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## PUBLIC HEALTH ORGANIZATION AND ADMINISTRATION IN HAMBURG, GERMANY

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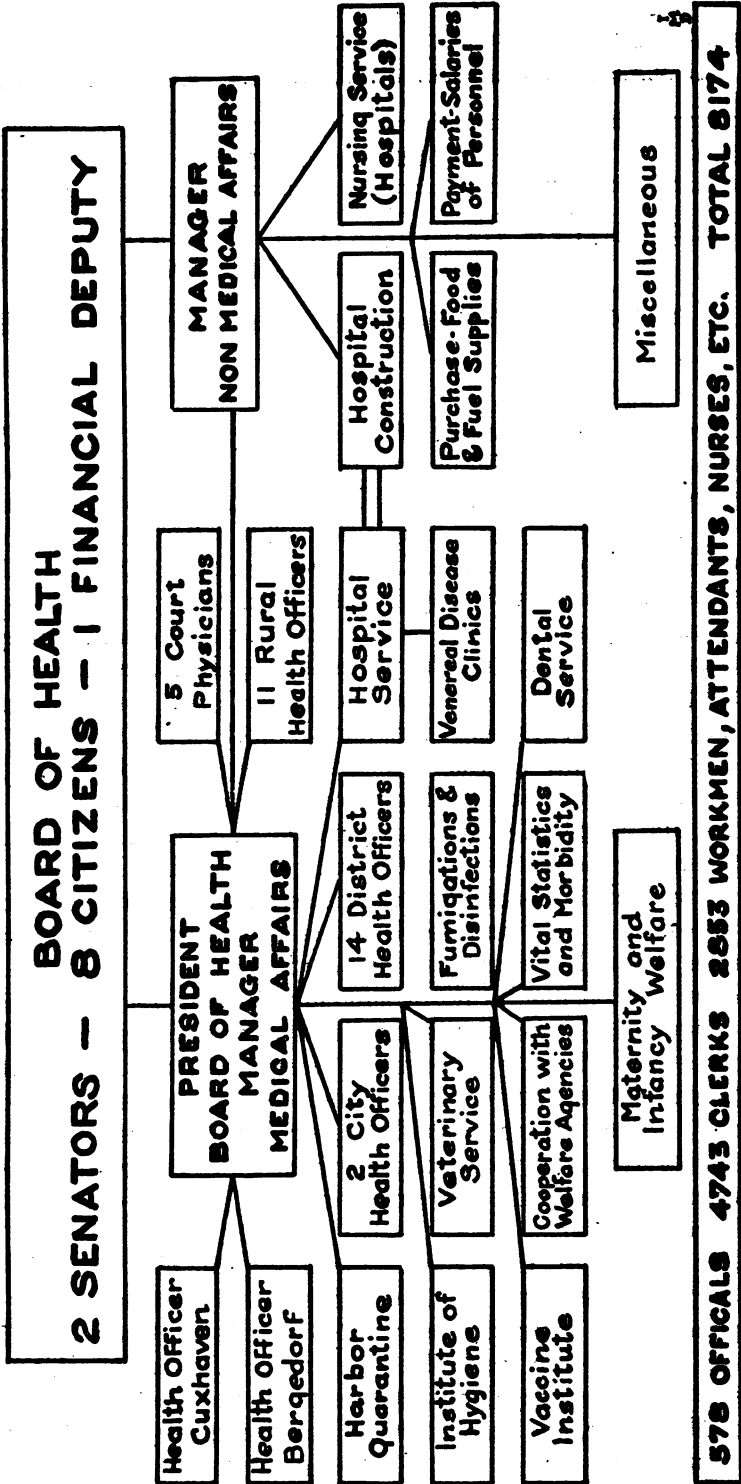
### GENERAL

The civil administration of the territory known as the "Free and Hanseatic State of Hamburg" is unique in that it enjoys its own government, although a part of the German Republic and subject to the general laws of the Republic. This policy has existed since the twelfth century, when Hamburg received from Emperor Frederick the First a charter relieving the city from taxes, granting exemption from military service, and giving certain pasture and fishing rights. The city prospered; and for protection against common enemies, in the year 1241, it joined in league with 70 German cities, the other principal ones being Bremen, Lübeck, and Hannover, to form what was known as the Hanseatic League, or Hansa. In 1510 Emperor Maximilian the First conferred on Hamburg the rank of "Free and Imperial City," independent of surrounding principalities but directly subject to the Crown. In 1618 the Imperial supreme court recognized Hamburg's claims as a free city, thereby ending all disputes, and this independence she preserved by joining with Prussia in the Prussian-Austrian war in 1866.

After various modifications and constitutional changes, the present government of Hamburg is republican, the sovereignty resting with the people. There is a House of Burgesses (or *Bürgerschaft*), consisting of 160 members, and a Senate of 16 members elected by the people. The Senate, presided over by the first *Bürgermeister*, possesses executive power and represents the city with the national government and with foreign countries. The House of Burgesses enforces the laws.

The Hamburg Free State (including the city and the several districts) covers an area of about 160 square miles, with a population of approximately 1,208,500 inhabitants, 1,127,834 of whom are in the capital, or city of Hamburg. The smaller towns of Cuxhaven, about 100 miles to the west, at the mouth of the Elbe River, and Bergedorf, 20 miles to the southeast (included in

# CHART OF ORGANIZATION OF PUBLIC HEALTH SERVICE HAMBURG - GERMANY



the area), are parts of the Free State, though separated by an area of Prussian territory.

The organization of a health service as a part of government was first undertaken in 1818. Subsequent to 1892 the development of the health service was intensified and strengthened as a direct result of the devastating cholera epidemic in that year. The present organization, in accordance with the local laws of March 15, 1929, enjoys its own independence, is financed by the Hamburg government, but is responsible to the Reich in conforming to the health laws of the land, such as those requiring the submission of reports of epidemics of unusual proportions and similar laws.

The Hamburg Central Public Health Authority is a board of health selected by the Bürgerschaft and consists of 2 senators, 8 citizens, and 1 financial deputy. The members hold office for four years. The tenure of office of two members expires each year, but the members may be reappointed. This board appoints two officers who are directly responsible for the conduct of the health service—one is a physician, known as the president of the board of health, who has direct supervision of all matters of a medical nature, while the other, a nonmedical member, is responsible for the so-called nonmedical affairs in the organization. These officers maintain the closest cooperation. As is the case with the other subordinate heads of departments, they are appointed by the board of health and hold office until they are 65 years of age, but may retire on a pension after 10 years of service if they so elect.

The several activities of this service are varied and far reaching in scope.

#### HOSPITAL SERVICE

The Hamburg Health Service controls and operates a large hospital service for the care and treatment of the sick and disabled. From the viewpoint of hospitalization, the general public may be grouped into three general classes, described below.

1. *Those enjoying the benefits of sickness insurance.*—In Germany sickness insurance is universal. Any person receiving wages or a salary of 3,600 marks (\$900) or less per annum must, under penalty, pay a nominal amount each month to the insurance board, which is controlled by the local Government.

In the case of workmen or domestic servants, two-thirds of the premium rate is paid by the employer, one-third by the insured. In this class, sickness must be at least 66% per cent disabling to receive treatment as a beneficiary.

All persons receiving an income from 3,600 to 8,400 marks (\$900-\$2,100) per annum must also be insured under the law. The premium is a little higher and only 50 per cent disability is necessary for the beneficiary to receive benefits through treatment.

For every insurance case treated in government hospitals, reimbursement is made to the Gesundheitsbehörde, or board of health, by the insurance board. These reimbursements form part of the budget of the health service for the cost of hospital care. Insurance beneficiaries may also receive treatment at private hospitals or, as outpatients, from private practitioners, in which case the insurance board bears the necessary expense.

This universal sickness insurance of all persons with an income up to and including 8,400 marks per year solves the hospitalization problem for the great middle class. The premiums amount to only a few marks each month and to a large degree are paid jointly by employer and employed. Furthermore, the general practitioner and hospitals are certain of reimbursement for their service.

2. *Those who are not insured and are not able to pay for medical care.*—This class consists of destitute nationals of foreign countries and the old and infirm who have no money or are too old to be insured (over 60 years), in fact any one not insured and not able to care for himself.

This small group is provided hospitalization by the welfare board ("Wohlfahrtsbehörde"), discussed elsewhere. This board (financed by the local government) reimburses the hospitals concerned for this service.

3. *Those not belonging to the other two groups, but able to pay their own expenses.*—This group comprises the well-to-do, who are charged on a sliding scale, in proportion to their ability to pay the hospitals as private patients.

To provide hospitalization for these three groups the board of health operates all of the 11 public hospitals in the Hamburg Free State, with a total of 12,963 beds, including one hospital at Cuxhaven and one at Bergedorf. The Institute of Tropical Medicine, with 70 beds, is also in this group. In this institute tropical diseases are treated and research investigations are carried on. All of the personnel of these hospitals are in the government service and under the supervision of the board of health. The responsibility, however, is divided according to the chart of organization. The president of the board is in charge of all medical matters of the service and exercises supervisory control pertaining to actual medical treatment. The executive head of nonmedical matters is charged with the purchase of food and fuel, mechanical operation, payment of salaries, and the actual construction of the hospitals. All these hospitals are built under the supervision of the health department and from funds allotted to its budget. Under this executive head is also the supervision of the nursing service, for in this system the nursing service does not fall under the jurisdiction of the doctor in charge of medical affairs.

The available beds in these government hospitals are nearly always occupied. There are, of course, private hospitals in Hamburg, with 3,444 beds; but such hospitals can not be opened without the consent of the board of health and after inspection. No contagious disease can be admitted to a private hospital.

#### ORGANIZATION IN CITIES OF HAMBURG, CUXHAVEN, AND BERGEDORF

In the city of Hamburg are two full-time health officers, whose respective jurisdictions are divided by "The Alster," a large lakelike formation of the Alster River situated approximately in the middle of the city. Each health officer is assigned one sanitary inspector. These health officers are responsible for the public health protection of their respective territories, the investigation of communicable diseases, and the enforcement of the sanitary laws (through the police department), such as the abatement of nuisances, the care of public water supplies, and the disposal of sewage. General housing conditions, affecting the public health, and the sanitation of schools and factories are supervised by these officials. All surface toilets must be of the protected-pit type.

To assist them in these duties the health officers may call upon 14 part-time physicians situated in 14 city districts. These physicians are appointed by the board of health. In the case of communicable diseases no placarding is done. The department of fumigation and disinfection of the health department is notified and sends officials to the home, and all bedding, clothing, and disinfectable articles are collected, taken to the fumigation chambers, treated, and returned. Formerly this service was free, but now a small charge is made. Free vaccinations against smallpox are given by the vaccine institute (elsewhere discussed) on certain days, but private vaccinations are, of course, also done by private practitioners. In the out-lying districts of Cuxhaven and Bergedorf the only physicians allowed to vaccinate are the full-time representatives of the board of health (the Amtsphysikus, or government health officer).

To become a "physikus" one must have graduated from a reputable medical college, have engaged in private practice for two years, must undergo a two years' postgraduate course in public health, and successfully pass an examination. At times the "physikus" is given certain privileges, such as the sole right to vaccinate, as is the case in Cuxhaven and Bergedorf.

The 14 city physicians are also subject to call to provide first-aid treatment and hospitalization in government hospitals in case of accidents, and to serve in time of epidemics. They are not under the direct supervision of the full-time health officers in Hamburg, but are directly responsible to the president of the board of health.

Cuxhaven and Bergedorf each enjoy the services of a full-time health officer. Their duties are to provide medical and hospital care for the groups of patients, previously discussed, in the government hospitals in their community, and to take the same general means to protect the public health as required of the Hamburg health officials. They are the chief administrators of the government hospitals in their respective cities. They are expected to do all vaccinations as prescribed by law.

#### RURAL HEALTH SERVICE

In the 11 districts outside the city limits of Hamburg are 11 part-time health officers under the supervision of the president of the board of health. They are appointed, however, by their respective district administrations known as "Landherrenschaft." These correspond roughly to county governments in the United States, although the officials are appointed by the Hamburg government. In general, the duties of these rural district health officers are the same as those of the 14 city officials in Hamburg. They investigate sudden deaths and suicides and abate nuisances. They also do most of the vaccinations.

#### COURT PHYSICIANS

Five whole-time physicians, attached to the board of health, are known as "court physicians." Their duties are to make examinations for commitment to the Government hospitals for mental and nervous diseases and give expert testimony in court in connection with such commitment. These officials also perform autopsies, when indicated, in every case of sudden death and in cases of suicides. In the event of a disagreement as to diagnosis by specialists in medico-legal proceedings, these court physicians may be called upon, individually, to give "over-expert testimony" (obergutachten). In such cases they act as reporters in recording the testimony and in furnishing such testimony to the court together with their own opinion.

The court physicians physically examine all physicians before their appointment by the board of health, and all school teachers.

There is a special law court for the medical profession, not connected with the board of health, but mentioned in this outline as a matter of interest.

This court consists of one chairman and six members elected by the physicians of Hamburg. When a physician is charged with unethical procedure, malpractice, or misconduct reflecting on the profession, he is brought before this trial court and judged. If guilty, he is punished. His license may be revoked.

## DENTAL SERVICE

Since April, 1911, when dental examination and treatment were first established for the schools in Hamburg, to the present time, remarkable progress has been made in this important public-health activity. This service, in charge of a chief dentist, is carried out both in the clinics established at the Government hospitals and in the branch clinics scattered throughout Hamburg and outlying districts. The hospitals at Barmbeck, St. Georg, and Eppendorf support clinics with two part-time dentists at each place. Branch clinics are found at Hamm-Horn, Barmbeck, and Eimsbuettel, with a part-time dentist and nurse each, while at Rothenburgsort there are two dentists and two nurses. In Hamburg there are 9 dentists, 9 nurses, 6 technicians, 1 inspector, and 2 clerks in the branch clinics.

The dentist in charge goes to the schools to make examinations, but the children come to the clinics for treatment. In 1928, 3,227 school children were given treatment.

Every child is expected to pay the clinic 1 mark for the entire treatment. Those who can not pay this sum are treated free.

Free treatment is also given the old and infirm (charity cases), sick insurance cases, the kindergarten children, and trade students who are unable to earn a living. These students, known as "Gewerbeschüler," are those qualifying as carpenters, locksmiths, shoemakers, blacksmiths, plumbers, etc. To qualify in these trades they must serve as apprentices and attend the government school. While so engaged, their dental treatment is furnished by the health department. Treatment of other physical ailments is covered by their sickness insurance.

During 1927, 64,351 beneficiaries were treated in the branch clinics and approximately 32,000 in hospitals, or 96,351 in all.

## VETERINARY SERVICE

The veterinary service of the health department is in charge of a full-time veterinarian and occupies offices in a building separate from the main bureau. It is charged with the inspection and control of the sale of milk and the inspection of all meat, fish, game, and slaughtered animals before these commodities are placed on the market and in the small retail stores.

## MILK

Regulations governing the sale of milk provide for two grades—"certified milk," or "kinder milch" and the so-called "trade milk" or "full milk." Half milk is milk sold as skimmed milk. To be classed as "certified," milk must not have a bacterial count of over 50,000 per c. c. and must be cool—no temperature limit is provided.

Cows furnishing certified milk are tested for tuberculosis every three months, while the milkers and milk dispensers of this grade of milk are examined every three months as to physical fitness.

