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THE PUBLIC HEALTH ORGANIZATION OF DENMARK¹

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Introduction

In order to understand fully the public health service of Denmark, one must know something of the country and its people. An opportunity was afforded the writer in 1926, as the representative from the United States at an international interchange of public health officers under the League of Nations, to participate in an intensive study tour of the public health organization of that country.

Denmark presents a very interesting field for the student of any problem of social welfare and particularly for the student of public health. It is a small country, with an area of 16,600 square miles and a population of about 3,400,000. This population is approximately the same as that of the State of Missouri, which State has four times the area of Denmark. The capital and largest city is Copenhagen, with a population of 575,000. Adjacent to and partially surrounded by Copenhagen is the next largest city, Frederiksberg, with a population of 104,000. Denmark is a farming country; 31 per cent of the people earn their living by agriculture, and 57 per cent of the population live in rural districts. The country has a homogeneous population, 97 per cent being native born. The people are above the average in physical fitness. Standards of living and of education are high, and there is a comparatively even distribution of wealth, with a relative absence of poverty.

Mortality rates are very favorable; the general death rate is under 12 per thousand, and the birth rate, although declining, is nearly double the death rate. The average expectation of life is 58 years. The infant mortality rate has been consistently under 85 per thousand live births for several years. It is somewhat lower, and is declining more rapidly in the cities than in the rural districts. Typhoid fever has declined almost to the vanishing point, there having been less than one death per 100,000 inhabitants for each of the past five years. The mortality and morbidity rates from diphtheria

¹ Much of the information presented here was secured from "Health Organization in Denmark," published by the Health Section of the League of Nations; from the National Board of Health of Denmark; and from the Danish public health officials, to all of whom the writer makes grateful acknowledgment.

have fluctuated somewhat, but the general trend has been downward, and for 1924 the diphtheria death rate was 6.5 per 100,000. Scarlet fever, likewise, has declined, and for 1924 the death rate from this disease was 0.9 per 100,000. The tuberculosis death rate is declining and is now the lowest of any country in Europe. A more complete discussion of the tuberculosis rate will be given in connection with the section dealing with that disease.

The Central Government

The Government of Denmark is a limited monarchy, in which the legislative power lies with the King and Parliament and the executive power with the King and 11 ministers chosen by him, each of whom is at the head of a special administrative department.

The public health activities of the Government are distributed among several ministries. There is given below a summary of the more important public health and public welfare activities.

The Ministry of Home Affairs, through the National Board of Health—

1. Approves and superintends the enforcement of health and sanitary legislation and local regulations.
2. Approves plans for hospitals, charitable institutions, and childrens' homes.
3. Acts as consultative body for other branches of the Government.
4. Makes proposals to local authorities concerning necessary health measures.
5. Collects, prepares, and publishes medical statistics.

The Ministry of Justice—

1. Through medicolegal council gives all legal medical opinions necessary to determine the legal position of individuals.
2. Enforces laws governing narcotics, quarantine, prostitution, the mentally deficient, the insane, the inspection of foods, milk, cream, etc.
3. Conducts inquests, legal autopsies, etc.

The Ministry of Social Affairs (Public Welfare)—

1. Supervises all child welfare activities, including children's homes and care of foster children.
2. Supervises sick-benefit clubs, invalidity and accident insurance.
3. Cares for insane, mentally deficient, deaf, blind, and crippled, and administers the State institutions in connection therewith.
4. Supervises tuberculosis hospitals and sanatoria and public aid for treatment of tuberculosis.
5. Regulates industrial hygiene and accident prevention.

The Ministry of Education—

1. Administers the State Hospital (Rigshospital), in connection with the State University.
2. Trains physicians, pharmacists, dentists, midwives.
3. Supervises school hygiene.

The Ministry of Agriculture—

1. Administers veterinary affairs.
2. Supervises dairies, slaughterhouses, meat, and, partly, milk inspection.

The country now² has a socialist government, which, however, has not introduced any drastic changes in policy, since for many years Denmark has been a highly socialized country.

As will be seen from the above outline, the public health service of the Government is mainly under the National Board of Health. This board is presided over by a president (a physician appointed by the King). Under his direction are a medical council and a chemists' council, each in charge of a vice chairman. The personnel of the board is not extensive, consisting, in addition to the above, of a leader of the office, a medical secretary, a legal secretary, two statisticians, and six clerks. Attached to the National Board of Health are a number of expert advisers, or consultants, to whom are referred important questions relating to their particular speciality. There are now advisers in hygiene, bacteriology and epidemiology, pharmacology, tuberculosis, psychiatry, dentistry, and pharmacy.

Independent of, but in close connection with, the National Board of Health is the State Serum Institute, the director of which is the consultant in bacteriology and epidemiology. The State Serum Institute is the central epidemiological laboratory for the whole country.

The National Board of Health now has a field force of 73 district medical officers, 23 of whom also act as county medical officers of health, and 4 district medical officers on the Faroe Islands, 1 of whom is county medical officer. All of these are appointed and paid by the State. These are all part-time officials who give a varying amount of time to their official duties, depending upon the population and problems in their jurisdiction. In Copenhagen is a chief medical officer of health (a full-time official) with several assistants. The duties of the district medical officers may be enumerated as follows:

1. Receive weekly or current reports of contagious diseases from all physicians; make weekly reports to the county medical officer; and make monthly reports to the National Board of Health and to the county medical officer.

2. Order disinfection of premises when necessary, and take special steps where necessary to prevent the spread of contagion, after consultation with epidemic committee, as regards sale or handling of milk or food, discontinuance of occupation, etc.

3. Receive monthly from the vicar of each parish all birth and death certificates and forward them through the county medical officer to the National Board of Health.

4. Make an annual report concerning morbidity, mortality, and births.

5. Superintend the work of midwives, and keep in touch with doctors, dentists, pharmacists, and nurses, supplying them with registration forms, informing them of reports to be made, etc.

² December, 1926, a liberal government came into office. A Ministry of Health replaced the Ministry of Social Affairs. Practically all public health activity is now under this new ministry.

6. Serve as a member of the locally appointed epidemic and health committee in their home districts and attend meetings of other committees in their jurisdictions.

7. Supervise the sanitary conditions in all public institutions, schools, dairies, and food establishments, and have general responsibility for the sanitation and health of their districts.

8. Treat all cases of venereal disease applying to them. (In the larger districts other specialists paid from public funds, are provided for giving venereal disease treatment.)

9. Hold vaccination clinics twice annually in the towns and once annually in every rural township. Should smallpox occur, daily vaccination is arranged for.

10. Act as legal advisor to the courts, especially reporting on the mental condition of a patient, acting as coroner, and examining intoxicated automobilists.

The county medical officers, in addition to the duties devolving upon them as district medical officers for the districts in which they live, supervise the work of all district medical officers, direct campaigns against extensive outbreaks of disease, make an annual inspection of all pharmacies, direct and judge the work of midwives, prepare annual reports for the whole county, and serve as members of the county epidemic committee.

The Local Government

For administrative purposes the country is divided into 23 counties, with a county council elected by the people and with a lord lieutenant appointed by the King, who is chairman of the county council.

Lords lieutenant are assisted by 72 chief constables. In each county there is a county epidemic committee, consisting of the county commissioner (i. e., the lord lieutenant) as chairman, the county medical officer, and three members appointed by the county and town councils. Each police district, which includes several rural parishes, has a local epidemic committee consisting of a chief constable, a district medical officer of health, and three members elected by the county council. The rural districts are divided into a total of 1,130 parishes, each with a parish council. In about two-thirds of them there is a local sanitary committee, which looks after sanitary conditions generally.³ There is a total of 88 boroughs (incorporated towns), each with a town council and a local epidemic committee. The city of Copenhagen has a special form of government not subject to the jurisdiction of any county, but responsible directly to the corporation of the city and, in certain respects, to the National Government. With the exception of the lords lieutenant, chief constables, and medical officers of health, who are appointed by the

³ The local epidemic committees are not identical with the sanitary committees of the rural parishes. Each police district, which includes several parishes, has a local epidemic committee, consisting of the chief constable (chairman), the district medical officer of health, and three members elected by the county council.

central government, the organization of the country is somewhat comparable to our county, township, and town governments. Local government is highly developed, and the administration of public-health affairs is, to a great extent, decentralized.

Medical Education

All Danish physicians receive the same university education at the one national medical school, the University of Copenhagen, at which instruction is practically gratuitous, the fees for the entire course amounting to less than \$30. After a preliminary education corresponding to graduation from a high school in the United States, seven years of university education are required. The curriculum compares favorably with that in a Class A medical school of this country. There are about 900 medical students, and each year from 70 to 100 graduate. There is about one physician for each 1,600 inhabitants in the country. It was of much interest to learn that quackery has been forbidden since 1672 and that there are practically no unqualified physicians in the country.

In addition to the university education, the candidate must attend a course in obstetrics at the State lying-in hospital in order to get a full license, and most physicians continue their training for one or more years in a hospital. All who aspire to be specialists must take several additional years of training under rules laid down by the Danish Medical Association, which organization publishes each year a list of approved specialists. A small minority of Danish physicians qualify themselves as "university doctors," which gives a right to lecture at the university.

Since 1914, special training has been required as a prerequisite for appointment as a medical officer of health. This consists of a four months' course in hygiene, vital statistics, forensic medicine, psychiatry, bacteriology, epidemiology, venerology, and sanitary law. Before being admitted to this course the applicant must have passed all medical examinations, must have served one month in a maternity hospital, six months in a medical and six months in a surgical hospital department, three months in an epidemic hospital, three months in a psychiatric hospital or asylum, and three months as a practitioner in the country or in a small town. In brief, the requirements for qualification of a medical officer of health consist of 26 months' theoretical and practical training in addition to being a medical graduate.

The uniformly high standard of medical education in Denmark for all physicians has insured a good quality of medical service, and as a result, the physicians are held in high esteem by the people. The economic and social condition of the doctors on the whole seemed

to be comparatively better in Denmark than in the United States. Only 20 per cent of the medical service is classified as "private practice," the remainder being by contract with the sick benefit clubs and through employment by the local and state governments. The furnishing of medical treatment will be discussed elsewhere in this report under the sections dealing with hospital service and sick benefit clubs.

Dentists.—Students of dentistry are required to take a three-year course in the School of Dentistry, and after graduation must serve as clinical assistant for two years before being allowed to practice. There are about 600 dentists in the country.

Nurses.—The training of nurses compares favorably with that in the United States, a three-year course of theoretical and practical training being required. There are about 5,500 graduate nurses in the country. Recently sick benefit clubs have employed nurses extensively to give bedside care in the homes of their members, and the city of Copenhagen has begun home nursing to relieve pressure on the hospitals. Public health nursing, however, has not developed as yet to an appreciable extent, but a great number of parish nurses work in rural houses in cooperation with the physicians.

Midwives.—All births must be attended by a midwife (or a doctor); most births are attended by midwives. For complicated cases requiring the use of instruments, a doctor must be summoned. The death rate from puerperal sepsis is low, being less than 1.0 per 1,000 live births.

All midwives must take a course in training at the State hospital lasting one year and pass an examination. Their practice is supervised carefully by the medical officers of health. There are 1,100 midwives in the country, of whom 75 per cent are paid partly by the State and local governments to assure attendance at all-births.

Hospital Service

The whole public health movement in Denmark has been centered around the practice of medicine and particularly around the hospital service. So far as the writer is aware, there is no country in which the hospital service has been more fully developed whether viewed from the standpoint of type of buildings and equipment, quality of the service rendered to the average citizen, extent to which hospitals are used, or cost of the service to the patient.

Practically all of the general hospitals in Denmark are public institutions constructed by the municipalities or counties, or jointly by the two. The hospitals are well distributed over the country. Practically all of them are general hospitals in the truest sense, having special wards or buildings for the diagnosis or treatment of tuber-

culosis, for the treatment of epidemic and venereal diseases, and for the temporary hospitalization of mental cases. The closed staff principle is universal, and the hospital physicians live on the hospital grounds. When a case is sent to a hospital, the attending physician loses all responsibility for the patient. The municipal hospitals are under the direction of a special branch of the municipal government; those operated jointly by a city or county are jointly administered. The director, i. e., the head physician (or physicians) is usually employed on a part-time basis, being allowed to supplement his salary by private consultations at the hospital.

An opportunity was afforded the writer to visit a number of the Danish hospitals in Copenhagen and in the provincial towns. One of the most interesting institutions visited was the State hospital in Copenhagen, operated by the Department of Education primarily as a teaching center for the university medical school. The director of each department is ex-officio professor in the university. This institution has accommodations for 1,000 patients; it was completed in 1910 at a cost of \$2,000 per bed. Fifty-three per cent of the patients pay only 50 cents per day, and 20 per cent of them pay nothing. The operating cost is about \$3.50 per patient per day, of which 16 per cent is paid by patient's fees. The training school for midwives is operated as a part of this hospital, and there is a large nursing school.

The city of Copenhagen expends nearly \$4,000,000 per year for its general, tuberculosis, and insane hospital services, representing an annual per capita expenditure of approximately \$6. The average cost per patient per day is slightly over \$3, and this average cost seems to prevail generally throughout the country.

The cost of hospital construction in Denmark is nearly as high as that in the United States. The buildings are of a very permanent nature and are well equipped as regards furniture, laboratory, X-ray, hydrotherapy, heliotherapy, and physiotherapy departments.

Private rooms comprise only 10 per cent of the whole hospital capacity, the favorite arrangement being a system of four to six bed wards, in which adequate floor and air space is provided.

Every county has one or more large central hospitals and several smaller ones. In all, there are 175 general hospitals in Denmark with more than 14,000 beds, or 4.5 beds per 1,000 inhabitants. This compares with 2.6 general hospital beds per 1,000 in the United States. The number of patient days amounts to 4,300,000, or 1.4 days in general hospitals for every inhabitant annually, as compared with 0.61 patient days in the United States. In the accompanying table there is given a summary of the information secured concerning the number and type of hospital beds.

TABLE 1.—Hospital beds in Denmark and the United States

Number of hospitals	Type	Denmark		United States, beds per 1,000 inhabitants ¹
		Number beds	Beds per 1,000 inhabitants	
	Medical and surgical.....	9,666	3.1	
	Contagious.....	3,090	1.0	
	Skin and venereal.....	1,041	.3	
	Temporary mental.....	308	.1	
175	All general hospitals.....	14,105	4.5	2.6
62	Tuberculosis institutions.....	3,458	1.1	.44
8	Insane asylums.....	5,900	1.8	3.0
4	Feeble-minded and epileptic.....	3,632	1.1	
(7)	All others.....	(?)	(?)	1.04
	Total.....		8.5	7.08

¹ Hospital Service in the United States. J. A. M. A., vol. 86, No. 14: 1009.

² Not including hospital beds in old-age homes and institutions.

³ Not including 308 beds in general hospitals for mental cases.

⁴ Not including special schools in Copenhagen for 300 or private homes with 350 feeble-minded children.

In comparing the hospital facilities of Denmark and this country it should be noted that Denmark has 4.5 and the United States 2.6 general hospital beds per 1,000 inhabitants, and that in Denmark these beds are 87 per cent and in the United States 67 per cent occupied.

The number of beds per capita for mental and nervous cases is approximately the same in the two countries. The number of beds for tuberculosis cases in Denmark is 1.1 per 1,000 inhabitants, and in the United States 0.44. The number of beds in all types of hospitals is for Denmark 8.5 per 1,000 inhabitants, and for the United States 7.1. The figure for the United States, however, includes 1.0 bed per 1,000 in institutions, such as old age homes, etc., while this class of hospital bed is not included in the Danish statistics.

The Control of Communicable Diseases

Measures against epidemic diseases are placed in the hands of local epidemic committees, under the supervision of the National Board of Health, through its county and district medical officers. Reports of cases of contagion are sent each week by all medical practitioners to the district medical officer. When an epidemic occurs, immediate reports are required. Immediate reports are required also for cases of typhoid fever, diphtheria, scarlet fever, meningitis, and poliomyelitis, when they occur at a school or in a house from which milk or food is sold. The diagnosis of contagious diseases is facilitated by the legal right to gratuitous admission to a hospital and by the laboratory facilities which are available at the State Serum Institute and at all local hospitals.

The majority of cases of contagion are isolated in a public hospital, at which gratuitous treatment is provided if they are admitted immediately after the diagnosis is made. Isolation hospitals are plentifully supplied, one bed per 1,000 inhabitants being available. In the larger cities, special hospitals for contagious diseases are used, and in the smaller towns an isolation ward is attached to every public hospital. The hospitalization of a great majority of cases is looked upon as a matter of course. About 90 per cent of all reported cases of diphtheria are hospitalized, and practically all cases of typhoid fever, meningitis, poliomyelitis, and scarlet fever. According to estimates, about 20 per cent of measles and whooping cough patients are hospitalized in Copenhagen; but outside of Copenhagen only a very few are hospitalized. The cubicle system of isolation is not generally practiced, separate rooms or small wards being available for each disease. The local epidemic committee can compel hospitalization in any case in which it is deemed desirable.¹ Cases are released from quarantine by the attending physician. Cases of typhoid fever are not released until three consecutive examinations of urine and feces have been found negative. The local epidemic committees have wide powers in the control of disease carriers.

Owing to the large number of dairies throughout the country, special measures are taken for the prevention of milk infection; and when the sale of milk or milk products is prohibited, compensation is given for losses. The same is true when typhoid or diphtheria carriers are required to discontinue their occupation involving the handling of food and milk. When a case of contagion occurs in a school child the practicing physician notifies the school authorities of that fact. The Minister of Education issues special regulations concerning the control of contagious diseases in schools.

For many years it has been the fundamental rule in Denmark that all expenses in connection with contagious diseases should be borne by the public. The local communities furnish hospital and medical facilities, but the treatment proper is divided between the State and commune, one-half or three-quarters being paid by the State, depending upon the nature of the treatment. The cost to the State (central government) for this service varies between \$500,000 and \$600,000 per annum.

It was interesting to note that epidemiological studies of diseases are not ordinarily made by medical officers except during epidemics. In fact, the primary responsibility for and control of contagion is

¹ In Denmark there are two forms of gratuitous treatment of communicable diseases: (1) The more endemic communicable diseases—diphtheria, scarlatina, typhoid fever, cerebrospinal meningitis, and others—may be gratuitously treated in an isolation hospital. Such treatment is not compulsory, but is offered to induce patients to be isolated. The offer is usually accepted. (2) The rarer and more dangerous communicable diseases, such as plague, cholera, smallpox, yellow fever, tropical dysentery, etc., are subject to compulsory treatment by public arrangement at public cost, and isolation (in hospital) is compulsory.

placed, upon the attending physician and the hospital. Cases of contagious diseases appear to be notified to a degree of completeness which is gratifying. In Table 2 is a comparison of the case incidence, and case fatality rates for certain diseases in Denmark and in the United States.

TABLE 2.—Case incidence and case fatality rates for Denmark and for the reporting States of the United States, for certain diseases, 1923

Disease	Denmark				United States ¹	
	Cases	Deaths	Case incidence per 1,000 inhabitants	Case fatality, per cent	Case incidence per 1,000 inhabitants	Case fatality, per cent
Typhoid fever.....	580	43	0.19	7.4	0.32	22.4
Diphtheria.....	5,690	155	1.8	2.7	1.31	8.68
Scarlet fever.....	3,851	39	1.3	1.0	1.56	1.99
Measles.....	32,166	179	10.7	.5	7.72	1.38
Tuberculosis (pulmonary).....	2,893	2,245	.9	77.0	-----	-----
Whooping cough.....	26,446	677	8.8	2.6	1.61	.64
Gonorrhoea.....	11,115	-----	3.7	-----	1.44	-----
Syphilis.....	2,496	98	.8	-----	1.68	-----

¹ Rates published in Public Health Reports, vol. 39, No. 47, Nov. 21, 1924, pp. 2889, et. seq.

Skin tests (Schick and Dick) to determine susceptibility to diphtheria and scarlet fever are not used to any appreciable extent, and active immunization against these diseases is not practiced. Diphtheria antitoxin is used in very large doses. The case fatality from this disease for the whole country is 2.7 per cent, and for those cases treated in the epidemic hospital in Copenhagen, 2 per cent. These rates compare with a case fatality of 8.687, in the United States.

Throat cultures formerly were taken from diphtheria and meningitis carriers, but this procedure has been abandoned. An interesting feature of whooping cough control is the routine laboratory diagnosis of the disease provided by the State Serum Institute. This enables an early diagnosis before the onset of the "whoop." This method of diagnosis is said to be accurate in more than 90 per cent of the cases.

Smallpox vaccination.—Vaccination has been compulsory in Denmark for 116 years, and there is, on the average, scarcely one case of smallpox per year occurring in the whole country. When cases of smallpox occur, they are always imported cases. A great majority of vaccinations are done at public expense. In Copenhagen a staff of public vaccinators is employed. In the small towns, vaccination clinics are held twice annually, and in the rural districts, once annually by the district medical officers. The thoroughness of vaccination is controlled by the requirement that all children must be vaccinated before being admitted to school and for the male population, by the revaccination of conscripts. The National Board of Health brings

pressure to bear for the revaccination every seven years of persons who are likely to be exposed to smallpox. All of the vaccine virus used in the country is prepared by the Royal Vaccination Institute and is furnished free to medical officers and to practicing physicians.

Tuberculosis control.—Tuberculosis in Denmark, as in other countries, is an important public health problem and one toward the solution of which much money and effort have been expended. In the campaign against this disease first thought apparently has been given to institutions for the isolation and treatment of early cases and more advanced cases. With 109 beds per 100 annual deaths, Denmark has, proportionately, more institutional accommodations for the treatment of tuberculosis than any other country, and about 2.5 times as many beds per annual death as the United States. In connection with this fact some Danish physicians also invite attention to the death rate in Denmark, which is the lowest of any country in Europe. For each annual death from the disease 2.5 patients are admitted to tuberculosis institutions, but only about one-half of this number of cases are reported to the health authorities. In Copenhagen, 70 per cent, and in the remainder of the country 33 per cent of all deaths from pulmonary tuberculosis occur in institutions. Several types of tuberculosis institutions are in use. In connection with many of the general hospitals, beds are available for tuberculosis cases. These are of two classes: (1) suspected cases which are hospitalized for diagnosis and classification as to type prior to admission to a sanatorium; and (2) advanced cases for whom sanatorium treatment would be apparently of no value. In all there are nearly 1,000 tuberculosis hospital beds. There are 16 tuberculosis sanatoria located in different parts of the country with nearly 1,400 beds: 3 seaside hospitals with 375 beds for the treatment of advanced nonpulmonary tuberculosis; 9 seaside sanatoria with 480 beds for the treatment of scrofulous children, and a number of other types of institutions, such as invalid's homes, for very chronic cases, a day-cure resort for the partially incapacitated, and a specially constructed apartment for families with a tuberculous member.

