CONTENTS

PUBLIC HEALTH REPORTS

VOL. 43 MAY 18, 1928 NO. 20

THE FULL-TIME COUNTY HEALTH PROGRAM DEVELOPED IN THE MISSISSIPPI VALLEY FOLLOWING THE FLOOD [1]

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EMERGENCY SANITATION

The flood caused by the waters of the Mississippi and its tributaries which occurred in the spring of 1927 was one of the greatest and most extensive in the flood history of this river. The following States were flooded: Arkansas, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee. Illinois, to a small degree, also suffered from the effects of the high water.

The total area flooded has been estimated to be nearly thirteen million acres. This represents 20,000 square miles. The number of people affected in this area is estimated at approximately 908,200. With such a large area involved, sustaining a population of nearly a million people, the question of the public health was one of the greatest importance.

In order to care for properly and house the individuals who were forced from their homes, the American Red Cross, with its usual efficiency in such disasters, organized and operated 149 concentration camps in the area, caring for 330,000 people. The distribution of these camps was as follows:

State	Number of camps	Maximum number people cared for in camps	State	Number of camps	Maximum number people cared for in camps
Arkansas	62	133,800	Missouri	18	14,000
Illinois	6	2,500	Tennessee	5	7,300
Kentucky	2	2,200			
Louisiana	33	105,400	Total	149	330,000
Mississippi	23	64,800			

These people were not only housed and fed, but the care of the sick and the prevention of the spread of contagion were also important features of what might be termed the emergency flood sanitation program, in contradistinction to the permanent post-flood program which was soon to follow.

[1] Presented at the Forty-ninth Annual Meeting of the Louisiana State Medical Society, held at Baton Rouge, La., April 10-12, 1928.

In order to assist the local State health officers and local county health officers in solving these problems, much assistance was received from neighboring States in the furnishing of personnel and biologics. The United States Public Health Service furnished 24 medical officers, 8 sanitary engineers, and 5 scientific assistants, 37 in all. The neighboring States furnished 80 medical officers, engineers, and inspectors. Medical personnel was also furnished by the Rockefeller Foundation. This personnel was detailed only through the requests of the State health officers and was assigned to the State boards of health. Their work consisted in—

(1) Measures toward the safe disposal of excreta through proper latrines in proper locations, properly policed;

(2) Provision of safe water supplies;

(3) The inspection of food and milk supplies furnished concentration camps;

(4) The isolation and quarantine of communicable diseases; and

(5) The immunization against typhoid fever and smallpox.

It has been estimated that in all the States in the flooded area 469,442 individuals were immunized against typhoid fever, receiving three inoculations, and 137,340 individuals were vacinnated against smallpox before the permanent health program began to function about July 1, 1927.

CONTROL OF MALARIA BY MEANS OF SCREENING HOUSES OF MALARIA CARRIERS

This program, developed in the late spring and early summer of 1927, financed by the Red Cross and supervised by engineers of the United States Public Health Service under general supervision of Senior Sanitary Engineer J. A. LePrince, was based on the premise that the major part of any potential spread of malaria would be on the plantations, and that the most effective way of reducing the spread of malaria would be to prevent *Anopheles* mosquitoes from having access to malaria carriers at the farm tenant homes so long as the limited time available and the available funds would allow. The work was organized in Arkansas, Mississippi, Louisiana, and the western portion of Tennessee, this being the first time that so extensive a program had been carried out in this manner.

The plan of procedure was to visit as many homes as possible in the flooded counties to determine whether or not cases of malaria carriers were living there and to screen completely such homes, making them mosquito proof. This was accomplished by inspectors at the time of their visit, who took measurements of doors and sent them to a central point in the State where screen doors were made in conformity with such measurements and shipped to the communities in carload lots. They were hauled to the plantations by

the several plantation owners. The Red Cross assisted the State health departments and cooperating agencies in supplying these inspectors, and also supplied the materials for screening and transportation from the factory to the local communities.

Wire screen was used for all doors and windows with the exception that in some homes a specially prepared netting was used for windows.

The plan of procedure in Louisiana differed from that in other States. Here the State board of health located and listed the malaria carrier farm tenant homes in eight parishes while the assistant State sanitary engineer supervised the construction of screen doors, their shipment, and the installation of all protective screening.

In Arkansas the screen doors were made at the Boys' Industrial School at Pine Bluff; in Mississippi, at Greenwood; in Louisiana, at the State Boys' Industrial School at Monroe, while in Tennessee the manual training department of the public schools at Dyersburg did the work.

This feature of the health program was extensive. The distance from the north to the south end of the entire project was about 320 miles, and the homes to be screened were scattered over 36 counties of four States. Each of the malaria case homes had to be located and the dimensions of the doors taken. In the making of doors about 19 tons of 24-inch sheet steel had to be cut into 337,680 small triangles for screen door reenforcement plates and each triangle had to have holes punched to receive the nails. About 50 miles of 16-mesh wire screen had to be placed on door frames, with a minimum of wastage, in addition to the 7 miles of cotton mosquito bar used on the window frames in some of the counties in Arkansas.

The actual work accomplished in the project was as follows:

	Tennessee	Arkansas	Mississippi	Louisiana	Total, 4 States
Flooded counties in which homes were screened	4	15	9	8	36
Number of homes screened	483	2,348	3,276	653	6,760
Number of doors screened	1,440	7,304	10,238	2,193	21,175
Number of windows screened	2,387	12,200	12,931	2,777	30,295
Average cost of screening a farm-tenant home	$11.68	$9.67	$11.07	$13.99	$11.02
Total cost	$5,630.87	$22,707.35	$36,254.39	$9,883.00	$74,475.60

NOTE.—This table is taken from the report of Senior Sanitary Engineer J. A. LePrince, United States Public Health Service.

The labor cost of making these doors was about 27 cents per door, the average total cost of each door complete being about $1.40. It is realized that all homes with malaria carriers were not screened—only a proportion were; but the fact that nearly 7,000 homes were screened in a period of approximately 90 days is a good start, especially when it is recognized that, so far as it was possible to determine,

these homes represented places where malaria cases resided, and that the number of families containing malaria cases capable of infecting others is but a small proportion of the surrounding farm homes in the vicinity.

The work of further extending the screening program now rests with the full-time county health units, the creation of which was the last step in the flood health program, or which might more properly be termed the post-flood program.