Trade milk has no limit (fixed by law) as to bacterial count nor minimum temperature provided, but it must be kept cool. Cows furnishing trade milk are not examined routinely for tuberculosis, but the milk is examined every six months for tubercle bacilli and, if found, the cows are then tested for tuberculosis. No milk from cows with tuberculosis of the udder is allowed to be sold, but milk from "suspected cows" is allowed (before diagnosis is confirmed) to be sold, provided the dairyman or farmer "cooks" the milk (heats to boiling point). All positive reactors are killed and the owners are reimbursed one-half by the Hamburg government and one-half by the farmers' organization or "Landwirtschaftskammer." About one-half of 1 per cent of the cows examined show a positive tuberculosis reaction.

Persons engaged in handling trade milk for sale are not subject to routine physical examinations.

Regulations are in effect for all milk sold in Hamburg respecting the cleanliness of dairy farms, cleanliness of cans and milkers, and the care of milking utensils, pails, and bottles.

In the Hamburg Free State there are no central distributing centers for milk (or "creameries"), nor is pasteurization generally practiced.

The police force cooperates in collecting samples of milk from the various retail stores throughout Hamburg and submits them to the laboratories. Bacterial tests are made at the laboratory of the veterinary service, while the chemical and protein tests of the same samples are made at the Institute of Hygiene. Routine examinations of milk supplies throughout the city are also made by an automobile laboratory of the Institute of Hygiene. This machine can accommodate six officials as well as laboratory equipment for applying certain tests that are made on the street. About 1,000 such tests are made each month.

Once each month certified milk from each dairy is tested, and if not considered standard, according to the law, the milk from each individual cow is given a separate test.

Dairies are inspected routinely by veterinarians assigned for that purpose.

#### MEAT

Inspectors are also stationed at the one large slaughter house and carcasses are inspected and stamped before being placed on the market. The flesh of wild game, domestic fowls, and fish also must be inspected and passed before being sold. As in the case of the examination of milk, bacteriological investigation of suspected meat



for botulism, cysticeroid, trichina, etc., are carried on in the laboratory of the veterinary department, while chemical analysis of the same samples is accomplished at the Institute of Hygiene. Special attention is given to the kind and quality of meat sold as sausage; complement fixation tests are made if doubt exists as to the species of animals furnishing the meat.

(NOTE.—The above information was obtained at the central office of the veterinary establishment.)

#### INSTITUTE OF HYGIENE

All the bacteriological work in the diagnosis of disease is done by the Institute of Hygiene. Routine examinations of sewage effluent are done after screening and at various points along the course of the Elbe. Daily examination of the public water supply from tests in the laboratory are made. No laboratory work, except chemical analysis, is done for the veterinary establishment, as a laboratory is attached to that bureau. An additional function of the institute is the inspection of all drug stores and apothecary shops. A distinction is made in that drug stores may sell nonpoisonous drugs and be operated by a layman, while apothecary shops sell poisonous drugs and opiates and are in charge of a licensed physician. These inspections determine under what conditions drugs are dispensed and whether the laws governing such sale are being complied with.

#### VENEREAL DISEASE CLINICS

Venereal disease clinics are established at all the hospitals operated by the board of health. Here the public may go for examination and diagnosis. From the clinics, patients are referred to their physicians for treatment. In most cases the expense of such treatment is borne by the sickness insurance fund. Treatment may be given at the clinics at the expense of the sickness insurance fund. No free treatments are given.

#### INFANT AND MATERNITY CLINICS

Infant and maternity clinics are located in various centers for consultation of mothers with physicians of the health board and nurses of various agencies. As a rule, the nurses are from different welfare organizations. A midwife licensed by the board of health may render nursing care of the infant for the first week after birth, after which time one of the welfare nurses makes periodic visits.

#### VACCINE INSTITUTE

The vaccination institute is an important branch of the Hamburg Health Service. Here all antismallpox vaccines are made, tested, and dispensed. A law, common throughout Germany since 1874, provides for the compulsory vaccination of all children before 1 year

of age and subsequent revaccination within 12 years. All school children (public and private) must show satisfactory evidence of vaccination before entering school. On certain days of each week, free vaccination clinics are held at the institute to provide this service. No other biologicals except antismallpox vaccine are dispensed free by the health department. Physicians wishing to obtain vaccine from the institute are charged about 10 cents for each dose. The writer was advised by the official in charge of the institute that from 50 to 60 per cent of persons receiving the second vaccination, after 12 years, show the immune reaction.

Due to the compulsory vaccination law in Germany and the service rendered the public in its enforcement, *smallpox is unknown in that country*. In 1926, 7 imported cases were reported for all Germany; in 1927, 4 imported cases were reported; while in 1928 only 2 cases, both imported, were recorded for the entire nation. (Statistics from Vaccination Institute, Hamburg.)

Such a record as this is the natural result of universal vaccination and an example of what can be accomplished by the people of any country who consider the prevention of smallpox seriously.

#### THE HARBOR QUARANTINE SERVICE

The port of Hamburg, one of the largest ports on the European continent, is an integral part of the Hamburg Free State, and under its public-health supervision. The board of health controls quarantine, immigration, and all matters of a public-health nature involving the harbor. As the average yearly tonnage of incoming and outgoing ships each amounts to over 17,000,000 tons, with about 40,000 arriving and 80,000 departing passengers each year, the importance of this branch of the health service is apparent.

The chief official of the port health service is the port medical officer, operating directly under the president of the board of health. He has six assistant port medical officers and eight sanitary inspectors (formally, ship's officers). These inspectors visit, on arrival, all vessels not coming from infected ports and also vessels which are kept under observation during their stay in the harbor on account of having cleared from an infected port or having sickness on board. In general they assist the port medical officers in various ways.

The medical examination for quarantine purposes and the inspection of ships are carried out in accordance with the International Sanitary Code. The Reich Government decides which ports are to be regarded as infected. The pilots cooperate with the quarantine service by ascertaining the port of departure and ports visited during the voyage when they board at the mouth of the Elbe, and hoisting the quarantine flag when it appears that quarantine inspection is indicated.

There is no special quarantine station in Hamburg. Persons suffering from infectious diseases are transferred to the Eppendorf Hospital in Hamburg (Government control), while those exposed are kept under observation either on board or on shore. All bacteriological work in connection with this service is done at the Institute of Hygiene.

The quarantine laws of Hamburg require that all ships coming into the harbor must produce satisfactory evidence of fumigation every six months. (Sulphur and zyklon B are almost universally used.) United States certificates of fumigation are accepted. This work is carried out by the disinfection service of the health department. There is a disinfection station in the harbor which is equipped

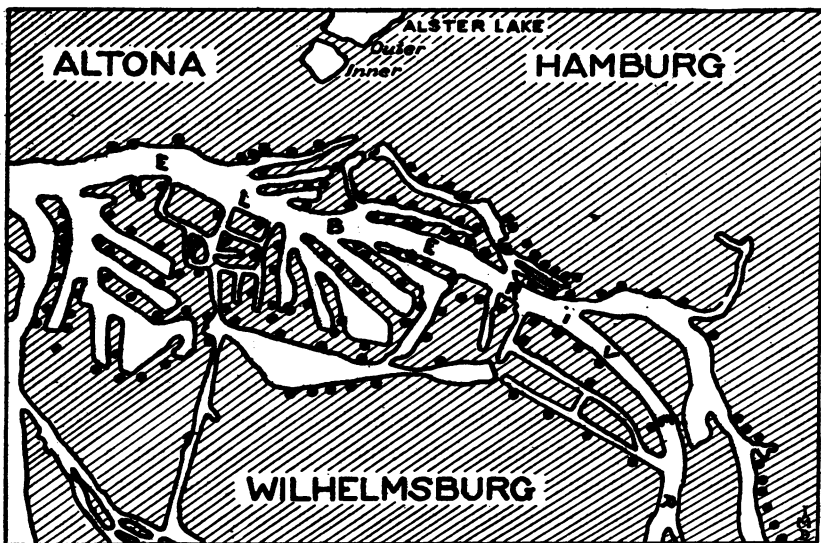


Diagram of Hamburg Harbor. Black dots indicate public pumps where filtered water may be obtained by ships free of charge. (Altona is Prussian territory.)

not only to fumigate ships but to delouse immigrants as well. Here persons may be cleaned and clothing disinfected.

Since the cholera epidemic of 1892 special precautions are taken to prevent the infection of the Elbe with the cholera vibrio. Discharge of water of ship's ballast tanks from cholera-suspected ports (when the vessel has not been long on the voyage) is forbidden without previous official disinfection. The contamination of river water is prevented by closing all flush toilets on board and substituting pail closets, which are disinfected regularly and changed as often as necessary. Examinations of stools of all suspected individuals is, of course, a routine.

All ships, seagoing, harbor, or river, may receive a safe water supply free of charge from taps conveniently located throughout the harbor. (See chart.)

Preventive measures against plague are concentrated mainly on ships coming from plague-infected ports. If plague is suspected on board, the vessel is fumigated with carbon-monoxide gas, generated and dispensed under pressure from a launch, and all persons on board are placed in quarantine. This is done without the discharge of cargo. Otherwise rat poison (phosphorus food) is liberally distributed throughout. All dead rats are placed in water-tight metal containers, filled with disinfecting solution, and sent to the Institute of Hygiene for examination.

Provision is made for the medical care of sick and disabled seamen, through accident or sudden illness, at the Harbor Hospital, operated by the board of health. Cost of this service is covered by the sickness insurance previously discussed. Foreign seamen are treated at the expense of the ship owners. The treatment for venereal diseases is given free to sailors of all nations at the Seaman's Hospital, which is close to the harbor.

Physicians practicing in Hamburg are required to report all infectious diseases to the central office of the health department, and in the case of sailors so reported, the port medical officer is informed. The same is true of the hospital officials, who also send twice monthly to the port medical officer a list of sailors received in the hospitals.

Close liaison is maintained between the port medical officer and the ship physician. The physician on every German ship must present himself, before sailing, and upon arrival, to the port medical officer, for conference concerning health conditions at the port to which he is going or the one whence he has come.

The care of arriving emigrants—their lodgement (at a nominal charge), medical inspection, and delousing (if necessary)—is provided for at the Ueberseeheim, or overseas home of the Hamburg-American Line. Doctors of the line make the preliminary examinations, but the port medical officer is kept informed as to conditions at the institution, and one of his assistants visits the Home almost daily. The assistant port medical officer, charged with immigration matters, undertakes the necessary examination immediately before embarkation.

#### WATER SUPPLY

Seventy-five per cent of the public water supply of Hamburg is obtained from deep wells, 25 per cent from the Elbe River.

The well water, pumped from over 100 artesian wells, comes from a depth of about 1,000 feet, whence it goes to large treatment reservoirs where the iron and manganese salts are removed by aeration and sand filters before it goes finally to the storage basins.

The Elbe water is carried first to reservoirs where aluminum sulphate is added as a clarifier, then through slow filters (22 in number), and

finally to clear-water reservoirs or storage basins, after chlorine has been added. Hamburg enjoys a good and safe water supply. A laboratory is maintained at the water plant, where daily bacteriological tests are made of the supply. As previously stated, daily control analyses are made at the Institute of Hygiene.

Cuxhaven and Bergedorf maintain individual supplies.

#### SEWAGE DISPOSAL

All sewage is passed through screens, and the solid matter is removed and sold as fertilizer, while the liquid portion passes into the Elbe. Self-purification takes place after about 12 miles flow downstream. Only pit toilets are found in unsewered areas.

#### REFUSE DISPOSAL

Refuse from tanneries, and chemical, soap, and other commercial factories are treated by slow oxidation in tanks.

The garbage disposal system is operated by private concerns under contract. Routine collections are made and the garbage is carried to incinerators in large automobile tanks. All refuse disposal is under the general supervision of the board of health as regards methods of procedure, etc.

#### PUBLIC HEALTH NURSING AND SOCIAL SERVICE

Public health nursing and social service of the Hamburg Health Department are highly organized yet somewhat difficult to define clearly as they are carried on by various welfare agencies, each agency having its own special work to do. This develops a specialized nursing service, with several governing heads; but the very close cooperation which exists makes possible a successful operation of this field nursing work.

There are three central boards known as the "Charity Union" (Gesundheits-Fürsorge)—

1. The board representing the board of health.
2. The board of public welfare for the poor (Wohlfahrts behörde).
3. The board for the young (Jugendamt).

These three boards are financed entirely by independent government appropriations.

The nurses of the board of health make most of the visits to homes in case of communicable diseases to give instructions in disease prevention. These visits may be made upon requests of the 14 district city physicians, whose duties have already been mentioned.

Nurses of the board of public welfare visit homes in connection with social service and domestic problems, such as infant feeding and arranging hospitalization when needed, and, in general, giving help-

ful advice in matters of a social service nature. They may visit homes upon request of the 14 district city physicians.

The board for the young furnish nurses who make calls having to do with the welfare of illegitimate children and foster children. (Foster children are those who are boarded in private homes. They are mostly illegitimate children whose mothers are working and can not give them personal attention, but who pay for their upkeep). They also act for the insurance board in visiting nursing mothers of illegitimate children. These mothers have paid premiums for sickness insurance benefits during the time they are actually nursing infants, and the nurses determine this status.

In addition to these agencies there exist four private welfare societies, working under the general supervision of the board of health. They are supported by government appropriations and private donations.

These societies are—

1. Society for infant welfare (Landeszentrale für Säuglings & Kleinkinder-Schutz).
2. The association for the care of cripples (Verein für Krüppel-fürsorge).
3. The organization for institutions for children (Ausschuss für Kinderanstalten).
4. The union for cultivating the health of the people (Landesverband für Volksgesundheitspflege).

