.....	2		
Do.....	June 26-July 2....	4		
Ontario—				
Fort William and Port Arthur.....	Aug. 7-27.....	2		
Hamilton.....	June 12-18.....	3		
Do.....	July 3-9.....	1		
Kingston.....	June 5-11.....	1		
London.....	June 5-25.....	2		
Montreal.....	June 12-18.....	1		
Do.....	July 17-23.....	1		
North Bay.....	June 11-25.....	3		
Do.....	June 26-July 9....	2		
Ottawa.....	June 12-25.....	21		
Do.....	June 26-Aug. 13....	35		
Toronto.....	Aug. 28-Sept. 24....	3		
Saskatchewan—				
Moose Jaw.....	Sept. 4-10.....	1		
Chile:				
Antofagasta.....	May 16-June 19....	228	166	
Arica.....	May 31.....	2		
Mejillones.....	May 30-June 5....			
Valparaiso.....	June 26-July 2....			Present. Also at interior nitrate plants.
China:				
Amoy.....	May 8-June 4.....		4	June 5-25: Present.
Do.....	June 26-July 2....		1	July 3-Aug. 6: Present.
Antung.....	May 16-June 26....	12	2	
Canton.....	Apr. 1-30.....			Present.
Chungking.....	May 1-June 25....			Do.
Do.....	June 26-Aug. 20....			Do.
Foochow.....	May 8-June 25....			Do.
Do.....	June 26-Aug. 27....			Do.
Hankow.....	May 15-21.....	4	1	
Do.....	July 16-18.....	1		
Hongkong.....	Apr. 24-June 25....	99	84	
Manchuria—				
Dairen.....	May 9-June 26....	44	5	
Do.....	June 27-Aug. 14....	8	3	
Harbin.....	May 16-June 13....	5		
Do.....	June 27-July 10....	2		
Mukden.....	May 22-June 11....			Do.
Do.....	July 3-Aug. 20....			Do.
Nanking.....	May 8-June 25....			Do.
Do.....	June 26-Aug. 27....			Do.
Shanghai.....	June 20-27.....	1		
Do.....	July 3-Aug. 6.....	2	1	
Tientsin.....	May 8-June 25....	31		Mission hospital.
Do.....	June 26-Aug. 20....	9	1	
Tsingtau.....	May 9-June 12....	4	1	
Do.....	July 25-31.....	1		
Chosen (Korea):				
Chemulpo.....	May 1-June 30....	11	3	
Fusan.....	do.....	12	3	
Gensan.....	do.....	5	2	
Seoul.....	do.....	3		
Colombia:				
Santa Marta.....	June 5-25.....			Present.
Do.....	June 26-Aug. 27....			Do.
Cuba:				
Antilla.....	June 5-25.....	7		
Do.....	June 26-Sept. 10....	69		
Cienfuegos.....	June 26-Sept. 3....	3		
Matanzas.....	June 12-18.....	1	1	
Do.....	July 3-31.....	4	2	
Nuevitas.....	July 4-Sept. 25....	15		
Santiago.....	June 1-30.....	28	2	6 of those reported found in vicinity.
Do.....	July 1-Aug. 31....	31	1	
Dominican Republic.....				In eastern Provinces, Aug. 25; 1921, 2,000 cases, estimated.
La Ramona.....	Aug. 25.....			Cases numerous.
San Pedro de Macoris.....	Aug. 19-25.....	40	2	On sugar estates in same Province, about 400 cases.
Santo Domingo.....	Sept. 1-18.....	10		In surrounding country.