FULL-TIME COUNTY HEALTH UNITS DEVELOPED AS A RESULT OF THE FLOOD

The programs just discussed might be properly termed actual emergency programs, which, of course, were limited to immediate needs; but a time came when the strictly emergency work was curtailed or discontinued as the situation was relieved. It was recognized, however, that a serious problem still existed. In the majority of the flooded counties there were no organized public health agencies to carry on to a logical conclusion the preventive measures started and slight prospects of developing a program, as the counties affected had very little money to appropriate for this work, in some instances being in actual financial straits.

It has long been recognized that the best public health program, and one that will best insure permanency, is the full-time county health unit plan, the community served enjoying the services of a full-time director, full-time nurse, and full-time sanitary inspector. Some communities have more personnel, some less, but that is the standard.

At a meeting in New Orleans in June, 1927, attended by representatives of the Public Health Service, of the Rockefeller Foundation, of the American Red Cross, and of various State boards of health, it was recognized and agreed that some such plan should be formulated and such a program fostered in the so-called flooded counties. This was made possible by a liberal contribution from the Public Health Service and the Rockefeller Foundation, supplementing county and State funds, the counties being asked to appropriate a very small part of the total budget necessary to finance the health units. It was agreed that this fiscal plan would be in operation for an 18-month period from July 1, 1927, to January 1, 1929.

Representatives of the Public Health Service and of the Rockefeller Foundation assigned to the various State boards of health assisted the State health departments in laying this proposition before the various county officials and organizing the programs adopted. Of the 103 counties considered flooded in the six States, 85 were visited, and this plan was presented to the local governing authorities. The result was encouraging in that 67, or 78 per cent, signed the budget and definitely committed the county funds to the project as of October 31, 1927.

Since the October figures were compiled four additional flood parishes of Louisiana have adopted the full-time plan, while two more committed to the project were organized. These six parishes started to function on the first of the year. This gives Louisiana 19 parishes organized on a full-time health plan since the flood.

The total number of counties adopting the full-time plan to date, including those in which no county funds were committed, is 78, or about 92 per cent of the total with which contact was made. There were a few counties that actually had no money whatever to put into a health project, and in these the United States Public Health Service, the Rockefeller Foundation, and State boards of health financed the projects temporarily with a limited personnel. In many counties the work was made possible by donations from the local Red Cross chapters, municipalities, chambers of commerce, and civic organizations.

As is generally the case in the organization of full-time health units, a difficulty of no mean proportion was that of finding suitable trained personnel to carry on the work. In order to meet this difficulty and facilitate the speeding up of the program, the Rockefeller Foundation organized training schools for the practical teaching of field public health work to prospective health officers, nurses, and inspectors. The principal school was located at Indianola, Miss. Without exception the States developing the full-time rural program sent trainees to this school. The Rockefeller Foundation approved the training of the candidates upon request of the various State boards of health. Those accepted were given a grant of their railroad and Pullman fare from their homes to the training school and return to the new field of duty, as well as a per diem allowance while en route and at the school. The number of trainees sent to the school, as of March 15, 1928, is given in the following table:

State	Physicians	Nurses	Inspectors	Total	State	Physicians	Nurses	Inspectors	Total
Arkansas	20	23	17	60	Missouri	0	0	7	7
Kentucky	10	29	16	55	Tennessee	1	0	0	1
Louisiana	13	7	24	44					
Mississippi	4	12	19	35	Total	48	71	83	202

Not all of these trainees were placed on duty, owing to failure to qualify and to resignations. On the other hand, some were appointed without being sent to the school. This does not include the 24 office clerks on duty as of October 31, 1927.

The Rockefeller Foundation submitted an appraisal on each trainee which was of inestimable value to the State boards of health in determining the fitness and ability of the persons seeking these positions.

The public-health programs adopted in these full-time projects were along the same standard lines as elsewhere enjoyed. In brief, activities were directed toward safeguarding the health of the child from before birth to adolescence, through the medium of prenatal hygiene, infant hygiene, preschool and school hygiene. This was accomplished through group conferences or clinics, and the intensive physical inspection of school children for the purpose of locating physical defects and advising the parents to have corrections made through the family physicians. Concomitant with this program were educational measures in newspaper articles, lectures, and the distribution of pamphlets. The local profession was encouraged to report communicable diseases and proper steps were taken toward isolation and quarantine. Prevention of soil pollution was effected by having sewer connections made when possible and the construction of the vault type of sanitary privy, through personal persuasion and the enforcement of the existing ordinances. The inspection of food and milk supplies, vaccination against smallpox, and inoculation against typhoid fever and diphtheria were also stressed and emphasized. A résumé of the work of these full-time projects in the Mississippi Valley from July 1, 1927, through the month of February, 1928, is given in the list below.

Résumé of the work of the full-time projects in the Mississippi Valley from July 1, 1927, through February 29, 1928

NOTE.—These figures present the public-health activities carried on in the newly organized counties and parishes from July 1, 1927, to date, and do not include any activities carried on in the 18 full-time county health projects in the several States which were organized and functioning before the flood. It must also be remembered that many of these counties were not organized and operating until the late fall of 1927, while some were not organized until the first part of 1928.

1. EDUCATIONAL:	
(*a*) Lectures	5,152
(*b*) Attendance	166,996
(*c*) Bulletins distributed	201,361
(*d*) Newspaper articles	5,807
(*e*) Circular letters	38,229
(*f*) Health exhibits	319
2. SANITARY INSPECTIONS:	
(*a*) Private premises	37,749
(*b*) Public premises—Schools, churches, etc	7,848
3. SPECIAL INSPECTIONS:	
(*a*) Dairies	1,028
(*b*) Other food-producing or food-handling places	4,757
4. EXAMINATIONS:	
(*a*) For life extension advice	470
(*b*) For work certificates (children)	26
(*c*) For lunacy	112
(*d*) Of prisoners	847
(*e*) Of food handlers	266