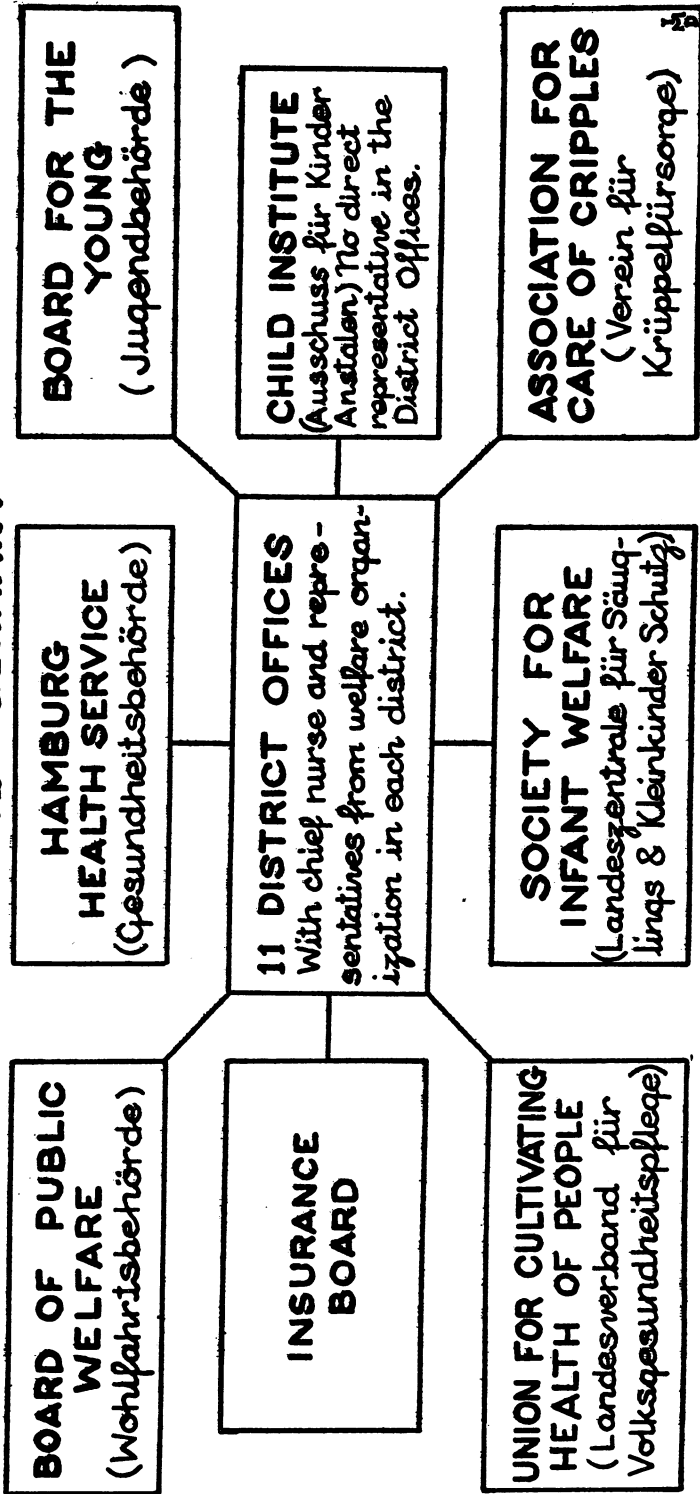
Their functions vary. The infant welfare society deals with nursing visits to legitimate children and the mothers of such children. During pregnancy they give necessary pre- and post-natal instructions for general infant welfare.

The nurses in this group operate for the board of public welfare in domestic social service matters, such as the sanitary care of children when needed, and the obtaining of proper infant food. They visit crippled children for the Association for the Care of Cripples, and operate in some degree for the sick insurance board in visiting nursing mothers of legitimate children who are entitled to the benefits of this insurance by the payment of premiums.

The Association for the Care of Cripples maintains and operates a large institution, or training center, "Kruppelheim," for persons with limited means who are lame, deformed, or anyway crippled through accident, disease, or heredity. At this institution cripples are taught trades, such as basket making, sewing, shoe making, etc. They are also given physiotherapy when needed.

Four offices, with doctors and nurses paid by the board of welfare, are established throughout the Free State where conferences can be held with this crippled class as to what is best to be done in learning

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trades and receiving treatment. Board of welfare nurses also visit the homes of cripples for follow-up work.

The Organization for Institutes for Children maintains several sanatoria for infants up to six years of age. This agency is responsible for the administration of these institutions and works in cooperation with the Society for Infant Welfare and the Board for the Young. These sanatoria might be called "Preventoria," as they are really recreation centers for delicate children. These centers are supported by reimbursements from parents, sick insurance, and the Board of Public Welfare. This institution is unique in operating about 93 places where children and infants can be taken care of in absence of mothers who are working. These places are in charge of nurses and practical workers. The daily average number of children cared for in these institutions is 4,500. This system gives mothers an opportunity to earn a living and at the same time be assured of the safeguarding of their children.

The Union for Cultivating the Health of the People employs nurses for antituberculosis work, such as sending patients to hospitals when indicated and giving advice as to home care and prevention. As mentioned before, nurses from the Welfare Board visit those people coming under the purview of the Association for the Care of Cripples.

A very important work of this union is the maintenance of 10 free tuberculosis diagnostic clinics. A few of these clinics are located in the Government hospitals. These clinics are operated by trained specialists who devote their entire time to the work, though permitted to act in consultation with the profession in private cases. These clinics are in charge of one physician who, in turn, operates under the supervision of the president of the board of health.

The clinics are for diagnosis only, patients being sent to their private physicians for treatment. Some are referred to sanatoria, when indicated.

Each clinic is equipped to make laboratory examinations, and at four of the clinics (in the hospitals) X-ray service is furnished.

During the fiscal year ended June 30, 1928, 7,539 people were given initial examinations and 40,854 people were re-examined. Also—

- 2,290 sputum examinations were made;
- 3,234 von Pirquet tests were given;
- 791 X-rays were taken; and
- 4,129 fluroscopic examinations were made.

The budget for maintaining these clinics averages about 315,000 marks annually. On this basis, 48,393 persons were examined at an average annual cost of about 7 marks per person (about \$1.75). This also includes reexaminations and the follow-up of these patients.



The people coming to the clinic are referred by the sick insurance board, the welfare board, the board of health, school examiners, other dispensaries, and by the medical profession.

About 15 per cent of all patients are sent by their physicians for diagnosis; and of the total number examined 70 per cent of the positive cases are in the group of the 15 per cent sent by the private practitioner. The cooperation between these clinics and the general practitioner is of the best and is of the utmost advantage to the general public.

There has been established in Hamburg 11 district offices from which centers the nurses and social service workers of all these welfare societies operate. There are from 6 to 15 workers in each district under the general supervision of a chief nurse (appointed by the board of health) who directs their activities.

In addition there are other offices where the district health officers and nurses meet the public for health conferences on infant welfare.

This intricate organization demands the closest cooperation for its successful operation. This apparently exists, although of course it tends to develop intensive, specialized public health nursing.

It is seen that from birth the health of the child is closely supervised. School examinations are made every six months by physicians from the board of health, who advise as to medical treatment needed; and records are kept. Delicate children are sent to sanatoria, with the cooperation of other agencies. If financially able, the parents pay a small amount of this cost, the balance being carried by the board of welfare and sick insurance board.

#### MORBIDITY AND MORTALITY REPORTS

All deaths are reported to the board of health, as a routine, as are cases of certain diseases as follows:

1. Immediate reports are made to the board of health of—

Leprosy, cholera, typhus fever, anthrax, yellow fever, plague, and smallpox. Reports are also made of suspected cases of these diseases.

2. Reports are made within 24 hours after diagnosis of—

Typhoid fever, diphtheria, epidemic cerebrospinal meningitis, poliomyelitis, whooping cough, trachoma, measles, mumps, food poisoning, pemphigus, relapsing fever, dysentery, scarlet fever, trichinosis, puerperal fever, and tuberculosis (all forms).

Any person engaged in food handling or food dispensing found to be suffering from venereal disease is reported immediately to the board of health. Routine reporting of venereal disease among others is not mandatory except in those patients who fail to return to their physician for treatment after being so advised.

### 3. Other infectious diseases among food handlers.

Reports are also required of the advisability of disinfecting dwellings following the vacating by tuberculous patients.

The death rate from all causes in Hamburg is low. The rate for 1928 was 11 per 1,000 population. This rate shows little variation in the past few years.

The infant mortality rate (deaths in infants one year and under per 1,000 living births) shows a reduction in the last five years. It averaged about 75 per 1,000 living births for the past two years.

The tuberculosis death rate has been steadily falling since 1842. For the past few years the average rate among males is 95 per 100,000 and for females 80 per 100,000.

Cancer deaths have been steadily increasing from 102 per 100,000 for females and 92 for males in 1900 to 150 per 100,000 for females and 130 for males in 1927.

Improved water supplies, proper sewage disposal, and modern sanitation have reduced the typhoid fever rate in Hamburg, as in other countries. For the past five years the typhoid fever death rate per 100,000 has varied from 13.5 to 6.7. The low point was reached in 1927.

Since 1901 the Free State has experienced nine small milk-borne epidemics of typhoid fever, the last one occurring in 1922.

The rate is generally higher in men than in women, except for the period 1916 to 1920, inclusive, during which period the higher rate was among women. This is attributed to the vaccination of males against typhoid fever during the war.

In 1928 there occurred in the Hamburg Free State 995 cases of diphtheria, 3,193 cases of scarlet fever, and 1,841 cases of measles.

### BIRTH RATE

The birth rate has fallen since 1925. In that year there were 15.5 births per 1,000 inhabitants, while in 1926 the rate was 14.2, and in 1927 it was 13.6.

### BUDGET

The annual appropriation for the board of health amounts to over 50,000,000 marks a year (\$12,000,000), with a personnel of over 8,000 doctors, nurses, field workers, clerks, laborers, etc.

These figures are exclusive of government appropriation for other welfare agencies, the amount donated by voluntary subscription, which is very small, and that spent by the sick insurance board. Also, the personnel of all these bodies is additional to the 8,000 of the board of public health.

## CONCLUSIONS

The health department of the Hamburg Free State is a highly organized body. Through the medium of the large hospital service which it operates, and through its close liaison with the sickness insurance and various welfare associations over which it exercises some control, together with its own internal administration, the physical welfare of individuals of all ages is closely supervised.

This supervision applies not only to the actual prevention of disease, but to the actual treatment of sickness as well, hospital and out-patient, through the joint activities of the health insurance board and the board of health. This relieves persons of limited means from the mental worry as to financing in times of illness. As health insurance is universal, charity cases in hospital wards are rarely seen.

Morbidity and mortality records would tend to show that the investment in public health in Hamburg is wisely made. The general sickness rate is low; smallpox is unknown; it can be said that the common communicable diseases are not common; and the general debilitating conditions are rare.

The health service at this port presents an interesting study, in view of its diversified activities, including a harbor quarantine service, supervisory control and cooperation with all other welfare agencies, some of which are supported entirely by separate local government appropriations, and the intimate connection with a health insurance program through the hospitals actually operated and controlled by this service.

## ACKNOWLEDGMENTS

I am indebted to Physicus Professor Doctor Sieveking, of the health department of Hamburg, for his assistance and helpful suggestions in the preparation of this paper and for his kindness in reading and approving the manuscript.

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**EXPERIMENTAL STUDIES OF NATURAL PURIFICATION IN POLLUTED WATERS****III. A NOTE ON THE RELATION BETWEEN FOOD CONCENTRATION IN LIQUID MEDIA AND BACTERIAL GROWTH**

By C. T. BUTTERFIELD, *Bacteriologist, Stream Pollution Investigations, United States Public Health Service*

The preceding paper discussed the development of a dilute medium, the concentration of the food elements of which were so limited that aerobic conditions would be maintained during storage in completely filled, closed vessels. This dilute medium has been found quite useful for the study of biological relationships in natural purification.

It is frequently desirable to observe biological activities and to determine the oxygen demand of media containing rather large amounts of organic material. A procedure suitable for such determinations, which could not be made by the excess oxygen dilution method, is now available. It seemed advisable, therefore, to investigate bacterial growth in the standard medium when the concentration of organic materials in it was in the range of undiluted strong sewage.

TABLE 1.—Rates and limits of growth of *Bact. aerogenes* at 20° C., in various concentrations of dextrose and peptone

Hours from start	Concentration of dextrose and of peptone in milligrams per liter								
	0.5	2.5	5	10	50	100	500	1,000	5,000
	Bact. aerogenes per c. c.								
0.....	38	38	38	38	38	38	38	38	38
18.....	1,130	4,810	11,800	29,300	37,500	67,000	85,000	75,000	87,000
21.....	2,200	16,200	42,000	79,000	147,000	228,000	375,000	390,000	430,000
24.....	9,200	40,000	80,000	330,000	615,000	980,000	1,340,000	1,420,000	3,300,000
42.....	880,000	4,200,000	8,600,000	12,600,000	43,000,000	84,000,000	3202,000,000	2575,000,000	1,750,000,000
45.....	1,410,000	3,810,000	7,600,000	11,900,000	52,000,000	69,000,000	212,000,000	430,000,000	915,000,000
48.....	1,560,000	3,980,000	8,250,000	10,000,000	53,500,000	80,000,000	212,000,000	515,000,000	1,000,000,000
66.....	1,760,000	5,600,000	9,450,000	11,700,000	45,500,000	85,000,000	315,000,000	530,000,000	2,995,000,000
96.....	3,200,000	7,200,000	8,700,000	16,200,000	64,000,000	99,000,000	630,000,000	800,000,000	1,720,000,000
144.....	4,100,000	6,650,000	8,950,000	12,900,000	52,000,000	81,500,000	500,000,000	600,000,000	1,800,000,000

NOTE.—pH at start and after 42, 66, 96, and 144 hours remained constant at 7.1, with following exceptions: <sup>1</sup> 6.0; <sup>2</sup> 6.6; <sup>3</sup> 6.8; <sup>4</sup> 7.0.

To obtain this information, the rate and extent of growth of *Bact. aerogenes* were determined in a series of media of varying concentrations of food materials but identical with respect to the amount of buffer salts, the inoculation and the conditions of incubation. The results obtained from such a typical series, in which varying concentrations of dextrose and peptone were used, are given in Table 1. The highest concentration used in this series represents the full strength standard dextrose-peptone broth.

A study of these results indicates that *Bact. aerogenes* growing in media containing from 0.5 to 100 milligrams each of dextrose and peptone per liter <sup>1</sup> produces no change in the observed pH values. In the higher concentrations, changes in hydrogen ion figures are observed, although they are not marked in media containing less than 5,000 milligrams each of dextrose and peptone per liter. This, in connection with the results previously obtained with the dilute medium, would indicate that biological activity in concentrations of the medium corresponding in strength to undiluted sewage would be the same as that observed in the dilute medium, provided phosphate

<sup>1</sup> The 100 milligram concentration, in terms of biological oxygen demand, corresponds approximately to an undiluted normal domestic sewage.

buffer salts were used and aerobic conditions were maintained by reaeration.

It is apparent from the results given in Table 1 that 0.5 milligram each of dextrose and peptone per liter is not sufficient for the optimum growth of *Bact. aerogenes*, as the lag period is quite extended. Also, it was not possible, with the method of reaeration used, to maintain aerobic conditions in the highest concentration of the medium employed, and it is possible that anaerobic conditions prevailed for short periods in the concentration containing 1,000 milligrams each of dextrose and peptone per liter.

*Relation of concentration of food to the limiting numbers of Bact. aerogenes developing in liquid media.*—The results presented in Table 1 also suggest a definite relationship between the limiting numbers of *Bact. aerogenes* developing and the concentration of the food supply. Thus, it is noted that in each concentration multiplication takes place for a certain period, usually 48 hours and is then checked, the number of bacteria thereafter remaining fairly constant. Also, it is noted that with an increase in concentration of medium the limiting numbers of bacteria are increased but not in direct proportion to the increase in food supply, as will be shown later. This study has been repeated and the bacterial maxima at the various concentrations in the two experiments are given in Table 2. The results for experiment 1 as given in Table 2 were secured by averaging the counts obtained at the ninety-sixth and the one hundred and forty-fourth hours as recorded in Table 1.