Open-air schools and open-window rooms for "pretuberculous children" are not used in Denmark. In Copenhagen and Fredericksberg there are two open-air schools for children with *infective* tuberculosis; and children with enlarged glands or children from tuberculous families are sent to seaside camps, at least one of which is maintained as a part of the school system of Fredericksberg.

The average length of stay for patients in sanatoria is between five and six months. About 40 per cent of all pulmonary tuberculosis patients admitted to sanatoria are in the advanced stage, and 25 per cent are in the incipient or minimal stage. The sanatoria are

well constructed and the methods of treatment are not different from those in similar institutions elsewhere. Sanocrysin is used in some of the institutions visited, being given in small doses beginning with 0.1 gram and increasing to a maximum of 0.5 gram. The treatments are given on alternate days, no serum being used in conjunction with the sanocrysin. In other institutions the use of sanocrysin has been discontinued. Opinions of the sanatoria directors as to the usefulness of this drug vary somewhat. Several of them maintain that it is of no value; others are equally sure that it has a field of usefulness, especially in the treatment of laryngeal tuberculosis.

The Finsen Light Institute, founded in 1893, gives 60,000 treatments each year to 9,000 patients suffering from skin and surgical tuberculosis. The director of the institute states that 90 per cent of the cases of skin tuberculosis are cured. Two types of treatment are used; the concentrated light therapy and the general light baths. In addition to the clinic this institute maintains 127 hospital and sanatorium beds for the use of its patients.

It was interesting to note that heliotherapy has a very important place in the treatment of tuberculosis in Denmark, especially in the treatment of surgical, glandular, and laryngeal forms of the disease. Every general hospital visited was provided with Finsen and mercury quartz lights. The treatment of scrofula by sunlight is carried out extensively at many seaside holiday camps and sanatoria for children. The valuable custom has developed in Denmark of sending children from the larger cities to spend their summer vacations at farm homes. The State railways provide free transportation for them, and each year it is estimated that 25,000 children from Copenhagen spend their summers in the country.

The Government contributes generously to the construction and support of tuberculosis institutions, paying a varying proportion of the cost of the building and from three-fourths to five-sixths of the cost of treatment of persons "without means"—and this phrase is given a very liberal interpretation. The question of payment does not debar any patient from admission to an institution. In addition, relief is granted to families of tuberculous persons undergoing treatment, and where children can not or should not remain in the home, the municipality defrays the expense of boarding out the children.

Finally, very considerable government aid is given to tuberculosis dispensaries amounting to one-half of their operating expenses. The dispensary service is not developed to the same extent as the sanatorium treatment; only in the larger towns are there dispensaries with physicians in attendance. In the smaller towns and rural districts, dispensary service has not been developed, owing, it was stated, to the opposition of the family physicians to having their cases given over to the care of a dispensary physician. Even in

Copenhagen there is very poor coordination between the dispensary service and the sanatoria, although both the dispensaries and some of the sanatoria are under the management of the National Tuberculosis Association.

There is some visiting nurse service, the nurses being paid by sick benefit clubs or municipalities, but the instructive public health nursing service for tuberculosis and other diseases has not been developed to any extent.

Annual State grants for combating tuberculosis amount to more than \$1,000,000, or about 36 cents for every inhabitant, and expenditures by all agencies for this purpose amount to an estimated total of 50 cents per capita.

The infectiousness of tuberculosis seems to be emphasized in Denmark, as shown by the provisions of law which require a medical certificate of freedom from this disease for wet-nurses, employees in childrens' homes, day nurseries, and crèches, for foster parents and children; for teachers, midwives, and nurses; and even for certain government postal and railway employees. Compulsory isolation or hospitalization of open cases can be ordered by the local epidemic committees.

TABLE 3.—Comparison of tuberculosis death rates per 100,000 inhabitants in Denmark and the United States

	Cities		Rural	
	All forms	Pul-monary	All forms	Pul-monary
Denmark (1924).....	110	84	92	65.
Registration area of United States (1923).....	95.3	83.1	91.9	83.9

In Table 3 a comparison is made between the tuberculosis death rates in Denmark and the United States. Of particular interest are the higher rates from nonpulmonary tuberculosis, especially in the Danish rural districts. It is suggested that the high prevalence of bovine infection and the small proportion of pasteurized milk in Denmark may be a factor in causing this condition.

The tuberculosis death rate has declined to a marked extent in Denmark. The death rate from all forms of the disease in the cities during the past five years is only 46 per cent of the rate prevailing for the first five years of this century. During the same period, the death rate from pulmonary tuberculosis has declined 42.9 per cent, although it is proportionately higher than in the United States. It has been impossible here, as elsewhere, to determine the relative importance of the many factors operating to bring about this decline. Along with the extensive efforts directed against the disease, important

sociological changes in the country have taken place. Standards of living have progressively improved, public education has been extended, much social welfare legislation has been enacted, general medical service has improved, and the physical education movement has grown rapidly. A decision, therefore, as to the relative influence of the direct measures of tuberculosis control and of the improved economic and social conditions of the country in bringing about a decline in the death rate will depend upon the point of view of the observer as to whether tuberculosis is primarily a sociological or a medical problem.

Venereal disease control.—For nearly 150 years regulations have been in effect in Denmark providing the public free treatment for all cases of venereal disease without regard to the ability of the patient to pay, and requiring all venereally infected persons to submit themselves to medical treatment. Free treatment and the obligation to submit to treatment have been the two guiding principles in the control of these diseases.

Reports of cases of venereal diseases are incomplete in Denmark as in other countries. In 1923, 11,115 cases of gonorrhoea were reported, and 2,326 of acquired syphilis, giving a reported case incidence of 3.3 and 0.8 per thousand inhabitants, respectively.

Some estimate as to the presence and trend of venereal infections can be learned from the clinic records in Copenhagen, and from the number of Wassermann examinations made at the State Serum Institute, where all Wassermann examinations for the entire country are made. In Copenhagen, the number of cases of gonorrhoea treated annually amounts to approximately 270 per 100,000, while cases of syphilis approximate 30 per 100,000 inhabitants. Some of the Danish physicians furnish an estimate that new infections of venereal diseases have decreased 33 per cent during the present century, and the opinion is generally held that syphilis in particular has decreased in prevalence. This result is attributed to the facts that patients seek medical treatment early in the course of the disease, that there is no unqualified medical practice or advertising of patent medicines, and that houses of prostitution have been abolished since 1901.

The facilities for treating venereal cases are most extensive. The furnishing of free medical treatment is one of the important functions of each of the 73 district medical officers of health. In one typical county, having a population of about 100,000, the health officer receives reports each year of about 500 cases of venereal disease; approximately one-half of these apply to the health officer for treatment. One-half of the cases of syphilis applying for public treatment in this district are hospitalized. Every general hospital in the country has special wards or special beds for skin and venereal cases, totaling, for the whole country, more than 1,000 beds. Cases of

venereal disease which are hospitalized can be held in the hospital until discharge is permitted by the medical authorities. In Copenhagen, seven venereal-disease clinics are operated by the city health department, employing a staff of 12 part-time physicians.

There are three interesting institutions called "Welander Homes," which accommodate about 82 children suffering from congenital syphilis. In these homes, the children are given the best medical treatment in conjunction with hygienic care and education. They are discharged after several years' residence, when the maximum possible benefit has been secured from the treatment.

Care of Mental Diseases

The care of mental disorders in Denmark is under the jurisdiction of the central government and is lodged in a special department in the ministry of social affairs. The National Board of Health is consulted concerning construction and sanitation of institutions, nutrition of the patients, etc. There are six State hospitals for mental diseases and two mental hospitals in Copenhagen, having a total bed capacity of nearly 6,000, or 1.8 beds per 1,000 population. In addition, there are four institutions for the feeble-minded, with 3,500 beds, and two small homes for epileptics. The operating costs of the mental disease hospitals average \$1.50 per patient daily. Of this amount 70 per cent is paid from public funds and 30 per cent is paid by the patients either directly or through their sick benefit clubs.

At the large mental disease hospital at Nykoeburg, with a capacity for 820 patients, there are 7 physicians, 93 trained nurses, and 80 probationers and attendants. Graduate female nurses occupy all of the higher nursing positions. Graduate nurses and student nurses are used in all wards, being assisted by a few male attendants in the case of violent male patients. Each mental hospital is administered by a superintendent who is not a physician, but he is subject to the decisions of the head physician in all matters regarding treatment and welfare of the patients.

At one of the mental hospitals a plan of family nursing has been in effect for a number of years with results which are said to be entirely satisfactory. Under this plan, selected patients are boarded out at farm homes and are visited twice monthly by a private practitioner in the neighborhood. The placement of the patients is directed by the medical superintendent of a near-by mental hospital.

No mental hygiene activities, comparable to child guidance clinics or mental clinics in this country, are being conducted in Denmark. It is beyond the scope of this paper to discuss the methods of commitment and other legal questions regarding insanity.

Sick Benefit Clubs

Denmark has a system of voluntary insurance against sickness which includes 60 per cent of the population between the ages of 15 and 60 years. Approximately one and one-third million people have membership in the sick benefit clubs, and when one of the parents is a member, the medical benefits also extend to children under 15. The present system has evolved, during many years, from the voluntary and mutual insurance clubs associated with the old guilds. In 1892, a law was passed which offered Government recognition in return for certain privileges and obligations. The privileges included a subsidy, and rights to hospital treatment at reduced terms. The obligations related to supervision of budgets and accounts. The effect of the law was to promote a voluntary combination of individual clubs into central unions for counties or districts, to establish minimum cash benefits, and to coordinate the many existing clubs into a national system of voluntary insurance. The laws have been changed in some particulars, in accordance with the expressed wishes of the clubs themselves. In scope a sick benefit club usually is limited to some special locality, less frequently it is connected with a special trade. The conditions governing membership relate to—

(1) *Age*.—The age limits are from 14 to 40 years at the time of admission.

(2) *State of health*.—A separate account is kept of each two groups of members, (a) those in perfect health, (b) those suffering from a chronic disease. The State bears the additional cost of the second group.

(3) *Income and property requirements* are somewhat detailed; but, in general, all except the more wealthy are eligible.

Benefits.—Membership in a sick benefit club entitles the member to medical and hospital treatment, including mental disease and tuberculosis hospitals; a daily cash benefit for illness varying from 12 cents to \$1.60 for 26 weeks in 12 consecutive months, or 60 weeks in three years; and for assistance to women in childbirth. In addition to the above compulsory services, many clubs provide specialist's attendance, dentistry, medicine, home nursing, convalescent home or health resort treatment, etc. The Government contributes one-fourth toward the expense of the above services, pays annually 80 cents to every club for each member, and if a member continues sick beyond the time limit pays public relief.

The Government subsidies amount to about \$2.20 per member, which, together with the expenditures by the clubs, make a total expenditure per member each year of nearly \$7. This is distributed as follows:

	Per cent
Medical, specialist, and dental service.....	45. 4
Hospital and institutional treatment.....	13
Medicine.....	10
Cash benefits.....	16. 5
Administration.....	12

The premium per year per member varies somewhat, depending upon the amount of the cash benefit, the extent of the service rendered, etc., averaging in 1921 about \$4.50 per member.

A premium for invalidity insurance is collected also from all members between 18 and 62, varying according to age from \$1.40 to \$2.70; and under the workmen's compensation act employers are required to insure all employees. The annual cost of this amounts to about \$1.50 per worker.

The sick benefit clubs have a public health interest, not only because they have assured to a large part of the population adequate and early medical treatment, which is often the best means of prevention, but because they have done much to free the individual from the economic consequences of disease. Owing to the medical service available through the clubs, infant and child health activities of health departments have not been so necessary as in other countries. The expenditures from public funds, therefore, toward the support of these clubs are looked upon by the Danes as an indirect subsidy to the public health service.

Social Legislation

In addition to the sick benefit laws, other social legislation should be mentioned, largely because it illustrates how thoroughly the country has organized its social services.

Poor law.—As in most countries, paupers are provided with medical and institutional care and cash benefits. This relief, however, invokes certain disabilities, such as loss of franchise, etc., so that it is utilized only by the "undeserving poor," and in most cases public relief is obtained under other laws without the attending disabilities.

Temporary public assistance is given to the "deserving poor" who are trying to support themselves without applying to the poor law administration.

Old age pensions are paid to impecunious citizens over 65 years of age, amounting to about \$125 per annum per pensioner and involving a total annual public expenditure of about \$18,000,000.

Under the child welfare act, relief for children of widows is provided to the extent of \$30 to \$50 per child annually when the widows' income is below a certain minimum. For illegitimate children and unmarried mothers public care is provided, and the father is required to reimburse three-fifths of the expenses up to the age of 18 when-

ever possible. A divorced or deserted wife also has the right to relief from public funds.

Invalidity insurance has been mentioned in connection with sick benefit clubs. The funds are secured from premiums paid by insured persons, contributions from employers, and subsidies from the State and municipality. The invalidity pension of \$220 per year is paid when the working capacity of the applicant is reduced two-thirds or more. The reduction in working capacity is calculated rather liberally by a central tribunal after a complete medical examination. In addition, nursing, medical treatment, and prosthetic appliances are provided to lessen the degree of invalidity.

Workmen's compensation.—All persons engaged in any kind of work, whether for salary or wages, come within the scope of the act. Small tradesmen, artisans, and farmers may insure themselves, the government assisting them in paying premiums. Employers must cover their legal risks by insurance in an insurance company. Benefits are paid for accidents and industrial diseases. In the case of death, a lump sum is paid equal to five times the annual earnings of the deceased, not exceeding \$3,000 nor less than \$1,500. For incapacity not fatal, two-thirds of the actual earnings are paid daily, after the lapse of 13 weeks, during which time the sick benefit clubs will usually have paid sick benefits and provided medical treatment. For permanent partial disability a lump sum is paid (the maximum being \$6,000), depending upon the earnings and extent of impairment.

Child Welfare

Denmark makes very elaborate provisions for child welfare. In this, as in other phases of social welfare, the primary emphasis seems to be placed upon education, moral welfare, care, and treatment rather than upon preventive measures. Child-welfare activities are supervised by a department in the Ministry of Social Affairs, and are carried out in the various local communities through child-welfare councils. These councils are appointed by the local (parish or municipal) authorities and exercise jurisdiction over all questions pertaining to the moral and, partly, the sanitary phases of child welfare. They also perform the functions of juvenile courts. These councils do not ordinarily have a medical member, a fact which was commented upon adversely by a number of Danish physicians.

The measures taken for child welfare in Denmark may be summarized as follows:

- (1) The bringing up of children away from their homes, and assistance to parents in bringing up their children. Nearly 5,000 children are now being cared for away from their homes (1.4 per 1,000 inhabitants). The institutions in which these children are placed include 22 reformatories and industrial schools with a capacity

for more than 1,000 children, 114 childrens' homes accommodating 2,700 children, 18 homes for infants accommodating 425 children, and 48 detention and observation homes with a capacity for 1,200 children. In addition to the children placed in these institutions it is estimated that one-half of the wards of the child-welfare councils are placed in private families.

(2) In addition to the children who are wards of the child-welfare councils, elaborate provisions are made for the care of children during the day while the mother is at work. There is a total of 216 day industrial schools, recreation homes, public kindergartens, crèches, and day nurseries accommodating more than 9,000 children.

The expenditures by the State for public child welfare amount to more than a million dollars, and by municipalities \$250,000 per year. It is said that the major cost of child welfare, however, is borne by private organizations.

(3) A description will be given elsewhere in this report of the institutions for the crippled, the blind, the deaf, the imbecile, the epileptic, and tuberculous children, which have a total capacity for 3,045 persons.

(4) In addition to the care given to the various classes of children mentioned above, permanent poor relief is given to assist parents in the raising of their children, about 15,000 families receiving this aid.

(5) The birth of every illegitimate child must be reported by the attending physician or midwife to the child-welfare council, which organization exercises intimate supervision over these children. The mortality among illegitimate children was formerly very high, but now approximates that of children born in wedlock. About 8,000 illegitimate children are born each year, representing about 10 per cent of the total births. Child-welfare councils and boards of guardians pay each year approximately \$1,000,000 toward the care of illegitimate children, approximately one-half of which is refunded by the alleged fathers. A number of institutions are operated for the care of unmarried mothers and their children or for the children alone.

(6) Other activities concerning child welfare relate to the enforcement of very comprehensive child-labor laws, prevention of cruelty to children, etc.

Although very extensive measures are carried out for the welfare of children and strict rules exercised concerning the sanitation and medical attendance at all children's institutions, the writer's impressions are that this movement would be more effective if medical direction were provided for many of its phases, if trained public-health nurses were substituted for untrained social-welfare visitors,

if better coordination existed between the prenatal, infant, and school welfare services, and if more stress were placed upon prevention rather than treatment.

Child Hygiene

Measures for child hygiene per se are not extensively developed in Denmark. There is apparently much truth in the statement made by the Danes to the effect that the extensive child-welfare activities and the ample provision for medical service provided through sick-benefit clubs and hospitals obviate the necessity for extensive child-hygiene activities, such as are carried out in some other countries. Prenatal clinics, such as exist in the larger centers in the United States, have not been developed in Denmark, with the exception of one such clinic at the State Hospital. In Copenhagen there are eight baby clinics conducted by a church organization with grants from the city and State. About 1,200 infants are under supervision at these clinics, representing more than 10 per cent of the infant population. They are held weekly or biweekly and admit only infants who are breast fed. This restriction is made in order to encourage breast feeding of infants. The mothers are given 1 quart of milk a day for their own use if they attend the clinics regularly.

School Hygiene

School physicians are not employed at present except in a few of the larger towns. Some of the smaller towns in the past have employed school physicians, but upon inquiry as to why their services were discontinued several school superintendents and district medical officers stated that "they could not make a living." In other words, the opinion prevails that medical service to the public is so complete there is no great need for a public-school physician to examine the children.

In Copenhagen, 30 school physicians are employed on part-time service, and an examination of all children is made shortly after they enter school and usually before graduation. Visits are made by the doctor to the school twice each week, and the teachers send to the physician selected pupils for observation. Whenever defects are found, parents are notified, and if the defect is not corrected, the parent is requested to come to the school for consultation with the physician. Very little "follow up" work is done, it being stated that in practically all instances the parents followed the advice of the school physician without an additional personal appeal by school nurses. The school physicians supervise sanitary arrangements at the schools and are notified when infectious diseases occur.

The most important duty of the eight school nurses in Copenhagen seems to be to assist the doctors in the treatment of scabies

and pediculosis and to render first aid. Health education has received much emphasis, and all teachers at secondary schools are required to take a course and pass an examination in school hygiene. The course is given by a special medical lecturer.

The hygienic arrangements at all schools visited seemed excellent. Much emphasis is placed on the teaching of dietetics and on physical education. Baths are given at the schools every two weeks and school lunches are provided to a greater extent than in this country. These lunches are offered at a very moderate cost and are furnished free to a considerable number of the children.

Two very well equipped dental clinics are in operation in Copenhagen, one in Fredericksberg and 12 in various provincial towns. The two clinics in Copenhagen serve the four lower grades in half the school system and furnish emergency dental treatment to children in the upper grades. Additional clinics are to be added in the near future. Examinations are made of these children each year at the clinics, and 20,000 children are treated annually. Ninety per cent of the children needing dental attention avail themselves of the service of the clinic. The cost of the service for each child treated is \$1.25.

Physical education.—One of the very interesting public health activities in Denmark is the thorough system of physical education. Practically all school buildings are provided with gymnasiums; the teachers of physical education frequently teach other branches, so that there is a high degree of coordination between the mental and physical instruction. At the final examinations in secondary schools grades are given for physical exercises in the same manner as for other subjects.

Physical training is not confined to the schools. All over the country there are gymnastic associations, 831 in number, with about 1,500 teachers and with a membership of 35,000 young men and women. A considerable amount in Government grants is given to train teachers of gymnastics. A very interesting gymnastic high school at Ollerup was visited. The director of this institution has developed a system of gymnastics of international repute. A group of 30 American students and teachers of physical education are taking a post-graduate course at this institution during the current year.

Care of the Crippled, Blind, and Deaf

Crippled.—Care of the crippled is conducted mainly by private initiative with a State subsidy of \$170,000, annually. This work is centered at the Institute for Crippled Children in Copenhagen, which was founded in 1871 and which is said to be the first of its kind in the world. At this institution a clinic is maintained to

which 2,000 new patients are admitted and at which nearly 10,000 orthopedic consultations are given annually. Hospital beds are available for cases requiring hospitalization. In addition to the orthopedic clinic, there is a school where education comparable to that of other schools is given. Most of the children live at the institutions, and all are trained in some occupation suitable to their physical and mental status. In connection with the institution there is a seaside sanatorium with accommodations for 240 patients.

Blind.—In Denmark there are about 1,500 persons classified as blind. Upon inquiring as to the causes of blindness, it was interesting to learn that smallpox blindness is unknown; that ophthalmia-neonatorum has practically disappeared since 1900, when the use of silver nitrate was required for all newborn children with a result so satisfactory that only four cases have developed in the country since 1910; and that xerophthalmia was responsible for the development of 42 cases of blindness during the war. This latter disease appeared in a large number of children, due to the fact that practically all of the butter in the country was exported and skimmed milk and butter substitutes were used extensively.

There are two institutions for the training of blind children, with a combined capacity for about 220 pupils. At these institutions the children are educated up to the age of 18 or 20.

The city of Copenhagen maintains special schools for children of weak sight.

Deaf mutes.—Since 1817 there has been compulsory education for all deaf mutes, of whom there are about 1,800 now in Denmark. These children are classified as partially or totally deaf, and the totally deaf are further classified into three groups, depending upon their intelligence. All except the least intelligent are taught lip reading. In all, there are five institutions for the education of deaf mutes, at which the cost is practically gratis.

As a part of the Copenhagen school system there is a school for the hard of hearing. Monthly physical examinations and hearing tests are made of all pupils and daily aural irrigations are given.

Milk Sanitation

Dairying is the most important single industry in the country and forms the backbone of Danish prosperity. The value of exported butter exceeds \$130,000,000 per annum and the export value of all dairy products reaches a total of nearly \$200,000,000 and constitutes one-third of the value of all exports. Like so many of the industries and activities in Denmark, dairying is organized on a cooperative basis. About 125,000 milk producers (dairy farmers), owning more than 1,391,000 cows, are members of the 900 cooperative dairies,

through which a large part of the dairy products of the country is handled.

In view of the highly developed state of this industry it seemed desirable to study the measures which are in effect to safeguard the sanitary quality of dairy products. Like most other sanitary problems, the control of milk supplies is mainly a function of local (municipal) authorities. The individual municipality is free to decide whether or not any sanitary control is to be exercised, and the nature and extent of this control, subject only to approval of the regulations by the Home Office.