5. Acute Communicable Disease Control:	
(a) Visits to cases, carriers, contacts or suspects	11, 673
(b) Cases or carriers isolated or quarantined	5, 831
6. Venereal Disease Control:	
(a) Suspects examined	1, 191
(b) Prophylactic treatments	48
(c) Curative treatments	1, 675
7. Tuberculosis Control:	
(a) Number examined	775
(b) Positive	170
(c) Negative	269
(d) Placed in institutions	232
(e) Home visits	1, 132
8. Persons Treated for Removal of Hookworm	18
9. Persons Treated for Prevention or Cure of Goiter	16
10. Schick Tests	4, 075
11. Cows Tuberculin Tested	3, 587
12. Immunization:	
(a) Complete antityphoid administrations	91, 173
(b) Antismallpox vaccinations	42, 045
(c) Complete diphtheria toxin-antitoxin administrations	30, 843
(d) Persons given prophylactic diphtheria antitoxin	640
(e) Persons given antirabic treatment	74
13. Child Hygiene:	
(a) Prenatal—	
(1) Cases given advice	881
(2) Examinations	266
(3) Office consultations	769
(4) Group conferences	120
(5) Home visits	1, 287
(6) Midwives instructed	2, 725
(b) Infant and preschool—	
(1) Babies and children examined	4, 371
(2) Office consultations, mothers	2, 385
(3) Group conferences with mothers	467
(c) School—	
(1) Children examined	113, 394
(2) Found defective	69, 453
(3) Defects found	136, 030
(4) Consultations, parents (office and school)	3, 547
(5) Home visits	18, 098
(6) Talks to classes or drills in hygiene	4, 769
(7) Exclusions for communicable disease	2, 620
(d) Nutritional classes—	
(1) Cases attending	3, 352
15. Laboratory Examinations:	
Specimens—	
Blood for Widal	118
Blood for *B. typhosus*	20
Blood for Wassermann	1, 654
Blood for malaria parasite	4, 791
Smears for *B. diphtheriae*	2, 314
Smears for *gonococci*	260
Sputum for *B. tuberculosis*	446

15. LABORATORY EXAMINATIONS—Continued.	
Specimens—Continued.	
Feces for parasites	1,015
Water for *B. coli*	1,453
Milk for high bacterial content	255
16. RESULTS:	
1. Sanitary privies installed—	
(*a*) Septic or L. R. S	58
(*b*) Water-tight vault	9
(*c*) Bucket and box	38
(*d*) Pit	9,037
2. Privies restored to sanitary type	1,210
3. Septic tanks installed	138
4. New sewer connections	1,659
5. New water connections	336
6. Wells or springs improved	2,556
7. Public milk supplies radically improved	178
8. Public food handling places radically improved	867
9. Places producing foods for sale radically improved	196
10. Dwellings effectively screened against flies and mosquitoes	2,524
11. Stables made sanitary	56
12. Nuisances corrected	2,505
13. Convictions for violation sanitary laws	5
14. Nutritional cases improved	688
15. Corrections of physical defects induced:	
(*a*) In infants	10,241
(*b*) In preschool children	
(*c*) In school children	
(*d*) In adults	

MEASURES TAKEN IN THE CONTROL OF PELLAGRA

The diseases which showed the greatest increase during the post-flood period were pellagra and malaria. A definite increase in the pellagra rate was shown on the morbidity reports submitted from the six States, with the exception of Missouri and Kentucky. The greatest increase was shown in the State of Mississippi, where there were reported approximately 6,000 cases in the four months' period July to October, 1927, inclusive. Only 2,800 cases were reported for the corresponding period in 1926. A marked increase in the pellagra rate was also experienced in Arkansas.

The only measures taken to combat the increase in pellagra were through the medium of the distribution of dried brewers' yeast, which was generously supplied by the American Red Cross to various State boards of health. This was distributed through the full-time health departments, which, in turn, in many instances, utilized the farm demonstration agents and other local organizations. In some instances tomato juice in a limited amount was also distributed.

MALARIA CONTROL

In the control of malaria, emphasis was placed on the continuance of the screening program previously discussed. Although the later work was not done free of cost to the owners of homes, at the same time the comfort of properly screened houses was amply demonstrated, and it is believed that a renewed interest in this phase of malaria control is developing. From the reports submitted by Mr. LePrince on the results of the screening program of last summer it was learned that in some instances county health officers have demonstrated at county agricultural fairs how substantially made screen doors can be constructed by farm tenants. In two parishes in Louisiana the health officers undertook a project which includes the screening of all malaria families in his parish. In other States the work is under way for the protection by the screening of all malaria homes in malaria counties. (Work is now (March 19, 1928) going on in six counties of five States as reported by Mr. Le Prince.)

The free distribution of quinine in the form of capsules, pills, and tablets was also carried out by the full-time health departments through the medium of local organizations, quinine being furnished by the American Red Cross. At the present time, however, the Red Cross has retrenched considerably in its policy of supplying this commodity as well as yeast in the control of pellagra.

CONCLUSIONS

While deploring the frightful disaster of last spring, some comfort may be obtained in the knowledge that better communities are builded on the ruins of those destroyed, and, as a rule, a better public-health régime may be inaugurated. Surely in this experience there has developed another flood—a flood of sanitation development which has placed us many years ahead of our old program of full-time county health service. The fact that since July, 1927, 78 counties have joined the roll of those that are enjoying adequate public-health protection through the labors of over 200 full-time health workers is a distinct step forward and a stimulus to perpetuate these endeavors. This can be done only by creating such a popular demand for full-time health protection that it will merit the same consideration in local government as an "educational program" or a "good-roads program."

It is not too much to believe that this will be accomplished and that the Mississippi Valley will enjoy the universal public-health protection it deserves.

REGULAR SESSION OF THE PERMANENT COMMITTEE OF THE INTERNATIONAL OFFICE, NOVEMBER 7–16, 1927 [1]

The Permanent Committee of the International Office of Public Hygiene held its regular session of 1927 from November 7 to 16, at Paris.

There were present: Messrs. Velghe (Belgium), President; Madsen (Denmark), Shahin Pacha (Egypt), Pulido (Spain), Taliaferro Clark (United States of America), Barrére (France), L. Raynaud (Algeria), Duchêne (French West Africa), Audibert (French Indo-China), l'Herminier (Madagascar), G. S. Buchanan (Great Britain), R. A. Needham (British India), C. L. Park (Australia), Le Noblet du Plessis (Canada), S. P. James (New Zealand), P. G. Stock (Union of South Africa), Matarangas (Greece), Lutrario (Italy), Mitsuzo Tsurumi (Japan), Praum (Luxemburg), Colombani (Morocco), Roussel-Despierres (Monaco), H. M. Gram (Norway), N. M. Josephus Jitta (Netherlands), W. de Vogel (Netherlands Indies), Mimbela (Peru), Djavad-Asthiany (Persia), W. Chodzko (Poland), Ricardo Jorge (Portugal), Ionesco-Mohaesti (Rumania), Yoannovitch (Kingdom of the Serbs, Croats, and Slovenes), O. F. H. Atkey (Sudan), C. Kling (Sweden), H. Carriére (Switzerland), D. Prochazka (Czechoslovakia), de Navailles (Tunis), Roubakine (Union of Soviet Socialist Republics), Herosa (Uruguay), also Mr. Pottevin, Director of the International Office of Public Hygiene.