TABLE 2.—Limiting numbers of *Bact. aerogenes* developing per c. c. in media containing various amounts of dextrose and of peptone

Concentration of dextrose and of peptone in milligrams per liter	Limiting numbers of <i>Bact. aerogenes</i> per. c. c. of medium, in millions			
	Experiment 1	Experiment 2	Observed average	Calculated number
2.5.....	6.92	4.20	5.56	4.84
5.0.....	8.82	8.40	8.61	8.54
10.0.....	14.60	12.20	13.40	15.10
25.0.....	.....	31.30	31.30	31.80
50.0.....	58.00	51.00	54.50	58.10
100.0.....	90.20	86.00	88.10	88.90
250.0.....	.....	200.00	200.00	208.00
500.0.....	565.00	338.00	452.00	369.00
1,000.0.....	700.00	565.00	632.00	650.00

When these data are plotted on logarithmic paper, Figure 1, the points are observed to fall practically along a straight line, the equation representing which obviously is of the form,

$$\log y = \log a + n \log x$$

which may be expressed as,

$$y = ax^n$$

The line of best fit, as determined by the method of least squares, establishes the value of the constants to be,

$$a = 2.29$$

$$n = 0.818$$

so that the mathematical relationship which apparently exists between the maximum numbers of *Bact. aerogenes* developing at 20° C. and the concentration of the food supply is,

$$y = 2.29 x^{0.818}$$

when  $y$  = the bacteria in millions per c. c.

and  $x$  = the concentration of the food in milligrams per liter.

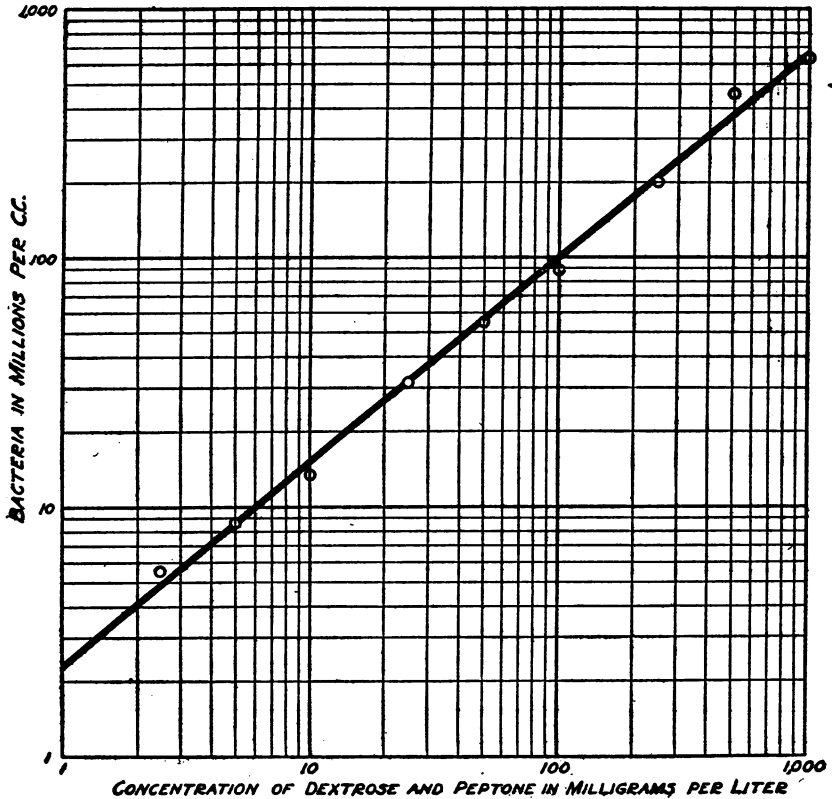


FIGURE 1.—Relation of the concentration of food in a medium to the limiting number of *Bact. aerogenes* which will develop

The calculated values obtained by the application of this equation are included in Table 2 for comparison with the observed results. This relationship seems to hold providing the concentration of the food is between the limits of 2.5 and 1,000 milligrams per liter, that is, between the limits of the minimum amount required for good growth and the maximum amount consistent with maintenance of aerobic conditions.

It must be borne in mind that these results were obtained with a pure culture of *Bact. aerogenes* growing in pure solutions of equal

amounts of dextrose and peptone and within the concentration limits stated above. No systematic observations have been made throughout this concentration range with other species of bacteria and other media to determine whether or not this relationship is general. However, studies have been made with organisms other than *Bact. aerogenes* in a limited number of concentrations of dextrose with peptone. It has been observed also that, in grossly mixed cultures, including bacteria-eating plankton, the increase in limiting numbers of bacteria produced by an increase in the food content is always less than that in the case of pure cultures.

*Relation of size of organism to the number that develop in a medium of a given concentration.*—In studying the characteristics of the dilute medium, inoculations with organisms other than *Bact. aerogenes* were employed at times. In the course of this work it was observed that the limiting numbers obtained with other varieties of bacteria usually differed from those obtained with *Bact. aerogenes*, as was to be expected. Thus the limiting numbers of organisms per c. c. were as follows: for *Bact. aerogenes* 7,600,000; for *Bact. proteus* 5,500,000; and for a small sewage coccus 19,300,000. *Bact. bütschlii*, a bacterium about ten times as large as *Bact. aerogenes*, failed to increase materially in numbers in this medium. The results from one such experiment, comparing growths of *aerogenes* and a small sewage coccus, are presented in Table 3 and Figure 2. In this experiment a quantity of the dilute medium, containing 5.0 milligrams each of dextrose and of peptone per liter, was divided into two duplicate portions, one of which was inoculated with *Bact. aerogenes*, the other with a small sewage coccus, and both were put up for study under identical conditions with due precautions to preserve their purity.

TABLE 3.—Rates and limits of growth of *Bact. aerogenes* and a small coccus at 20° C., in media containing 5.0 milligrams each of dextrose and of peptone per liter, with the accompanying oxygen demand results

Hours from start	Bact. aerogenes		Small sewage coccus	
	Organisms per c. c.	Oxygen depletion p. p. m.	Organisms per c. c.	Oxygen depletion p. p. m.
0.....	753,000	-----	1,190	-----
24.....	6,130,000	2.24	70,500	0.23
29.....	-----	-----	905,000	1.36
48.....	7,630,000	2.80	16,400,000	2.43
72.....	7,600,000	2.78	18,200,000	3.17
120.....	7,150,000	3.04	19,300,000	2.96
168.....	7,060,000	2.95	18,800,000	3.18

The maximum number of *Bact. aerogenes* developing was 7,600,000 per c. c. The *aerogenes* culture did not exhibit any tendency to clump or form chains. The maximum number of the small sewage

coccus observed was 19,300,000 per c. c. This organism was inclined to form small clumps or short chains, and the actual number of cells per c. c. may have been greater than the number observed. Thus it is reasonable to suppose that the medium produced at least three times as many cells of the small sewage coccus as it did of *Bact. aerogenes*.

This difference in the numbers of organisms produced per c. c. was to be expected; for it would be reasonable to assume that two different species of bacteria growing in a medium of constant compo-

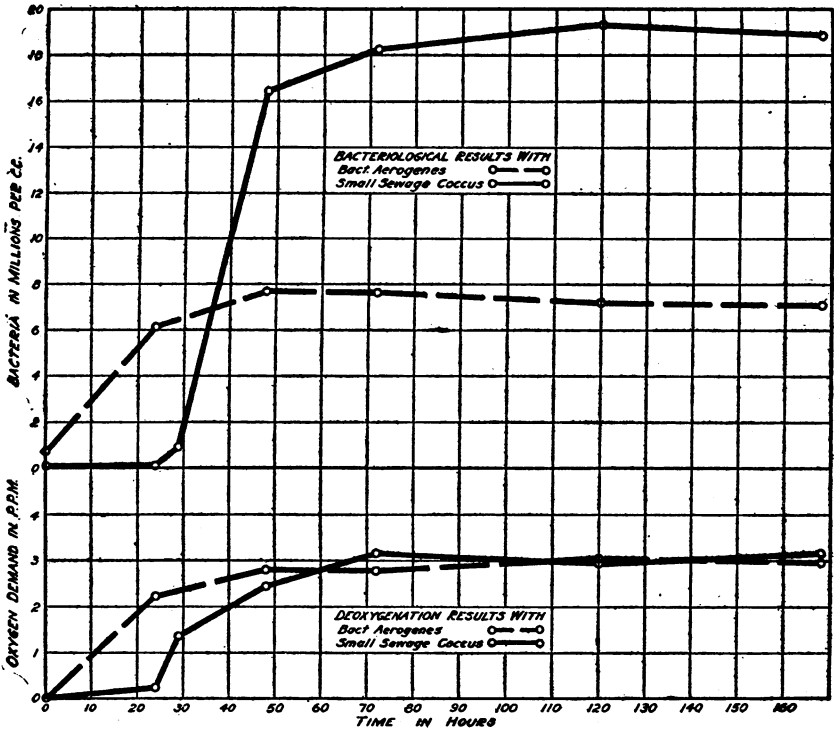


FIGURE 2.—Bacteriological and deoxygenation results in the dilute medium when inoculated with bacteria of different size, each in pure culture

sition would be able to utilize different components and amounts of the food material present. As the oxygen demand of a water under aerobic conditions is accepted as a measure of the utilization of the contained oxidizable substances, it might be assumed that, if the small sewage coccus used more of the food, it would create a proportionately greater oxygen demand. However, the small sewage coccus produced approximately the same depletion of dissolved oxygen as *Bact. aerogenes*, as shown in Table 3 and Figure 2. The cell of *Bact. aerogenes* occupies a space of about 1 cubic micron and the small sewage coccus is approximately one-fourth as large. These observations suggest that, in addition to other controlling



factors, the limiting number of bacteria developing in a medium may be governed by the size of the individual cell and that the extent of the depletion of dissolved oxygen may be proportional to the total volume of the cells produced rather than to the actual number of cells.

*Relation of size of organism to the minimum concentration of food required to produce good growth.*—It was also observed that the dilute medium, made with dextrose and peptone, 5.0 milligrams of each per liter, contained the minimum amount of food required to produce growth of *Bact. aerogenes* without extensive lag. The small sewage coccus would develop well in a medium containing one-half to one-tenth of this amount of dextrose and peptone. Tests, referred to above, made with *Bact. bütschlii*, an organism approximately ten times as large as *Bact. aerogenes*, showed that this organism would not grow well in the dilute medium, containing 5.0 milligrams each of dextrose and peptone per liter, but it did multiply satisfactorily, producing a limiting number of 6,980,000 cells per c. c., when the concentration was increased to 50.0 milligrams per liter.

In addition, one of the protozoa, *Colpidium*, (a bacteria eater), of cubical content averaging about 32,000 cubic microns, grew vigorously in the absence of bacteria in media containing 5,000 milligrams each of dextrose and peptone per liter, reaching a maximum of about 50,000 cells per c. c. It would also grow in a concentration of 500 milligrams per liter, but failed to develop in lower concentrations in pure culture. However, in the presence of *Bact. aerogenes*, this protozoon flourished in a concentration of 5.0 milligrams per liter. These observations suggest an orderly relationship between the size of the individual cell and the minimum concentration of available food which will support growth; that is, the larger the individual the greater the concentration of food required. The hypothesis is also suggested in the case of the protozoon *Colpidium*, growing in combination with bacteria, that the bacteria act as accumulators or concentrators of the too dilute food.

These results doubtless should have been expected; for certainly the bacteria, and probably the protozoa, that grow in solutions free from bacteria are dependent upon dissolved substances for their nourishment. A given unit of protoplasm should require a definite amount of nourishment to stimulate growth. As the ratio of the surface area of a cell to the volume of its protoplasm decreases with an increase of cell size, it would seem reasonable to assume that when cells of greater individual dimensions are being cultured it would be necessary to increase the concentration of the dissolved food in order to provide sufficient nourishment to stimulate growth.

Although the measurements made are subject to considerable error, owing to the inherent difficulties encountered in measuring such small

organisms and to the extreme variation in the size of the individuals observed in a given culture, the results and calculations presented in Table 4 do show that in these experiments there is close agreement between the amount of food present and the volumes of different organisms produced.

TABLE 4.—*Limiting numbers and limiting volumes of organisms produced per c. c.*

Concentration of dextrose and of peptone in the medium, in milligrams per liter	Organism	Average size in cubic microns	Number of cells per c. c.	Number of cubic microns of organism per c. c.
5.0	Bact. aerogenes.....	1.0	7,600,000	7,600,000
	Small sewage coccus.....	.25	19,300,000	4,820,000
50.0	Bact. aerogenes.....	1.0	54,500,000	54,500,000
	Bact. bütschlii.....	10.0	6,980,000	69,800,000
5,000.0	Bact. aerogenes.....	1.0	1,800,000,000	1,800,000,000
	Colpidium.....	32,000.00	50,000	1,600,000,000

Since this particular line of investigation has not seemed essential to the main purpose of our work, it has not been followed further, and quantitative determinations of the amounts of organic material utilized by the organisms have not been made. The few results obtained are presented merely as suggesting possible relationships between the size of the organisms, the concentration of the medium, and the limiting populations. Additional work will be required to establish the validity of these suggested relationships.

## DEATH RATES IN A GROUP OF INSURED PERSONS

### Rates for Principal Causes of Death for September, 1929

The accompanying table, taken from the Statistical Bulletin for October, 1929, issued by the Metropolitan Life Insurance Co., presents the mortality record of the industrial insurance department of the company for September and the cumulative death rates for the period January–September, inclusive, for the years 1929 and 1928, for the principal causes of death. The rates are based on a strength of approximately 19,000,000 insured persons in the United States and Canada:

The Bulletin states:

September shares with August the distinction of having registered the lowest death rate in 1929, so far. Since February, when the epidemic of influenza began to wane, the mortality of the policyholders has been improving steadily with each successive month, and in August it dropped to the lowest mortality rate level for 1929. This minimum rate has now been repeated for September. The monthly death rates this year have ranged between 13.4, the January figure, and 7.5, the rate for both August and September.

But all sections of North America did not benefit equally, as regards health conditions, in September. Policyholders in Canada profited most from better health; their death rate as compared with September, 1928, dropped 9.8 per cent, namely, from 9.4 to 8.5. In the eastern part of the United States only a small decline in the death rate was registered for this same period, namely, from 7.7 to 7.6. Policyholders located west of the Rocky Mountains, on the contrary, registered a higher death rate this September than in September of last year, the rate having advanced from 5.8 to 6.2.

The mortality experience of the company, as a whole, shows that the majority of the important causes of death registered lower rates this September than they did in the corresponding month of 1928. The few conditions that show substantial rate increases, as compared with September a year ago, are cancer, cerebral hemorrhage, and automobile accidents. The extremely unfavorable situation with respect to automobile accidents is grasped in its full significance when one considers that no less than one-third of all types of fatal accidents in September were caused directly by automobiles. This month's rate is 10 per cent in excess of that for last September.

It is worthy of note that the death rate for automobile accidents for September is larger than the combined rate for typhoid fever, measles, scarlet fever, whooping cough, diphtheria, and influenza.