In addition to municipal regulations, the Ministry of Justice, under the general authority of a pure-food law, has decreed certain regulations applicable to the whole country. These relate not so particularly to sanitary matters as to minimum requirements for the composition of milk, especially percentage of fat, solids, and the like, to prevent adulteration. These regulations define Pasteurization and also "milk for children."

Pasteurization.—The use of Pasteurized milk in Danish cities, as judged by American standards, is not extensive. In Copenhagen, the two largest dairies report that about 40 per cent of their supply is Pasteurized, and in other towns where inquiry was made the proportion of Pasteurized milk was considerably less. The "flash method" of Pasteurization is the only one in use. The regulations of the Ministry of Justice provide that—

Milk or cream may be designated as Pasteurized only in case the milk or cream not later than 24 hours after milking has been heated to at least 80° C. and there after cooled to 12° C. Pasteurized milk or cream must not give reaction to the paraphenyldiamin test (Storch's reaction), and the name of the firm and date of Pasteurization must appear on the container.

In the dairies all milk for butter making and skimmed milk returned from the dairies to the producers is Pasteurized.

"Children's milk."—This corresponds in general to "certified milk" in American cities, with the important difference that its cost is only 2.5 to 3 cents more per liter than ordinary milk. The regulations of the Ministry of Justice require "children's milk" to be from cows free from tuberculosis as shown by an annual tuberculin test and a fortnightly veterinary inspection of the cows, and that it comply with the regulations of the municipality concerned. Special requirements in Copenhagen for "children's milk" include the use of a washable milking suit, cleanliness of the stable, cooling of the milk to 8° C., and a negative reductose test for 5 hours. In Copenhagen, less than 5 per cent of the total milk supply meets the requirements of "children's milk," and there is sale for only 3 per cent under this designation. In the other cities a smaller proportion, and in some cities none, of the milk is classified as children's milk.

Milk control measures by municipalities.—As may be expected, the nature and extent of milk control measures by different municipalities varies greatly. Many of the smaller cities exercise no control, others employ a veterinary inspector or use the sanitary police more or less for this purpose. The milk control regulations in Copenhagen are very complete as regards the examination of the cows by veterinarians, the health of the cows, the cleanliness of the stables, the wearing of washable clothes by the milkers, the absence of dirt in the milk, the reporting and removal of cases of communicable diseases occurring on dairy farms, etc.

The expenses of the enforcement of the regulations as they apply to dairy farms are borne almost entirely by the Copenhagen receivers of the milk, who employ 130 veterinary surgeons (part time) for this purpose. The city employs two veterinary surgeons who supervise milk production and handling, and who are assisted by the sanitary police in taking temperatures of milk being shipped to the city and in collecting samples for examination. There is practically no bacteriological control of milk in Copenhagen or elsewhere in the country. In place of this, however, the temperature, the absence of dirt, and the reductase test are used as criteria of quality. About 12,000 samples are examined in Copenhagen per year. In Denmark, milk is not graded according to quality (except the special "children's milk" described above) by the municipalities, and it is not the usual practice for the city to control, by bacteriological methods, the efficiency of Pasteurization or of methods of cleaning and sterilizing milk bottles, utensils, or milk plant machinery. The sanitary control exercised by the dairy plants themselves is very strict and complete. Milk is bought at the milk plants, not only on the basis of its content of butterfat, but also on the basis of its sanitary quality. The minimum standards vary somewhat, but in general, if the milk is visibly dirty, too warm, or decolorized too quickly by the reductase test, the farmer is paid less than the market price, or if the milk repeatedly is sub-standard, it is rejected entirely. This gives a very direct economic urge to the producer to maintain the quality of his product.

Cases of communicable disease at dairy farms seem to be well reported. The cooperative dairies compensate the farmer for any losses incurred in the restriction of milk sale by reason of the occurrence of contagion, and free hospital treatment is provided so that the incentives to hide cases of human contagion are largely removed.

The sanitary conscience of the Danish people is highly developed, and a high standard of cleanliness was observed at all of the dairy farms and plants visited. It was noted, however, that the facilities for sterilizing milk utensils at some of the farms were inadequate; that the design of some of the milk-plant machinery made its cleaning difficult, and that hand-capping of the bottles is still practiced.

At one "model farm" supplying "children's milk," physical examinations of the employees are made by a physician, but this is not the general practice either for employees at the dairy farms or at milk plants.

Milk-borne epidemics have occurred in Copenhagen and elsewhere, but in the limited time available no complete reports of these could be collected.

Bovine tuberculosis.—Except for those cows supplying "children's milk," freedom from tuberculosis, as shown by the tuberculin test, is not required. Veterinary surgeons examine the cows periodically (usually monthly) for clinical signs of disease and note carefully the condition of the udder. Such an examination will disclose only advanced tuberculosis and demonstrable udder lesions, a small percentage of the total of infected cows. Since tubercle bacilli may be excreted through an apparently healthy udder, and since milk may be infected by bacilli from the feces of cows with lung tuberculosis, it is obvious that this system by no means excludes bovine tubercle bacilli from the milk. This seems to have an added sanitary significance when the small percentage of Pasteurized and children's milk is considered.

Although some progress has been made in bovine tuberculosis control by the breeding of uninfected herds after the Bang method (which is well known and will not be described here), this disease is still very prevalent and Professor Bang concludes that it is almost as prevalent now as it was 25 years ago. The farmers generally do not seem disposed to undertake the eradication of tuberculosis in their herds, as is shown by the fact that although more than 750,000 cattle were owned by members of dairy associations, less than 48,000 were tested in the whole country in 1922. Of these, 11.9 per cent reacted to the test, and of those tested the first time, 26.1 per cent reacted. The prevalence of the disease is further illustrated by the fact that of 163,000 cattle slaughtered during 1922, tuberculosis lesions were found in 28.85 per cent.

It is interesting to note that all skimmed milk from dairies which is returned to the farms for the feeding of calves and pigs is required to be Pasteurized to prevent the transmission of tuberculosis and other diseases to those animals.

The State pays a partial compensation to owners of cattle which are required to be killed because of udder tuberculosis. Each year only 700 to 800 cows with udder lesions are destroyed.

Water Supplies

Public water supplies are in use in the cities and even in some of the very small villages. Copenhagen has a very extensive supply secured from a large number of wells, varying in depth from 50 to

150 feet. The water from these wells is sterile. It is collected from the various batteries of wells and treated by aeration and filtration to remove iron. The per capita consumption of water in Copenhagen is about 36 gallons daily.

Sewage Disposal

Public sewer systems, likewise, are in use, although none of the towns are completely sewered. In Copenhagen there is one water-closet for every four inhabitants. In the unsewered districts of the towns, and even at the rural homes and schools, the prevailing type of privy is the can type. In the larger cities they are cleaned by a municipal scavenger service, while at the farm homes and in the smaller villages the occupants of the houses care for the disposal of the excreta. The regulations in Copenhagen and other large cities require that the privies be of tight construction, that the seats be provided with lids, and that they be ventilated.

Meat Inspection

The inspection of meat is under the jurisdiction of the national Department of Agriculture and is supplemented by regulations of the local health committee in most of the towns. The extent to which the local inspection is carried out varies among the different municipalities. All exporting slaughterhouses and all meat for export are subject to strict State control.

Discussion

In the foregoing report many details of the public health organization of Denmark have of necessity been omitted. It is hoped, however, that the reader can gain some conception of the policies and procedures which characterize the Danish public health system.

What, in brief, impresses the public health student in Denmark?

The complete, elaborate, and expensive provisions which are made for the care of the unfortunate members of society are constantly noticed. The splendidly organized system of curative medicine, under which medical, hospital, dental, nursing, sanatorium, asylum, in fact every type of care is furnished to all in need thereof free, or at a cost within the ability of all to pay, forms the backbone of the public health system. Much consideration is given to child welfare, to the crippled, the blind, the deaf, the scrofulous, the illegitimate, the orphan, to the aged, to the insane, and even to the criminal. The sickness, unemployment, accident, old age, and burial insurance systems are most complete. The high standards of education and the absence of illiteracy, the even distribution of wealth, and the absence of extreme poverty and slums, are striking.

There is a uniformly high standard of medical, dental, nursing, pharmaceutical, and midwife education. The physicians are held in high public esteem; there is an absence of quackery, and the economic and social position of the physicians is comparatively good. The physical vigor of the people is noticeable and undoubtedly is related to their passion for physical training as well as to the racial stock and their economic and social progress. A cooperative spirit everywhere is manifest; and this is so basically a part of their nature that it is reflected not only in their whole social system, but even in the games which the children play. Along with this spirit of mutual self help, individual initiative and responsibility have been developed with the result that their highly developed and complicated social order seems to have been evolved by and for the people themselves and not to have been imposed upon the country by some central authority or by some one class of the people.

All of these things impress the visitor to Denmark. Along with these impressions, there constantly arises the question of how any nation with no natural resources except a fertile soil and a good racial stock can continue to secure the money with which to support so lavishly their many social welfare services. This is a question which intrigued the interest of all the delegates and is one upon which even the best political economists disagree. In these circumstances it is perhaps out of place for a mere sanitarian to hazard an opinion.

It is true that taxes are high; a physician with a moderate income pays 25 per cent of his income, and a charwoman 12 per cent of her income in taxes, for example, and it is practically impossible now to accumulate a fortune in Denmark. On the other hand, a fortune in Denmark is not necessary in order for an individual to enjoy the "blessings of civilization." For the taxes which are paid, very considerable and tangible services are rendered by the government (state and local). The National Government expends each year one-half of its income for what is termed public health (more properly public welfare), and expenditures by local governments exceed those of the state, with the result that, each year, public expenditures for this purpose average \$13 for every inhabitant.

It is true that economic conditions as influenced by world trade, etc., have necessitated a reduction in taxes, and a reduction of 10 per cent in government expenditures has been ordered. It is believed that these reductions will be effected without curtailing, to a disastrous extent, the necessary expenditures for public welfare, and that Denmark will not dispense with the admirable services which have done so much to promote the well being of her citizens.

Each country evolves a social system best suited to its particular needs, and although the public health system of Denmark as a whole could not be applied to the United States, for reasons which are too

numerous and obvious to recount here, it has a number of features which could be emulated to advantage.

Although the reader probably will have made comparisons between the Danish and American public health organizations, it may not be inappropriate to mention briefly by way of recapitulation some of the outstanding features of the two systems.

The adequate provision and extensive use of the facilities for treatment of disease, and the voluntary insurance against the economic consequences of disease for the great mass of people of small means, are the most prominent features of the Danish public health movement and serve to emphasize the fact that this is an unsolved and important problem in the United States.

The uniformly high standards of medical education which have been in effect in Denmark for many years have produced a high quality of medical service. This should be assured in the future in this country to a great extent by the efforts made during recent years to improve medical education. There still remains in the United States the problem of the pseudo-medical practitioner and the quack. The Danish public apparently recognizes the value of, and necessity for, scientific medical service to a greater extent than is the case in this country.

The principle of public responsibility for the prompt and adequate treatment of infectious diseases, as a means of preventing their spread, is universally accepted in Denmark. This principle does not find general application in the United States.

The close harmony and cooperation which has always existed between the practicing Danish physicians and public health officers has been of advantage to the profession and to the public alike.

The efficiency noted in all types of public service, while not ideal in Denmark, impresses one as being much above the average in this country. In public health and medical work particularly, the apparent absence of "politics" in determining appointments and the high quality of service were most impressive.

The application of mental hygiene through mental and child guidance clinics has not been developed in Denmark.

Sanitary engineering as a profession is better developed in the United States. There are no engineers attached to the National Board of Health, and those employed by the larger cities are concerned primarily with housing. The design and construction of water supply and sewerage systems are left entirely to the municipal engineers.

Insufficient importance is attached to epidemiology in Denmark. Sharp outbreaks of disease are investigated, but epidemiological studies of disease occurrence are not made to the same extent as in the best health departments here.

Uniform rules and regulations are not laid down for the control of contagion. Since, however, the individual doctor assumes and discharges properly so large a share of responsibility in connection with each case of contagion, this may be of no great importance. Schick testing and active immunization against diphtheria are not extensively used.

Part-time as contrasted with full-time service in public health work prevails, and although efforts are being made to bring about a change, there is some divergence of opinion whether full-time or part-time officials will best suit Danish requirements.

Public health nurses are used to a slight extent as compared with this country, although bedside nursing-care for the sick is being widely used.

The medical profession of Denmark has not especially interested itself in directing certain phases of the public welfare movement, particularly child welfare, with the result that this work has suffered in efficiency by lack of medical guidance. The same observation may be made concerning certain phases of public health and welfare in many communities in the United States.

In conclusion, it is desired to state that this description of the public health organization of Denmark would not be complete unless mention were made of the hospitable and cordial welcome which was everywhere accorded the delegates to the interchange, by the physicians, medical officers, other public officials, and the public generally.

THE COST OF A SMALLPOX EPIDEMIC

The cost to a community, not in suffering, disfigurement, and death, but in taxpayers' money, of an epidemic of smallpox is not often used as an argument for vaccination; and it would not seem necessary to offer it, for a desire for individual and community protection from a dangerous and loathsome disease would certainly appear to be sufficient reason for the average intelligent person to seek the beneficent protection of this simple expedient. With the vast amount of indisputable evidence that vaccination protects against smallpox, the desire for personal security and community and patriotic public health ideals should be sufficiently stimulating to bring about universal voluntary vaccination. This millenium has not yet arrived, however; and, in the meantime, with memories of a serious outbreak dimmed by the passing years, and lulled into a false sense of security, people are with difficulty aroused to the point of being vaccinated and revaccinated. While it is true that only the unvaccinated need worry about the risk of infection, the vaccinated are called upon to help bear the cost of a smallpox out-

break, as is evidenced by the following note on a smallpox epidemic in England, published in *The Medical Officer* for May 7, 1927:

The smallpox outbreak in Monmouthshire has so far cost the ratepayers £10,000 in capital expenditure and equipment, while the maintenance of 200 beds for six months will mean another £13,000. These figures are given by Dr. D. Rocyn-Jones, the county medical officer, who states that of the 773 cases reported since the commencement of the outbreak 173 are still in hospital. Doctor Rocyn-Jones expresses his great regret that "the position has not been rendered any easier by the opposition of an ill-informed and foolish section of the public, aided and abetted by the poisonous literature assiduously distributed through the post by spurious medical experts whose contribution to this epidemic will mean increased suffering and disfigurement and the expenditure of thousands of pounds unnecessarily."

Statistics reveal that 90 per cent of the victims were unvaccinated.

Calling attention to the fact that the United States is achieving the unenviable reputation of competing with other unvaccinated countries in the number of cases of smallpox reported annually, Dr. Charles V. Chapin, superintendent of health of Providence, R. I., recently had the following to say about vaccination:¹

I always thought that the best proof of the value of vaccination is given by an early experiment in Massachusetts. In 1802, 19 boys were vaccinated. Three months later 12 of the boys were inoculated with smallpox matter. They remained well, not because the virus was poor, for the same matter caused regular smallpox in two other boys who had not been vaccinated. To test further the protective power of vaccination, the 19 boys were again inoculated with smallpox (12 for the second time) and remained free from the disease. Why should one seek further proof of the value of vaccination?

Smallpox is a very contagious disease, almost as much so as measles. Most unprotected persons closely exposed to it contract it. During the last 40 years I have cared for many cases of smallpox. I must have seen nearly 200 doctors, nurses, ward maids, and others brought in contact with these patients. Only one attendant got smallpox. I, of course, intended every one to be vaccinated, but one nurse got by and she contracted smallpox after one short exposure. At the time I found one of my early cases of smallpox, I had a 2-months-old baby at home. He was promptly vaccinated. Our "pest house" was beautifully located on the shores of the bay, and every afternoon when I drove out to see the patients I took my wife and baby with me, knowing I could do so without danger to them. Health officers and doctors who see smallpox believe in vaccination. They *know* it protects.

Many persons are afraid of vaccination. They say it is dangerous. Doctor Leonard, of our board of health, has vaccinated almost exactly 150,000 persons in Providence. Not one has died or lost a limb or been inoculated with any other disease. Of course, there are the three-day fever and enlarged glands in some cases. A small percentage also have had sore arms, usually because the vesicle had been broken and they had neglected to show it to the doctor, though some have had trouble from wearing a shield, against which I have always advised. Vaccination, so far as serious danger is concerned, is safer than picking blueberries or eating a saucer of ice cream. I have known of blood poisoning to result from a briar scratch and I have seen diphtheria result from infected ice cream. If health officers were not sure that vaccination is safe, we would not be fools enough to vaccinate ourselves and families every two or three years.

¹ Quoted from the Ohio Health News for Apr. 15, 1927.

We hear a great deal about patriotism, usually of the military sort, but there are other ways of serving one's country than pouring out one's blood and treasure. One is to make your community a healthier place to live in. Will you continue unvaccinated and so help this country to vie with India, Mexico, and Russia for the tail-end place in the race for freedom from smallpox, or will you be vaccinated to-day and help exterminate this disease and make it impossible for your health officer ever to be obligated to take you to the pest house?

AUTOMOBILE FATALITIES, APRIL 26, 1925, TO APRIL 23, 1927

The Department of Commerce announces that during the four weeks ended April 23, 1927, automobile accidents were responsible for 491 deaths in 78 large cities of the United States. As compared with 423 deaths during the four weeks ending April 24, 1926. Most of these deaths were the result of accidents which occurred within the corporate limits of the cities, although some accidents occurred outside of the city limits.

For comparison, the number of deaths due to automobile accidents within city limits is desirable. Such figures are available for the same four-week periods for 58 cities, the four-week figure in 1927 being 305 as contrasted with 287 for the corresponding four weeks in 1926.

Considering, by four-week periods since May, 1925, the total number of deaths from automobile accidents for 78 cities, regardless of place of accident, the lowest total (347) appears for the four-week period ended March 27, 1926, and the highest (676) for the four-week period ended November 6, 1926. The numbers in the 26 periods of four weeks were as follows:

1927:		1926—Continued.	
Apr. 23.....	491	Apr. 24.....	423
Mar. 26.....	144	Mar. 27.....	347
Feb. 26.....	443	Feb. 27.....	375
Jan. 29.....	473	Jan. 30.....	431
Jan. 1.....	521	Jan. 2.....	551
1926:		1925:	
Dec. 4.....	634	Dec. 5.....	625
Nov. 6.....	676	Nov. 7.....	612
Oct. 9.....	656	Oct. 10.....	529
Sept. 11.....	560	Sept. 12.....	521
Aug. 14.....	497	Aug. 15.....	467
July 17.....	484	July 18.....	493
June 19.....	549	June 20.....	493
May 22.....	486	May 23.....	423

For the 52-week periods ended April 23, 1927, and April 24, 1926, the totals for the 78 cities were, respectively, 6,925 and 6,289, indicating a recent rate of 21.8 per 100,000 population as against an earlier rate of 20.1, or an increase of 8 per cent in the rate in a single year.

Eight cities reported no automobile fatalities for the last four weeks, while 11 cities reported no automobile fatalities for the corresponding period of 1926.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for March and First Quarter of 1927

The accompanying tables are taken from the Statistical Bulletin for April, 1927, published by the Metropolitan Life Insurance Co., and present the mortality experience of the industrial insurance department of the company for March, 1927, and for the first quarters of 1927, 1926, and 1925. The rates for 1927 are based on the records of approximately 18,000,000 insured persons of the industrial populations of the United States and Canada.

The death rate in this group of persons for March, 1927 (10.3 per 1,000), not only continued the improvement over last year shown in January and February, but, it is stated, is the lowest rate for March ever recorded by the company. As compared with March a year ago, measles and whooping cough show a very marked improvement; mortality from influenza dropped 58 per cent, and that from pneumonia 39 per cent; and all three of the principal "degenerative diseases"—cerebral hemorrhage, organic heart disease, and chronic nephritis—show large declines in mortality. Slight decreases were recorded for tuberculosis, cancer, diabetes, and diarrheal conditions.

The mortality from diphtheria was considerably higher in March of this year than it was for the same month last year, as was the case in both January and February; but the Bulletin states that the last two weeks in March and the first week in April recorded a decline in the death rate for this cause, and the excess cumulative mortality over last year is not now as high as it was earlier in 1927.

Death rates (annual basis) for principal causes per 100,000 lives exposed, March and February, 1927, and March, 1926

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Rate per 100,000 lives exposed ¹			
	March, 1927	February, 1927	March, 1926	Year 1926 ²
Total, all causes.....	1,028.5	956.6	1,228.2	942.7
Typhoid fever.....	3.0	3.1	2.4	4.2
Measles.....	7.9	5.5	21.8	10.2
Scarlet fever.....	4.9	5.2	4.8	3.4
Whooping cough.....	8.3	5.3	13.8	9.6
Diphtheria.....	11.3	11.3	9.4	9.7
Influenza.....	32.3	30.0	77.2	31.0
Tuberculosis (all forms).....	114.1	99.7	116.9	98.7
Tuberculosis of respiratory system.....	100.3	88.5	101.9	86.5
Cancer.....	77.2	75.5	78.2	73.5
Diabetes mellitus.....	19.2	18.9	21.9	16.7
Cerebral hemorrhage.....	58.9	57.1	69.4	65.5
Organic diseases of heart.....	149.4	136.7	176.8	133.9
Pneumonia (all forms).....	119.9	118.0	196.8	97.9
Other respiratory diseases.....	19.9	18.6	19.1	13.1
Diarrhea and enteritis.....	16.3	14.3	17.2	29.8
Bright's disease (chronic nephritis).....	79.6	80.2	93.1	73.3
Puerperal state.....	17.2	14.9	17.7	15.3
Suicides.....	9.9	7.8	7.1	7.6
Homicides.....	8.1	7.2	6.6	7.0
Other external causes (excluding suicides and homicides).....	55.9	54.0	56.5	62.2
Traumatism by automobiles.....	12.3	11.5	9.7	16.7
All other causes.....	215.0	193.5	221.5	190.4

¹ All figures include infants insured under 1 year of age.

² Based on provisional estimate of lives exposed to risk in 1926.

FIRST QUARTER OF 1927

On the basis of mortality experience, the health record of this large group of persons (comprising more than one-seventh of the total population and more than one-fourth of the urban population of the two countries) is stated to have been better during the first quarter of 1927 than during the corresponding quarter of any preceding year. The death rate for the quarter was 9.7 per 1,000, a figure equaled only in 1921, when infant lives under 1 year of age were not insured by the company. If the comparative health conditions in these industrial populations are representative of comparative conditions in the general population, it is predicted that later reports will show an exceptionally favorable health record in both the United States and Canada during the first quarter of 1927.