I

On report of the director, and in conformity with the proposals of its special commission of experts, the committee interpreted some points which might be raised in regard to certain articles of the International Sanitary Convention, as well as the details of the functioning of the services of notifications.

It also adopted the final model of the certificate of deratization or exemption from deratization provided in article 28 of the convention.

As concerns the use of wireless in quarantine operations, the committee was of the opinion that it was advisable to confine itself, for the time being, to establishing a code form which could be adopted uniformly by all countries and in accordance with which communications could be made by the ship to the port authority. This would facilitate, to a considerable extent, the introduction of declaration by wireless communication into quarantine practice. Only by actual use and by taking into account the special conditions peculiar to each country can we estimate the facilities which would be accorded to vessels on the faith of these declarations.

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[1] Translated from Revue d'Hygiène et de Médicine Préventive, Vol. L, No. 3, March, 1928.

The question appears, moreover, to be closely connected with that of the qualifications of, and other questions concerning, ships' surgeons. This subject has again claimed the attention of the committee, which continues to carry on the inquiry undertaken in the several countries.

The committee has received from the Director of the Pan American Sanitary Bureau, at Washington, the official notice that the Pan American Sanitary Conference which met at Lima in October, 1927, adopted a resolution according to which the said Bureau at Washington assumes the obligations of a regional bureau under the terms of the International Sanitary Convention.

The arrangement regulating the methods of cooperation between the Pan American Sanitary Bureau and the International Bureau of Public Hygiene will be submitted to the committee at its next session in May, 1928.

The President of the Maritime Sanitary and Quarantine Council of Egypt, taking part in the sessions of the committee, presented the plan of arrangement established in agreement with the Director of the Office, according to the terms of which the council shall function as regional bureau for the Near East, and, responsible to the International Office, shall exercise for its dependent countries the duties imposed upon it by the International Sanitary Convention. This proposal was adopted. It had previously received the sanction of the Maritime Sanitary and Quarantine Council.

The Office has published, in its monthly *Bulletin*, the portions of the Report on the International Sanitary Conference of the Pacific (Melbourne, 1926) which are of special interest from the epidemiological point of view. On invitation of the Australian Government an international sanitary commission is to study on the spot the epidemiology of the South Pacific. The Office will be enabled to follow the work.

The committee has received and examined the first of the monographs which are to be established, for each country, in carrying out the provisions of several articles (notably articles 14, 28, and 50) [relating to rat conditions at ports, deratization of vessels, and port sanitary equipment] of the International Sanitary Convention, and which will be published by the Office under the form of an international maritime sanitary annual. These first monographs relate to Great Britain (England and Wales), France, and Morocco.

Examination of these documents has made it possible to present specifically a certain number of suggestions which will be useful in giving to the complete publication the character which will best respond to the spirit of the convention.

The Office is collaborating with the League of Red Cross Societies in the preparation of a form of medical instruction for captains of

vessels not having a doctor on board, which can be adopted as an international document. This instruction should include a section relative to hygiene, and to the prophylactic measures the observance of which is of capital importance to prevent the diffusion of epidemic diseases from one country to another by maritime route, and thus falls directly into line with the objects had in view by the International Sanitary Convention.

II

The committee has received a communication of the resolutions adopted at the last session of the Health Committee of the League of Nations, held at Geneva, October 28 to November 3, 1927.

It has examined the technical report of the commission of pharmacological experts which it had charged with the study of propositions made by the Governments relative to preparations, included in the several pharmacopœias, which there might be occasion to withdraw from the provisions of the opium convention of Geneva of 1925, by application of article 8 of the said convention, by reason of the fact that narcotics were there associated with other substances, making abuse and the establishment of addiction impossible. It has approved the conclusions of this report, which will be transmitted to the Health Committee of the League of Nations. Moreover, the same committee has made a new demand to be informed whether the provisions of the opium convention of Geneva should be made applicable to certain products—dilaudide, benzoyl-morphine, and eventually the ethers derived from morphine.

III

The recent epidemics, happily circumscribed, of yellow fever in West Africa and of cholera in Iraq, have given a timely interest to the discussions on yellow fever and cholera. Both have been the subjects of documentary reports, cholera, after deep study made on the spot.

The extension of yellow fever in French West Africa has been closely observed: In 1926, there were 53 cases in Senegal, 2 in Dahomey, 2 in the Upper Volta; in 1927 (latter part of May to mid-October), there were 151 cases in Senegal, of which 104 were followed by death. Syrians, recently arrived in the Colony, were especially attacked; among them there were 25 cases in 1926 and 31 cases in 1927, in a total of 1,000. Living under bad health conditions and rejecting precautions recommended against the bite of mosquitoes, they also showed the sensitiveness to the virus observed generally in the newly arrived. Yellow fever should be considered an endemic disease in West Africa. The native population has to a large extent acquired a spontaneous immunity; the virus is conserved by abor-

tive cases in young children. The arrival of groups of Europeans has frequently, in the history of the disease, been the occasion of epidemic revival. The menace of extension to North Africa and the Mediterranean Basin does not for the moment appear to exist. Classic prophylactic measures and a strict surveillance have been instituted. The data concerning French West Africa, from which cases of yellow fever are regularly reported to the International Office of Public Hygiene, will be completed by the time of the next session by analogous information from the English, Spanish, and Portuguese possessions in West and Equatorial Africa, and the Belgian Congo.

An exchange of views on the subject of the actual status of the question of the pathogenic germ of yellow fever has brought out that the question remains open.

Cholera appeared at the end of July in ports of the upper Persian Gulf—Abadan, Basra, and Mohammerah. The energetic defensive measures taken immediately by the sanitary authorities of Iraq, Syria, Palestine, Egypt, and Persia, prevented its propagation along the land and river routes of travel. In Iraq it did not pass Remaldi on the Euphrates or Baghdad on the Tigris (where there were only four imported cases and one case of local origin). In Persia, it followed the river Karoun to the Dizfould region. The epidemic is now terminated; for Iraq there were 1,038 cases with 756 deaths. Strict quarantine services were established along the danger routes and anticholera vaccination was required of every person going into a neighboring country. This vaccination was very largely practiced in the infected localities, notably in Persia in 40 per cent of the menaced population. The transmission of the infection by merchandise such as dates shipped from Basra was recognized to be impossible after experimental verification.