*Death rates (annual basis) per 100,000 for principal causes of death, September, 1929*

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Rate per 100,000 lives exposed*				
	September, 1929	August, 1929	September, 1928	Cumulative January to September	
				1929	1928
Total, all causes.....	753.1	752.8	772.6	944.7	931.5
Typhoid fever.....	3.1	3.2	4.4	2.2	2.6
Measles.....	.5	1.6	.7	3.6	6.7
Scarlet fever.....	1.0	1.1	1.0	2.7	2.9
Whooping cough.....	4.9	6.3	4.8	6.2	6.0
Diphtheria.....	4.9	4.0	5.7	8.1	9.6
Influenza.....	4.3	3.8	6.7	49.3	24.3
Tuberculosis (all forms).....	69.2	77.1	78.8	88.1	93.6
Tuberculosis of respiratory system.....	60.6	68.7	68.5	77.9	81.8
Cancer.....	73.4	71.2	72.9	76.0	75.2
Diabetes mellitus.....	13.5	14.1	14.1	18.5	17.8
Cerebral hemorrhage.....	45.0	45.5	43.0	56.9	56.9
Organic diseases of heart.....	113.1	114.7	115.7	147.5	143.5
Pneumonia (all forms).....	32.9	33.7	36.8	93.8	94.9
Other respiratory diseases.....	8.7	9.0	12.1	12.3	12.6
Diarrhea and enteritis.....	45.4	30.9	47.5	20.3	23.8
Bright's disease (chronic nephritis).....	55.4	58.7	61.7	69.0	71.4
Puerperal state.....	10.8	11.4	12.7	13.7	14.4
Suicides.....	8.4	6.9	8.2	8.5	8.4
Homicides.....	5.6	6.4	7.1	6.3	6.5
Other external causes (excluding suicides and homicides).....	66.1	70.2	62.4	63.3	62.5
Traumatism by automobiles.....	22.0	22.1	20.0	18.8	17.1
All other causes.....	186.8	183.0	176.3	188.6	198.0

\*All figures include infants insured under one year of age.

**COURT DECISION RELATING TO PUBLIC HEALTH**

*Damages awarded for death from water-borne typhoid fever.*—(Indiana Appellate Court; Pennsylvania R. Co. et al. v. Lincoln Trust Co., 167 N. E. 721; decided September 16, 1929.) An action was brought by the administrator of a decedent's estate against the Pennsylvania Railroad Co. and the city of Fort Wayne to recover damages for the death of the decedent from typhoid fever contracted by drinking contaminated water.

The city of Fort Wayne owned and maintained a water system and furnished water to the inhabitants of the city. The railroad company also owned a water system, taking its water from St. Marys River. In 1903 a connection was made between the city's potable water supply and the railroad's supply of river water, a swinging valve and two gate valves being installed to prevent the pollution of the city water by the river water. In the summer of 1923 there were many cases of typhoid fever in a section of the city served by a sewer which emptied into the river upstream from the railroad pumping station. In November, 1923, there were from 135 to 140 cases of typhoid fever in the immediate vicinity of the by-pass and connection between the river water and the city supply, and the plaintiff's decedent was one of the persons afflicted. The city water was used in every infected home in the vicinity of the connection. The plaintiff contended that the death of its decedent was due to the drinking of city water which had become polluted by river water from the railroad main, and alleged that the city and the railroad company were negligent in the maintenance of the connection. A jury trial resulted in a verdict and judgment against both defendants, and on appeal to the appellate court the judgment was affirmed.

In its opinion the appellate court stated that "The gate valves on each side of the swinging valve were open, and the jury was justified in finding that the swinging valve would not seat, so as to prevent water from the river flowing into the city water main."

Further in its opinion, the court also made the following statement:

It is commonly known that water from a river flowing through cities, towns, and thickly populated country is viewed with suspicion. The circumstances in this case were such that the reasonable probability of the river water being infected should have at all times been apparent to watchful minds, charged with the protection of public health. Both appellants knew, or should have known, that it was unsafe to allow the polluted water from the river to flow into the water mains of the city. The situation was such that the contaminated water in the railroad water main might be likened to a firebrand, and only needed a slight flame to touch it off. A leak in the by-pass was a sufficient flame to start a conflagration. Appellants should have been awake to the situation presented with the gate valve on each side of the by-pass open. They knew that, with these valves open, the only thing which would prevent the river water from being forced into the city main was the swinging check valve, which had never been inspected by either of them after its installation in 1903. As it appears to us,

the jury was justified in finding that appellants were, under the facts, negligent in allowing the gate valves to be and remain open, and in not inspecting the check valve, to see that it was seating and serving the purpose for which it was intended.

## DEATHS DURING WEEK ENDED NOVEMBER 9, 1929

Summary of information received by telegraph from industrial insurance companies for the week ended November 9, 1929, and corresponding week of 1928. (From the Weekly Health Index, November 14, 1929, issued by the Bureau of the Census, Department of Commerce)

	Week ended Nov. 9, 1929	Corresponding week, 1928
Policies in force.....	75, 039, 431	72, 180, 777
Number of death claims.....	12, 086	11, 532
Death claims per 1,000 policies in force, annual rate.....	8. 4	8. 4

Deaths from all causes in certain large cities of the United States during the week ended November 9, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, November 14, 1929, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Nov. 9, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Nov. 9, 1929 <sup>2</sup>
	Total deaths	Death rate <sup>1</sup>		Week ended Nov. 9, 1929	Corresponding week, 1928	
Total (65 cities).....	6, 767	11. 9	12. 1	582	614	51
Akron.....	31			7	12	72
Albany <sup>4</sup> .....	38	16. 5	15. 2	3	3	59
Atlanta.....	77	15. 8	15. 8	6	7	62
White.....	46			6	5	
Colored.....	31	( <sup>5</sup> )	( <sup>5</sup> )	0	2	
Baltimore <sup>4</sup> .....	188	11. 8	13. 5	19	20	61
White.....	140			11	10	44
Colored.....	48	( <sup>5</sup> )	( <sup>5</sup> )	8	10	127
Birmingham.....	60	18. 8	15. 3	6	8	54
White.....	37			0	2	0
Colored.....	43	( <sup>5</sup> )	( <sup>5</sup> )	6	6	137
Boston.....	202	13. 2	14. 1	30	21	33
Bridgeport.....	23			3	4	52
Buffalo.....	136	12. 8	15. 1	9	14	39
Cambridge.....	32	13. 3	8. 7	8	1	144
Camden.....	32	12. 4	7. 0	2	5	35
Canton.....	19	8. 5	8. 5	0	4	0
Chicago <sup>4</sup> .....	676	11. 2	10. 9	51	49	45
Cincinnati.....	135			14	12	82
Cleveland.....	207	10. 7	10. 1	19	17	56
Columbus.....	67	11. 7	15. 2	6	15	56
Dallas.....	51	12. 2	10. 8	10	8	
White.....	39			6	7	
Colored.....	12	( <sup>5</sup> )	( <sup>5</sup> )	4	1	
Dayton.....	34	9. 6	10. 8	0	4	0
Denver.....	70	12. 4	11. 7	11	7	106
Des Moines.....	26	6. 9	10. 3	3	0	54
Detroit.....	283	10. 7	11. 0	35	32	56
Duluth.....	25	11. 2	6. 7	1	2	24
El Paso.....	45	20. 0	16. 9	7	5	
Erie.....	14			1	1	20
Fall River <sup>4</sup> .....	26	10. 1	8. 2	2	1	38
Flint.....	25	8. 8	6. 7	2	7	24
Fort Worth.....	37	11. 3	9. 2	4	4	
White.....	33			4	3	
Colored.....	4	( <sup>5</sup> )	( <sup>5</sup> )	0	1	
Grand Rapids.....	34	10. 8	12. 4	3	5	45
Houston.....	69			10	5	
White.....	48			6	3	
Colored.....	21	( <sup>5</sup> )	( <sup>5</sup> )	4	2	
Indianapolis.....	93	12. 7	10. 5	5	2	40
White.....	79			4	1	37
Colored.....	14	( <sup>5</sup> )	( <sup>5</sup> )	1	1	60
Jersey City.....	76	12. 2	11. 6	7	7	54
Kansas City, Kans.....	25	11. 0	12. 4	4	1	88
White.....	18			4	1	101
Colored.....	7	( <sup>5</sup> )	( <sup>5</sup> )	0	0	0

(Footnotes at end of table)

*Deaths from all causes in certain large cities of the United States during the week ended November 9, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928—Continued*

City	Week ended Nov. 9, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Nov. 9, 1929 <sup>1</sup>
	Total deaths	Death rate <sup>1</sup>		Week ended Nov. 9, 1929	Corresponding week, 1928	
Kansas City, Mo.....	94	12.6	11.9	5	7	42
Knoxville.....	25	12.4	12.9	5	4	109
White.....	22			5	3	122
Colored.....	3	( <sup>2</sup> )	( <sup>2</sup> )	0	1	0
Los Angeles.....	271			23	27	67
Louisville.....	75	11.9	14.3	4	11	32
White.....	53			2	9	19
Colored.....	22	( <sup>2</sup> )	( <sup>2</sup> )	2	2	126
Lowell.....	21			3	2	68
Lynn.....	26	12.9	18.8	1	2	27
Memphis.....	54	14.8	19.2	4	5	47
White.....	32			0	1	0
Colored.....	22	( <sup>2</sup> )	( <sup>2</sup> )	4	4	125
Milwaukee.....	112	10.8	11.7	16	17	70
Minneapolis.....	93	10.7	11.9	3	11	19
Nashville.....	55	20.6	17.2	8	9	129
White.....	41			8	5	174
Colored.....	14	( <sup>2</sup> )	( <sup>2</sup> )	0	4	0
New Bedford.....	23			0	0	0
New Haven.....	47	13.1	15.3	3	6	46
New Orleans.....	149	18.1	17.8	11	12	55
White.....	76			5	6	35
Colored.....	73	( <sup>2</sup> )	( <sup>2</sup> )	6	6	101
New York.....	1,308	11.4	11.9	109	118	45
Bronx Borough.....	173	9.5	9.8	24	12	71
Brooklyn Borough.....	456	10.3	10.8	34	47	34
Manhattan Borough.....	494	14.7	16.2	34	46	42
Queens Borough.....	143	8.8	7.8	14	11	57
Richmond Borough.....	42	14.6	14.6	3	2	54
Newark, N. J.....	87	9.6	9.2	11	5	58
Oakland.....	57	10.9	14.3	2	2	22
Oklahoma City.....	33			4	1	80
Omaha.....	44	10.3	12.7	1	3	12
Paterson.....	36	13.0	11.9	1	1	18
Philadelphia.....	491	12.4	12.0	37	37	52
Pittsburgh.....	204	15.8	13.7	23	19	79
Portland, Oreg.....	88			4	2	46
Providence.....	61	11.1	10.0	7	5	62
Richmond.....	56	15.1	8.6	6	3	84
White.....	38			3	2	64
Colored.....	18	( <sup>2</sup> )	( <sup>2</sup> )	3	1	123
Rochester.....	62	9.9	10.4	4	10	34
St. Louis.....	181	11.2	12.2	10	8	34
St. Paul.....	57			2	3	21
Salt Lake City <sup>4</sup> .....	36	13.6	9.1	2	4	31
San Antonio.....	74	17.7	13.7	10	9	—
San Diego.....	44			4	1	77
San Francisco.....	123	11.0	14.7	3	3	19
Schenectady.....	12	6.7	15.1	2	2	64
Seattle.....	77	10.5	8.9	1	1	11
Somerville.....	20	10.2	8.1	1	4	36
Spokane.....	27	12.9	13.9	1	0	26
Springfield, Mass.....	30	10.5	10.5	3	5	50
Syracuse.....	32	8.4	14.7	3	4	36
Tacoma.....	24	11.4	10.4	0	4	0
Toledo.....	61	10.2	11.9	7	6	65
Trenton.....	40	15.0	13.9	2	5	36
Utica.....	30	15.1	15.1	0	1	0
Washington, D. C.....	135	12.8	13.6	11	7	64
White.....	93			7	3	59
Colored.....	42	( <sup>2</sup> )	( <sup>2</sup> )	4	4	76
Waterbury.....	16			2	3	51
Wilmington, Del.....	27	11.0	9.8	1	3	26
Worcester.....	57	15.1	11.9	5	7	63
Yonkers.....	18	7.8	10.8	3	3	70
Youngstown.....	29	8.7	10.2	3	2	43

<sup>1</sup> Annual rate per 1,000 population.

<sup>2</sup> Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

<sup>3</sup> Data for 73 cities.

<sup>4</sup> Deaths for week ended Friday.

<sup>5</sup> In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 28; Richmond, 32; and Washington, D. C., 25.

# 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 WEEKLY STATE REPORTS

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

Reports for Weeks Ended November 9, 1929, and November 10, 1928

*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 9, 1929, and November 10, 1928*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928
<b>New England States:</b>								
Maine.....	9	4	6	4	43	75	0	0
New Hampshire.....	1	1			2	12	0	0
Vermont.....	2				1	1	0	0
Massachusetts.....	123	67	5	6	105	232	2	2
Rhode Island.....	15	12	4			17	0	0
Connecticut.....	19	27	1	1	3	25	3	0
<b>Middle Atlantic States:</b>								
New York.....	151	144	110	122	181	301	10	18
New Jersey.....	143	129	8	8	16	65	5	0
Pennsylvania.....	175	169			219	320	5	3
<b>East North Central States:</b>								
Ohio.....	41	73	8	16	159		3	1
Indiana.....	53	102		23	20	51	0	0
Illinois.....	220	244	12	9	138	176	6	6
Michigan.....	80	81		3	157	21	11	7
Wisconsin.....	27	31	25	33	194	69	3	2
<b>West North Central States:</b>								
Minnesota.....	34	25	1		69	14	0	3
Iowa.....	6	14			37		1	0
Missouri.....	76	82		6	31	42	5	1
North Dakota.....	5	21			9	11	0	1
South Dakota.....	11	4		3	5	2	0	0
Nebraska.....	11	41	8	14	21	4	0	1
Kansas.....	41	39	5	1	40	3	2	0
<b>South Atlantic States:</b>								
Delaware.....	3	2				5	0	0
Maryland <sup>1</sup> .....	28	34	6	10	7	37	1	0
District of Columbia.....	11	67			1	4	2	0
West Virginia.....	45	35	8	5	14	34	1	0
North Carolina.....	228	239	5		2	63	2	1
South Carolina.....	71	78	591	981			0	0
Georgia.....	24	43	49	153	4	12	0	0
Florida.....	14	14	1			2	0	1

<sup>1</sup> New York City only.

<sup>2</sup> Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 9, 1929, and November 10, 1928—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928
<b>East South Central States:</b>								
Kentucky.....	39	24					2	1
Tennessee.....	37	32	56	25	34		1	0
Alabama.....	60	123	50	91	13	22	0	0
Mississippi.....	68	44					0	1
<b>West South Central States:</b>								
Arkansas.....	26	36	23	29	1	2	5	0
Louisiana.....	41	27	14	16		17	0	0
Oklahoma <sup>1</sup> .....	82	126	46	57	26	3	1	1
Texas.....	85	70	43	26	107	5	0	0
<b>Mountain States:</b>								
Montana.....		6			146	1	1	0
Idaho.....					12	3	0	0
Wyoming.....		3					0	0
Colorado.....	7	17		2	3	2	1	4
New Mexico.....	8	3			1	2	0	0
Arizona.....	25	5	16		1		8	0
Utah <sup>1</sup> .....	2		4	3	1	2	4	2
<b>Pacific States:</b>								
Washington.....	16	18	3	4	44	21	2	2
Oregon.....	21	24	15	50	9	32	1	1
California.....	77	106	56	2,596	65	16	2	1

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928
<b>New England States:</b>								
Maine.....	0	2	32	24	0	14	9	1
New Hampshire.....	0	0	14	18	0	0	3	0
Vermont.....	0	3	22	6	2	0	0	0
Massachusetts.....	2	0	235	180	0	0	13	8
Rhode Island.....	0	2	16	14	0	0	0	0
Connecticut.....	1	1	57	24	0	0	3	2
<b>Middle Atlantic States:</b>								
New York.....	10	15	199	232	18	0	23	62
New Jersey.....	2	0	124	85	0	1	9	7
Pennsylvania.....	3	11	183	147	1	0	44	34
<b>East North Central States:</b>								
Ohio.....	2	7	131	185	84	5	21	16
Indiana.....	2	6	126	125	91	12	7	16
Illinois.....	2	4	456	301	88	12	26	15
Michigan.....	1	2	227	159	60	5	10	5
Wisconsin.....	1	1	77	120	28	10	11	1
<b>West North Central States:</b>								
Minnesota.....	1	4	95	92	5	3	4	4
Iowa.....	4	1	32	90	48	7	11	1
Missouri.....	0	1	93	108	22	11	6	5
North Dakota.....	0	3	20	44	21	4	2	15
South Dakota.....	0	4	12	18	21	4	0	2
Nebraska.....	0	1	19	44	12	18	0	0
Kansas.....	0	1	116	125	7	16	8	6
<b>South Atlantic States:</b>								
Delaware.....	0	1	4	7	0	0	2	5
Maryland <sup>1</sup> .....	2	2	73	56	0	0	18	13
District of Columbia.....	0	0	12	13	0	0	1	1
West Virginia.....	0	4	78	65	5	5	23	8
North Carolina.....	1	1	139	157	1	4	11	12
South Carolina.....	1	1	28	17	0	0	26	26
Georgia.....	1	0	34	52	0	0	5	14
Florida.....	0	0	6	4	0	0	1	2

<sup>1</sup> Week ended Friday.