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

Reports Received from July 2 to Oct. 14, 1921—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Ecuador:				
Eloy Alfaro.....	Aug. 1-15.....	1		
Guayaquil.....	May 1-June 30.....	31		
Do.....	July 1-Aug. 15.....	22	1	
Egypt:				
Cairo.....	Mar. 19-Apr. 29.....	2	1	
Port Said.....	Apr. 2-May 20.....	10		
Finland.....	May 1-15.....	1		
France:				
Brest.....	May 22-June 4.....	18		
Cherbourg.....	Aug. 1-31.....	1		Varioloid.
Paris.....	July 22-31.....	2	1	
Rouen.....	May 1-20.....	2		
Germany.....				Apr. 24-May 23, 1921: Cases, 12; Additional, Apr. 17-May 7, 1921: Cases, 57; deaths, 7.
Great Britain:				
Nottingham.....	May 29-June 4.....	1		
Do.....	July 3-Aug. 27.....	51		
Queenstown.....	July 3-9.....	1		Stated Aug. 17 to be epidemic and to have begun about two months previous to date; 57 cases reported.
Southampton.....	June 26-July 2.....	1		
Greece:				
Saloniki.....	June 6-12.....		1	
Haiti:				
Cape Haitien.....	June 19-25.....	24	2	
Do.....	June 26-Sept. 17.....	177	15	
Port au Prince.....	Sept. 11-17.....			Present.
India.....				Mar. 20-May 21, 1921: Deaths, 3,232. June 5-25, 1921: Deaths, 958. July 3-9, 1921: Deaths, 393.
Bombay.....	May 1-June 25.....	84	50	
Do.....	June 26-Aug. 13.....	53	36	
Calcutta.....	May 8-June 25.....	8	8	
Do.....	June 26-Aug. 20.....	5	6	
Karachi.....	May 29-June 25.....	25	17	
Do.....	June 26-July 30.....	8	2	
Madras.....	May 8-June 25.....	33	11	
Do.....	June 26-Aug. 27.....	41	24	
Rangoon.....	Apr. 24-June 4.....	20	3	
Do.....	July 10-Aug. 13.....	4	1	
Indo-China.....				Jan. 1-31, 1921: Cases, 102; deaths, 15.
City—				
Saigon.....	May 9-15.....	2	1	
Province—				
Anam.....	Jan. 1-31.....	35		January, 1920: Cases, 16; deaths, 3.
Cambodia.....	do.....	21	3	January, 1920: Cases, 139; deaths, 54.
Cochin China.....	do.....	19	12	January, 1920: Cases, 8; deaths, 1.
Tonkin.....	do.....	27		January, 1920: Cases, 224; deaths, 43.
Italy:				
Catania.....				Province: June 6-20, 1921: Cases, 5.
Do.....	July 18-Aug. 14.....			In Province: Cases, 7.
Genoa.....	Apr. 1-May 31.....	11		
Do.....	July 4-10.....	2		
Messina.....	May 23-June 26.....	2	1	
Do.....	July 11-17.....	1		In Province, July 4-17, 1921: Cases, 9.
Palermo.....	May 18-June 21.....	7	1	
Milan.....	Apr. 1-30.....	2		
Do.....	June 29-July 19.....	3		
Japan:				
Kobe.....	May 24-June 26.....	3		
Nagasaki.....	May 23-June 26.....	6	1	
Taiwan Island.....	July 1-10.....	1		
Java:				
East Java—				
Soerabaya.....	June 19-25.....	2		
Do.....	July 10-Aug. 7.....	9	1	
West Java—				
Bandoeng.....	May 27-June 3.....	1		
Do.....	July 8-21.....	1		
Batavia.....	May 6-June 23.....	17	15	
Do.....	July 1-Aug. 4.....	17	18	
Buitenzorg.....	Apr. 29-June 23.....	16		
Do.....	July 22-Aug. 4.....	2	1	
Garoet.....	May 6-12.....	1		
Do.....	July 8-Aug. 4.....	4		