Indo-China was severely attacked in 1926 by cholera, which prevailed in all the countries of the Union. The number of deaths reached about 15,000. The epidemic is almost at an end. It would have been much more severe but for the extensive employment of anticholera vaccination, which was performed on more than 2,000,000 persons, or more than one-tenth of the population. The proportion of deaths among the vaccinated in Cochin China was 0.79 per 10,000.

Vaccination, either by subcutaneous injection or ingestion of bile vaccine, gave very encouraging results in British India. The research undertaken in that country on the agglutinability of authentic cholera vibrios and vibrios originally nonagglutinable has shown that the first may lose and the second acquire the property of being agglutinated by anticholera serums.

Facts suggesting new problems on the subject of the epidemiology of plague have been reported. It has been agreed up to the present time to attribute a rôle almost negligible to the domestic mouse;

its habitual flea does not seem capable of inoculating with plague virus. But the coincidence of an epizootic of mice and a series of human cases has recently been proved at Oran; on the other hand, in the sandy regions of South East Russia, fodder sometimes conceals numerous cadavers of plague mice which might contaminate man either directly or by the intermediary of camels infected by them. In the same endemic focus a plague carrier has been observed who has planted the contagion around him; and facts more or less analogous have been noted in Algiers and Senegal. It is important to determine definitely for the future whether there exist septicemic forms of latent plague without symptoms and without fever, which would lend themselves to contamination of the vicinity by the intermediary of fleas. It is to such forms that the term "germ carriers" would apply; on the other hand, a bubo without vital reaction is only an abortive form of the disease, and the bacilli which it may harbor appear but slightly susceptible of being disseminated. Finally, the conservation of virulent plague bacilli in the body of the flea, outside its host, has been stated for periods of 3 to 4 months (Union of South Africa), and even 10 months (South East Russia).

The methods of estimating the numbers of rats infesting ships have been studied experimentally at Liverpool. The best basis has appeared to be the enumeration of the droppings, with the reservation that these may be very abundant in spite of there being a small number of rats, and that the quantities vary largely under influence of the alimentary régime of the animals. Nevertheless, the observations made at the quarantine station at the port of New York have shown that, when the authorities have imposed fumigation of vessels guided principally by the amount of droppings discovered, an average of 20.5 dead rats per ship was recovered, whereas in the cases where fumigation was not required only 1.29 per cent of dead rats was found per ship.

Smallpox and antismallpox vaccination very actively preoccupy the health authorities in various countries, and the problems discussed have been many. There seems to exist at present, side by side with grave classic smallpox, a benign type, or "alastrim" (Switzerland, Great Britain), the character of which does not seem to justify the onerous measures of vaccination and especially of isolation which continue generally to be applied to it. Is this type definitively fixed, or is the attenuation of its virus reversible? The desire to reduce to a minimum the prejudices of the public in regard to vaccination has led the United States to study the possibility of limiting the vaccinal field—affirming that the duration of immunity is not in proportion to the dose of vaccine inoculated, employing the multiple pressure method of vaccination, and presenting a mass of practical details.

Post vaccinal encephalitis appears to-day to have struck the Netherlands more than any other country. It is not connected with the virulence of the vaccine, for it has remained practically at the same rate in spite of the employment of slightly virulent stock or of neuro-vaccine; on the other hand, a virus activated by passage through the rabbit has not caused a single case of encephalitis out of 100,000 vaccinations. There seems to exist a family susceptibility; and, on the other hand, for the same number of vaccinations, 16 cases of encephalitis were observed in January-February and none in November-December. The hypothesis of a relation with lethargic encephalitis is being more and more abandoned; besides, post-vaccinal encephalitis is cured without sequellae. A remarkable fact has been brought to light by these discussions; Italy and Japan have not had a single case of post-vaccinal encephalitis; and in those countries vaccination is obligatory in the course of the first year. Other observations concur in justifying the opinion that vaccination of the child is most inoffensive when it is done early.

Poliomyelitis has prevailed with unusual intensity during recent years in England, Switzerland, in 1927 in Rumania, Saxony, and Canada. The cases have been, in general, very much disseminated, although there have been some true foci. The abortive and non-diagnosed forms are as numerous as the clinical cases, or more so, and transmit the virus. Prophylaxis by convalescent serum has given remarkable results in Sweden; also, treatment by an experimental serum in Rumania.

The treatment of general paralysis by inoculation of malaria continues to be closely followed by the sanitary administration in England, where 1,400 cases have been treated. It has been studied in Rumania; also, the frequency of general paralysis in relation with that of paludism in Spain.

Organizations for maternal and child welfare have been established in the United States, Greece, Union of Soviet Socialist Republics, Japan, and Switzerland. In this latter country, infantile mortality has declined from 125 per 1,000 live births in 1906 to 55 in 1926. However, the gain does not relate to stillbirths nor to the first four days of life, which still indicate insufficient protection of the mother during pregnancy and at the moment of delivery.

Finally, the following questions have been touched on, especially as continuations of former discussions or as preparations for work to come: The antiseptics and coloring matters in alimentary substances; the prevention of beriberi in the Netherlands Indies by condensed vitamin B; the legal prescriptions concerning scarlet fever streptococcus toxin and antitoxin in the United States; the vaccination of

the adult by BC-G ["Bacille Calmette-Guérin"] in Norway; the antivenereal program in Japan; the control of medicines in Japan; the antileprosy organization and relief of lepers in the United States; cancer in the natives of North Africa; social aid to seamen of the merchant marine and social aid for the tuberculous in Italy; social aid in Japan; the High School of Malariology of Rome; School of Hygiene of Warsaw.

In closing the session the President recalled that the International Office of Public Hygiene, created by the International Arrangement concluded at Rome December 9, 1907, has now had 20 years of existence. Conformably to the intentions of the Governments that instituted it, it has achieved a permanent bond among the countries signatory to the international sanitary conventions and has not ceased to promote and control the combat against "pestilential diseases." At the same time, while enlarging more and more the circle of its activities, it has widely and effectively concerned itself with the problems, often very diverse, relative to diseases in the case of which social action, and especially concerted action, may contribute to the preservation of populations.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for March, 1928

The accompanying table is taken from the Statistical Bulletin for April, 1928, issued by the Metropolitan Life Insurance Co., and presents the mortality experience of the industrial insurance department of the company, by principal causes of death, for March, 1928, as compared with February and with March, 1927. The rates are based on a strength of more than 18,000,000 insured persons in the United States and Canada.