<sup>2</sup> Figures for 1929 are exclusive of Oklahoma City and Tulsa.



*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 9, 1929, and November 10, 1928—Continued*

Division and State	Pollomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928	Week ended Nov. 9, 1929	Week ended Nov. 10, 1928
<b>East South Central States:</b>								
Kentucky.....	1	0	85	67	7	8	17	26
Tennessee.....	0	0	53	59	0	0	14	29
Alabama.....	1	4	66	56	1	4	9	14
Mississippi.....	0	0	38	27	0	0	20	15
<b>West South Central States:</b>								
Arkansas.....	0	0	31	24	1	2	8	22
Louisiana.....	0	1	24	18	0	0	13	16
Oklahoma <sup>1</sup> .....	1	1	55	34	14	13	22	49
Texas.....	0	0	53	39	8	4	8	13
<b>Mountain States:</b>								
Montana.....	0	1	49	10	10	5	7	1
Idaho.....	0	0	8	8	7	8	0	0
Wyoming.....	0	0	2	32	3	6	1	1
Colorado.....	0	5	26	19	43	2	6	7
New Mexico.....	0	0	10	20	1	0	4	7
Arizona.....	0	2	11	3	1	2	9	4
Utah <sup>1</sup> .....	0	0	12	9	0	2	0	1
<b>Pacific States:</b>								
Washington.....	2	10	43	35	35	26	9	0
Oregon.....	2	3	40	34	10	32	3	3
California.....	3	2	179	198	18	30	12	6

<sup>1</sup> Week ended Friday.

<sup>1</sup> Figures for 1929 are exclusive of Oklahoma City and Tulsa.

### SUMMARY OF MONTHLY REPORTS FROM 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	Me-ningo-coccus meningitis	Diph-theria	Influ-enza	Ma-laria	Mea-sles	Pellag-ra	Polio-my-e-litis	Scarlet fever	Small pox	Ty-phoid fever
<i>September, 1929</i>										
Hawaii Territory.....	7	33	17		2		2	3	0	8
Kansas.....	9	90	5	5	100		6	196	24	42
<i>October, 1929</i>										
Arizona.....	12	69	13	2	6	2	2	30	7	19
Arkansas.....	1	110	137	553	5	40	0	114	4	114
District of Columbia	2	52	4		8		2	36	0	6
Georgia.....	4	143	204	995	10	46	6	189	0	82
Indiana.....	1	133	19	1	36		1	240	86	32
Maine.....	1	10	3		77		2	125	0	13
Nebraska.....	3	130	6	4	92		1	89	32	6
New Hampshire.....		8	13				0	68	0	3
Porto Rico.....		37	34	2, 113	185	4	2	0	0	46
Tennessee.....	5	280	115	297	34	8	16	288	11	136
Vermont.....		10			3		5	20	43	

*September, 1929*

	Cases
<b>Chicken pox:</b>	
Hawaii Territory.....	6
Kansas.....	45
<b>Conjunctivitis, follicular:</b>	
Hawaii Territory.....	49
<b>Dysentery:</b>	
Hawaii Territory (amebic).....	1
Kansas (amebic).....	1

German measles:	Cases
Kansas.....	4
<b>Impetigo contagiosa:</b>	
Hawaii Territory.....	6
Kansas.....	18
<b>Leprosy:</b>	
Hawaii Territory.....	3
<b>Lethargic encephalitis:</b>	
Hawaii Territory.....	1
Kansas.....	1

	Cases
<b>Mumps:</b>	
Hawaii Territory.....	1
Kansas.....	75
<b>Paratyphoid fever:</b>	
Kansas.....	7
<b>Ptomaine poisoning:</b>	
Kansas.....	2
<b>Rabies in man:</b>	
Kansas.....	1
<b>Scabies:</b>	
Kansas.....	7
<b>Septic sore throat:</b>	
Kansas.....	5
<b>Tetanus:</b>	
Hawaii Territory.....	1
<b>Trachoma:</b>	
Hawaii Territory.....	7
<b>Undulant fever:</b>	
Kansas.....	10
<b>Vincent's angina:</b>	
Kansas.....	7
<b>Whooping cough:</b>	
Hawaii Territory.....	41
Kansas.....	95
<i>October, 1929</i>	
<b>Anthrax:</b>	
Porto Rico.....	1
<b>Chicken pox:</b>	
Arizona.....	15
Arkansas.....	28
District of Columbia.....	25
Georgia.....	12
Indiana.....	124
Maine.....	133
Nebraska.....	118
Tennessee.....	24
Vermont.....	140
<b>Conjunctivitis:</b>	
Georgia.....	2
<b>Dengue:</b>	
Georgia.....	3
<b>Dysentery:</b>	
Arizona.....	5
Georgia.....	33
Porto Rico.....	93
Tennessee.....	16
<b>Filariasis:</b>	
Porto Rico.....	6
<b>German measles:</b>	
Maine.....	7
<b>Hookworm disease:</b>	
Arkansas.....	50
Georgia.....	36
<b>Lethargic encephalitis:</b>	
District of Columbia.....	1
Maine.....	2
Tennessee.....	1
<b>Mumps:</b>	
Arizona.....	98
Arkansas.....	33

	Cases
<b>Mumps—Continued.</b>	
Georgia.....	19
Indiana.....	15
Maine.....	66
Nebraska.....	38
Porto Rico.....	1
Tennessee.....	6
Vermont.....	5
<b>Ophthalmia neonatorum:</b>	
Arkansas.....	3
Porto Rico.....	5
Tennessee.....	3
<b>Paratyphoid fever:</b>	
Arkansas.....	2
Georgia.....	5
Tennessee.....	1
<b>Puerperal fever:</b>	
Porto Rico.....	20
<b>Rabies in man:</b>	
Georgia.....	1
<b>Septic sore throat:</b>	
Georgia.....	34
Maine.....	2
Nebraska.....	10
Tennessee.....	5
<b>Tetanus:</b>	
Porto Rico.....	12
Tennessee.....	1
<b>Tetanus (infantile):</b>	
Porto Rico.....	40
<b>Trachoma:</b>	
Arizona.....	31
Arkansas.....	6
Indiana.....	2
Porto Rico.....	1
Tennessee.....	17
<b>Tularaemia:</b>	
Tennessee.....	1
<b>Typhus fever:</b>	
Arizona.....	1
Georgia.....	8
<b>Undulant fever:</b>	
Georgia.....	6
Nebraska.....	1
<b>Vincent's angina:</b>	
Maine.....	8
Tennessee.....	3
<b>Whooping cough:</b>	
Arizona.....	59
Arkansas.....	31
District of Columbia.....	5
Georgia.....	20
Indiana.....	55
Maine.....	62
Nebraska.....	95
Porto Rico.....	59
Tennessee.....	68
Vermont.....	114
<b>Yaws:</b>	
Porto Rico.....	1

**PATIENTS IN INSTITUTIONS FOR THE CARE OF EPILEPTICS, JANUARY  
TO MARCH, 1929**

Reports for the first quarter of the year 1929 have been received from 10 institutions for the care and treatment of epileptics, located in 10 States. The total number of patients in these institutions on March 31, 1929, including those on parole or otherwise absent but still on books was 6,862.

The first admissions were as follows:

Month	Male	Female	Total
January.....	40	33	73
February.....	45	39	84
March.....	43	39	82
Total.....	128	111	239

Of the new admissions during the three months, 53.6 per cent were males and 46.4 per cent were females, giving a ratio of 115 males per 100 females.

During the three months 80 patients were discharged, 51 males and 29 females. Seventy-seven male and 62 female patients died.

The annual death rates for the quarter, based on the estimated number of patients on the books of the institution the middle of February were: Males, 86.7 per 1,000; females, 78.5 per 1,000; persons, 82.8 per 1,000. The death rates were evidently affected by the epidemic of influenza.

*Epileptics in 10 hospitals and on parole from these hospitals January to March,  
1929*

	Jan. 1, 1929	Jan. 31, 1929	Feb. 28, 1929	Mar. 31, 1929
<b>Patients in hospitals:</b>				
Male.....	3,312	3,362	3,382	3,387
Female.....	3,021	3,058	3,068	3,078
Total.....	6,333	6,420	6,450	6,465
<b>Patients on parole:</b>				
Male.....	302	230	228	251
Female.....	181	143	142	146
Total.....	483	373	370	397
<b>Total patients on books:</b>				
Male.....	3,614	3,592	3,610	3,638
Female.....	3,202	3,201	3,210	3,224
Total.....	6,816	6,793	6,820	6,862
<b>Per cent of total patients on parole:</b>				
Male.....	8.4	6.4	6.3	6.9
Female.....	5.7	4.5	4.4	4.5
Total.....	7.1	5.5	5.4	5.8

## GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,390,000. The estimated population of the 90 cities reporting deaths is more than 29,815,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

*Weeks ended November 2, 1929, and November 3, 1928*

	1929	1928	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	2,465	2,589	
97 cities.....	869	830	1,166
Measles:			
44 States.....	1,478	1,977	
97 cities.....	223	350	
Meningococcus meningitis:			
45 States.....	99	70	
97 cities.....	40	35	
Pollomyelitis:			
46 States.....	79	89	
Scarlet fever:			
46 States.....	3,211	2,866	
97 cities.....	942	743	861
Smallpox:			
46 States.....	624	276	
97 cities.....	81	6	21
Typhoid fever:			
46 States.....	562	554	
97 cities.....	66	75	82
<i>Deaths reported</i>			
Influenza and pneumonia:			
90 cities.....	661	549	
Smallpox:			
90 cities.....	0	0	

## City reports for week ended November 2, 1929

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1920 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population, July 1, 1928, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
<b>NEW ENGLAND</b>									
Maine:									
Portland.....	78, 600	8	2	0	0	0	0	1	0
New Hampshire:									
Concord.....	( <sup>1</sup> )	0	0	0	0	0	0	0	0
Nashua.....	( <sup>1</sup> )	0	1	0	0	0	0	0	0
Vermont:									
Barre.....	( <sup>1</sup> )	0	0	0	0	0	0	0	0
Massachusetts:									
Boston.....	799, 200	43	42	22	2	1	2	27	5
Fall River.....	134, 300	5	4	4	1	0	0	1	2
Springfield.....	149, 800	15	4	8	0	1	0	0	2
Worcester.....	197, 600	10	6	3	0	7	0	0	0
Rhode Island:									
Pawtucket.....	73, 100	0	1	1	0	0	0	0	3
Providence.....	286, 300	0	10	8	0	0	0	0	9
Connecticut:									
Bridgeport.....	( <sup>1</sup> )	6	8	2	0	1	0	0	3
Hartford.....	172, 300	6	6	1	0	0	0	0	0
New Haven.....	187, 900	8	1	1	0	0	0	0	2
<b>MIDDLE ATLANTIC</b>									
New York:									
Buffalo.....	555, 800	23	15	25	1	3	1	20	
New York.....	6, 017, 500	68	156	72	16	11	7	33	134
Rochester.....	328, 200	13	6	1	1	0	0	1	5
Syracuse.....	199, 300	6	7	1	0	0	0	21	2
New Jersey:									
Camden.....	135, 400	3	9	11	0	0	0	0	2
Newark.....	473, 600	41	14	36	3	0	17	7	8
Trenton.....	139, 000	0	2	6	2	0	2	0	5
Pennsylvania:									
Philadelphia.....	2, 064, 200	47	67	32	4	5	3	20	36
Pittsburgh.....	673, 800	38	33	21	0	2	36	1	23
Reading.....	115, 400	6	3	0	0	0	0	0	0
<b>EAST NORTH CENTRAL</b>									
Ohio:									
Cincinnati.....	413, 700	12	15	8	0	0	0	0	12
Cleveland.....	1, 010, 300	90	56	17	12	1	6	7	18
Columbus.....	299, 000	19	12	4	0	0	0	1	5
Toledo.....	313, 200	53	15	8	3	3	67	0	4
Indiana:									
Fort Wayne.....	105, 300	1	5	2	0	0	0	0	0
Indianapolis.....	382, 100	22	15	1	2	4	1	12	
South Bend.....	86, 100	2	3	1	0	0	0	0	0
Terre Haute.....	73, 500	1	3	0	0	0	0	0	0
Illinois:									
Chicago.....	3, 157, 400	90	98	149	12	4	9	15	64
Springfield.....	67, 200	1	2	0	3	2	0	0	0
Michigan:									
Detroit.....	1, 378, 900	84	70	70	2	1	29	28	26
Flint.....	148, 800	19	9	5	0	0	0	1	7
Grand Rapids.....	164, 200	7	4	0	0	1	0	0	3

<sup>1</sup> No estimate of population made.