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

Reports Received from July 2 to Oct. 14, 1921—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Java—Continued.				
West Java—Continued.				
Krawang.....	Apr. 29-June 30...	33	5	
Do.....	July 22-Aug. 4.....	14	1	
Lebak.....	Apr. 29-May 26...	12	2	
Pandeglang.....	June 3-30.....	2	1	
Do.....	July 8-14.....	1		
Jugoslavia.....				Mar. 14-May 13, 1921: Cases, 334; deaths, 83. June 27-July 10, 1921: Cases, 111; deaths, 27.
Mesopotamia:				
Bagdad.....	Apr. 1-May 31....	3	1	
Mexico:				
Guadalajara.....	June 1-30.....	3		
Do.....	July 1-Aug. 31....	10	3	
Tampico.....	July 11-20.....	1		
Chihuahua.....	May 23-June 27...		3	
Mexico City.....	May 15-June 25...	246		Including municipalities in Federal District.
Do.....	June 28-Aug. 27...	186		Do.
San Luis Potosi.....	July 17-Aug. 6.....		2	
Vera Cruz.....	June 13-19.....		1	
Do.....	July 11-Sept. 11...		3	
Newfoundland:				
Tilton.....	Aug. 20-26.....	3		
Panama:				
Canal Zone.....	Apr. 1-May 31....	2		Jan. 1-Sept. 19, 1921: Cases, 205, of which 33 were nonresidents.
Colon.....	Jan. 1-May 31....	111		
Do.....	Aug. 30.....	1		From the interior.
Panama.....	Feb. 1-June 30...	54		Sept. 4-19: 1 from interior.
Do.....	July 1-Sept. 19...	4		
Poland:				
District—				Mar. 1-Apr. 30, 1921; Cases, 1,117; deaths, 142.
Bialystok.....	Mar. 1-Apr. 30....	3		
Cracovia.....	do.....	56	6	
Kielce.....	do.....	180	26	
Leopol.....	do.....	52	16	
Lodz.....	do.....	72	9	
Lublin.....	do.....	367	30	
Posen.....	do.....	26	2	
Silesia.....	do.....	10		In Teschen.
Stanislawow.....	do.....	30	5	
Tarnopol.....	do.....	156	31	
Warsaw.....	do.....	36	4	
Warsaw City.....	do.....	90	13	
Portugal:				
Lisbon.....	May 15-June 25...		34	
Do.....	June 26-Aug. 27...	25	2	
Oporto.....	June 19-25.....	1		
Portuguese East Africa:				
Lourenco Marques.....	May 8-28.....	8		
Do.....	July 10-Aug. 13...	7	4	Correction.
Rumania:				
District—				
Hotin.....	Apr. 1-30.....	40	9	
Orthei.....	Mar. 1-31.....	2		
Russia:				
Province—				
Esthonia.....	Apr. 1-June 30...	9		
Do.....	July 1-31.....	50		
Latvia—				
Riga.....	Apr. 1-May 31....	41		
Siberia—				
Vladivostok.....	June 1-30.....	1		
Senegal:				
Dakar.....	May 1-31.....	1	1	
Spain:				
Barcelona.....	May 12-June 22...		13	
Do.....	July 7-Aug. 24.....		8	
Huelva.....	July 1-31.....		2	
Madrid.....	June 1-30.....	2		
Malaga.....	May 1-June 30...		57	
Do.....	July 1-Aug. 31....		57	
Tarragona.....	May 9-15.....		1	
Valencia.....	May 22-28.....	1		
Do.....	July 2-Aug. 20...	9	2	

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

Reports Received from July 2 to Oct. 14, 1921—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Straits Settlements:				
Singapore.....	June 12-18.....	1		
Do.....	July 10-Aug. 20.....	5	3	
Switzerland:				
Zurich.....	May 28-June 11.....	10		
Do.....	July 3-Sept. 3.....	4		
Syria:				
Aleppo.....	Apr. 9-18.....			Present.
Beirut.....	May 10-30.....	1	1	
Tunis:				
Tunis.....	May 30-June 17.....	2	3	
Do.....	July 2-Sept. 2.....	11	9	
Turkey:				
Constantinople.....	June 12-25.....	5		
Do.....	June 26-Aug. 13.....	8		
Union of South Africa				
				January - April, 1921: Cases (white), 18; deaths, 1. Cases (native), 192; deaths, 5. May 1-31, 1921; Cases, 65; deaths, 3, all natives. June 1-30, 1921; Cases, 64, of which 1 white.
Cape Province.				
Do.....	Apr. 24-June 25.....			Outbreaks.
Do.....	June 26-July 31.....			Do.
Natal.				
Do.....	Apr. 24-June 25.....			Do.
Do.....	July 10-23.....			Do.
Durban.....	Aug. 7-20.....	2		Stated to have been imported.
Orange Free State.....	May 29-June 25.....			Outbreaks.
Southern Rhodesia.				
Do.....	July 14-20.....	27		
Transvaal.				
Do.....	May 22-June 18.....			Do.
Johannesburg.....	July 3-31.....	2		Do.
On vessel:				
Steamship Niagara.....	June 1.....	1		At Sydney, Australia, from Vancouver via Fiji and New Zealand.

TYPHUS FEVER.

Algeria:				
Algiers.....	May 1-June 30.....	109	25	
Do.....	July 1-Aug. 31.....	22	7	
Oran.....	May 22-June 30.....	35	28	
Do.....	July 1-Sept. 10.....	15	13	
Asia Minor:				
Smyrna.....	June 12-18.....	1		In districts.
Do.....	Aug. 28-Sept. 3.....	1		
Bolivia:				
La Paz.....	Apr. 1-June 30.....	50	51	
Do.....	July 1-31.....	19	3	
Brazil:				
Bahai.....	June 19-25.....	1	1	
Porto Alegre.....	do.....		3	
Do.....	Aug. 7-13.....		1	
Canary Islands:				
Teneriffe.....	Aug. 14-Sept. 10.....		2	
Chile:				
Concepcion.....	Apr. 12-June 20.....		8	July 25-Aug. 1, 1921: In hospital, 30 cases; in city, estimated, 100 cases.
Do.....	July 12-Aug. 8.....		10	
Los Angeles.....	July 26-Aug. 8.....			Prevalent.
Valparaiso.....	Mar. 27-May 28.....		4	
Do.....	June 26-July 2.....		2	
China:				
Antung.....	May 30-June 5.....	1		
Do.....	June 27-Aug. 21.....	8		
Hankow.....	May 22-June 11.....	3		
Manchuria—				
Harbin.....	May 23-29.....	1		
Do.....	July 4-10.....	1		
Chosen (Korea):				
Chemulpo.....	June 1-30.....	2		
Fusan.....	May 1-31.....	1		
Gensan.....	May 1-June 30.....	4		
Seoul.....	May 1-31.....	1		