The health of this group of persons during March, as reflected in the death rate, continued favorable, the rate being the minimum for this month, 10.3 per 1,000, the same as that recorded in March of last year. There occurred the expected seasonal rise from the rate for February, 9.4 per 1,000, which was due, for the most part, to higher mortality from influenza, pneumonia, tuberculosis, heart disease, and Bright's disease.

As compared with March of last year, declines are shown for three of the four principal epidemic diseases of childhood—measles, scarlet fever, and whooping cough—for typhoid fever, and for tuberculosis, cancer, diarrhea, and enteritis, puerperal causes, suicides, homicides, accidents, and automobile fatalities. The death rate for tuberculosis was 100.1 per 100,000, as compared with 114.4 for March last year,

which was the previous minimum rate for this month. The Bulletin states:

This low rate for tuberculous disease is one of the best measures of the success which has attended the campaign against tuberculosis in America. It should be remembered that March and April are the months which register the maximum death rates for tuberculosis year after year, whereas the lowest are almost always recorded in September. Only eight years ago—that is, in March, 1920—the tuberculosis mortality rate among the industrial policyholders was 178.7 per 100,000 and the September figure was 116.1. Thus the death rate in 1928, *in the month of highest mortality*, has actually declined to a point below that recorded only eight years ago in the month of lowest mortality.

On the other hand, considerably higher rates this year than last are shown for heart disease, pneumonia, and Bright's disease, and slight increases for influenza, diabetes, cerebral hemorrhage, and respiratory diseases other than pneumonia.

Death rates (annual basis) for principal causes per 100,000, March, 1928, as compared with February and with March, 1927

[Industrial insurance department, Metropolitan Life Insurance Co.]

Causes of death	Rate per 100,000 lives exposed [1]			
	March, 1928	February, 1928	March, 1927	Year 1927 [2]
Total, all causes	1,027.0	943.5	1,028.5	885.4
Typhoid fever	1.3	1.7	3.0	4.6
Measles	7.7	4.2	7.9	4.1
Scarlet fever	3.4	4.4	4.9	3.1
Whooping cough	6.2	4.1	8.3	6.4
Diphtheria	11.4	12.6	11.3	10.5
Influenza	34.8	25.6	32.3	17.7
Tuberculosis (all forms)	100.1	89.5	114.1	93.3
Tuberculosis of respiratory system	88.6	78.6	100.3	81.7
Cancer	74.8	76.3	77.2	74.0
Diabetes mellitus	20.4	18.6	19.2	16.7
Cerebral hemorrhage	59.6	57.9	58.9	54.9
Organic diseases of heart	160.7	149.4	149.4	132.2
Pneumonia (all forms)	137.3	117.4	119.9	77.6
Other respiratory diseases	21.9	18.2	19.9	15.4
Diarrhea and enteritis	14.7	14.0	16.3	24.5
Bright's disease (chronic nephritis)	82.3	75.5	79.6	69.3
Puerperal state	13.8	13.3	17.2	15.4
Suicides	9.3	7.0	9.9	8.3
Homicides	6.2	5.6	8.1	7.2
Other external causes (excluding suicides and homicides)	48.3	55.6	55.9	63.7
Traumatism by automobiles	11.2	15.8	12.3	18.3
All other causes	212.5	192.6	215.0	186.7

[1] All figures include infants insured under 1 year of age.
[2] Based on provisional estimate of lives exposed to risk in 1927.

COURT DECISION RELATING TO PUBLIC HEALTH

Compensation for tuberculosis allowed under workmen's compensation act.—(Ohio Court of Appeals; Industrial Commission *v.* Rice, 160 N. E. 484; decided June 6, 1927.) An employee was incarcerated in a furnace by a falling door, and for a period of three minutes breathed heated fumes and gas from oil which had been burned as a fuel

therein. He was thereafter physically incapacitated to perform labor, and later tuberculosis resulted. Claim was brought under the workmen's compensation act but was disallowed by the State industrial commission on the ground that the disability was not due to an injury. On appeal to the court of common pleas compensation was awarded. The commission carried the case to the court of appeals, which said that the court of common pleas "was warranted in finding that the incapacity to work and the tuberculosis resulted directly from injury caused by inhaling such injurious substances, and that such finding is not manifestly against the weight of the evidence." The appellate court held that the tuberculosis and any other disability caused by the fumes and gas were compensable.

PUBLIC HEALTH ENGINEERING ABSTRACTS

The Effect of Various Chemicals on the Spreading and Penetration of Oils in Different Mosquito Breeding Places. Joseph M. Ginsburg. Proceedings of 14th Annual Meeting of the New Jersey Mosquito Extermination Association, 1927. (Abstract by L. L. Williams, jr.)

The author emphasizes the need for increasing the spreading power of oils and of increasing spread and toxicity of the cheaper fuel oils.

He recounts the theories of the mechanism of "spread" as put forward by Harkins and by Langmuir, which ascribes the spreading power to the presence of either active (or polar) groups (such as OH, COOH, etc.), or double bonds in the hydrocarbon chain. Such a double or triple bond acts similarly to a polar group (OH, etc.), and is attracted by water and, hence, causes "spreading." The author concludes that, therefore, an oil containing unsaturated hydrocarbons should spread more rapidly than an oil free from these hydrocarbons. Tests confirmed his theory.

He tested varying percentages of 35 compounds and had greatest success with monohydric alcohols, phenols, cresols, xylenols, pine oils, and turpentine. Of these, the cresols proved best both as to spreading power and toxicity.

Using fuel oil as a testing medium, the most effective mixture was made by adding 1 per cent cresylic acid. This spread 1½ times as much as plain fuel oil, penetrated among weeds and flotage, and killed larvæ within half an hour. On sewage beds, 3 per cent cresylic acid was necessary to produce larval death within half an hour, whereas pure kerosene took twelve hours. After kerosene, breeding was resumed in less than 3 days; after fuel oil with cresylic acid, no signs of breeding were seen after 3 days.

The mixture of 1 per cent cresylic acid with fuel oil was tried with uniform success on pools, ditches, vegetation-covered ponds, cattail swamps, and salt marsh areas. It increases the cost of the oil less than 1 cent per gallon.

A Container for Field Collection of Mosquito Larvæ. Wm. A. Hoffman. *Science*, vol. 66, No. 1716, November 18, 1927, p. 484. (Abstract by L. M. Fisher.)