The following table shows the items that have been chiefly instrumental in producing this pleasing record:

Death rates (annual basis) for principal causes per 100,000 persons exposed for first quarters of 1927, 1926, and 1925, by white and colored policyholders

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Death rates per 100,000 persons exposed					
	White			Colored		
	January-March, 1927	January-March, 1926	January-March, 1925	January-March, 1927	January-March, 1926	January-March, 1925
All causes of death.....	885.9	987.4	928.6	1,549.8	1,675.0	1,626.1
Typhoid fever.....	2.3	2.7	2.9	6.5	5.4	5.6
Measles.....	6.5	16.6	3.0	2.5	9.7	1.3
Scarlet fever.....	4.8	5.1	6.0	1.6	1.3	.8
Whooping cough.....	6.7	9.7	6.3	9.9	10.5	10.9
Diphtheria.....	12.6	10.9	14.4	8.1	5.6	5.8
Influenza.....	26.4	43.5	33.1	60.5	92.1	76.5
Meningococcus meningitis.....	1.0	.7	.9	1.3	.4	1.0
Tuberculosis (all forms).....	80.8	85.9	90.5	217.3	231.0	230.8
Tuberculosis of respiratory system.....	70.9	76.2	79.7	191.8	202.4	206.2
Tuberculosis of the meninges, etc.....	4.8	4.2	5.0	6.3	9.2	7.3
Other forms of tuberculosis.....	5.2	5.5	5.7	19.2	19.5	17.3
Cancer.....	76.3	74.1	72.5	66.8	67.6	70.6
Diabetes mellitus.....	18.1	19.4	18.2	20.5	15.7	19.2
Alcoholism.....	3.0	3.8	3.0	4.3	5.2	4.0
Cerebral hemorrhage; apoplexy.....	52.7	58.7	56.5	104.3	108.6	98.8
Organic diseases of the heart.....	136.9	149.1	135.9	206.3	217.0	235.4
Total respiratory diseases.....	117.4	154.7	136.5	238.1	309.7	285.5
Bronchitis.....	5.3	6.7	7.1	10.6	9.9	10.9
Broncho-pneumonia.....	46.2	61.3	52.0	76.5	109.2	79.8
Pneumonia (lobar and undefined).....	57.7	78.2	68.3	140.1	176.6	157.1
Other diseases of respiratory system.....	8.2	8.5	9.1	11.0	3.0	17.8
Diarrhea and enteritis.....	15.1	16.9	17.6	15.6	17.8	23.6
Under 2 years.....	12.0	14.5	14.7	10.2	12.9	16.5
2 years and over.....	3.1	2.4	2.9	5.4	4.9	7.1
Acute nephritis.....	3.9	4.9	5.1	14.9	15.7	16.1
Chronic nephritis (Bright's disease).....	68.8	76.0	70.7	137.9	139.1	131.4
Total puerperal state.....	14.4	15.5	17.2	24.4	24.2	26.5
Puerperal septicoemia.....	5.6	6.1	6.7	12.0	10.3	11.9
Puerperal albuminuria and convulsions.....	2.9	3.6	3.5	5.2	6.7	4.4
Other diseases of puerperal state.....	5.9	5.8	7.0	7.2	7.1	10.2
Total external causes.....	66.7	64.2	66.7	117.4	112.9	103.6
Suicides.....	8.5	7.4	7.5	7.7	4.3	4.2
Homicides.....	3.0	2.8	3.3	36.5	32.2	31.8
Accidental and unspecified violence.....	55.2	54.1	55.8	73.3	76.4	67.7
Accidental drowning.....	2.6	2.6	1.6	3.2	1.9	2.1
Automobile accidents.....	12.8	12.2	11.9	14.4	11.0	9.0
All other and ill-defined causes of death.....	171.5	175.0	171.9	291.5	286.3	296.5

PUBLIC HEALTH ENGINEERING ABSTRACTS

Camps. Report of Bureau of Sanitary Engineering, Maryland State Department of Health, 1926, 19 pages. (Abstract by I. W. Mendelsohn.)

The State board of health issued an order during the year requiring a permit for each summer camp. An engineer was assigned to work with deputy State health officers in investigating sanitary conditions of camps. There were 109 inspections during the year. As a result of this work the following practice is recommended: (1) The insertion of a notice in the daily papers in February and March to the effect that any camp, summer hotel, summer boarding house, picnic grounds, etc., may not operate during 1927 without a permit; (2) inspections and sampling during spring and summer; (3) establishment of reasonable limit of time for improvements; (4) follow-up inspections, with refusal or granting of permit as conditions would warrant; (5) placarding the State road camps, stating that the place has been investigated by the State department of health and approved. If studies showed them unsatisfactory, the proper authorities should be requested to improve them before receiving the health department's approval.

Summer Camps in New Jersey. C. K. Blanchard. *Public Health News*, New Jersey State Department of Health, vol. 12, No. 5, April, 1927, pp. 108-113. (Abstract by E. C. Sullivan.)

This article, which is a paper read before the New Jersey Sanitary Association, gives a simple classification of summer camps, exclusive of labor and construction camps, as (1) summer camps of single families or small groups of persons; (2) camps maintained by organizations for boys, girls, or adults; (3) camps maintained for the use of automobile tourists.

The writer believes that camps in the first class are a more serious menace to public health than those of other groups, but that their sanitation is clearly a local problem. Camps of the third class are not so important in New Jersey as in many States, owing to the short period of time necessary to cross the State. This relatively short travel period reduces the demand for overnight camps.

Camps of the second class are most important. While the water supplies are usually carefully chosen and protected, a good food supply is provided, and the use of chemical toilets or safe, fly-tight privies is increasing, nevertheless, there are a number of improvements necessary in the larger of these camps before their equipment or protection can be regarded as entirely sanitary. The writer discusses various stages of the problem and suggests as a matter of discussion the plan for their control, which basically would require the licensing of such camps either by the State department of health or by the local city or town. The issuance of such licenses would be dependent upon compliance with the requirements which would be specified for their adequate sanitation. To put such a system of licensing into effect would require additional provisions by law and in the State sanitary code covering the operation and maintenance of such camps.

The Rodents of Lagos and Their Ectoparasites with Reference to Plague. Andrew Connal, M. D. *Annals of Tropical Medicine and Parasitology*, vol. 20, No. 4, December 17, 1926, pp. 341-352. (Abstract by R. E. Tarbett.)

This article has to do with the rat campaign and a study of fleas made following an epidemic of bubonic plague in Lagos, Southern Nigeria, British West Africa, and vicinity, in 1924.

Various methods of trapping and poisoning were employed, but the greater number of rodents were collected in traps of the break-back type, there being very little success with the use of cage traps. The killing of the rodents in the traps undoubtedly affected the flea collection to a considerable extent. The rodents caught were *Rattus rattus*, *Rattus norvegicus*, *Mus musculus*, the shrew, the striped field rat, and the pouched rat. All rodents were examined, a total of

167,194 being caught. Plague was found in the first four named. Of the rodents, the *musculus* predominated, with the *Rattus rattus* second. Very few of the striped field rat or pouched rat were found. The chart shows the relationship between the percentage of plague rodents and the number of plague cases. The tables are given showing the monthly catch, type of rodent, and the number of rodents infected for each of the five places where trapping was carried on. One thousand five hundred and twenty-nine fleas were collected from the rats and examined. Five species were found; *X. cheopis* predominated. Tables show the number and species of the fleas collected.

Multiplication of *B. Coli* in Stored Shellfish. John E. Bacon, Chief, Bureau of Chemistry. *Public Health News*, New Jersey State Department of Health, vol. 12, Nos. 3, 4, February-March, 1927, pp. 87, 88. (Abstract by E. C. Sullivan.)

This article is concerned with an experiment conducted by the New Jersey State Department of Health with respect to the tendency of bacteria of the *B. coli* group to multiply in shell stock after removal from the natural waters, provided that the shellfish are kept alive and in a thriving condition. The report of the Committee on Sanitary Control of the Shellfish Industry of the United States has stated that from the evidence available the bacteria of the *B. coli* group do not tend to multiply in shell stock after removal from the water so long as the shellfish are kept alive and in a thriving condition, whereas in the instance of an experiment by Calista Eliot, entitled "Observations on the colon-aerogenes group from the oysters," published in the *American Journal of Hygiene*, November, 1926, it is reported that the *B. coli* group in stored shellfish increased from 4 to 500,000 in 14 days, no statement being made as to the age of the oysters at the beginning of the experiment. Four hundred oysters were accordingly collected by the New Jersey State Department of Health from a New Jersey shellfish area and kept at a temperature of 21° to 24° C. for periods of 1 to 8 days, four samples from the oysters being examined each day by the regular standard methods.

The result of this test by the New Jersey State Health Department showed "an appreciable increase in scores and total count of stored oysters and generally confirmed the findings of Eliot. As the purpose of the bacteriological scoring of market oysters is to obtain an idea of the probable degree of pollution of the waters in which the oysters are grown, it is apparent that such examinations, unless carried out upon fresh stock, are misleading."

It is the intention of the New Jersey State Department of Health to incorporate in the rules and regulations governing the handling of shellfish in that State a section requiring all retail dealers of shellfish to stamp upon all shipping tags the date of receipt of shipments.

Importance of Heat in Preparing Foods. W. W. Scofield, Chief, Bureau of Food and Drugs. *Public Health News*, New Jersey State Department of Health vol. 12, Nos. 3, 4, February-March, 1927, pp. 89, 90. (Abstract by E. C. Sullivan.)

The author states that it is an interesting fact that almost without exception in instances where outbreaks of typhoid fever, scarlet fever, diphtheria, septic sore throat, diarrhea, and enteritis have been traced to foods, they have been transmitted by foods which had not been properly heated. Although very considerable advances have been made in the manner in which foodstuffs are prepared for sale and distribution, outbreaks of communicable disease transmitted through foodstuffs continue to occur. Moreover, the application of the proper degrees of heat to these foods at the proper time will prevent the transmission of disease by them.

Mention is made of the efficacy of Pasteurization of milk and other dairy products in destroying disease-producing organisms, and in preventing the transmission of disease by these foods unless the products are contaminated after Pasteurization. The author makes mention of the outbreaks of communicable disease which have been caused at public gatherings through the serving of large numbers of people with cold foods prepared a considerable time in advance of the time of serving. Consequently, there is always the danger of mass infection with disease germs of foods thus prepared if any of the handlers are carriers or are ill with disease. Food for public gatherings is customarily cooked in advance and the cooked foods are handled by individuals. Generally, a moist mass of food is set aside until the time of serving; and if the refrigerator or other place of storage is not maintained at a low temperature, the bacteria, if infected, will develop in great numbers.

The danger of eating spoiled canned goods is pointed out, and it is recommended that people should inspect all canned foods to see that the exterior appearance of the cans is normal and that the ends of the cans do not bulge. Mention is made of the transmission of disease by raw or uncooked meat and shellfish.

Pennsylvania Extends Milk Control in Rural Communities. Charles H. Miner. *The Nation's Health*, vol. 8, No. 3, March, 1926, pp. 156-158. (Abstract by H. N. Old.)

The author of this paper describes the problem of Pennsylvania's rural population of over 3,000,000 persons, the majority of whom were practically without any sort of milk sanitation measures prior to 1923. On April 4 of that year the advisory board of the department of health approved a regulation which forms the basis for milk control throughout the State.

The progress being made in the matter of testing of dairy herds for tuberculosis is described and the fact brought out that approximately \$2,500,000 (including \$400,000 from the Federal Department of Agriculture) were provided for indemnity purposes covering the two-year period beginning June 1, 1925, more than six times the amount provided by any previous legislature.

While the State department of health has endeavored to avoid any centralization of milk control by the encouragement of local supervision wherever the facilities may be available, the department has materially assisted the local communities in many ways. Adoption of uniform milk ordinances, usually providing for three grades of milk—certified, grade "A" raw, and Pasteurized—has been urged and accomplished in many instances. This has required much missionary work by which the consumers have been aroused to demand protection and the producers and distributors convinced that their own best interests are served by such supervision.

A six weeks' course in milk sanitation is given at one of the universities annually for instruction of health officers and others who desire to qualify for the position of local milk inspectors. A laboratory housed in a motor truck goes about the State visiting milk-treatment plants in cooperation with the local inspector. This laboratory is equipped for the making of Babcock and lactometer determinations, methylene blue reduction tests, sediment and temperature observations, and direct microscopic counts. It is said that the small milk plant operator and the local board of health inspectors have found this traveling laboratory most useful. Requests for this service have already indicated the need for an additional unit.

The Association of Pennsylvania Dairy and Milk Inspectors has been formed, with two-day sessions held annually to discuss the various problems encountered in the field.

It is stated that many distributors purchase apparatus entirely unsuited to their needs. The trained inspectors are called upon for recommendations; and their inspections do not consist merely of recording conditions, but frequently necessitate several days of actual operation of the plant by the inspector in order that he may leave it operating at maximum efficiency and that the operator may be convinced that real and practical assistance has been rendered. During the past 18 months, 250 Pasteurizing plants have been examined by the State.

The milk-control program as carried out was planned and adopted only after exhaustive survey of the entire State was conducted covering a period of four years. The success of the program and the progress being made is said to be with a realization that "the establishment of milk control in a city or State means hard work over a long period. It is a continuous educational program."

Conservation of the Waters of the State by the State Department of Health. N. P. Croft, Chief, Bureau of Engineering. *Public Health News*, New Jersey State Department of Health, vol. 12, Nos. 3, 4, February-March, 1927, pp. 74-86. (Abstract by E. C. Sullivan.)

This paper, delivered at the short course for sewage-plant operators, Rutgers University, New Brunswick, N. J., on January 27, 1927, outlines the diversity of opinion in regard to the conservation of waters of New Jersey and states that a central authority has been developed in the State department of health for determining, with equity to all concerned, the amount of work that shall be done by the receiving waters and by the devices for the treatment of domestic sewage and of industrial wastes.

In the paper are traced the agencies in New Jersey to which since 1887 the matter of the control of sewage disposal has been delegated, being eventually lodged in the State department of health. Mention is made that the State department of health has no jurisdiction over the Passaic Valley sewerage district, but that the abatement or nonabatement of pollution by the Passaic Valley sewerage commission is one of the controlling factors in the policy of the State department of health for the conservation of the upper Passaic River. The author points out the effect of sewage pollution on fish life and invites attention to the cost involved in trade waste disposal. He calls attention to the fact that stream pollution is not confined to local boundaries and that the municipalities are always loath to spend public funds for the benefit of neighboring municipalities.

It is stated that the New Jersey State Department of Health has a well-defined policy with respect to sewage pollution and that it is progressively moving for the securing and holding of clean streams in spite of the retardation occasioned by the nonaction of legal authorities.

A résumé is given of the New Jersey laws which give the State health department jurisdiction relating to water supplies and to the discharge of polluting material into streams. By virtue of authority contained therein, there has been maintained a general supervision and inspection of sewage-treatment plants installed throughout the State and there are rules and regulations in effect for the submission of plans and other data relating to sewage products.

Since 1918 the State laws have required the licensing of sewage plant operators. The operators must understand the principles of sewage treatment, and under the latest rules and regulations adopted in 1926 the classification of plants is divided into two main groups: Primary treatment and primary-secondary treatment. Each of these groups is subdivided into three classes, or divisions, depending upon the location of the plant to be operated, the size of installation, and the usage of the receiving waters.

Separate Digestion Tanks and Sand Filters for Wheaton Sewage. Anon. *Engineering News-Record*, vol. 98, No. 10, March 10, 1927, p. 409. (Abstract by Arthur P. Miller.)

At Wheaton, Ill., sewage effluent from the treatment plant flows through fine suburban estates, and therefore a high degree of treatment had to be provided. This is effected by supplementing tank treatment with intermittent sand filtration. The plant is designed to care for the estimated population of 1935-1940. For operation on the separate sludge digestion system, there are two settling tanks and two digestion tanks.

The settling tanks are square, with nearly flat bottoms and conical sumps, and solids are collected by Dorr clarifiers. Sludge removal may be continuous or intermittent. Surplus water and water of liquefaction can be removed from the digestion tanks and returned to the settling tanks, and liquid between the scum and the sludge may be piped back to the pump suction and passed through both tanks again.

Chemical Treatment of Trade Waste. Part I: Dye Waste in General. Foster D. Snell, *American Dyestuff Reporter*, vol. 16, No. 1, January 24, 1927, pp. 54-56. (Abstract by Emery J. Theriault.)

The literature pertaining to the disposal of dye wastes is briefly reviewed. "Problems relating to purification of dye-works waste may be sharply divided into those in which all of the waste must be treated and those in which a limited amount of waste may be discharged through community sewers. * * * The latter case is much simpler and cheaper, because the worst of the discharge may be 'scalped' and the clearest part treated by chemical means."

In the order of their importance, the four practical methods of purifying dye wastes are coagulation, oxidation or reduction, decolorization by carbon, and evaporation. "A waste would be treated by the latter two methods only under the most extreme conditions." Copperas is the cheapest coagulant available in the average case.

"Barbour (1909: *Eng. News*, 62-99) has proposed a standard of not over 300 p. p. m. of total solids, 200 p. p. m. fat, no abnormal acidity or alkalinity, and removal of pronounced antiseptic properties. In many cases this standard of total solids works an undue hardship. The others are general practice. * * * While there is nothing in the color of waste necessarily harmful it is usually the principal point considered by nontechnical people. * * * The purity of the water may be lessened by commercial use provided no actual damage is shown.

"In general, determination of total solids and loss of ignition gives a rough estimate of the degree of contamination. * * * A quicker and simpler method for routine testing * * * is oxygen consumed by the permanganate method. The biochemical oxygen demand is more indicative of the real contamination by organic matter, but is so difficult of manipulation and uncertain as to results as to fail to justify the expenditure of time. * * * A suitable method of measuring colors before and after treatment is by use of a Lovibond tintometer, using a cell thickness of 50.8 mm. (2 inches)."

Sewage Disposal and Public Health.—Clyde Potts, president, New Jersey State Board of Health. *Public Health News*, New Jersey State Department of Health, vol. 12, Nos. 3, 4, February-March, 1927, pp. 68-73. (Abstract by E. C. Sullivan.)

This paper, delivered at the short course for sewage-plant operators, Rutgers University, New Brunswick, N. J., January 17, 1927, traces the history of sewage disposal in relation to public health and states that "its intimate connection with the public health has come up hand in hand with the discoveries in the sciences of bacteriology and water chemistry." Mention is made of the early

attempts in the treatment of sewage, mainly to avoid public nuisances or to utilize the fertilizing products in sewage, and of the use of sewage for irrigation.

The principles and theories of Mouras with respect to his "automatic vault cleaner" in Paris in the late seventies are cited, and likewise the "septic tank" introduced by Cameron about 1900.

While the ultimate solution of the sewage-disposal problem has not yet been achieved, the underlying principle that all methods of sewage disposal are founded on bacterial decomposition has become well established. There is a well-defined connection between the subjects of sewage disposal and public health.

The author makes particular mention of the wide use of chlorine as a disinfecting agent for both sewage and water in New Jersey and states that it has been one of the greatest factors in the reduction of the typhoid-fever rate in that State. The effluent of all sewage-treatment plants discharged into potable streams is chlorinated.

The author makes mention of sewage-treatment processes in use in New Jersey and makes mention of the work of the State department of health. Some 365 plants have been established in that State under the supervision of the engineering bureau for the partial or complete removal of human wastes.

Taste and Odor in Water. Ross A. Thurma. *Water Works*, vol. 66, No. 3, March, 1927, p. 124. (Abstract by R. E. Tarbett.)

This article covers experiences in removing odor from the water supply of the city of St. Paul, Minn., by aeration. Tastes and odors due in part to algal growths and decaying organic matter were present at all times, increasing when the oxygen content of the water became low. Odors noted were musty, swampy, vegetable, earthy, etc.

Algal growth in the lakes has been kept as low as possible by dosing regularly with copper sulphate. The odor in the raw water was reduced in passing through the filtration plant, but not sufficiently to stop complaints from the users. Aeration was carried on by passing the water through a mixing chamber with an air-diffusing pipe laid in the bottom. Air under 5 to 6 pounds pressure was applied at a rate of 6,000 cubic feet per 1,000,000 gallons. Air was forced through the water at such a rate that ventilation of the water was secured. The reduction in odors amounted to 62 per cent, of which 29 per cent was attributable to the filtration plant. Complaints were eliminated. Whether the removal of odor was due to oxidation or ventilation or both combined was not known. The cost of aeration was 50 cents per 1,000,000 gallons water aerated.

Does Cement-Lined Pipe Cause Formation of Scum? Burton G. Philbrick. *Water Works Engineering*, vol. 80, No. 6, March 16, 1927, p. 364. (Abstract by William L. Havens.)

In the operation of a bottling plant at Quincy, Mass., considerable trouble was experienced on account of the development of a gray, greasy scum which appeared only on the surface of the water. The supply was taken from the city service, which is served from the metropolitan system. It was learned that new cement-lined distribution pipes had recently been installed; and on account of the similarity in appearance between this scum and that usually found on the water pans in which cement briquets are aged, suspicion was directed toward this cause. It was found that there were no data available on the subject, but personal conversation with laboratory men and engineers revealed that this formation of scum is not uncommon. It has frequently been noted in Rhode Island, where the farmers have sunk cement pipes in their wells and have appealed to the State laboratory on noticing the dirty surface scum. Mr. Weston also gives figures obtained from analyses of a Farmton service tap water which comes through 475 feet of cement-lined pipe, showing an increase in hardness

from 10 to 80 parts per million. In the case of the Quincy supply, the water cleared up by October, and since that time no more scum has been noticed.

Laboratory Work on Malaria in England. Anon. *Journal Royal Army Medical Corps*, vol. 48, No. 2, February, 1927, pp. 122-130. (A comment on the Report on the First Results of Laboratory Work on Malaria in England, by Lieut. Col. S. P. James. Publications of the League of Nations, III, Health, March, 1926. (Abstract by M. A. Barber.)

The arrangement officially authorized in England for the conveyance of malaria in the treatment of progressive paralysis is by the bites of infected mosquitoes rather than by the use of infected blood. James describes the technique of infecting mosquitoes and of keeping them in condition for transmitting the disease to man. *Anopheles maculipennis* is the mosquito species used, and these are infected by exposing them to a person harboring gametocytes of a pure strain of benign tertian malaria. After mosquitoes are infected and the sporozoites developed, they are removed to cold storage, where they may be kept alive for weeks. When needed for infecting a patient, they are gradually warmed up and allowed to bite. They may be transported many miles and used in a distant hospital.