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

Reports Received from July 2 to Oct. 14, 1921—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Czechoslovakia:				
Prague.....	June 5-26.....	5	2	
Egypt:				
Alexandria.....	May 21-June 23....	21	8	
Do.....	June 24-Sept. 9....	35	12	
Cairo.....	Mar. 19-June 24....	235	102	
Port Said.....	Apr. 2-May 13....	8	2	
Finland.....	May 1-15.....	5		
Germany.....				Apr. 24-June 4, 1921: Cases, 7.
Hamburg.....	May 27-June 4.....	1		
Great Britain:				
Dublin.....	May 29-June 4.....	1		
Greece:				
Saloniki.....	May 23-June 26....	21	6	
Do.....	June 27-Aug. 14....	1	2	
Guatemala:				
Guatemala City.....	July 1-31.....		1	
Hungary.....				Jan. 1-July 13, 1921: Cases, 71;
Italy:				occurring in 4 counties.
Messina (Province).....	Aug. 29-Sept. 4....	2		In 2 localities.
Japan:				
Nagasaki.....	May 23-June 5.....	7	2	
Jugoslavia.....				Jan. 30-May 14, 1921: Cases, 286;
Belgrade.....	May 1-14.....	6		deaths, 40; June 27-July 10,
Zagreb.....	June 19-25.....	3		1921: Cases, 23; deaths, 7.
Do.....	July 10-Sept. 3....	37	4	
Mesopotamia:				
Bagdad.....	May 1-31.....	1	3	
Mexico:				
Mexico City.....	May 15-June 25....	102		Including municipalities in Fed-
Do.....	June 26-Aug. 27....	139		eral District.
San Luis Potosi.....	July 31-Aug. 6.....			Present.
Morocco:				
Spanish Zone.....				Reported present in epidemic
Poland.....				form Sept. 29, 1921.
District—				Mar. 1-Apr. 30, 1921: Cases,
Bialystok.....	Mar. 1-Apr. 30....	853	45	11,499; deaths, 1,131.
Cracovia.....	do.....	608	90	
Kielce.....	do.....	848	62	
Leopol.....	do.....	2,508	277	
Lodz.....	do.....	521	53	
Lublin.....	do.....	1,446	83	
Posen.....	do.....	77	5	
Silesia.....	do.....	26		In Teschen.
Stanislawow.....	do.....	1,557	232	
Tarnopol.....	do.....	1,855	194	
Warsaw.....	do.....	972	61	
Warsaw city.....	do.....	223	29	
Portugal:				
Oporto.....	July 12-Aug. 20....	2		
Rumania:				
District—				
Hotin.....	Apr. 1-30.....	107	10	
Kishinev.....	Apr. 1-June 30....	89		
Do.....	July 1-31.....	11		District.
Orhei.....	Mar. 1-May 30....	146		
Russia:				
Province—				
Esthonia.....	Apr. 1-June 30....	113		
Do.....	July 1-31.....	50		
Latvia.....	Apr. 1-June 30....	599		
Siberia—				
Vladisvostok.....	Mar. 1-June 30....	5	3	
Spain:				
Madrid.....	May 1-June 30....		3	
Do.....	July 1-31.....		2	
Syria:				
Beirut.....	May 20-June 10....	1	1	
Tunis:				
Tunis.....	June 11-17.....		3	
Do.....	July 30-Aug. 5.....		1	
Turkey:				
Constantinople.....	May 22-June 18....	11		
Do.....	June 26-Sept. 10....	36	1	

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

Reports Received from July 2 to Oct. 14, 1921—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Union of South Africa.....				January - April, 1921: Cases (white), 34; deaths, 2. Cases (native), 3,376; deaths, 437. June 1-30, 1921; Cases, 738; deaths, 66.
Cape Province.....				Apr. 24-June 25, 1921. Outbreaks May 1-31, 1921. Cases, 542; deaths, 51. June 26-July 31, 1921: Outbreaks.
Capetown.....	May 13-19.....	10	3	At native cantonment in vicinity.
East London.....	May 22-June 18.....	1	1	
Port Elizabeth.....	Aug. 7-20.....	7		
Natal.....	July 16-23.....	7		Outbreaks.
Orange Free State.....				Apr. 24-May 23, 1921: Outbreaks.
Do.....	July 10-31.....			Outbreaks.
Venezuela:				
Maracaibo.....	June 21-27.....		1	
Our vessel:				
Steamship Norden.....	Aug. 18.....	1		At Mascus Hook Quarantine, Pa., from Tampico, Mexico, via Nuevitas, Cuba.