## City reports for week ended November 2, 1929—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
			Cases, es- timated ex- pectancy	Cases re- ported	Cases re- ported	Deaths re- ported			
<b>EAST NORTH CENTRAL—continued</b>									
Wisconsin:									
Kenosha.....	56,500	10	2	1	0	0	0	0	0
Milwaukee.....	54,200	125	25	5	3	3	3	12	12
Racine.....	74,400	2	3	0	0	0	0	0	0
Superior.....	(1)	1	1	0	0	0	11	0	0
<b>WEST NORTH CENTRAL</b>									
Minnesota:									
Duluth.....	116,800	9	2	0	0	0	5	1	0
Minneapolis.....	455,900	91	34	7	0	4	14	13	7
St. Paul.....	(1)	26	14	1	1	1	4	7	7
Iowa:									
Davenport.....	(1)	1	1	0	0	0	0	0	0
Des Moines.....	151,900	0	4	0	0	0	0	9	0
Sioux City.....	80,000	12	3	0	0	1	2	2	0
Waterloo.....	37,100	45	1	0	0	13	0	0	0
Missouri:									
Kansas City.....	391,000	12	10	5	0	2	0	12	0
St. Joseph.....	78,500	1	2	0	0	0	0	1	0
St. Louis.....	848,100	11	48	29	0	1	6	0	0
North Dakota:									
Fargo.....	(1)	16	0	0	0	0	0	0	0
Grand Forks.....	(1)	8	0	1	0	0	0	0	0
South Dakota:									
Aberdeen.....	(1)	9	0	0	0	0	0	1	0
Sioux Falls.....	(1)	0	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	222,800	8	13	23	0	0	0	0	9
Kansas:									
Topeka.....	62,800	27	3	0	1	0	1	0	0
Wichita.....	99,300	7	4	18	0	0	0	0	3
<b>SOUTH ATLANTIC</b>									
Delaware:									
Wilmington.....	128,500	0	3	1	0	1	0	1	1
Maryland:									
Baltimore.....	830,400	47	31	8	7	5	2	9	23
Cumberland.....	(1)	0	1	1	0	0	0	0	1
Frederick.....	(1)	0	1	0	0	0	0	0	0
District of Columbia:									
Washington.....	552,000	11	22	10	2	2	0	0	9
Virginia:									
Lynchburg.....	38,600	11	5	2	0	0	0	7	0
Norfolk.....	184,200	0	3	2	0	0	0	0	7
Richmond.....	194,400	2	26	20	0	0	1	4	4
Roanoke.....	64,600	0	8	4	0	0	0	0	0
West Virginia:									
Charleston.....	55,200	1	3	5	2	0	0	0	2
Wheeling.....	(1)	3	3	0	1	0	1	0	2
North Carolina:									
Raleigh.....	(1)	0	4	5	0	0	0	0	1
Wilmington.....	39,100	0	1	3	0	1	0	2	0
Winston-Salem.....	80,000	4	6	5	0	0	4	0	0
South Carolina:									
Charleston.....	75,900	0	1	0	14	0	0	0	2
Columbia.....	50,600	0	2	4	0	0	0	0	3
Georgia:									
Atlanta.....	255,100	0	10	5	37	1	1	1	10
Brunswick.....	(1)	0	0	1	0	0	0	0	0
Savannah.....	99,900	0	3	2	15	2	0	0	0
Florida:									
Miami.....	156,700	0	0	2	0	0	2	1	1
St. Petersburg.....	53,300	0	0	0	0	0	0	0	0
Tampa.....	113,400	0	2	1	0	0	0	0	2

1 No estimate of population made.

## City reports for week ended November 2, 1929—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
<b>EAST SOUTH CENTRAL</b>									
<b>Kentucky:</b>									
Covington.....	59,000	0	2	4	-----	0	0	0	2
<b>Tennessee:</b>									
Memphis.....	190,200	1	11	11	-----	1	0	0	10
Nashville.....	139,600	0	6	2	-----	1	0	0	2
<b>Alabama:</b>									
Birmingham.....	222,400	1	7	9	2	1	0	0	5
Mobile.....	69,600	0	2	2	1	1	0	0	2
Montgomery.....	63,100	1	4	2	-----	-----	0	0	-----
<b>WEST SOUTH CENTRAL</b>									
<b>Arkansas:</b>									
Fort Smith.....	( <sup>1</sup> )	1	2	6	-----	-----	0	0	-----
Little Rock.....	79,200	0	3	0	-----	0	0	0	1
<b>Louisiana:</b>									
New Orleans.....	429,400	0	13	14	4	2	0	0	14
Shreveport.....	81,300	0	1	2	-----	1	0	0	1
<b>Oklahoma:</b>									
Tulsa.....	170,500	11	6	6	-----	-----	0	1	-----
<b>Texas:</b>									
Dallas.....	217,800	0	18	42	3	3	0	1	0
Fort Worth.....	170,600	0	6	0	-----	1	0	0	0
Galveston.....	50,600	0	1	3	-----	0	0	0	1
Houston.....	( <sup>1</sup> )	0	6	25	-----	1	0	0	6
San Antonio.....	218,100	0	4	22	-----	0	0	0	4
<b>MOUNTAIN</b>									
<b>Montana:</b>									
Billings.....	( <sup>1</sup> )	3	0	0	-----	0	0	21	0
Great Falls.....	( <sup>1</sup> )	11	1	0	-----	0	2	29	3
Helena.....	( <sup>1</sup> )	0	0	0	-----	0	1	0	0
Missoula.....	( <sup>1</sup> )	1	0	0	-----	0	0	0	0
<b>Idaho:</b>									
Boise.....	( <sup>1</sup> )	13	0	0	-----	0	0	1	1
<b>Colorado:</b>									
Denver.....	294,200	34	17	2	-----	3	1	2	4
Pueblo.....	44,200	0	4	0	-----	0	0	1	2
<b>New Mexico:</b>									
Albuquerque.....	( <sup>1</sup> )	4	1	0	-----	0	0	0	1
<b>Utah:</b>									
Salt Lake City.....	138,000	28	4	0	-----	0	24	8	4
<b>Nevada:</b>									
Reno.....	( <sup>1</sup> )	0	1	0	-----	0	0	0	1
<b>PACIFIC</b>									
<b>Washington:</b>									
Seattle.....	383,200	31	6	3	-----	-----	0	14	-----
Spokane.....	109,100	14	3	0	-----	-----	1	0	-----
Tacoma.....	110,500	8	3	18	-----	0	0	0	1
<b>Oregon:</b>									
Portland.....	( <sup>1</sup> )	24	12	2	2	2	1	5	6
Salem.....	( <sup>1</sup> )	4	0	0	-----	0	0	1	0
<b>California:</b>									
Los Angeles.....	( <sup>1</sup> )	15	48	16	16	0	4	20	8
Sacramento.....	75,700	1	3	0	-----	0	1	15	1
San Francisco.....	585,300	38	18	9	-----	1	18	16	0

<sup>1</sup> No estimate of population made.

City reports for week ended November 2, 1920—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
<b>NEW ENGLAND</b>											
Maine:											
Portland	1	2	0	0	0	0	1	1	0	2	15
New Hampshire:											
Concord	0	1	0	0	0	0	0	0	0	0	11
Nashua	0	0	0	0	0	0	0	0	0	0	7
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	5
Massachusetts:											
Boston	37	46	0	0	0	10	3	1	1	14	232
Fall River	3	4	0	0	0	1	0	0	0	0	24
Springfield	6	3	0	0	0	0	0	0	0	10	18
Worcester	10	8	0	0	0	3	0	1	0	9	51
Rhode Island:											
Pawtucket	0	0	0	0	0	0	0	0	0	0	17
Providence	6	9	0	0	0	3	0	0	0	3	73
Connecticut:											
Bridgeport	7	3	0	0	0	2	0	0	0	2	20
Hartford	4	4	0	0	0	0	0	0	0	0	4
New Haven	4	1	0	0	0	2	1	0	0	0	40
<b>MIDDLE ATLANTIC</b>											
New York:											
Buffalo	17	31	0	0	0	3	0	0	0	7	151
New York	85	56	0	0	0	102	20	11	0	28	1,404
Rochester	5	1	0	0	0	1	1	0	0	3	60
Syracuse	6	8	0	0	0	1	0	1	0	3	38
New Jersey:											
Camden	5	2	0	0	0	0	1	0	0	0	31
Newark	11	7	0	0	0	6	1	0	0	24	108
Trenton	1	7	0	0	0	3	1	1	0	1	33
Pennsylvania:											
Philadelphia	54	52	0	0	0	28	6	2	0	28	435
Pittsburgh	38	20	0	0	0	9	1	1	0	5	185
Reading	2	0	0	0	0	0	0	0	0	4	21
<b>EAST NORTH CENTRAL</b>											
Ohio:											
Cincinnati	12	23	0	0	0	5	1	0	2	1	137
Cleveland	23	21	0	0	0	15	2	2	0	28	188
Columbus	9	9	0	0	0	3	0	0	0	3	89
Toledo	10	9	0	0	0	4	1	1	0	5	82
Indiana:											
Fort Wayne	2	2	0	9	0	0	1	2	0	0	29
Indianapolis	12	9	2	2	0	3	0	1	0	15	107
South Bend	3	4	0	1	0	0	1	0	0	0	7
Terre Haute	3	0	0	0	0	0	0	0	0	0	11
Illinois:											
Chicago	81	164	1	1	0	42	6	3	0	62	704
Springfield	3	1	0	0	0	1	0	0	0	7	18
Michigan:											
Detroit	62	76	1	5	0	24	3	1	0	49	267
Flint	11	11	1	13	0	0	0	1	0	1	36
Grand Rapids	8	6	0	0	0	2	0	0	0	5	32
Wisconsin:											
Kenosha	2	4	1	0	0	0	1	0	0	2	10
Milwaukee	20	19	1	0	0	4	0	0	0	34	128
Racine	3	4	0	0	0	1	0	0	0	6	10
Superior	3	1	0	0	0	0	0	0	0	0	5
<b>WEST NORTH CENTRAL</b>											
Minnesota:											
Duluth	8	0	0	0	0	0	1	0	0	18	14
Minneapolis	42	8	1	0	0	2	1	3	0	3	87
St. Paul	19	16	2	0	0	4	1	3	0	5	57
Iowa:											
Davenport	1	5	0	1	0	0	0	0	0	0	0
Des Moines	11	8	0	2	0	0	0	1	0	0	25
Sioux City	2	0	1	0	0	0	0	0	0	1	0
Waterloo	3	2	0	20	0	0	0	0	0	0	0





City reports for week ended November 2, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
<b>WEST SOUTH CENTRAL—continued</b>											
Oklahoma:											
Tulsa.....	2	9	0	0			0	0		4	
Texas:											
Dallas.....	6	0	0	1	0	2	0	1	1	2	44
Fort Worth.....	2	0	0	0	0	2	0	0	0	0	27
Galveston.....	0	1	0	0	0	0	0	0	0	0	8
Houston.....	2	10	0	0	0	4	0	2	2	0	67
San Antonio.....	1	0	0	6	0	12	1	0	0	0	75
<b>MOUNTAIN</b>											
Montana:											
Billings.....	1	1	0	0	0	0	0	1	0	0	5
Great Falls.....	1	16	0	0	0	1	0	1	0	0	12
Helena.....	0	0	0	0	0	0	0	1	0	0	4
Missoula.....	0	0	0	2	0	0	0	1	0	0	5
Idaho:											
Boise.....	1	2	1	3	0	0	0	2	0	0	2
Colorado:											
Denver.....	9	4	0	2	0	9	1	0	0	18	82
Pueblo.....	1	1	0	0	0	1	0	0	0	0	14
New Mexico:											
Albuquerque.....	1	0	0	0	0	8	0	0	0	0	13
Utah:											
Salt Lake City.....	2	1	0	0	0	0	2	3	0	8	33
Nevada:											
Reno.....	0	1	0	0	0	0	0	0	0	0	4
<b>PACIFIC</b>											
Washington:											
Seattle.....	8	10	1	0			1	0		13	
Spokane.....	8	7	1	0			0	0		3	
Tacoma.....	3	3	2	11	0	1	0	0	0	4	18
Oregon:											
Portland.....	9	5	4	0	0	0	1	1	0	2	72
Salem.....	1	0	0	0	0	0	0	0	0	0	
California:											
Los Angeles.....	18	40	2	0	0	26	2	1	0	19	220
Sacramento.....	2	10	0	0	0	1	1	0	0	2	20
San Francisco.....	11	5	1	1	0	0	1	0	0	4	146

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)			
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths	
<b>NEW ENGLAND</b>										
Massachusetts:										
Boston.....	0	1	0	0	0	0	2	2	1	0
Worcester.....	0	0	1	0	0	0	0	0	0	0
Rhode Island:										
Providence.....	0	0	0	1	0	1	0	0	0	0
Connecticut:										
Bridgeport.....	1	0	1	1	0	0	0	0	0	0
<b>MIDDLE ATLANTIC</b>										
New York:										
Buffalo.....	0	1	0	0	0	0	1	2	1	0
New York <sup>1</sup> .....	10	4	4	1	0	1	10	2	0	0
Rochester.....	0	0	0	0	0	0	0	2	0	0
Syracuse.....	0	0	0	0	0	0	0	1	0	0
New Jersey:										
Newark.....	1	0	1	0	0	0	0	2	0	0
Pennsylvania:										
Philadelphia.....	4	1	0	0	0	0	0	0	0	0

Footnote at end of table.

## City reports for week ended November 2, 1929—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
<b>EAST NORTH CENTRAL</b>									
Ohio:									
Cincinnati.....	1	0	0	0	0	0	0	1	1
Cleveland.....	2	1	0	0	0	0	1	0	0
Toledo.....	1	0	1	1	0	0	0	0	0
Indiana:									
Indianapolis.....	0	1	0	0	0	0	1	0	0
Illinois:									
Chicago.....	9	3	1	0	0	0	3	1	0
Michigan:									
Detroit.....	5	0	1	0	0	0	1	0	0
Flint.....	0	0	0	0	0	0	0	1	0
Wisconsin:									
Racine.....	1	0	0	0	0	0	0	0	0
<b>WEST NORTH CENTRAL</b>									
Minnesota:									
St. Paul.....	0	0	1	1	0	0	0	0	0
Iowa:									
Des Moines.....	0	0	0	0	0	0	0	4	0
Missouri:									
Kansas City.....	1	1	0	0	0	0	0	0	0
St. Louis.....	1	2	0	0	0	0	1	0	0
North Dakota:									
Fargo.....	0	1	0	0	0	0	0	0	0
<b>SOUTH ATLANTIC<sup>1</sup></b>									
Maryland:									
Baltimore.....	0	0	1	2	0	0	1	0	0
Virginia:									
Lynchburg.....	0	0	0	0	0	0	0	1	0
West Virginia:									
Charleston.....	0	0	0	0	0	0	0	1	0
Wheeling.....	0	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	0	0	0	0	0	2	0	0	0
Wilmington.....	0	0	0	0	0	1	0	0	0
Winston-Salem.....	0	0	0	0	3	0	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	6	1	0	0	0
Georgia:									
Atlanta.....	1	1	0	0	0	0	0	0	0
Savannah <sup>1</sup> .....	0	0	0	0	2	1	0	0	0
<b>EAST SOUTH CENTRAL</b>									
Alabama:									
Birmingham.....	0	0	0	0	1	1	0	0	0
Montgomery <sup>1</sup> .....	0	0	0	0	1	0	0	0	0
<b>WEST SOUTH CENTRAL</b>									
Louisiana:									
New Orleans.....	0	0	1	1	1	1	0	0	0
Shreveport.....	0	0	0	1	0	1	0	0	0
Texas:									
Dallas.....	0	0	0	0	1	1	0	0	0
Houston.....	0	0	0	0	1	1	0	0	0
San Antonio.....	0	0	0	0	0	1	0	0	0
<b>MOUNTAIN</b>									
Utah:									
Salt Lake.....	4	1	0	0	0	0	0	0	0
<b>PACIFIC</b>									
Oregon:									
Portland.....	0	0	0	0	0	0	1	1	0
California:									
Sacramento.....	0	0	0	0	1	1	0	0	0

<sup>1</sup> Typhus fever, 5 cases: 1 case at New York City, 1 case at Savannah, Ga.; 1 case at Miami, Fla.; and 2 cases at Montgomery, Ala.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended November 2, 1929, compared with those for a like period ended November 3, 1928. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 31,000,000. The 91 cities reporting deaths have nearly 30,000,000 estimated population. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

*Summary of weekly reports from cities, September 29 to November 2, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928<sup>1</sup>*