The container consists of a 4-ounce jar with a two-holed rubber stopper, through which two glass tubes are passed, one flared, funnel shaped, through which the larvæ can be passed. A metal clamp is fitted tightly to the neck of the jar by means of a tension spring. One end of the clamp hooks over the carrier's belt.

It is stated that fairly satisfactory results were obtained over a period of four months' use in Porto Rico.

(Abstractor's note: A large percentage of larvæ were drowned in containers somewhat similar to the one described when carried about on the person during collection trips in some of the Southern States. Better results were obtained by carrying larvæ on moistened blotting paper or cotton in a suitable container permitting a certain amount of evaporation to keep the larvæ cool.)

Some aspects of house fly control. D. W. Wallace. *Health Bulletin*, Department of Public Health, Victoria, Australia, No. 11, July–September, 1927, pp. 338–341. (Abstract by R. E. Tarbett.)

The article concerns itself with the viability of the newly hatched fly under adverse conditions. The newly hatched fly is able to work its way out of earth or other matter in which the pupa is buried, through the inflation and deflation of a frontal sac attached to the head between the eyes.

Experiments showed that house flies (*Musca domestica*), on emerging from the pupæ, were able to work their way through a covering of 6 to 7 inches of garden soil and a double layer of 2-millimeter mesh mosquito netting. Passage through the netting was made by inserting the sac within the mesh and then inflating. With the expanding of the wings, in the final development after exposure to the air, the capacity for inflating the frontal sac is lost.

In the experiments, pupæ were buried in 7 inches of sandy garden bed and at a depth of 6 inches in a pasteboard box. Temperature and rainfall were noted during the 18 days of the experiment. In the box experiment, an escape of 38 per cent was noted throughout a period of 16 days, and in the garden experiment 12 per cent during 18 days. The temperature during the 18 days varied from a maximum of 69° to a minimum of 47°.

A number of the flies after emergence from the soil were placed in a bottle without food or moisture, and notwithstanding a temperature of 40° on two of the nights they lived for four days.

The author suggests that the food in the digestive tract of the larvæ may pass on through the pupal period to the fly to "sustain it in the vicissitudes through which it may pass till it feeds."

Studies on the Bionomics of North American Anophelines. Winter Activities of Anophelines in Coastal North Carolina. Marshall C. Balfour. *American Journal of Hygiene*, vol. 8, No. 1, January, 1928, pp. 68–76. (Abstract by A. L. Dopmeyer.)

An account is given of observations made in the coastal area of northeastern North Carolina on the activity of anophelines, between November 1, 1926, and April 30, 1927, together with graphs, tables, and a summary as to the conclusions reached.

The studies are believed to be of interest because they represent more severe winter conditions than were met with when similar studies were made in Georgia, Alabama, and Louisiana.

In Chart I there are plotted against time by months, the following: (1) Adults caught per man-hour; (2) larvæ per 10 square meters; (3) temperature (mean maximum, air; mean, water; and mean minimum, air); (4) inches of rainfall. In Chart II there are plotted against time by months; (1) Adults caught per man-hour; (2) per cent fourth-stage larvæ and pupæ; (3) per cent third-stage larvæ; (4) per cent second-stage larvæ; (5) per cent first-stage larvæ.

Table No. 1 shows anopheline captures and larval identifications according to species, by months; Table No. 2 shows anopheline captures according to resting place; Table No. 3 shows breeding places classified according to type; and Table No. 4 shows breeding places classified according to water surface.

Twenty-first Biennial Report of the North Carolina State Board of Health, July 1, 1924–June 30, 1926. Bureau of Sanitary Engineering and Inspection. Pp. 62–82. (Abstract by J. K. Hoskins.)

The objectives, activities, and accomplishments of the sanitary engineering bureau of the North Carolina State Board of Health are very interestingly presented in this article, illustrated with numerous graphs and charts.

The work of the bureau consists of the following: (1) Sanitary inspection, (2) sanitary engineering, (3) milk sanitation, and (4) shellfish sanitation. The activities of each of these divisions are described and the results obtained are clearly depicted by means of graphs. Particular attention has been paid to the enforcement of the State sanitary privy law. Of a total rural population of 2,389,100 in 1925, 1,149,000, or over 48 per cent, were served by the privy law and public sewerage facilities. Of 184,313 surface privies eliminated since 1919, 66 per cent were replaced by improved types, 7 per cent were supplanted by construction of new sewerage systems, and 27 per cent by extensions to existing sewerage systems. Of the improved types installed, 81.9 per cent were earth pits, 11.8 per cent were septic privies, 4.9 per cent were of box and can system, 1 per cent were concrete vaults, and 0.4 per cent were chemical privies.

The 238 public water supplies, serving 28.37 per cent of the total State population, are under the supervision of the bureau. Of this number, 73 are filtered, 27 are unfiltered surface water supplies, and 138 are unfiltered ground water supplies, serving 573,000, 67,000, and 178,000 persons, respectively. Of the 73 filtered supplies, 38 are under trained operation and laboratory control and serve over 87 per cent of the total population using filtered water.

Improved milk sanitation is reflected in the extent of adoption of the standard milk ordinance. In the total of the 61 cities in the State, each having a population of 2,500 or over in 1920, 31, with a combined population of 401,000, equivalent to 65 per cent of the total State urban population, have enacted this legislation. Milk sanitation ratings of 10 cities, where records for 1924 and 1926 were available, showed an improvement in the efficiency of milk control by the enforcement of the standard milk ordinance, of 18.8 per cent. The average daily milk sales in eight of these cities in which figures were available during this period, increased 8 per cent.

Work in shellfish sanitation has included sanitary surveys of the growing areas, bacteriological examinations of shellfish, and inspection and improvement of shucking houses, all of which has resulted in reestablished public confidence in the safety of these food products.

"Prior to the state-wide activities in sanitation, particularly the enforcement of the sanitary privy law, begun in 1919, the urban rates [typhoid] were 50 per cent greater than the rural rates, and in 1925 the urban rates were only 60 per cent of the rural rates. This changed ratio is almost entirely the result of improved sanitation."

The Washington Suburban Sanitary District. Robert B. Morse. Proceedings of the 32nd Annual Convention of the American Society for Municipal Improvements. Pp. 181–191. (Abstract by J. L. Robertson.)