YELLOW FEVER.

British Honduras:				
Belice.....	Aug. 23-Oct. 1.....	17	6	
Mexico:				
Alamo.....	June 1-30.....	10		State of Vera Cruz.
Do.....	July 19.....	4	1	
Barra de Penn Mex.....	July 17-23.....	1	1	Do.
Casamaloapam.....	do.....	3	1	Do.
El Dorado.....	Oct. 7.....			Present. Sept. 25-Oct. 1, 1921; deaths, 40. Oct. 2, deaths, 5.
Manzanillo.....	Sept. 13.....			Present. June 1 to Sept. 9, 1921: Cases, 18; deaths, 10.
Do.....	Oct. 7.....			Present.
Mazatlan.....	do.....			Do.
Playa Obispo.....	Aug. 23.....	1		Territory of Quintana Roo.
Tampico.....	July 11-17.....	3	2	State of Tamaulipas.
Tierra Blanca.....	Sept. 19.....	1		Case arrived at Vera Cruz on steamship Monterey from Progreso, Mexico.
Tlacoatalpan.....	Sept. 25.....			Present.
Tuxpam.....	July 25.....	1	1	State of Vera Cruz.
Vera Cruz.....	June 13-27.....	7		Do.
Do.....	July 25-Sept. 18.....	1	2	Do.
Zapotlan.....	July 14.....	1	1	Do.
Peru				
Department—				
Lambayeque—				
Chiclayo.....	Mar. 1-31.....	20	10	Mar. 1-31, 1921: Cases, 66; deaths, 25. Apr. 1-30, 1921: Cases, 106; deaths, 32, in 13 localities.
Chongollape.....	do.....	2	2	June 1-30, 1921: Cases, 25; deaths, 13. July 1-15, 1921: Cases, 2.
Ferreñafe.....	do.....		1	
Lambayeque.....	do.....	15	5	
Monsefu.....	do.....	18	4	
Motupe.....	do.....	1	1	
Pomaca.....	do.....	5	1	
Villa Eten.....	do.....	5	1	
Callao—				
Callao.....	Apr. 1-30.....	1		At quarantine station. From Chiclayo.
Lambayeque—				
Chiclayo.....	do.....	23	5	
Chongollape.....	do.....	10	1	
Jayanca.....	do.....	5	2	
Lambayeque.....	do.....	5	2	
Monsefu.....	do.....	8	5	
Motupe.....	do.....	45	11	
Olmos.....	do.....	2	4	
Villa Eten.....	do.....	2		
Zana.....	do.....	1		
Libertad—				
Guadalupe.....	do.....	2		
Pueblo Nuevo.....	do.....	1	1	
Trujillo.....	do.....	1	1	Country.

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

Reports Received from July 2 to Oct. 14, 1921—Continued.

YELLOW FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Peru—Continued.				
Department—Continued.				
Lambayeque—				
Chiclayo.....	June 1-15.....	4	3	
Monsefu.....	.....do.....	3		
Pacora.....	.....do.....	1		
Libertad—				
Casa Grande.....	.....do.....	1		Farm.
Pacanga.....	.....do.....	1	1	
Paijan.....	.....do.....	3	4	
Trujillo.....	.....do.....	1	1	
Libertad—				
Pacasmayo.....	July 1-15.....	1		
Pacanga.....	June 16-30.....	1	1	
Paijan.....	.....do.....	10	3	
Do.....	July 1-15.....	1		
On vessels:				
Barge J. S. McGaughy.....	Oct. 6.....	1		At quarantine station, Pensacola, Fla., from Tampico, Mex., Sept. 30.
Steamship Lurline.....	Aug. 13-27.....	2	1	At Mazatlan, Mexico, from Manzanillo, Mexico. (Public Health Reports, Sept. 16, 1921, p. 2292).
Steamship Monterey.....	Sept. 18.....	1		At Vera Cruz from Progreso, Mexico, Sept. 15, 1921. Patient went to Tierra Blanca.
Steamship Washington....	Aug. 29.....	1		At Mazatlan, Mexico.