Certain factors limit the proportion of mosquitoes that can acquire infectivity in such experiments. Patients who are good "infectors" are rare. The mortality of the mosquitoes is great, even under favorable conditions in the laboratory. The author believes that even greater hazards are encountered by the malaria parasite in nature. Hardly 5 per cent of the potential malaria-carrying mosquitoes which emerge from the larval stage in nature will ever meet the conditions necessary for them to play the rôle of vectors in nature. Malaria will not spread unless a large number of special conditions are fulfilled, among them those which will secure the necessary longevity of the mosquito. "Colonel James' experiments strengthen the opinion that malaria is essentially a household disease, and the inference is that malaria should be dealt with in the houses of the people rather than in the environment." If the conclusions of Colonel James are valid, "it will be realized that measures directed against the breeding places of mosquitoes as a whole have been to a great extent wasted, and that such measures must now be reconsidered in the light of new knowledge, which undoubtedly indicates that the successful control of malaria depends more on the exact knowledge of the life history of a few individual mosquitoes that succeed in becoming transmitters of malaria than on the general knowledge that the disease is spread by mosquitoes of a particular kind."

It will be remembered that the experiments of Colonel James were done with *A. maculipennis* in England and do not warrant the assumption that all species under all conditions will behave in a similar manner.

The original paper of Colonel James should be consulted. There is much of interest which can not be treated in a short review.

PATIENTS IN INSTITUTIONS FOR THE FEEBLE-MINDED

Data for November, 1926

Reports for the month of November, 1926, were received from 31 institutions for the care of the feeble-minded.

The following tables give a summary and an analysis of the reports:

Movement of patient population in 31 institutions for the feeble-minded, November, 1926

	Male	Female	Total
Number of institutions included:			
Public.....			30
Private.....			1
Total.....			31
Patients on books November 1, 1926:			
In institutions.....	13,521	13,333	26,854
On temporary leave.....	2,078	1,547	3,625
Total.....	15,599	14,880	30,479
Patients admitted during November:			
First admissions.....	153	130	283
Readmissions.....	10	12	22
Admitted by transfer.....	44	1	45
Not accounted for.....	0	1	1
Total received during November.....	207	144	351
Total on books during month.....	15,806	15,024	30,830
Discharged or placed on indefinite parole during November:			
Transferred.....	61	55	116
Died during November.....	44	2	46
Not accounted for.....	38	29	67
Total discharged, transferred, and died.....	151	88	239
Patients on books November 30, 1926:			
In institutions.....	13,599	13,393	26,992
On temporary leave.....	2,056	1,543	3,599
Total.....	15,655	14,936	30,591

Analysis of movement of patient population of 31 institutions for the feeble-minded, November, 1926

	Male	Female	Total
Per cent change in number of patients during November:			
Total (increase).....	0.36	0.38	0.37
In institutions (increase).....	.58	.45	.51
On temporary leave (decrease).....	1.06	.26	.72
Per cent of patients absent on temporary leave:			
Nov. 1.....	13.32	10.40	11.89
Nov. 30.....	13.13	10.33	11.76
Per cent of total admissions (excluding transfers) which were:			
First admissions.....	93.86	91.55	92.79
Readmissions.....	6.14	8.45	7.21
Per cent of total patients discharged during November (based on average number for month)			
.....	.39	.37	.38
Males per 1,000 females.....			1,048.
Deaths per 1,000 patients under treatment (annual basis).....	29.25	23.48	26.44

DEATHS DURING WEEK ENDED MAY 14, 1927

Summary of information received by telegraph from industrial insurance companies for week ended May 14, 1927, and corresponding week of 1926. (From the Weekly Health Index, May 18, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 14, 1927	Corresponding week, 1926
Policies in force.....	65, 765, 714	64, 410, 614
Number of death claims.....	12, 343	13, 629
Death claims per 1,000 policies in force, annual rate.....	9. 8	11. 0

Deaths from all causes in certain large cities of the United States during the week ended May 14, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, May 18, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 14, 1927		Annual death rate per 1,000, corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended May 14, 1927 ²
	Total deaths	Death rate ¹		Week ended May 14, 1927	Corresponding week 1926	
Total (67 cities).....	7, 286	12. 9	13. 2	778	917	64
Akron.....	45			5	8	54
Albany ³	39	16. 9	19. 7	1	5	21
Atlanta.....	77			10	12	
White.....	41			5	6	
Colored.....	36	(9)		5	6	
Baltimore ⁴	229	14. 6	15. 4	21	35	65
White.....	169		13. 4	13	25	50
Colored.....	60	(9)	27. 2	8	10	124
Birmingham.....	56	13. 6	16. 1	5	10	
White.....	21		12. 2	3	4	
Colored.....	35	(9)	22. 0	2	6	
Boston.....	259	17. 0	16. 2	33	24	92
Bridgeport.....	35			1	5	19
Buffalo.....	140	13. 3	14. 4	21	27	88
Cambridge.....	29	12. 2	11. 1	3	0	53
Camden.....	36	14. 1	13. 9	3	3	52
Canton.....	33	15. 2	11. 9	3	6	71
Chicago ⁵	659	11. 1	12. 7	72	77	62
Cincinnati.....	140	17. 7	19. 0	13	17	81
Cleveland.....	176	9. 3	11. 8	24	25	64
Columbus.....	60	10. 8	14. 1	4	10	37
Dallas.....	41	10. 2	8. 7	5	5	
White.....	33		8. 3	5	4	
Colored.....	8	(9)	11. 6	0	1	
Dayton.....	48	13. 9	15. 9	3	11	49
Denver.....	81	14. 6	15. 7	4	12	
Des Moines.....	35	12. 2	10. 4	2	0	33
Detroit.....	307	12. 0	13. 4	46	66	73
Duluth.....	26	11. 8	14. 3	5	1	108
El Paso.....	30	13. 7	13. 4	12	11	
Erie.....	28			4	6	78
Fall River ⁶	26	10. 2	11. 9	3	3	53
Flint.....	27	9. 8	11. 1	1	10	16
Fort Worth.....	50	15. 9	11. 8	9	4	
White.....	42		11. 2	8	3	
Colored.....	8	(9)	16. 5	1	1	
Grand Rapids.....	33	10. 8	13. 0	2	8	29
Houston.....	41			4	3	
White.....	24			1	2	
Colored.....	17	(9)		3	1	
Indianapolis.....	99	13. 8	15. 9	8	11	63
White.....	86		14. 9	4	6	36
Colored.....	13	(9)	23. 7	4	5	244
Jersey City.....	84	13. 6	8. 4	14	5	105
Kansas City, Kans.....	28	12. 5	14. 3	1	8	19
White.....	18		14. 0	0	5	0
Colored.....	10	(9)	15. 3	1	3	162

¹ Annual rate per 1,000 population.
² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
³ Data for 66 cities.
⁴ Data for 62 cities.
⁵ Deaths for week ended Friday, May 13, 1927.

⁶ 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 26, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended May 14, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended May 14, 1927		Annual death rate per 1,000, corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended May 14, 1927
	Total deaths	Death rate		Week ended May 14, 1927	Corresponding week 1926	
Kansas City, Mo	105	14.3	12.4	20	10	
Knoxville	26	13.3		0		
White	22			0		
Colored	4	(^o)		0		
Los Angeles	245			25	15	72
Louisville	75	12.2	14.4	1	10	9
White	50		12.6	1	7	10
Colored	25	(^o)	24.4	0	3	0
Lowell	23	10.9	15.6	5	3	96
Lynn	36	17.9	10.0	2	3	53
Memphis	69	20.1	17.4	6	5	
White	27		12.3	3	3	
Colored	42	(^o)	26.5	3	2	
Milwaukee	117	11.6	11.8	17	15	79
Minneapolis	79	9.3	13.5	9	15	51
Nashville ¹	47	17.8	19.0	5	4	
White	27		13.8	2	2	
Colored	20	(^o)	32.1	3	2	
New Bedford	20	8.7	11.8	4	7	69
New Haven	39	11.0	2.0	5	1	70
New Orleans	169	20.8	16.8	23	16	
White	91		12.8	7	10	
Colored	78	(^o)	28.2	16	6	
New York	1,505	13.1	12.7	152	181	63
Bronx Borough	188	10.6	9.6	13	14	41
Brooklyn Borough	505	11.6	11.8	56	77	58
Manhattan Borough	647	18.6	16.4	67	72	79
Queens Borough	125	8.1	8.6	12	14	51
Richmond Borough	40	14.2	18.6	4	4	74
Newark, N. J.	86	9.6	13.5	11	16	54
Oakland	58	11.3	8.6	3	2	35
Oklahoma City	32			2	1	
Omaha	52	12.4	14.7	2	4	22
Paterson	28	10.1	12.8	2	5	35
Philadelphia	505	13.0	12.8	53	52	71
Pittsburgh	181	14.7	13.3	20	28	70
Portland, Oreg.	67			6	1	63
Providence	49	9.1	11.2	10	5	85
Richmond	59	16.0	13.2	10	4	132
White	39		12.1	4	2	81
Colored	20	(^o)	16.1	6	2	228
Rochester	88	14.2	14.3	13	11	109
St. Louis	207	12.9	13.1	7	19	
St. Paul	56	11.7	10.3	5	2	45
Salt Lake City ¹	35	13.4	14.5	4	5	61
San Antonio	63	15.6	15.0	13	12	
San Diego	40	18.1	17.5	4	4	85
San Francisco	143	12.9	10.9	11	6	69
Schenectady	21	11.8	9.0	3	1	90
Seattle	64			4	2	42
Somerville	14	7.2	8.9	1	4	36
Spokane	32	15.3	10.0	1	1	25
Springfield, Mass.	41	14.5	18.3	7	8	108
Syracuse	35	9.3	11.3	3	5	39
Tacoma	23	11.2	14.3	2	2	47
Toledo	76	13.0	14.1	7	7	67
Trenton	48	18.3	13.6	6	4	104
Washington, D. C.	119	11.5	14.9	5	23	29
White	70		12.3	3	15	25
Colored	49	(^o)	22.6	2	8	37
Waterbury	20			0	6	0
Wilmington, Del.	30	12.4	11.4	2	3	50
Worcester	58	15.5	14.3	2	7	24
Yonkers	22	9.6	11.2	2	2	45
Youngstown	35	10.8	13.3	2	11	28

¹Deaths for week ended Friday, May 14, 1927.

^oIn 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 33, Nashville 30, New Orleans 26, Richmond 32, and Washington, D. C., 25.

MEASLES—continued		Cases	SCARLET FEVER—continued		Cases
Washington	.....	488	Oregon	.....	46
West Virginia	.....	157	Pennsylvania	.....	532
Wisconsin	.....	879	South Dakota	.....	17
MENINGOCOCCUS MENINGITIS			Texas	.....	8
Connecticut	.....	1	Utah ¹	.....	34
Florida	.....	1	Vermont	.....	3
Idaho	.....	1	Washington	.....	35
Illinois	.....	5	West Virginia	.....	50
Kansas	.....	1	Wisconsin	.....	152
Massachusetts	.....	1	SMALLPOX		
Michigan	.....	3	Arkansas	.....	2
New Jersey	.....	1	Colorado	.....	1
New York ¹	.....	2	Florida	.....	64
Oregon	.....	1	Idaho	.....	7
Pennsylvania	.....	3	Illinois	.....	33
Washington	.....	3	Kansas	.....	11
POLIOMYELITIS			Louisiana	.....	4
Arizona	.....	1	Michigan	.....	43
Connecticut	.....	1	Montana	.....	3
Illinois	.....	3	New York ¹	.....	17
Kansas	.....	1	North Carolina	.....	44
Louisiana	.....	2	Oregon	.....	20
Massachusetts	.....	2	Texas	.....	47
New Jersey	.....	2	Utah ¹	.....	4
New Mexico	.....	1	Washington	.....	42
New York ¹	.....	3	West Virginia	.....	28
SCARLET FEVER			Wisconsin	.....	25
Arizona	.....	8	TYPHOID FEVER		
Arkansas	.....	2	Arizona	.....	4
Colorado	.....	97	Arkansas	.....	13
Connecticut	.....	99	Colorado	.....	1
Delaware	.....	10	Florida	.....	17
Florida	.....	5	Idaho	.....	2
Idaho	.....	13	Illinois	.....	16
Illinois	.....	258	Kansas	.....	6
Kansas	.....	66	Louisiana	.....	18
Louisiana	.....	8	Maryland ¹	.....	7
Maine	.....	48	Massachusetts	.....	8
Maryland ¹	.....	75	Michigan	.....	9
Massachusetts	.....	439	Montana	.....	3
Michigan	.....	247	New York ¹	.....	14
Montana	.....	31	North Carolina	.....	9
New Jersey	.....	262	Oregon	.....	6
New Mexico	.....	9	Pennsylvania	.....	9
New York ¹	.....	276	Texas	.....	6
North Carolina	.....	18	Washington	.....	5
			West Virginia	.....	11
			Wisconsin	.....	3

Reports for Week Ended May 14, 1927

DIPHTHERIA		Cases	SCARLET FEVER		Cases
District of Columbia	.....	18	District of Columbia	.....	25
INFLUENZA			North Dakota	.....	32
District of Columbia	.....	1	SMALLPOX		
MEASLES			District of Columbia	.....	2
District of Columbia	.....	5	North Dakota	.....	3
North Dakota	.....	71	TYPHOID FEVER		
			North Dakota	.....	1

¹ Week ended Friday.

¹ Exclusive of New York City.

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	Cerebro-spinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Polio-myelitis	Scarlet fever	Small-pox	Typhoid fever
<i>March, 1927</i>										
Colorado.....		70	6		4,547		0	954	49	6
Delaware.....	1	7	3		52		0	138	0	0
<i>April, 1927</i>										
Alabama.....	4	115	812	118	1,326	63	2	62	239	93
Colorado.....		76	2		1,623		0	670	27	20
Iowa.....	1	118			1,680		0	197	70	24
Massachusetts.....	10	381	65		1,401	2	4	2,001	0	26
Michigan.....		406	19	2	1,027		0	1,077	128	29
New Jersey.....	3	484	107	1	326		2	1,398	0	26
New York.....	19	1,992		4	3,584	0	12	4,747	23	71
North Dakota.....	3	29			628		4	327	37	8
Tennessee.....	6	50	990	49	698	48	0	191	100	60

<i>March, 1927</i>		<i>April, 1927—Continued</i>	
	Cases		Cases
Chicken pox:		Dysentery:	
Colorado.....	297	New Jersey.....	1
Delaware.....	21	New York.....	2
German measles:		Tennessee.....	1
Colorado.....	32	German measles:	
Impetigo contagiosa:		Colorado.....	45
Colorado.....	10	Iowa.....	19
Mumps:		Massachusetts.....	92
Colorado.....	94	Michigan.....	155
Delaware.....	7	New York.....	1,302
Ophthalmia neonatorum:		Impetigo contagiosa:	
Delaware.....	1	Colorado.....	6
Scabies:		Iowa.....	1
Colorado.....	1	Lead poisoning:	
Septic sore throat:		Massachusetts.....	4
Colorado.....	4	Lethargic encephalitis:	
Whooping cough:		Alabama.....	2
Colorado.....	46	Massachusetts.....	6
Delaware.....	16	Michigan.....	4
		New York.....	22
<i>April, 1927</i>		Mumps:	
Actinomycosis:		Alabama.....	145
Massachusetts.....	1	Colorado.....	87
Anthrax:		Iowa.....	147
Massachusetts.....	2	Massachusetts.....	1,720
New Jersey.....	1	Michigan.....	966
Tennessee.....	1	New York.....	3,646
Chicken pox:		North Dakota.....	43
Alabama.....	201	Tennessee.....	118
Colorado.....	150	Ophthalmia neonatorum:	
Iowa.....	170	Massachusetts.....	162
Massachusetts.....	971	New Jersey.....	3
Michigan.....	1,016	Paratyphoid fever:	
New Jersey.....	1,284	New York.....	3
New York.....	2,698	Puerperal septicemia:	
North Dakota.....	28	New York.....	16
Tennessee.....	278	Rabies in animals:	
Dengue:		New York.....	20
Alabama.....	3		

<i>April, 1927—Continued</i>		<i>April, 1927—Continued</i>	
Rabies in man:	Cases	Trachoma—Continued.	Cases
Michigan.....	1	New Jersey.....	3
New York.....	2	New York.....	1
Tennessee.....	3	Typhus fever:	
Septic sore throat:		Alabama.....	1
Colorado.....	1	Vincent's angina:	
Iowa.....	1	Iowa.....	1
Massachusetts.....	21	New York.....	91
Michigan.....	3	Whooping cough:	
New York.....	20	Alabama.....	308
Tennessee.....	3	Colorado.....	52
Tetanus:		Iowa.....	70
Massachusetts.....	2	Massachusetts.....	625
New York.....	5	Michigan.....	539
Trachoma:		New Jersey.....	817
Iowa.....	1	New York.....	1,110
Massachusetts.....	3	Tennessee.....	357

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 101 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 30,900,000. The estimated population of the 95 cities reporting deaths is more than 30,280,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended May 7, 1927, and May 8, 1926

	1927	1926	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
39 States.....	1,617	1,171	
101 cities.....	1,068	674	847
Measles:			
38 States.....	13,484	24,472	
101 cities.....	4,149	9,909	
Poliomyelitis:			
39 States.....	16	12	
Scarlet fever:			
39 States.....	4,773	3,912	
101 cities.....	2,140	1,714	1,154
Smallpox:			
39 States.....	674	639	
101 cities.....	130	153	130
Typhoid fever:			
39 States.....	252	208	
101 cities.....	56	45	52
<i>Deaths reported</i>			
Influenza and pneumonia:			
95 cities.....	837	1,071	
Smallpox:			
95 cities.....	0	7	
Chicago.....	0	1	
Los Angeles.....	0	5	
San Francisco.....	0	1	

City reports for week ended May 7, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration 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 week 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 nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy the figures are smoothed when necessary to avoid abrupt deviations 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, 1923, estimated	Chick-en pox, cases re-ported	Diphtheria		Influenza		Meas-les, cases re-ported	Mumps, cases re-ported	Pneu-monia, deaths re-ported
			Cases, esti-mated expect-ancy	Cases re-ported	Cases re-ported	Deaths re-ported			
NEW ENGLAND									
Maine:									
Portland.....	75, 333	1	1	1	0	0	0	1	1
New Hampshire:									
Concord.....	22, 546	0	0	0	0	0	1	0	1
Manchester.....	83, 097	0	1	0	0	3	0	0	3
Vermont:									
Barre.....	16, 008	0	0	0	0	0	0	0	0
Massachusetts:									
Boston.....	779, 620	58	49	24	2	2	92	90	27
Fall River.....	128, 993	6	3	5	1	0	1	2	1
Springfield.....	142, 065	10	2	3	1	0	0	2	2
Worcester.....	190, 757	4	4	4	0	0	0	5	3
Rhode Island:									
Pawtucket.....	69, 780	4	1	0	0	0	0	1	1
Providence.....	267, 918	0	9	1	0	0	2	0	6
Connecticut:									
Bridgeport.....	(¹)	3	4	5	1	0	18	2	1
Hartford.....	160, 197	6	5	2	0	0	1	3	10
New Haven.....	178, 927	9	3	1	0	0	1	7	7
MIDDLE ATLANTIC									
New York:									
Buffalo.....	538, 016	13	9	8	0	0	10	11	16
New York.....	5, 873, 356	273	227	415	49	17	56	444	204
Rochester.....	316, 786	10	9	23	0	0	20	4	2
Syracuse.....	182, 003	11	5	1	0	0	140	9	4
New Jersey:									
Camden.....	128, 642	3	4	10	0	0	1	1	4
Newark.....	452, 513	96	14	13	2	0	11	122	6
Trenton.....	132, 020	5	3	1	0	2	0	0	4
Pennsylvania:									
Philadelphia.....	1, 979, 364	94	70	55	5	39	140	53	53
Pittsburgh.....	631, 533	58	16	26	7	90	6	43	43
Reading.....	112, 707	8	3	1	0	64	30	2	2
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	409, 333	12	6	9	0	2	2	16	13
Cleveland.....	936, 485	64	22	56	2	1	7	92	17
Columbus.....	279, 836	4	3	3	0	1	4	1	4
Toledo.....	287, 380	52	4	6	1	17	4	4	4
Indiana:									
Fort Wayne.....	97, 846	5	2	1	0	0	24	0	4
Indianapolis.....	358, 819	24	4	5	0	0	14	25	21
South Bend.....	80, 091	0	1	1	0	0	8	0	3
Torre Haute.....	71, 071	0	0	0	0	0	28	0	0
Illinois:									
Chicago.....	2, 995, 239	100	77	86	14	1	576	178	65
Peoria.....	81, 564	2	0	0	0	0	8	0	4
Springfield.....	63, 923	3	0	1	0	0	11	0	1
Michigan:									
Detroit.....	1, 245, 824	82	46	53	2	4	9	135	37
Flint.....	130, 316	10	3	4	0	0	14	1	10
Grand Rapids.....	153, 698	1	4	0	0	1	14	2	1

¹No estimate made.