DIPHTHERIA CASE RATES

	Week ended—									
	Oct. 5, 1929	Oct. 6, 1928	Oct. 12, 1929	Oct. 13, 1928	Oct. 19, 1929	Oct. 20, 1928	Oct. 26, 1929	Oct. 27, 1928	Nov. 2, 1929	Nov. 3, 1928
98 cities.....	97	100	112	117	136	<sup>2</sup> 126	<sup>3</sup> 135	131	<sup>4</sup> 144	140
New England.....	88	103	95	124	129	145	<sup>5</sup> 111	156	<sup>4</sup> 120	90
Middle Atlantic.....	72	84	75	83	88	84	<sup>6</sup> 86	99	99	110
East North Central.....	124	92	139	111	155	<sup>2</sup> 133	<sup>6</sup> 104	154	168	169
West North Central.....	108	127	123	137	167	127	<sup>7</sup> 138	158	160	145
South Atlantic.....	129	134	139	210	180	241	139	186	144	231
East South Central.....	156	154	231	231	170	231	183	168	204	196
West South Central.....	206	174	265	211	352	199	411	174	451	223
Mountain.....	26	106	0	44	70	62	26	27	17	71
Pacific.....	57	64	62	79	90	72	125	67	115	64

MEASLES CASE RATES

98 cities.....	17	28	22	32	30	<sup>2</sup> 40	<sup>3</sup> 30	53	<sup>4</sup> 38	59
New England.....	34	85	16	69	59	179	<sup>5</sup> 30	244	<sup>4</sup> 27	338
Middle Atlantic.....	12	18	12	27	17	20	21	25	33	33
East North Central.....	12	23	29	31	40	<sup>2</sup> 24	<sup>6</sup> 47	41	40	39
West North Central.....	10	43	23	49	31	76	<sup>7</sup> 22	49	52	68
South Atlantic.....	11	23	9	40	9	34	9	69	15	46
East South Central.....	0	0	14	7	0	14	20	0	0	7
West South Central.....	0	4	4	0	4	0	16	8	0	8
Mountain.....	35	44	61	53	52	71	26	124	244	80
Pacific.....	67	41	67	18	75	41	65	43	60	15

SCARLET FEVER CASE RATES

98 cities.....	102	99	115	113	138	<sup>2</sup> 111	<sup>3</sup> 139	115	<sup>4</sup> 156	125
New England.....	136	90	163	138	174	152	<sup>5</sup> 164	117	<sup>4</sup> 189	131
Middle Atlantic.....	48	42	48	58	69	69	75	67	89	69
East North Central.....	149	132	173	153	214	<sup>2</sup> 137	<sup>6</sup> 193	151	226	172
West North Central.....	119	182	140	180	173	139	<sup>7</sup> 176	215	160	198
South Atlantic.....	120	121	139	142	127	124	174	113	139	117
East South Central.....	81	133	122	154	231	133	109	126	204	147
West South Central.....	75	150	134	97	107	73	154	77	154	138
Mountain.....	131	18	148	80	157	89	235	62	226	62
Pacific.....	132	113	90	97	117	151	107	179	187	148

<sup>1</sup> The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1929 and 1928, respectively.

<sup>2</sup> South Bend, Ind., not included.

<sup>3</sup> Barre, Vt., Kenosha, Wis., and Wichita, Kans., not included.

<sup>4</sup> Hartford, Conn., not included.

<sup>5</sup> Barre, Vt., not included.

<sup>6</sup> Kenosha, Wis., not included.

<sup>7</sup> Wichita, Kans., not included.

Summary of weekly reports from cities, September 29 to November 3, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928—Continued

## SMALLPOX CASE RATES

	Week ended—									
	Oct. 5, 1929	Oct. 6, 1928	Oct. 12, 1929	Oct. 13, 1928	Oct. 19, 1929	Oct. 20, 1928	Oct. 26, 1929	Oct. 27, 1928	Nov. 2, 1929	Nov. 3, 1928
98 cities.....	7	3	7	1	12	3	10	2	13	1
New England.....	0	0	0	0	0	0	0	2	0	0
Middle Atlantic.....	0	0	1	0	0	0	0	0	0	0
East North Central.....	7	5	3	2	7	3	12	3	20	0
West North Central.....	2	2	13	0	21	2	32	2	42	2
South Atlantic.....	0	0	0	0	0	0	0	0	0	2
East South Central.....	48	0	0	0	0	0	0	0	14	7
West South Central.....	0	0	4	4	0	0	0	4	28	4
Mountain.....	52	9	96	9	122	62	52	0	61	0
Pacific.....	37	18	35	5	87	10	52	15	30	5

## TYPHOID FEVER CASE RATES

98 cities.....	16	24	26	22	18	18	15	19	11	13
New England.....	11	16	16	16	9	7	16	16	7	7
Middle Atlantic.....	14	25	10	20	8	23	8	18	8	11
East North Central.....	12	13	8	11	10	7	7	10	6	5
West North Central.....	15	12	8	16	25	10	6	14	17	18
South Atlantic.....	30	33	26	38	24	40	21	44	13	34
East South Central.....	20	42	27	63	68	42	48	63	34	42
West South Central.....	8	53	28	28	16	8	43	24	20	20
Mountain.....	113	124	749	89	192	53	200	27	78	18
Pacific.....	10	28	7	26	20	13	5	13	2	5

## INFLUENZA DEATH RATES

91 cities.....	6	7	8	7	8	10	9	11	11	10
New England.....	5	7	0	9	2	2	0	5	2	2
Middle Atlantic.....	7	7	8	4	6	7	12	8	9	5
East North Central.....	5	5	8	7	9	7	10	5	9	10
West North Central.....	6	3	3	3	9	12	3	12	6	12
South Atlantic.....	7	10	11	4	9	6	4	10	19	11
East South Central.....	0	23	22	15	7	46	22	8	30	31
West South Central.....	16	8	16	29	16	21	20	12	28	25
Mountain.....	0	18	26	9	17	62	17	44	26	18
Pacific.....	10	7	7	17	7	27	3	54	3	27

## PNEUMONIA DEATH RATES

91 cities.....	77	87	80	81	97	105	108	89	105	88
New England.....	36	51	75	64	97	126	64	74	64	90
Middle Atlantic.....	93	106	87	94	118	124	144	92	113	83
East North Central.....	61	76	65	67	81	87	92	78	101	78
West North Central.....	108	89	54	64	69	77	73	61	135	107
South Atlantic.....	61	96	103	96	81	115	112	117	116	96
East South Central.....	30	107	59	92	111	92	133	130	155	115
West South Central.....	118	100	118	79	93	75	89	83	110	121
Mountain.....	122	62	122	115	122	62	122	124	131	97
Pacific.....	49	47	59	54	85	96	46	96	33	87

<sup>1</sup> South Bend, Ind., not included.

<sup>2</sup> Barre, Vt., Kenosha, Wis., and Wichita, Kans., not included.

<sup>3</sup> Hartford, Conn., not included.

<sup>4</sup> Barre, Vt., not included.

<sup>5</sup> Kenosha, Wis., not included.

<sup>7</sup> Wichita, Kans., not included.

*Number of cities included in summary of weekly reports and aggregate population of cities of each group, approximated as of July 1, 1929 and 1928, respectively*

Groups of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1929	1928	1929	1928
Total.....	98	91	31, 568, 400	31, 052, 700	29, 995, 100	29, 498, 600
New England.....	12	12	2, 305, 100	2, 273, 900	2, 365, 100	2, 273, 900
Middle Atlantic.....	10	10	10, 809, 700	10, 702, 200	10, 809, 700	10, 702, 200
East North Central.....	16	16	8, 181, 900	8, 001, 300	8, 181, 900	8, 001, 300
West North Central.....	12	9	2, 712, 100	2, 673, 300	1, 736, 900	1, 708, 160
South Atlantic.....	19	19	2, 783, 200	2, 732, 900	2, 783, 200	2, 732, 900
East South Central.....	6	5	767, 900	745, 500	704, 200	682, 400
West South Central.....	8	7	1, 319, 100	1, 289, 900	1, 285, 000	1, 256, 400
Mountain.....	9	9	598, 800	590, 200	598, 800	590, 200
Pacific.....	6	4	2, 090, 600	2, 043, 500	1, 590, 300	1, 551, 200

## FOREIGN AND INSULAR

### CANADA

*Provinces—Communicable diseases—Week ended October 26, 1929.*—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases in Canada for the week ended October 26, 1929, as follows:

Province	Cerebro-spinal fever	Poliomyelitis	Lethargic encephalitis	Influenza	Smallpox	Typhoid fever
Prince Edward Island.....						
Nova Scotia.....	1			15		1
New Brunswick.....						9
Quebec.....		1	3		8	7
Ontario.....	2	15			3	9
Manitoba.....		1			1	2
Saskatchewan.....		8			9	
Alberta.....		4			2	
British Columbia.....		1			2	1
Total.....	3	30	3	15	25	29

*Quebec Province—Communicable diseases—Two weeks ended November 2, 1929.*—The bureau of health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the two weeks ended November 2, 1929, as follows:

Disease	Cases week ended Oct. 26	Cases week ended Nov. 2	Disease	Cases week ended Oct. 26	Cases week ended Nov. 2
Cerebrospinal meningitis.....	3	2	Poliomyelitis.....	1	1
Chicken pox.....	75	86	Scarlet fever.....	116	80
Diphtheria.....	71	72	Smallpox.....	3	7
German measles.....	6	1	Tuberculosis.....	50	64
Influenza.....	3		Typhoid fever.....	7	11
Measles.....	92	66	Whooping cough.....	65	93
Mumps.....	48	19			

## CUBA

*Provinces—Communicable diseases—Four weeks ended September 28, 1929.*—During the four weeks ended September 28, 1929, cases of certain communicable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer.....		26		1		2	29
Cerebrospinal meningitis.....		1					1
Chicken pox.....		2	5	2		2	11
Diphtheria.....	1	8	7	10	2	2	30
Malaria.....	3	19	3	1	21	64	111
Measles.....		15		4	3		22
Paratyphoid fever.....	1	6	2	8		3	20
Poliomyelitis.....			2	1			3
Scarlet fever.....		8		4			12
Typhoid fever.....	39	46	3	62	19	62	231

## ITALY

*Communicable diseases—Four weeks ended September 1, 1929.*—During the four weeks ended September 1, 1929, communicable diseases were reported in the Kingdom of Italy as follows:

Disease	Aug. 5-11		Aug. 12-18		Aug. 19-25		Aug. 25-Sept. 1	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax.....	76	52	68	54	59	42	71	53
Cerebrospinal meningitis.....	8	7	5	5	5	4	8	8
Chicken pox.....	73	58	61	49	53	38	50	34
Diphtheria.....	289	202	251	154	316	197	360	206
Dysentery.....	37	24	43	26	38	25	56	33
Lethargic encephalitis.....	1	1	4	4	3	3	1	1
Measles.....	738	214	731	201	562	189	572	190
Poliomyelitis.....	55	34	60	45	40	29	56	33
Scarlet fever.....	375	123	436	136	322	123	419	148
Typhoid fever.....	1,130	546	1,147	520	1,381	624	1,489	644

*Plague and plague rats—Province of Naples—September 25-29, 1929.*—Under date of October 21, 1929, the Director of the International Office of Public Hygiene reports further regarding the occurrence of two cases of plague in the Province of Naples during September. On September 25, 1929, a case of plague was discovered in a mill worker in the Territory of San Giovanni a Teduccio, and later a second case, which terminated fatally on September 29, was reported in a working companion of the first patient. The diagnosis in each case was confirmed by laboratory examination.

The report states that a shipment of grain from South America had been received at the mill in August and that three dead rats found in the mill subsequently were proved positive for plague.



## MEXICO

*Tampico—Communicable diseases—October, 1929.*—During the month of October, 1929, certain communicable diseases were reported in Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Enteritis (various).....		35	Typhoid fever.....		16
Influenza.....	6		Tuberculosis.....	59	26
Malaria.....	149	23	Whooping cough.....		2

## TRINIDAD (BRITISH WEST INDIES)

*Port of Spain—Vital statistics (comparative)—September, 1929.*—The following statistics for the month of September for the years 1925 to 1929 are taken from a report issued by the Public Health Department of Port of Spain, Trinidad:

	1925	1926	1927	1928	1929
Number of births.....	151	125	123	187	154
Birth rate per 1,000 population.....	28.7	23.6	23.0	25.5	23.2
Number of deaths.....	145	127	120	119	122
Death rate per 1,000 population.....	27.6	23.9	22.5	22.1	22.4
Deaths under 1 year.....	28	17	20	14	19
Infant mortality rate per 1,000 births.....	185.4	136.0	162.6	102.2	123.4



































Place	April, 1929	May, 1929	June, 1929	July, 1929	Aug., 1929	Sep-tem-ber, 1929
Kerry County--						
Dingle.....						
Killarney.....						
Tyrons County--Strabane <sup>1</sup>						
Latvia (see table below)						
Lithuania (see table below)						
Mexico:						
Agualecalientes						
Mexico City, including municipalities in Federal District						
Morocco.....						
Norway, Oslo.....						
Palestine.....						
Persia.....						
Poland.....						
Portugal:						
Lisbon.....						
Oporto.....						
Rumania.....						
Tunisia.....						
Turkey (see table below)						
Union of South Africa:						
Cape Province.....						
Natal.....						
Orange Free State.....						
Transvaal.....						
Yugoslavia (see table below)						
Canada: Ontario.....						
Chosen.....						
Seoul.....						
Czechoslovakia.....						
Greece: Athens.....						
Indo-China: Tonkin.....						
Place	April, 1929	May, 1929	June, 1929	July, 1929	Aug., 1929	Sep-tem-ber, 1929
Latvia.....						
Lithuania.....						
Turkey.....						
Yugoslavia.....						
Place	April, 1929	May, 1929	June, 1929	July, 1929	Aug., 1929	Sep-tem-ber, 1929
Canada: Ontario.....						
Chosen.....						
Seoul.....						
Czechoslovakia.....						
Greece: Athens.....						
Indo-China: Tonkin.....						

<sup>1</sup> During the period from Apr. 14 to May 21, 1929, 18 cases of typhus fever with 4 deaths were reported in Strabane, Tyrone County, Ireland.

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

**YELLOW FEVER**

[C indicates cases; D, deaths; P, present]

Place	Apr. 7- May 4, 1929	May 5- June 1, 1929	June 2-30, 1929	July 31, 1929	Week ended—																
					August, 1929			September, 1929				October, 1929		November, 1929							
					Aug. 31	Sept. 7	Sept. 14	Sept. 21	Sept. 28	Oct. 5	Oct. 12	Oct. 19	Oct. 26								
Belgian Congo: Tumba.....	C	1																			
Brazil:																					
Bahia.....	C			1																	
Niterooy.....	D			1																	
Para.....	C	2	1	1					1												
Porto Alegre.....	D	11	7	1																	
Rio de Janeiro.....	D	180	70	7	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Colombia:																					
Simacota.....	C		5	1																	
Socorro.....	C			4																	
Liberia: Montrovia.....	C	2	4	4																	
On vessel:	D		3	1																	
S. S. Skogland, at Porto Alegre, from Rio de Janeiro.....	C		1																		

1 Imported.

2 From June 19 to July 8, 1929, 41 cases of yellow fever with 23 deaths were reported in Socorro, Colombia.