City reports for week ended May 7, 1927—Continued

Division, State, and city	Population July 1, 1925, 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			
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha.....	50,891	14	1	0	0	0	15	43	1
Madison.....	46,385	5	1	0	0	0	19	0	1
Milwaukee.....	509,192	80	11	14	0	0	108	127	0
Racine.....	67,707	10	1	4	0	0	6	26	1
Superior.....	39,671	6	0	2	0	0	6	0	4
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	110,502	12	1	0	0	0	27	1	4
Minneapolis.....	425,435	102	16	7	0	0	13	0	2
St. Paul.....	246,001	29	14	15	0	1	27	1	3
Iowa:									
Davenport.....	52,469	0	1	0	0	0	3	3	—
Des Moines.....	141,441	0	3	2	0	0	4	0	6
Sioux City.....	76,411	1	1	0	0	0	105	7	—
Waterloo.....	36,771	1	1	0	0	0	5	0	—
Missouri:									
Kansas City.....	367,481	22	6	2	0	2	79	5	11
St. Joseph.....	78,342	1	1	0	0	0	49	0	6
St. Louis.....	821,543	27	38	40	0	0	56	85	—
North Dakota:									
Fargo.....	26,403	3	0	0	0	0	30	9	0
Grand Forks.....	14,811	0	0	0	0	0	0	0	—
South Dakota:									
Aberdeen.....	15,036	1	0	0	0	0	10	1	—
Sioux Falls.....	30,127	1	1	0	0	0	27	0	—
Nebraska:									
Lincoln.....	60,941	5	1	1	0	0	114	6	2
Omaha.....	211,798	0	2	1	0	0	51	15	3
Kansas:									
Topeka.....	55,411	1	0	1	0	1	290	0	2
Wichita.....	88,367	15	0	0	0	0	37	0	2
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	122,049	2	1	4	0	0	0	0	2
Maryland:									
Baltimore.....	796,296	66	22	32	9	5	4	20	30
Cumberland.....	33,741	0	0	0	0	0	2	1	0
Frederick.....	12,035	0	0	0	1	0	0	0	0
District of Columbia:									
Washington.....	497,906	35	12	20	2	2	12	0	8
Virginia:									
Lynchburg.....	30,395	14	1	2	0	0	21	1	1
Norfolk.....	(1)	23	0	2	0	0	271	16	2
Richmond.....	186,403	4	2	3	0	2	110	7	2
Roanoke.....	58,208	1	0	0	0	0	2	0	2
West Virginia:									
Charleston.....	49,019	4	0	0	0	0	4	0	1
Wheeling.....	56,208	1	1	1	0	0	14	0	3
North Carolina:									
Raleigh.....	30,371	7	0	0	0	0	68	0	1
Wilmington.....	37,061	0	1	0	0	0	31	13	2
Winston-Salem.....	69,031	7	1	1	0	0	210	47	2
South Carolina:									
Charleston.....	73,125	1	0	0	35	0	22	1	1
Columbia.....	41,225	1	0	0	0	0	3	1	1
Greenville.....	27,311	0	0	0	0	0	3	1	0
Georgia:									
Atlanta.....	(1)	2	1	0	9	0	35	6	3
Brunswick.....	16,869	0	0	0	0	0	0	15	0
Savannah.....	93,134	3	0	1	9	0	6	0	1
Florida:									
Miami.....	69,754	10	3	0	0	0	3	2	—
St. Petersburg.....	26,847	—	0	—	—	—	—	—	0
Tampa.....	94,743	1	0	0	0	0	56	0	1

City reports for week ended May 7, 1927—Continued

Division, State, and city	Population July 1, 1926, 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			
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	58,309	0	1	0	0	1	4	1	2
Louisville.....	305,935	2	3	1	0	0	2	8	13
Tennessee:									
Memphis.....	174,533	1	3	5	0	5	5	3	2
Nashville.....	136,220	14	0	1	0	0	1	0	4
Alabama:									
Birmingham.....	205,670	9	1	7	5	1	49	7	5
Mobile.....	65,955	0	0	0	0	1	0	0	2
Montgomery.....	46,481	4	0	1	0	0	41	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	31,643	3	0	0	0	0	13	2	1
Little Rock.....	74,216	0	0	0	0	0	11	0	1
Louisiana:									
New Orleans.....	414,493	1	7	17	3	2	29	0	11
Shreveport.....	57,857	2	0	1	0	0	35	7	2
Oklahoma:									
Oklahoma City.....	(1)	12	0	0	10	0	0	0	3
Tulsa.....	124,478	18	1	0	0	0	162	24	---
Texas:									
Dallas.....	194,450	6	3	8	0	0	116	3	3
Galveston.....	48,375	0	0	0	0	0	0	0	1
Houston.....	164,954	5	3	4	0	0	7	0	1
San Antonio.....	198,069	1	0	4	0	1	1	0	7
MOUNTAIN									
Montana:									
Billings.....	17,971	5	0	0	0	0	5	0	1
Great Falls.....	29,883	6	1	0	0	0	6	0	0
Helena.....	12,037	1	0	0	0	0	0	0	1
Missoula.....	12,668	0	0	0	0	0	1	0	0
Idaho:									
Boise.....	23,042	0	0	0	0	0	0	0	0
Colorado:									
Denver.....	280,911	21	11	6	---	1	76	4	5
Pueblo.....	43,787	9	1	0	0	0	81	0	1
New Mexico:									
Albuquerque.....	21,000	1	1	1	0	0	4	10	2
Utah:									
Salt Lake City.....	130,948	38	3	10	0	0	13	1	3
Nevada:									
Reno.....	12,665	0	0	1	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	(1)	26	5	2	0	---	91	58	---
Spokane.....	108,897	2	2	0	0	---	2	0	---
Tacoma.....	104,455	12	1	0	0	0	63	0	4
California:									
Los Angeles.....	(1)	52	37	34	20	2	336	12	16
Sacramento.....	72,260	6	2	2	0	0	6	2	2
San Francisco.....	557,530	64	19	4	2	4	115	96	1

1 No estimate made.

City reports for week ended May 7, 1927—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		
NEW ENGLAND											
Maine:											
Portland.....	3	0	0	0	0	1	0	0	0	0	24
New Hampshire:											
Concord.....	0	1	0	0	0	1	0	0	0	0	6
Manchester.....	2	2	0	0	0	6	0	0	0	0	26
Vermont:											
Barre.....	0	0	0	0	0	0	0	0	0	0	2
Massachusetts:											
Boston.....	58	120	0	0	0	8	2	0	0	8	213
Fall River.....	3	5	0	0	0	5	1	0	0	0	34
Springfield.....	6	9	0	0	0	3	0	0	0	4	42
Worcester.....	8	6	0	0	0	3	0	0	0	1	38
Rhode Island:											
Pawtucket.....	1	1	0	0	0	0	0	0	0	3	12
Providence.....	9	4	0	0	0	6	0	0	0	1	81
Connecticut:											
Bridgeport.....	9	9	0	0	0	1	0	0	0	0	27
Hartford.....	4	10	0	0	0	4	0	0	0	1	69
New Haven.....	7	4	0	0	0	4	0	1	0	2	42
MIDDLE ATLANTIC											
New York:											
Buffalo.....	18	23	0	0	0	11	0	1	0	7	146
New York.....	285	832	0	0	0	102	10	15	1	95	1,536
Rochester.....	14	14	0	0	0	2	0	0	0	1	88
Syracuse.....	10	2	0	0	0	2	1	0	0	7	51
New Jersey:											
Camden.....	6	4	0	0	0	1	0	0	0	0	31
Newark.....	24	46	0	0	0	7	0	2	0	41	88
Trenton.....	3	3	0	0	0	10	1	0	0	0	43
Pennsylvania:											
Philadelphia.....	77	131	1	0	0	39	4	2	0	23	485
Pittsburgh.....	27	38	0	0	0	12	1	0	0	13	213
Reading.....	3	4	0	0	0	2	0	0	0	2	29
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	14	35	2	1	0	9	1	0	1	1	138
Cleveland.....	32	43	0	0	0	14	1	1	0	28	179
Columbus.....	9	9	2	1	0	5	0	0	0	9	84
Toledo.....	13	11	4	1	0	6	0	0	0	20	83
Indiana:											
Fort Wayne.....	4	2	2	2	0	0	1	1	0	1	29
Indianapolis.....	9	16	12	27	0	6	1	0	0	30	113
South Bend.....	3	3	1	0	0	1	0	0	0	0	12
Terre Haute.....	3	0	1	0	0	1	0	0	0	1	11
Illinois:											
Chicago.....	14	108	2	4	0	61	3	3	1	73	720
Peoria.....	3	3	0	0	0	1	0	0	0	0	21
Springfield.....	2	4	0	0	0	0	0	0	0	0	16
Michigan:											
Detroit.....	80	103	2	2	0	26	2	3	0	88	305
Flint.....	5	31	2	2	0	0	0	0	0	0	28
Grand Rapids.....	7	14	1	3	0	1	0	0	0	6	30
Wisconsin:											
Kenosha.....	2	10	1	0	0	1	0	1	0	2	10
Madison.....	2	8	1	0	0	0	0	0	0	17	12
Milwaukee.....	24	38	1	0	0	9	0	1	0	30	133
Racine.....	4	4	1	0	0	0	0	0	0	18	13
Superior.....	2	5	1	0	0	3	0	0	0	0	11
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	4	10	1	0	0	4	1	0	0	1	21
Minneapolis.....	37	44	7	0	0	1	0	0	0	1	89
St. Paul.....	23	17	4	0	0	3	0	0	0	16	54

¹ Pulmonary tuberculosis only.

City reports for week ended May 7, 1927—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		
WEST NORTH CENTRAL—continued											
Iowa:											
Davenport.....	2	0	3	0			0	0		1	
Des Moines.....	7	3	2	1			0	0		0	39
Sioux City.....	2	3	1	2			0	0		5	
Waterloo.....	1	0	0	0			0	0		3	
Missouri:											
Kansas City....	9	21	1	3	0	5	0	0	0	23	80
St. Joseph.....	2	4	1	5	0	1	0	0	0	0	32
St. Louis.....	31	25	4	4	0	13	1	1	0	41	199
North Dakota:											
Fargo.....	2	2	0	1	0	0	0	0	0	0	7
Grand Forks...	1	7	0	0			0	0		0	
South Dakota:											
Aberdeen.....	3	0	0	0			0	0		0	
Sioux Falls....	1	8	1	0			0	0		0	
Nebraska:											
Lincoln.....	1	0	1	0	0	0	0	0	0	0	16
Omaha.....	3	9	8	1	0	2	0	0	0	2	55
Kansas:											
Topeka.....	3	1	1	1	0	0	0	0	0	5	9
Wichita.....	2	1	2	0	0	0	0	0	0	8	27
SOUTH ATLANTIC											
Delaware:											
Wilmington....	4	4	0	0	0	0	1	0	0	2	27
Maryland:											
Baltimore.....	34	27	1	0	0	15	2	0	0	41	242
Cumberland....	1	0	0	0	0	0	0	0	0	0	8
Frederick.....	0	0	0	0	0	1	0	0	0	0	7
District of Col.:											
Washington....	23	24	1	0	0	16	1	1	0	14	150
Virginia:											
Lynchburg....	0	0	0	0	0	0	1	0	0	9	14
Norfolk.....	2	0	0	0	0	4	0	0	0	11	
Richmond.....	3	4	1	0	0	4	0	2	0	1	51
Roanoke.....	0	0	1	7	0	0	0	0	0	2	15
West Virginia:											
Charleston....	1	1	0	0	0	0	0	0	1	9	14
Wheeling.....	2	1	0	0	0	1	1	0	0	1	20
North Carolina:											
Raleigh.....	0	3	0	0	0	3	0	0	0	17	15
Wilmington....	0	0	0	0	0	0	1	0	0	4	9
Winston-Salem	1	1	5	5	0	0	1	0	0	60	16
South Carolina:											
Charleston....	0	0	0	0	0	3	0	3	0	6	24
Columbia.....	0	0	1	0		1	0	0		17	11
Greenville....	0	1	0	0	0	0	0	0	0	0	6
Georgia:											
Atlanta.....	3	4	4	2	0	4	0	1	1	25	58
Brunswick....	0	0	0	1	0	0	0	0	0	1	3
Savannah....	0	0	1	5	0	2	0	2	0	1	23
Florida:											
Miami.....	1	0		1	0	0	1	1	0	7	38
St. Petersburg	0		0		0	0	0	0	0		13
Tampa.....	0	1	0	0	0	5	1	1	0	2	30
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	1	1	0	0	0	0	0	0	0	0	13
Louisville....	6	18	1	1	0	1	1	0	0	14	85
Tennessee:											
Memphis.....	4	14	3	4	0	8	1	2	0	7	64
Nashville....	2	1	1	0	0	3	0	1	0	3	40
Alabama:											
Birmingham	2	1	8	5	0	3	1	0	0	4	59
Mobile.....	0	1	1	0	0	4	1	0	1	0	25
Montgomery..	0	0	1	1	0	0	0	0	0	3	

City reports for week ended May 7, 1927—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		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	0	0	0	0	0	2	1	4	7	
Little Rock.....	0	0	0	0	0	1	3	0	0	0	
Louisiana:											
New Orleans.....	4	5	2	0	0	9	1	0	9	153	
Shreveport.....	0	0	1	0	0	1	0	0	0	25	
Oklahoma:											
Oklahoma City.....	1	0	3	0	0	0	0	0	0	22	
Tulsa.....	1	4	2	2	0	0	0	0	4	0	
Texas:											
Dallas.....	2	4	4	4	0	5	0	0	3	49	
Galveston.....	0	0	1	0	0	1	2	0	0	13	
Houston.....	1	3	0	4	0	3	0	1	4	33	
San Antonio.....	1	2	0	0	0	10	0	1	0	77	
MOUNTAIN											
Montana:											
Billings.....	1	2	1	0	0	0	0	0	0	8	
Great Falls.....	1	2	1	0	0	0	1	0	0	6	
Helena.....	0	0	1	1	0	0	0	0	0	6	
Missoula.....	0	6	1	0	0	0	0	0	0	3	
Idaho:											
Boise.....	1	0	1	0	0	0	0	0	0	5	
Colorado:											
Denver.....	12	64	2	0	0	8	0	1	0	74	
Pueblo.....	0	25	0	0	0	3	0	0	7	18	
New Mexico:											
Albuquerque.....	1	0	0	0	0	5	0	0	0	17	
Utah:											
Salt Lake City.....	2	13	0	3	0	2	0	0	17	36	
Nevada:											
Reno.....	0	0	1	0	0	0	0	0	0	2	
PACIFIC											
Washington:											
Seattle.....	9	3	4	1	0	0	0	0	28	0	
Spokane.....	4	18	5	13	0	1	0	0	6	0	
Tacoma.....	3	7	3	9	0	2	0	0	2	28	
California:											
Los Angeles.....	21	31	6	0	0	26	1	0	25	241	
Sacramento.....	2	0	1	5	0	2	0	0	1	0	
San Francisco.....	13	22	4	0	0	14	1	0	56	138	

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)			
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths	
NEW ENGLAND										
Massachusetts:										
Boston.....	0	1	0	0	0	0	1	1	0	
MIDDLE ATLANTIC										
New York:										
New York.....	7	5	13	4	0	0	1	0	1	
New Jersey:										
Camden.....	0	0	1	1	0	0	0	0	0	
Newark.....	1	1	1	0	0	0	0	0	0	
Pennsylvania:										
Philadelphia.....	0	0	1	2	0	0	0	0	0	
Pittsburgh.....	0	3	0	0	0	0	0	0	0	
Reading.....	0	1	0	0	0	0	0	0	0	

City reports for week ended May 7, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	1	0	1	0	0	0	0	0	0
Illinois:									
Chicago.....	7	3	2	0	0	0	1	0	0
Michigan:									
Detroit.....	1	1	0	1	0	0	0	0	0
Wisconsin:									
Milwaukee.....	2	2	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul.....	0	0	0	0	0	0	0	1	0
Missouri:									
Kansas City.....	1	1	0	0	0	0	0	0	0
SOUTH ATLANTIC									
South Carolina:									
Charleston ¹	0	0	0	0	3	0	0	0	0
Georgia:									
Atlanta.....	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Louisville.....	1	0	0	0	0	0	0	0	0
Tennessee:									
Nashville.....	0	0	0	0	1	1	0	0	0
Alabama:									
Birmingham.....	0	0	0	0	1	1	0	0	0
Mobile.....	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	0	0	0	0	1	1	0	1	0
Texas:									
Dallas.....	0	1	0	0	1	1	0	0	0
Galveston.....	0	0	0	0	0	0	0	1	0
San Antonio.....	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Billings.....	1	0	0	0	0	0	0	0	0
Colorado:									
Denver.....	1	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	0	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	1		0		0		0	0	
California:									
Sacramento.....	1	3	0	0	0	0	0	0	0
San Francisco.....	0	0	0	0	0	0	0	2	1

¹ Dengue: 1 case at Charleston, S. C.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended May 7, 1927, compared with those for a like period ended May 8, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the

cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,440,000 in 1926 and 30,960,000 in 1927. The 95 cities reporting deaths had nearly 29,780,000 estimated population in 1926 and nearly 30,290,000 in 1927. 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, April 3 to May 7, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926¹

DIPHTHERIA CASE RATES

	Week ended—									
	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927	May 8, 1926	May 7, 1927
101 cities.....	116	202	110	175	118	180	110	171	115	183
New England.....	125	181	47	104	73	135	83	95	106	130
Middle Atlantic.....	125	269	119	271	162	270	114	243	126	273
East North Central.....	88	170	86	136	87	132	98	138	89	160
West North Central.....	204	171	246	109	182	141	204	159	198	131
South Atlantic.....	86	126	89	141	67	136	67	105	75	120
East South Central.....	114	66	47	87	26	31	72	76	62	76
West South Central.....	60	340	30	143	47	126	56	180	70	143
Mountain.....	118	171	191	108	82	189	118	99	146	153
Pacific.....	137	126	134	115	145	157	153	188	177	110

MEASLES CASE RATES

101 cities.....	1,781	864	1,770	762	1,792	785	1,708	640	1,713	699
New England.....	1,568	269	1,809	223	1,663	295	1,526	323	1,710	269
Middle Atlantic.....	1,773	159	1,702	173	1,596	146	1,420	231	1,432	213
East North Central.....	1,572	920	1,471	861	1,459	778	1,488	638	1,456	568
West North Central.....	3,283	1,304	3,354	1,318	4,148	1,556	4,060	1,229	4,511	1,527
South Atlantic.....	2,630	1,003	2,919	1,317	2,516	1,586	2,507	1,022	1,926	1,583
East South Central.....	3,020	611	2,772	397	3,434	520	2,875	377	3,237	520
West South Central.....	236	2,143	133	1,019	163	1,267	159	935	125	889
Mountain.....	419	2,796	529	2,086	1,075	1,798	866	1,546	884	1,636
Pacific.....	388	3,058	372	2,212	501	2,107	664	1,532	656	1,605

SCARLET FEVER CASE RATES

101 cities.....	274	397	307	391	284	363	292	338	294	360
New England.....	318	362	373	423	222	346	291	402	222	392
Middle Atlantic.....	176	595	187	583	201	529	221	448	217	541
East North Central.....	330	272	343	280	288	296	290	282	310	283
West North Central.....	845	435	910	397	899	343	879	334	940	272
South Atlantic.....	145	189	181	150	158	161	216	194	175	129
East South Central.....	165	178	150	219	223	168	171	194	186	183
West South Central.....	116	101	133	50	172	42	146	34	176	59
Mountain.....	100	944	173	953	210	955	219	953	137	1,007
Pacific.....	155	243	338	243	260	209	204	199	206	212

SMALLPOX CASE RATES

101 cities.....	32	27	26	24	31	33	26	21	26	22
New England.....	0	0	0	0	0	0	0	0	0	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	18	37	14	32	22	29	19	33	22	28
West North Central.....	50	42	42	56	44	40	30	38	58	34
South Atlantic.....	67	27	43	27	47	65	28	20	30	36
East South Central.....	88	87	52	97	98	163	98	66	72	56
West South Central.....	133	105	95	88	112	96	146	25	159	34
Mountain.....	27	27	27	27	46	54	36	9	36	36
Pacific.....	137	55	137	26	139	97	102	65	56	73

¹ 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, 1926 and 1927, respectively.

² Madison, Wis., and Norfolk, Va., not included.

³ Madison, Wis., not included.

⁴ Norfolk, Va., not included.

Summary of weekly reports from cities, April 3 to May 7, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	Apr. 10, 1926	Apr. 9, 1927	Apr. 17, 1926	Apr. 16, 1927	Apr. 24, 1926	Apr. 23, 1927	May 1, 1926	Apr. 30, 1927	May 8, 1926	May 7, 1927
101 cities.....	7	8	7	8	8	7	9	8	8	9
New England.....	9	7	9	9	5	0	5	5	9	2
Middle Atlantic.....	5	6	7	5	8	7	6	5	7	10
East North Central.....	3	5	2	1	1	3	4	6	4	6
West North Central.....	10	2	4	12	6	4	6	4	6	2
South Atlantic.....	6	10	4	13	7	11	19	16	13	18
East South Central.....	10	36	0	36	26	31	21	31	16	15
West South Central.....	17	38	34	17	26	13	17	13	17	38
Mountain.....	18	0	9	9	0	27	18	9	0	18
Pacific.....	13	8	13	18	21	10	27	13	11	3

INFLUENZA DEATH RATES

	Week ended—									
	74	23	53	22	38	18	33	18	25	13
95 cities.....	74	23	53	22	38	18	33	18	25	13
New England.....	83	7	52	16	40	12	35	7	14	5
Middle Atlantic.....	76	26	59	21	34	20	27	21	22	15
East North Central.....	81	9	67	11	42	11	46	10	29	7
West North Central.....	32	17	23	12	32	21	17	12	13	8
South Atlantic.....	59	41	43	39	30	22	28	29	19	17
East South Central.....	238	71	47	87	103	56	98	36	98	41
West South Central.....	66	52	53	43	62	31	26	47	44	13
Mountain.....	46	36	46	18	46	0	9	9	18	9
Pacific.....	14	17	21	14	4	10	11	21	4	21

PNEUMONIA DEATH RATES

	Week ended—									
	277	163	241	154	201	159	177	144	163	131
95 cities.....	277	163	241	154	201	159	177	144	163	131
New England.....	358	139	302	156	233	151	210	183	170	139
Middle Atlantic.....	339	199	288	176	240	199	219	169	175	167
East North Central.....	245	132	233	142	192	135	152	128	178	122
West North Central.....	186	137	133	129	137	125	108	56	122	69
South Atlantic.....	236	159	208	185	206	180	178	156	170	114
East South Central.....	429	209	331	132	259	153	233	127	222	143
West South Central.....	159	142	181	78	128	78	150	125	110	112
Mountain.....	137	243	155	153	109	162	118	159	82	99
Pacific.....	148	117	117	117	71	97	74	117	78	79

¹ Madison, Wis., and Norfolk, Va., not included.

² Madison, Wis., not included.

³ Norfolk, Va., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
			Total.....	101	95	30,438,500	30,960,600	29,778,400	30,289,800
New England.....	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic.....	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central.....	16	16	7,644,900	7,804,500	7,644,900	7,804,500
West North Central.....	12	10	2,685,500	2,626,600	2,470,600	2,510,000
South Atlantic.....	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central.....	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central.....	8	7	1,213,800	1,243,300	1,181,500	1,216,400
Mountain.....	9	9	572,100	550,000	572,100	589,000
Pacific.....	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended April 23, 1927.—The following report for the week ended April 23, 1927, was transmitted by the Eastern Bureau of the Health Section of the Secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Small-pox		Maritime towns	Plague		Cholera		Small-pox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
Ceylon: Colombo.....	2	2	0	0	0	0	French Indo-China:						
British India:							Saigon and Cholon.....	0	0	26	22	0	0
Bombay.....		13			1	80	Haiphong.....	0	0	80	50	0	0
Calcutta.....		0		137	191	133	China:						
Rangoon.....		1		3	50	15	Canton.....	0	0	0	0	32	1
Basseln.....		6		6	6	0	Macao.....	0	0	0	0	—	2
Madras.....		0		0	6	1	Hong Kong.....	0	0	0	0	5	3
Vizagapatam.....		0		0	1	1	Kwantung: Dairen.....	0	0	0	0	1	0
Siam: Bangkok.....	0	0	9	6	2	2							

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Jeddah, Perim, Aden.
Iraq.—Basra.
Persia.—Mohammerah, Bender-Abbas, Bushire, Lingah.
British India.—Karachi, Chittagong, Cochin, Negapatam, Tuticorin, Moulmein.
Portuguese India.—Nova Goa.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Penang, Singapore.
Dutch East Indies.—Batavia, Sabang, Belawan-Dei, Pontianak, Semarang, Menado, Banjarmasin, Cheribon, Palembang, Makassar, Balikpapan, Tarakan, Samarinda, Surabaya, Padang.
Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
French Indo-China.—Tourane.
Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.
China.—Amoy, Tientsin, Shanghai.
Formosa.—Keelung, Takao.
Chosen.—Chemulpo, Fusan.
Manchuria.—Yingkow, Antung, Changebun, Harbin, Mukden.
Kwantung.—Port Arthur.
Japan.—Yokohama, Nagasaki, Niigata, Shimoneseki, Moji, Tsuruga, Kobe, Osaka, Hakodate.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns.
New Guinea.—Port Moresby.
New Britain Mandated Territory.—Rabaul and Kokopo.
New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.
Samoa.—Apia.
New Caledonia.—Noumea.
Fiji.—Suva.
Hawaii.—Honolulu.
Society Islands.—Papeete.
AFRICA
Egypt.—Port Said, Suez, Alexandria.
Anglo-Egyptian Sudan.—Port Sudan, Suakin.
Eritrea.—Massaua.
French Somaliland.—Djibouti.
British Somaliland.—Berbera.
Italian Somaliland.—Mogadiscio.
Zanzibar.—Zanzibar.
Kenya.—Mombasa.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenço-Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.
Reunion.—Saint Denis.
Mauritius.—Port Louis.
Madagascar.—Majunga, Tamatave, Diego-Suarez.

Reports had not been received in time for publication from:

Arabia.—Kamran.

Union of Soviet Socialist Republics.—Vladivostock.

Belated information:

Week ended April 16: *Surabaya*, one fatal plague case. Other ports of *Dutch East Indies*, nil. *Colombo*, six plague cases and three deaths; one plague-infected rat has been found.

Week ended April 9: *Pondicherry* and *Karikal*, nil.

Movement of infected ships:

Singapore.—The S. S. *Donai* arrived on April 25 from *Cholon* infected with cholera.

Port Swettenham.—The S. S. *Tairea* arrived on April 22 from *Madras* infected with smallpox.

CANADA

Communicable diseases—Week ended May 7, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from six Provinces of Canada for the week ended May 7, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Manitoba	Saskatchewan	Alberta	Total
Influenza.....	37						37
Smallpox.....				1	7	11	19
Typhoid fever.....		2	112		3	1	118

CZECHOSLOVAKIA

Communicable diseases—March, 1927.—During the month of March, 1927, communicable diseases were reported in the Republic of Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis.....	21	10	Puerperal fever.....	49	18
Diphtheria.....	570	56	Scarlet fever.....	997	15
Dysentery.....	20	3	Trachoma.....	180	
Malaria.....	7		Typhoid fever.....	276	32
Paratyphoid fever.....	3		Typhus fever.....	35	3

EGYPT

Plague—April 9-21, 1927.—Plague has been reported in Egypt as follows: Week ended April 15, 1927, 6 cases, of which 1 case occurred in the city of *Alexandria* and 5 cases in the Province of *Guerga*, the total number of cases from January 1 to April 15, 1927, being 23. During the corresponding period of 1926 there were 10 cases. From April 16 to 21, 1927, 7 cases with 5 deaths, 1 case being septicemic. The occurrence was in four localities, with 4 cases in one locality, viz, *El Berber*. On April 29, 1 case was reported in the Province of *Gharbia*.

Communicable diseases—January 1–April 1, 1927 (comparative).—During the period from January 1 to April 1, 1927, communicable diseases were reported from Egypt as follows:

Disease	Jan. 1–Apr. 1, 1927		Corresponding period, 1926	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis.....	8	—	3	—
Influenza.....	1,940	—	1,067	—
Smallpox.....	157	17	907	198
Typhoid fever.....	234	—	298	—
Typhus fever.....	196	32	—	—

ESTONIA

Communicable diseases—March, 1927.—During the month of March, 1927, communicable diseases were reported in the Republic of Estonia as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	2	Tuberculosis.....	208
Diphtheria.....	34	Typhoid fever.....	35
Measles.....	276	Typhus fever.....	1
Scarlet fever.....	679		

Population, 1,114,630.

IRELAND (IRISH FREE STATE)

Typhus fever—Donegal County—April 24–30, 1927.—During the week ended April 30, 1927, a case of typhus fever was reported in Donegal County, Irish Free State, Ireland, occurring in the rural district of Letterkenny.

JAMAICA

Smallpox (alastrim)—April 3–30, 1927.—During the period April 3 to 30, 1927, 23 cases of smallpox, reported as alastrim, were notified in the island of Jamaica, occurring at localities other than Kingston, with 13 cases notified during the first week of the period under report and 1 case during the last week.

Other communicable diseases were reported as follows:

Disease	Cases		Disease	Cases	
	Kingston	Other localities		Kingston	Other localities
Cerebrospinal meningitis.....	—	1	Puerperal fever.....	—	4
Chicken pox.....	43	89	Tuberculosis.....	34	46
Dysentery.....	11	32	Typhoid fever.....	28	80
Leprosy.....	1	2			

MADAGASCAR

Plague—February 16–28, 1927.—During the period February 16 to 28, 1927, 148 cases of plague with 140 deaths were reported in the island of Madagascar. The occurrence was distributed in five Provinces, as follows: *Ambositra*—12 cases; *Antisirabe*—15 cases; *Miarinarivo*—40 cases; *Moramanga*—10 cases; *Tananarive*, including 2 cases in Tananarive town—71 cases. The distribution according to type was: Bubonic—74 cases; pneumonic—27 cases; septicemic—47 cases.

MEXICO

Epidemic measles—Vera Cruz—February, 1927.—Epidemic measles was reported present at Vera Cruz, Mexico, early in the month of February, 1927, many of the cases being of a severe type. To May 10, 1927, 26 fatalities from the disease were reported. It was stated that in some of the fatal cases of measles the cause of death was given as bronchitis, or broncho-pneumonia.

MOROCCO

Typhus fever—Sanitary conditions—Precautions against spread.—Information dated April 9, 1927, shows an increased prevalence of typhus fever in southern Morocco, the greatest prevalence being reported at Marrakech and Mogador. The greatest incidence was in the native population and in a battalion of Senegalese soldiers recently in charge of a sick native camp at Marrakech. A military cordon had been established to prevent movement of the native population, together with quarantine camps which provided bathing facilities, medical observation, disinfection and sterilization of clothing for all persons detained. The outbreak was attributed to failure of food supply and consequent movement of the population to seek more favorable living conditions.

VIRGIN ISLANDS

Communicable diseases—April, 1927.—During the month of April, 1927, communicable diseases were reported in the Virgin Islands of the United States as follows:

Island and disease	Cases	Remarks
St. Thomas and St. John:		
Chancroid.....	1	
Chicken pox.....	1	
Gonorrhoea.....	3	
Influenza.....	4	
Syphilis.....	7	Secondary, 6; tertiary, 1.
Tuberculosis.....	1	Chronic, pulmonary.
St. Croix:		
Filariasis.....	7	Bancrofti.
Gonorrhoea.....	5	
Leprosy.....	1	
Schistosomiasis.....	1	Mansoni.
Uncinariasis.....	1	Necator americanus.

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

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended May 27, 1927 ¹

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Chungking.....	Mar. 13-19.....			Present.
French Settlements in India.....	Jan. 23-Mar. 5.....	10	8	
India.....				Feb. 20-26, 1927: Cases, 1,581; deaths, 900.
Calcutta.....	Mar. 27-Apr. 9.....	144	133	
Madras.....	Apr. 10-16.....	1	1	
Indo-China (French).....	Feb. 1-Mar. 20.....	281		
Siam.....				Mar. 27-Apr. 2, 1927: Cases, 46; deaths, 31.
Bangkok.....	Mar. 27-Apr. 2.....	16	9	District.

PLAGUE

Egypt:					
Alexandria.....	Apr. 9-15.....	1			
Gherga Province.....	Apr. 9-21.....	12	5		
Gharbia Province.....	Apr. 29.....	1			
India.....					Feb. 20-26, 1927: Cases, 2,404; deaths, 1,521.
Bombay.....	Mar. 27-Apr. 2.....	6	6		
Madras Presidency.....	Mar. 20-26.....	36	22		
Indo-China (French).....	Feb. 1-28.....	3			
Java:					
Batavia.....	Apr. 3-9.....	7	7		Province.
Pribolingo district.....	Jan. 7.....				Outbreak at Ngadas.
Semarang.....	do.....				Seaport. Present.
Madagascar.....					Feb. 16-28, 1927: Cases, 148; deaths, 140.
Province—					
Ambositra.....	Feb. 16-28.....	12	12		Bubonic, 3; septicemic, 9.
Antsirabe.....	do.....	15	15		Bubonic, 2; pneumonic, 4; septicemic, 9.
Miarinarivo (Itasy).....	do.....	40	39		Bubonic, 20; pneumonic, 9; septicemic, 11.
Moramanga.....	do.....	10	5		Bubonic, 7; pneumonic, 1; septicemic, 2.
Tananarive.....	do.....	71	69		Bubonic, 42; pneumonic, 13; septicemic, 16. Including 2 cases in Tananarive Town.
Nigeria.....	Dec. 1-31.....	67	65		
Do.....	Jan. 1-31.....	42	42		
Russia.....	Nov. 1-Dec. 31.....	34			
Union of South Africa:					
Cape Providence—					
Hanover district.....	Mar. 27-Apr. 2.....	2	1		At Linder railway siding. Native.
Tarkastad district.....	do.....	3	1		On Spring Valley farm. Native.

SMALLPOX

Algeria.....					Feb. 21-Mar. 20, 1927: Cases, 191.
Canada.....	May 1-7.....				Cases, 19.
Alberta.....	do.....	11			
Calgary.....	May 1-7.....	5			
Manitoba.....	do.....	1			
Winnipeg.....	May 8-14.....	3			
Ontario—					
Ottawa.....	May 1-7.....	2			
Toronto.....	do.....	14			
Saskatchewan.....	do.....	7			
China:					
Chefoo.....	Apr. 3-9.....				Present.
Chungking.....	Mar. 13-19.....				Do.
Foochow.....	Mar. 27-Apr. 2.....				Do.
Manchuria—					
Anshan.....	Apr. 10-16.....	1			
Dairen.....	Mar. 14-Apr. 3.....	17	6		
Mukden.....	Apr. 3-9.....	1			
Tiehling.....	do.....	1			

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

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

Reports Received During Week Ended May 27, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China—Continued				
Shanghai.....	Apr. 3-9.....	1		Foreign settlement. Prevalent. Reported by British municipality and 1 mission hospital. Jan. 1-31, 1927: Cases, 98; deaths, 21.
Swatow.....	Mar. 27-Apr. 9.....			
Tientsin.....	Apr. 3-9.....	6	1	
Chosen.....				
Egypt:				
Alexandria.....	Apr. 2-8.....	1		
France:				
Paris.....	Apr. 11-20.....	5		
French Settlements in India.....	Jan. 23-Feb. 20.....	34	34	
Gold Coast.....	Jan. 1-31.....	5	1	
Great Britain:				
England and Wales—				
Newcastle-on-Tyne.....	Apr. 24-30.....	2		
Sheffield.....	Apr. 17-30.....	11		
Scotland—				
Dundee.....	Apr. 24-30.....	16		
Greece:				
Saloniki.....	Mar. 8-14.....		1	
India.....				Feb. 20-26, 1927: Cases, 6,353; deaths, 1,384.
Bombay.....	Mar. 27-Apr. 2.....	85	48	
Calcutta.....	Mar. 27-Apr. 9.....	538	404	
Karachi.....	Apr. 10-16.....	1	1	
Italy.....	Jan. 16-Feb. 26.....	2		
Jamaica.....				Apr. 3-30, 1927: Cases, 23 (alas-trim).
Japan.....	Jan. 30-Feb. 26.....	33		
Sasebo.....	May 8-14.....	3		
Mexico.....				Dec. 1-31, 1926: Deaths, 154. Including municipalities in Federal district.
Mexico City.....	Apr. 24-30.....	2		
San Luis Potosi.....	May 1-7.....		1	
Netherlands India:				Epidemic in 6 localities.
Borneo.....	Feb. 7-28.....			
Nigeria.....	Jan. 1-31.....	96	12	
Russia.....	Nov. 1-Dec. 31.....	931		
Siam.....				Mar. 27-Apr. 2, 1927: Cases, 12; deaths, 3.
Bangkok.....	Mar. 27-Apr. 2.....	3	3	
Spain.....	Oct. 1-31.....		3	
Valencia.....	Apr. 24-30.....	1		
Tunisia.....	Feb. 21-Mar. 20.....	5		

TYPHUS FEVER

Algeria.....	Feb. 21-Mar. 20.....	126	4	
Bulgaria.....	Feb. 1-28.....	5	2	
Sotha.....	Apr. 16-22.....	1		
Chosen.....	Jan. 1-31.....	65	10	
Chemulpo.....	Mar. 1-31.....	5		
Seoul.....	do.....	8	1	
Czechoslovakia.....	do.....	35	3	
Estonia.....				Mar. 1-31, 1927: 1 case.
Ireland (Irish Free State): Donegal County—				
Letterkenny.....	Apr. 24-30.....	1		Rural district.
Italy.....	Jan. 16-Feb. 26.....	15		
Mexico.....	Dec. 1-31.....		29	
Morocco.....				Apr. 9, 1927: Prevalent. Present.
Marrakech.....	Apr. 9.....			
Mogador.....	do.....			Do.
Palestine.....				Apr. 12-25, 1927: Cases, 3.
Poland.....				Mar. 6-12, 1927: Cases, 157; deaths, 7.
Rumania.....	Jan. 1-31.....	391	31	
Russia.....	Nov. 1-Dec. 31.....	4,609		
Tunisia.....	Feb. 21-Mar. 20.....	69		
Union of South Africa:				Outbreaks in Xalanga district. At Bulwer location.
Cape Province.....	Mar. 27-Apr. 2.....			
Natal.....	do.....			

YELLOW FEVER

Gold Coast.....	Feb. 1-26.....	17	7	
Nigeria.....	Jan. 1-31.....	1	1	

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

Reports Received from January 1 to May 20, 1927¹

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Canton	Nov. 1-30	10	3	
Chungking	Nov. 14-20			Present.
Do.	Jan. 2-Feb. 19			Do.
Tsingtao	Nov. 14-Dec. 11			Do.
Chosen	Sept. 1-Oct. 31	252	159	
French Settlements in India	Aug. 29-Dec. 18	131	97	
Do.	Jan. 2-22	10	7	
India:				
Do.	Oct. 10-Jan. 1			Cases, 20,298; deaths, 13,607.
Do.	Jan. 2-Feb. 12			Cases, 15,862; deaths, 8,910.
Bombay	Jan. 9-29	2	1	
Calcutta	Oct. 31-Jan. 1	385	313	
Do.	Jan. 2-Mar. 19	601	468	
Madras	Dec. 26-Jan. 1	2	2	
Do.	Jan. 2-Mar. 19	12	9	
Rangoon	Nov. 21-Jan. 1	11	7	
Do.	Jan. 2-Apr. 2	62	52	
Indo-China				
Do.	July 1-Dec. 31			Cases, 8,568.
Do.	Jan. 1-31	490		
Saigon	Oct. 31-Nov. 13	2	2	
Province—				
Annam	July 1-Aug. 31	511	401	
Cambodia	do.	727	472	
Cochin-China	do.	432	349	
Kwang-Chow-Wan	do.	703	361	
Lacs	do.	56	47	
Tonkin	do.	1,017	646	
Japan:				
Hiogo	Nov. 14-20	3		
Philippine Islands:				
Manila	Oct. 31-Nov. 6	1		
Russia	Aug. 1-Sept. 30	8		
Siam:				
Do.	Apr. 1-Jan. 1			Cases, 7,847; deaths, 5,164.
Do.	Jan. 2-Mar. 26			Cases, 562; deaths, 355.
Bangkok	Oct. 31-Jan. 1	16	5	
Do.	Jan. 9-Mar. 26	96	56	
Straits Settlements				
Singapore	July 25-Oct. 16		60	
Do.	Nov. 21-Jan. 1	14	8	
Do.	Feb. 6-12	1		

PLAGUE

Algeria:				
Algiers	Reported Nov. 16	1		
Bona	Jan. 11-19	3	2	
Oran	Nov. 21-Dec. 10	32	22	
Tarafaraoui	Nov. 1-Dec. 9	10	9	Near Oran.
Angola:				
Benguela district	Oct. 1-Dec. 31	17	10	
Do.	Jan. 19-31	1		At Cavaco.
Cuanza Norte district	Dec. 1-31	18	10	
Mossamedes district	Dec. 16-31	10		
Do.	Jan. 19-Feb. 28	8		
Port Alexander	Feb. 9-15	1		
Argentina	Jan. 9-15	5		
Azores:				
St. Michaels Island—				
Furnas	Nov. 3-17	4	1	27 miles distant from port.
Brazil:				
Porto Alegre	Jan. 1-31	4	2	
Rio de Janeiro	Nov. 28-Dec. 4	2	2	
Do.	Dec. 26-Jan. 1	1	1	On vessel in harbor.
Do.	Jan. 2-8	1		
Sao Paulo	Nov. 1-14	1	1	
British East Africa:				
Kenya—				
Kisumu	Jan. 16-22	1	1	
Mombasa	Feb. 27-Mar. 19	7	7	
Tanganyika Territory	Nov. 21-Dec. 18		12	
Uganda	Sept. 1-Oct. 31	162	152	

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

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

Reports Received from January 1 to May 20, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Canary Islands:				
Atarfe.....	Dec. 20.....	1	1	Vicinity of Las Palmas.
Las Palmas.....	Jan. 2-Feb. 12.....	2		
San Miguel.....	do.....	1		Vicinity of Santa Cruz de Tenerife.
Celebes:				
Makassar.....	Dec. 22.....			Outbreak.
Ceylon:				
Colombo.....	Nov. 14-Dec. 11.....	3	1	2 plague rodents.
Do.....	Jan. 2-Apr. 2.....	47	26	13 plague rodents.
China:				
Mongolia.....	Reported Dec. 21.....	500		
Nanking.....	Oct. 31-Dec. 18.....			Present.
Do.....	Feb. 6-Mar. 6.....			Do.
Ecuador:				
Guayaquil.....	Nov. 1-Dec. 31.....	26	8	Rats taken, 50,615; found infected, 184.
Do.....	Jan. 1-Mar. 31.....	79	22	Rats taken, 71,517; found infected, 237.
Egypt:				
Do.....	Jan. 1-Dec. 9.....			Cases, 149.
Do.....	Jan. 1-Mar. 18.....			Cases, 14.
Alexandria.....	Nov. 19-Dec. 2.....	2		
Do.....	Apr. 2-5.....	2	1	
Charkia Province.....	Jan. 5.....	1	1	At Zagazig (Tel el Kebir).
Gharbia Province.....	Jan. 4.....	1	1	
Guerga district.....	Apr. 5.....	1	1	
Kafr el Sheikh.....	Dec. 3-9.....	2		
Marsa Matrah.....	Dec. 23-29.....	10		
Do.....	Jan. 27.....	1		
Port Said.....	Mar. 12-18.....	2	1	
Tanta district.....	Nov. 19-Dec. 20.....	3		
Greece:				
Athens and Piræus.....	Nov. 1-Dec. 31.....	19	5	
Do.....	Jan. 1-Mar. 31.....	24	3	
Patras.....	Nov. 28-Dec. 4.....		1	
Pravi.....	Nov. 27.....	1	1	Province of Drama-Kevalla.
India:				
Do.....	Oct. 10-Jan. 1.....			Cases, 16,162; deaths, 9,906.
Do.....	Jan. 2-Feb. 19.....			Cases, 9,696; deaths, 7,413.
Bombay.....	Nov. 21-27.....	1	1	
Do.....	Jan. 16-Mar. 26.....	22	19	
Madras.....	Jan. 31-Jan. 1.....	581	224	
Do.....	Jan. 2-Mar. 19.....	965	570	
Rangoon.....	Nov. 14-Dec. 25.....	11	9	
Do.....	Jan. 2-Apr. 2.....	55	50	Rats found plague infected, 12.
Indo-China:				
Do.....	July 1-Dec. 31.....			Cases, 52; deaths, 34.
Do.....	Jan. 1-31.....	12		
Province—				
Cambodia.....	do.....	10	10	
Cochin-China.....	do.....	14	9	
Kwang-Chow-Wan.....	do.....	10		July, 1925: Cases. 22: deaths. 18.
Iraq:				
Baghdad.....	Jan. 23-Mar. 12.....	4	1	
Java:				
Batavia.....	Nov. 7-Jan. 1.....	91	90	Province.
Do.....	Jan. 2-Mar. 26.....	244	237	Do.
East Java and Madura.....	Oct. 24-Jan. 1.....	17	17	
Do.....	Jan. 2-Mar. 5.....	18	18	
Madagascar:				
Province—				
Ambositra.....	Dec. 16-31.....	10	10	
Do.....	Jan. 1-Feb. 15.....	46	44	
Anlalava.....	Oct. 16-31.....	1	1	
Antisirabe.....	Dec. 16-21.....	2	2	
Do.....	Jan. 1-Feb. 15.....	54	54	
Diego-Suarez.....	do.....	7	7	
Itasy.....	Oct. 16-Dec. 31.....	39	39	
Do.....	Jan. 1-Feb. 15.....	92	86	
Maevatanana.....	Oct. 16-31.....	10	10	
Majunga.....	do.....	3	1	
Moramanga.....	Oct. 16-Dec. 31.....	92	67	
Do.....	Jan. 1-Feb. 15.....	50	48	
Tamatave.....	Oct. 16-Dec. 31.....	107	69	
Tananarive.....	do.....			Cases, 533; deaths, 497.
Do.....	Jan. 1-Feb. 15.....	352	346	

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

Reports Received from January 1 to May 20, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Madagascar—Continued.				
Town—				
Tamatave.....	Nov. 16-30.....	2		
Tananarive.....	Oct. 16-Dec. 31.....	48	47	
Do.....	Jan. 1-Feb. 15.....	19	18	
Mauritius:				
Plaines Wilhems.....	Oct. 1-Nov. 30.....	3	3	
Pamplemousses.....	Dec. 1-31.....	3	3	
Port Louis.....	Oct. 1-Dec. 31.....	39	35	
Do.....	Jan. 1-31.....	5	3	
Nigeria.....	Aug. 1-Nov. 30.....	999	902	
Peru.....	Nov. 1-Dec. 31.....			Cases, 90; deaths, 26.
Do.....	Jan. 1-Mar. 31.....	92	23	
Departments—				
Ancash.....	Dec. 1-31.....	6	6	
Do.....	Jan. 1-Mar. 31.....	3		
Cajamarca.....	do.....	36	6	
Callao.....	Mar. 1-31.....	1	1	
Ica—				
Chincha.....	Nov. 1-30.....	1		
Lambayeque.....	Feb. 1-28.....	6	2	
Chiclayo.....	Nov. 1-30.....	3		
Do.....	Jan. 1-31.....	2		
Libertad.....	Dec. 1-31.....	2		
Do.....	Jan. 1-Feb. 28.....	6		
Lima.....	Nov. 1-Dec. 31.....	42	14	
Do.....	Jan. 1-Mar. 31.....	75	20	
Piura.....	Feb. 1-28.....	1		
Portugal:				
Lisbon.....	Nov. 23-26.....	3	2	
Russia.....	May 1-June 30.....	44		
Do.....	July 1-Sept. 30.....	64		
Senegal.....	July 1-31.....	178	162	
Dakar.....	Apr. 1-10.....	10	7	
Diourbel.....	Nov. 20-30.....	12	1	
Thies.....	Mar. 28-Apr. 20.....	17	15	
Tivaouane.....	Dec. 19-25.....	6	2	In interior.
Do.....	Mar. 21-Apr. 20.....	27	10	Do.
Siam.....	Apr. 1-Jan. 1.....			Cases 30; deaths, 22.
Do.....	Jan. 16-Mar. 26.....			Cases, 12; deaths, 10.
Bangkok.....	Feb. 27-Mar. 26.....	2	2	
Syria:				
Beirut.....	Nov. 11-Dec. 20.....	4		
Do.....	Feb. 1-10.....	1		
Tunisia.....	Dec. 1-31.....			Cases, 43.
Do.....	Jan. 12-26.....			Cases, 34.
Acheche district.....	Feb. 11-14.....	14	14	Pneumonia.
Bousse.....	Jan. 12-26.....	8		
Djeneniana.....	Feb. 11-14.....	8		
Kairouan.....	do.....	3		
Mahares.....	do.....	15		
Sfax.....	Oct. 1-Dec. 31.....	304	128	
Turkey:				
Constantinople.....	Dec. 15-25.....	1		
Union of South Africa:				
Cape Province:				
Craddock district.....	Jan. 2-Mar. 26.....	4	2	
De Aar district.....	Nov. 21-27.....	1		Native.
Glen Gray district.....	Jan. 31-Feb. 12.....	8	8	
Hanover district.....	Nov. 14-Jan. 1.....	3	2	
Do.....	Jan. 2-6.....	1	1	
Middleburg district.....	Dec. 5-11.....	1		Do.
Richmond district.....	Mar. 6-12.....	3	2	
Orange Free State:				
Bloomfontein district.....	Feb. 27-Mar. 19.....	3	3	
Bothaville district.....	Dec. 5-18.....	2	1	
Hoopstad district.....	Nov. 7-13.....	1	1	Native.
Do.....	Dec. 5-25.....	2	1	Do.
Do.....	Jan. 2-Feb. 12.....	4		
Vredefort district.....	Dec. 19-25.....	10	5	
Do.....	Feb. 6-12.....	2	1	
On vessel:				
S. S. Leconte de Lisle.....	Feb. 21-23m.....	2		At Tamatavo, Madagascar.

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

Reports Received from January 1 to May 26, 1927—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria.....	Sept. 21-Dec. 31			Cases, 787.
Do.....	Jan. 1-Feb. 20			Cases, 327.
Algiers.....	Dec. 11-31	4		
Do.....	Jan. 1-Apr. 16	14		
Oran.....	Mar. 21-Apr. 20	31		
Angola.....	Oct. 1-15			Present in Congo district.
Congo.....	Feb. 2-15	1		
Cuanza Norte	Nov. 1-15			Present.
Malange.....	Feb. 2-15	2		
Arabia:				
Aden.....	Dec. 12-18	1		Imported.
Do.....	Apr. 3-9	1		
Belgium.....	Oct. 1-10	1		
Brazil:				
Bahia.....	Oct. 30-Dec. 13	12	8	
Para.....	Oct. 31-Nov. 6		1	
Do.....	Feb. 5-12	1	1	
Pernambuco	Oct. 17-Dec. 25	53	4	
Rio de Janeiro	Year 1926			Cases, 4,033; deaths, 2,160.
Do.....	Jan. 2-Apr. 16	77	34	
Sao Paulo	Aug. 23-Dec. 5	34	18	
British East Africa:				
Kenya—				
Nairobi.....	Dec. 1-31	15	5	
Tanganyika Territory	Oct. 31-Nov. 20	2	2	
Do.....	Jan. 2-Mar. 5	34	21	
Zanzibar.....	Oct. 1-31	23	12	
British South Africa:				
Northern Rhodesia	Nov. 27-Dec. 3			Cases, 200. In natives.
Do.....	Feb. 26-Mar. 25	131	4	
Bulgaria.....	Nov. 1-30	1	1	
Canada.....	Dec. 5-Jan. 1			Cases, 155.
Do.....	Jan. 2-Apr. 30			Cases, 605.
Alberta.....	Dec. 5-Jan. 1	132		
Do.....	Jan. 2-Apr. 30	237		
Calgary.....	Nov. 29-Dec. 25	12		
Do.....	Jan. 2-Apr. 30	33	1	
Edmonton.....	Dec. 1-31	4		
Do.....	Jan. 1-Mar. 31	18		
British Columbia—				
Vancouver.....	Jan. 31-Apr. 24	10		
Manitoba.....	Dec. 5-Jan. 1	9		
Do.....	Jan. 2-Apr. 30	23		
Winnipeg.....	Dec. 19-25	1		
Do.....	Jan. 2-May 7	10		
New Brunswick	Feb. 13-26	2		
Ontario.....	Dec. 5-Jan. 1	96		
Do.....	Jan. 2-Apr. 30	289		
Kingston.....	Jan. 1-Feb. 19	3		
Ottawa.....	Dec. 12-31	5		
Do.....	Jan. 9-Apr. 23	9		
Toronto.....	Dec. 14-25	14		
Do.....	Jan. 1-Apr. 30	78	1	
Saskatchewan	Dec. 5-Jan. 1	18		
Do.....	Jan. 2-Apr. 30	57		
Regina.....	Jan. 16-22	1		
Chile:				
Concepcion.....	Dec. 26-Jan. 1		5	
Iquique.....	Mar. 1-15	2		
China:				
Amoy.....	Jan. 1-Mar. 26	8		
Anshan.....	Mar. 21-27	3		
Antung.....	do	1		
Canton.....	Nov. 1-Dec. 31	6		
Chefoo.....	Jan. 23-Mar. 20			Present.
Chungking.....	Nov. 7-Dec. 25			Do.
Do.....	Jan. 2-Mar. 12			Do.
Foochow.....	Nov. 7-Dec. 25			Do.
Do.....	Feb. 27-Mar. 19			Do.
Hankow.....	Nov. 6-30			Do.
Hong Kong	Jan. 23-Apr. 2	121	61	
Manchuria—				
Dairen.....	Feb. 20-Mar. 6	6		
Harbin.....	Dec. 16-31	3		
Do.....	Feb. 7-13	1		
Kai-Yuan.....	Mar. 20-27	2		
Mukden.....	Dec. 5-11	1		

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

Reports Received from January 1 to May 20, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China—Continued.				
Nanking	Dec. 12-25			Present.
Do.	Jan. 2-Mar. 5			Do.
Shanghai	Dec. 12-18		1	
Do.	Jan. 20-Mar. 26	1	2	
Swatow	Nov. 21-27			
Tientsin	Jan. 16-Apr. 2	27		
Chosen	Aug. 1-Nov. 30	53	19	
Do.	Jan. 21-Feb. 20	7	1	
Seoul	Nov. 1-30	2		
Egypt:				
Alexandria	Jan. 8-14	1		
Cairo	June 11-Aug. 26	27	4	
Estonia	Oct. 1-30	2		
France	Sept. 1-Dec. 31	293		
Paris	Dec. 1-31	10	3	
Do.	Jan. 1-Apr. 10	24	4	
French Settlements in India	Aug. 29-Jan. 1	127	127	
Do.	Jan. 2-22	24	24	
French Sudan:				
Kita	Mar. 28-Apr. 3			Present.
Germany:				
Stuttgart	Nov. 28-Dec. 4	7		
Gold Coast	Aug. 1-Nov. 30	59	14	
Great Britain:				
England and Wales	Nov. 14-Jan. 1			Cases, 2,262.
Do.	Jan. 2-Apr. 23			Cases, 7,263.
Birmingham	Mar. 13-19	5		
Bradford	Jan. 9-Apr. 23	6		
Cardiff	Feb. 13-19	1		
Leeds	Mar. 27-Apr. 16	2		
London	Reported Apr. 28	6		
Monmouthshire	Feb. 25	22		
Newcastle-on-Tyne	Dec. 5-13	2		
Do.	Jan. 2-Apr. 23	20		
Normanton	Dec. 30	1		9 miles from Leeds.
Sheffield	Nov. 28-Jan. 1	60		
Do.	Jan. 2-Apr. 2	543	1	
Wakefield	Jan. 30-Feb. 2	2		
Scotland—				
Dundee	Mar. 31-Apr. 23	97		
Greece	Nov. 1-Dec. 31	25		
Athens	Dec. 1-31	14	2	
Do.	Mar. 1-31	9	2	Including Piræus.
Guatemala:				
Guatemala City	Nov. 1-Dec. 31		15	
Do.	Jan. 1-Mar. 31		74	
India				
Do.	Oct. 10-Jan. 1			Cases, 22,946; deaths, 6,006.
Do.	Jan. 2-Feb. 19			Cases, 31,471; deaths, 7,645.
Bombay	Nov. 7-Jan. 1	37	20	
Do.	Jan. 2-Mar. 26	493	264	
Calcutta	Oct. 31-Jan. 1	449	311	
Do.	Jan. 2-Mar. 19	1,876	1,372	
Karachi	Dec. 19-25	1	1	
Do.	Jan. 2-Apr. 9	42	25	
Madras	Nov. 21-Jan. 1	32	2	
Do.	Jan. 2-Apr. 9	294	11	
Rangoon	Nov. 28-Jan. 1	2	2	
Do.	Jan. 2-Apr. 2	309	71	
Indo-China:				
Saigon	Dec. 28-Jan. 1	3		
Do.	Feb. 6-Mar. 12	2		
Iraq:				
Baghdad	Oct. 31-Dec. 4	7	4	
Do.	Jan. 23-Apr. 2	7	1	
Basra	Nov. 7-13	2	1	
Do.	Mar. 20-26			
Italy				
Do.	Aug. 29-Jan. 1	28		
Do.	Jan. 2-15	1		
Genoa	Dec. 30-31	1		
Do.	Jan. 1-10	2		
Jamaica	Nov. 26-Jan. 1	37		Reported as alastrim.
Do.	Jan. 2-Apr. 2	105		Do.

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

Reports Received from January 1 to May 26, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Japan	Oct. 24-Jan. 1	27		
Do.	Jan. 2-4	28		
Kobe	Nov. 14-30	1		
Do.	Jan. 23-Apr. 2	3		
Yokohama	Nov. 27-Dec. 3	2		
Do.	Mar. 26-Apr. 1	3		
Java:				
Batavia	Nov. 29-Dec. 3	2		Province.
Do.	Mar. 13-19	1		
East Java and Madura	Oct. 24-Dec. 25	11		
Do.	Jan. 2-27	4	1	
Lithuania	Nov. 1-30	2		
Luxemburg	Nov. 1-Dec. 31	2		
Mexico	July 1-Oct. 31		534	
Chihuahua	Dec. 31			Several cases; mild. Present.
Do.	Jan. 31-Feb. 6			
Ciudad Juarez	Dec. 14-27		2	
Manzanillo	Mar. 5-Apr. 28	7	5	
Mazatlan	Feb. 14-Apr. 17		3	
Mexico City	Nov. 23-Dec. 25	6		Including municipalities in Federal District.
Do.	Dec. 26-Apr. 23	7		Do.
Nuevo Leon State—				
Cerralvo	Mar. 11			Epidemic.
Montemorelos	Feb. 24			Reported present.
Monterey	Feb. 24-Mar. 20	64	2	Other cases stated to exist.
Parral	Jan. 31-Feb. 6			Cases, 25. Unofficially reported.
Piedras Negras district	Feb. 25	68		At Nueva Rosita.
Saltillo	Feb. 6-Apr. 9		2	
San Luis Potosi	Nov. 12-Dec. 18		3	
Do.	Jan. 9-Apr. 9		27	
Tampico	Jan. 21-31	1		
Torreon	Nov. 28-Jan. 1		12	
Do.	Jan. 2-Mar. 19		13	
Victoria	Feb. 24			Present.
Netherlands East Indies	Dec. 14			Island of Boracoe; epidemic in two villages.
Nigeria	Aug.-Dec. 31	165	40	
Persia:				
Teheran	Nov. 22-Dec. 23		5	
Peru:				
Arequipa	Dec. 1-31		1	
Do.	Jan. 1-31		1	
Laredo	Dec. 1			Severe outbreak; vicinity of Trujillo.
Poland	Oct. 11-Dec. 31			Cases, 32; deaths, 3.
Do.	Jan. 1-8			Deaths, 1.
Portugal:				
Lisbon	Nov. 22-Jan. 1	43	4	
Do.	Jan. 2-Apr. 28	37		
Rumania	Jan. 1-Sept. 30	7	1	
Russia	May 1-June 30	705		
Do.	July 1-Sept. 30	884		
Senegal:				
Dakar	Jan. 9-Apr. 3	4		
Guedel	Apr. 11-17	1		
Kebener	do.	1		
Niger Colony	Apr. 1-20	3		
Ouakam	Mar. 20-27	4		
Tivaouane	Apr. 11-17	2		Vicinity of Dakar.
Slam	Apr.-Jan. 1			Cases, 711; deaths, 265.
Do.	Jan. 2-Mar. 26			Cases, 90; deaths, 40.
Bangkok	Oct. 31-Jan. 1	28	10	
Do.	Jan. 2-Mar. 26	42	25	
Sierra Leone:				
Makeni	Feb. 22-23	3		
Nanowa	Dec. 1-15	1		Pandembu district.
Spain	July 1-Sept. 30		9	
Valencia	Feb. 4-Apr. 23	10		
Sumatra:				
Medan	Feb. 20-26	1		
Straits Settlements:				
Singapore	Oct. 31-Jan. 1	12	2	
Do.	Jan. 2-Feb. 26	4	3	
Tunisia	Oct. 1-Dec. 31		9	
Do.	Jan. 1-Feb. 20	18		
Tunis	Jan. 1-Mar. 10	3		

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

Reports Received from January 1 to May 20, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Turkey:				
Constantinople	Feb. 1-7		1	
Union of South Africa:				
Cape Province—				
Albany district	Jan. 23-29			Outbreaks.
Caledon district	Dec. 5-11			Do.
Steynsburg district	do			Do.
Stutterheim district	Nov. 21-27			Do.
Wodehouse district	Jan. 30-Feb. 12			Do.
Natal—				
Durban district	Nov. 7-27	9		Including Durban municipality. Total from data of outbreak: Cases, 62; deaths, 16.
Orange Free State	Nov. 14-27			Outbreaks.
Bothaville district	Nov. 21-27			Do.
Transvaal	Nov. 7-20	2		Europeans.
Bethel district	Jan. 23-29			Outbreaks.
Johannesburg	Nov. 14-20	1		
West Africa:				
French Guinea—				
Kissidougou	Feb. 19			Present.
French Sudan—				
Kayes	do			Do.
Yugoslavia	Nov. 1-Dec. 31	4	1	
Do.	Jan. 1-31	3		

TYPHUS FEVER

Algeria	Sept. 21-Dec. 20	59	2	
Do.	Jan. 1-Feb. 10			Cases, 84; deaths, 7.
Algiers	Feb. 1-Apr. 10	48		
Oran	Mar. 21-Apr. 20	8		
Angola:				
Benguela district	Feb. 16-28	1		
Argentina:				
Rosario	Dec. 1-31		1	
Do.	Jan. 26-31		3	
Bulgaria	July 1-Dec. 31	39	5	
Do.	Jan. 1-31	7	3	
Chile	Sept. 15-Nov. 15	39	4	
Chilian	Jan. 1-31	4	3	
Concepcion	Sept. 15-Nov. 15	1		
Do.	Jan. 23-29		1	
Iquique	Apr. 3-9		1	
Lebu	Sept. 15-Nov. 15	6	2	
Linares	do	2		
Los Andes	do	8		
Santiago	Sept. 15-Dec. 31	25	2	
Do.	Feb. 1-28	3		
Valparaiso	Sept. 15-Dec. 25	10		
Do.	Jan. 2-Apr. 16	6	2	
China:				
Antung	Nov. 22-Dec. 5	4		
Chefoo	Oct. 24-Nov. 6			Present.
Chungking	Dec. 25-31			Do.
Do.	Feb. 27-Mar. 12			Do.
Chosen	Aug. 4-Dec. 31	84	5	
Seoul	Nov. 1-30	1		
Do.	Jan. 1-31	2	1	
Czechoslovakia	Oct. 1-Dec. 31	10		
Do.	Jan. 1-Feb. 28	45		
Egypt:				
Alexandria	Dec. 3-9		1	
Do.	Jan. 22-Apr. 7	5	2	
Cairo	Oct. 29-Nov. 4	1	1	
Estonia	Dec. 1-31	1		
Do.	Jan. 1-Feb. 26	13		
France	Nov. 1-30	1		
Gold Coast	Sept. 1-30	1	1	
Greece	Nov. 1-30			Cases, 12.
Athens	Nov. 1-Dec. 31	19	2	
Do.	Feb. 1-Mar. 31	17	3	
Drama	Dec. 1-31	2		
Kavalla	do	2		

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

Reports Received from January 1 to May 20, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Greece—Continued.				
Patras.....	Jan. 23-29.....		1	
Ravokan.....	Dec. 1-31.....	1		
Saloniki.....	Jan. 25-31.....	1		
Indo-China:				
Tonkin.....	Aug. 1-31.....	2		
Iraq:				
Baghdad.....	Mar. 6-19.....	2	2	
Ireland:				
Clare County—				
Tulla district.....	Jan. 9-15.....	1		Suspect.
Donegal County—				
Letterkenny.....	Mar. 27-Apr. 2.....	5		Rural district.
Milford.....	do.....	3		
Italy.....				
.....	Aug. 29-Sept. 23.....	3		
Japan.....				
.....	Jan. 2-29.....			Cases, 2.
Tokyo prefecture.....	Dec. 5-25.....	9		
Tokyo City.....	do.....	5	1	
Latvia.....				
.....	Jan. 1-31.....	2		
Lithuania.....				
.....	Sept. 1-Dec. 31.....	41	4	
Do.....	Jan. 1-31.....	24		
Mexico.....				
.....	July 1-Nov. 30.....			Deaths, 576.
Agascalientes.....	Jan. 9-Feb. 5.....	2		
Durango.....	Jan. 1-31.....		1	
Guadalajara.....	Jan. 25-31.....		1	
Mexico City.....	Dec. 5-11.....	3		Including municipalities in Federal District.
Do.....	Jan. 2-Apr. 23.....	96		Do.
Parral.....	Jan. 30-Feb. 5.....	1		
Nigeria.....				
.....	Sept. 1-30.....	1		
Palestine:				
Acre.....	Dec. 29-Jan. 3.....	1		
Beisan.....	Dec. 21-27.....	1		
Haifa.....	Nov. 23-Dec. 13.....	5		
Do.....	Dec. 28-Feb. 7.....	7		
Jaffa.....	Nov. 23-Dec. 27.....	7		
Do.....	Jan. 11-Feb. 21.....	3		
Majdal.....	Dec. 28-Jan. 3.....	1		
Do.....	Apr. 5-11.....	1		
Nazareth.....	Nov. 16-Jan. 3.....	12		
Do.....	Mar. 1-7.....	1		
Ramleh.....	Jan. 31-Feb. 7.....	1		
Safad.....	Dec. 21-Jan. 3.....	2		
Peru:				
Arequipa.....	Year, 1926.....		9	District.
Lima.....	Jan. 1-31.....		1	
Poland.....				
.....	Oct. 11-Dec. 25.....			Cases, 341; deaths, 27.
Do.....	Jan. 1-Mar. 5.....			Cases, 668; deaths, 61.
Rumania.....				
.....	Aug. 1-Nov. 30.....	255	11	
Russia.....				
.....	May 1-June 30.....	6,043		
Do.....	July 1-Aug. 31.....	3,060		
Spain.....				
.....	July 1-Sept. 30.....		4	
Seville.....	Mar. 16-22.....		1	
Syria:				
Aleppo.....	Mar. 13-19.....	1		
Tunisia.....				
.....	Oct. 1-Dec. 27.....	30		
Do.....	Jan. 1-Feb. 20.....	72		
Tunis.....	Jan. 21-Mar. 31.....	4		
Do.....	Reported Apr. 13.....	3		
Turkey:				
Constantinople.....	Dec. 12-25.....		3	
Do.....	Jan. 16-22.....			1 death reported by press.
Union of South Africa.....				
Cape Province.....	Oct. 1-Dec. 31.....			Cases, 233; deaths, 30.
Do.....	do.....	47	7	
Do.....	Jan. 1-Feb. 28.....	51	4	
Do.....	Mar. 13-19.....			Outbreaks.
Clydesdale.....	Mar. 6-12.....			Do.
East London.....	Nov. 21-27.....	1		Native. Imported.
Port St. Johns district.....	Dec. 5-11.....			Outbreaks. On farm.
Kalanga district.....	Mar. 20-26.....			Outbreaks.
Natal.....				
.....	Oct. 1-31.....	1		
Do.....	Jan. 1-31.....	6		
Orange Free State.....				
.....	Oct. 1-Dec. 31.....	31	2	
Do.....	Jan. 1-Feb. 28.....	17	3	
Do.....	Mar. 13-19.....			Outbreaks.

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

Reports Received from January 1 to May 20, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa—Con.				
Transvaal.....	Oct. 1-31.....	1	-----	Native.
Do.....	Jan. 1-31.....	1	-----	
Yugoslavia.....	Nov. 1-Dec. 31.....	30	2	
Do.....	Jan. 1-Mar. 31.....	74	4	

YELLOW FEVER

French Sudan.....	Dec. 19-25.....	1	1	At N'Bake. In European.
Gold Coast.....	Aug. 1-Nov. 30.....	10	5	
Nigeria.....	Sept. 1-Nov. 30.....	4	3	
Senegal.....	Dec. 19-25.....	3	3	
Diourbel.....	Dec. 6.....	1	1	
Do.....	Jan. 1-20.....	1	1	
Guinguineo.....	Dec. 7.....	1	1	
Rufisque.....	Nov. 27-Dec. 29.....	2	1	
Do.....	Jan. 2-8.....	3	3	
Upper Volta: Gaoua district.....	Oct. 25.....	2	-----	