The Maryland suburbs of Washington lie in two counties. They comprise a large number of small municipalities, several special taxing districts, and numerous incorporated villages. The several water and sewerage systems, in original design, planned only for immediate needs, were inadequate as the demand on the systems increased. Realizing that development of this suburban district could be accomplished only through the installation of adequate water and sewerage systems, and that these must necessarily be under a single administrative body before an effective remedy could be had, action on the part of public-spirited citizens resulted in the report of two investigating committees and the legislative act establishing the Washington Suburban Sanitary District.

A commission of three members administers the affairs of the district. The county commissioners of each county appoint one member, upon recommendation of the State board of health, and the Governor appoints a third, all for four-year terms. The commission has the usual powers with respect to construction and operation of systems, and has power to purchase or condemn all municipal and private systems. Its bond issues must be approved by the public-service commission and its charges and rates are subject to review, upon appeal. Bonds for construction work up to 12 per cent of the assessable basis, may be issued without referendum.

There are two fundamental features of the legislation, one that relieves the towns of their powers and duties with respect to water supply and sewerage, and one that gives the commission the right to raise funds and proceed with all work without referendum.

It was realized that total costs of construction would be far greater than in an ordinary city of equivalent population, on account of the great expanse of territory. In order to distribute the great total cost and maintain equitable costs in proportion with benefits received, it was determined to meet the fixed charges on bonds through a small addition to the tax rate and a front-foot benefit charge on properties abutting on the water and sewer lines, and to cover maintenance and operating expenses on both water and sewer lines by water rates. While it was deemed essential that the rate structure adhere closely to correct theoretical principles, local conditions influenced the relative amounts of the charges.

Here much discussion is given to the front-foot benefit charges, particularly as to construction costs, property classification, assessments for improvements, etc. Also there are given the difficulties experienced and adjustments made by the commission.

Water and sewer house-connections are built to the property line; charges for connections are uniform.

The method employed by the commission to secure payment for construction and operation of the district's water and sewer systems results in a very small annual expense to the property not accessible to them, a larger one to undeveloped land along water and sewer lines, and a still greater one to developed lots receiving service.

Additional interesting notations are made concerning details of the commission's engineering practices.

A Cyanide Citrate Pour Plate Medium for Direct Determination of the Colon-Aerogenes Content of Water and Sewage. Ralph E. Noble. *Journal American Water Works Association*, vol. 19, No. 2, February, 1928, pp. 182–192. (Abstract by J. B. Harrington.)

The cyanide citrate pour plate medium which has been developed for the direct determination of colon-aerogenes is compared briefly with the present standard method as follows: (1) From 42 to 48 hours are required for the cyanide citrate determination as compared with 3 or 4 days' minimum time required for the present standard method; (2) the index by the cyanide citrate method represents more nearly the actual density of the organisms than does the present method; (3) the new method not only enables the colon-aerogenes group to be counted directly, but also indicates the fecal and aerogenes groups reasonably accurately, thereby eliminating the time-consuming Voges-Proskauer reactions; (4) the *B. coli* index by the new plate method is considered dependable. It is superior to that obtained by the lactose broth method and eliminates the difficulties involved in mathematical interpretation. The growth-inhibiting properties of the new medium are believed to be negligible at this time; (5) only the usual standard laboratory equipment is necessary in making the test.

Certain analytical and theoretical data are given for the direct determination of the colon-aerogenes organisms by the cyanide citrate pour method; also tables setting forth the concentration of ingredients.

The colon-aerogenes colonies usually appear on the plates in marked contrast to any of the other forms which may occur. The fecal types appear as small black or dark red disks or as triangular forms, diameter 0.5 mm. The grain types are usually pink, black (blue by reflected light), colorless, or black-sided disks, diameters 0.5 to 4.0 mm.

Comparative tests by the examination of a large number of samples have shown that the *B. coli* index was equal to or exceeded the tube method in 76.7 per cent of the samples and was less than the tube method in 23.3 per cent of the samples.

The cyanide citrate method, although in the experimental stage, is believed capable of being improved to such an extent that it may be of great value in the determination of the colon-aerogenes index of water, sewage, and even of milk.

The Water Resources of Rhode Island. Report of the commission appointed to investigate the sources of water supply for cities and towns, to the General Assembly at the January session, 1928. 126 pages. (Abstract by J. K. Hoskins.)

The report discusses the water resources of the State from the standpoint of the geologist, the chemist, and the engineer. The section on "Geology, Climate and Run-off," by Charles Wilson Brown, reviews the geological formations, the climatic factors, including temperature, precipitation and evaporation, and the run-off, which averages from 50 to 60 per cent of the rainfall.

The quality of the water supplies is ably discussed by Stephen DeM. Gage, under three general classes; namely, surface supplies without purification, used by 33.9 per cent of the entire State population; filtered surface supplies, used by 62.3 per cent, and ground-water supplies, used by 3.8 per cent of the total population. The physical and chemical characteristics and bacterial content of the individual public supplies are given in tabular form. Data concerning disinfection of certain of the public supplies are presented. The sanitary quality of 1,797 rural wells, as disclosed by examination, showed that 52 per cent were safe for domestic use, 23 per cent were doubtful, and 25 per cent were unsafe.

The engineering features such as populations supplied, drainage areas, rivers and streams, water supply developments, etc., are summarized by George H. Leland. Many detailed statistics are presented in the form of tables, including the physical characteristics of each of the public water supplies of the State.

Iron and Manganese Removal at Wausau, Wisconsin. Emil Flatter. *American City*, vol. 38, No. 3, March, 1928, pp. 125–126. (Abstract by C. R. Cox.)

This is a description of a 3–4.5 m. g. iron and manganese removal plant, costing $125,000. Well water of poor physical character is being effectively treated by aeration, coagulation and sedimentation, and filtration. Final chlorination is not needed. The aerator consists of shallow wooden racks, holding 5-inch layers of coke and 2-inch layers of manganese dioxide ore, which are arranged in vertical tiers. The aerated water is dosed with 7.4 g. p. g. alum and 3.5 g. p. g. lime before discharge through a baffled mixing chamber into a 45 by 45 by 16 foot Dorr clarifier, and then into three sedimentation basins, each 36 by 45 by 14 feet in size. Six rapid sand filters are fitted with porous concrete slab underdrains capable of passing 150 g. p. m. per square foot. Slabs are bolted to concrete stringers and have joints cemented. Slabs were made of ¾ to 1 inch gravel. A gravel layer of this size is used over slabs to depth of 6½ inches, then of ⅜ to ⅝ inch size to depth of 3 inches, and then of $\frac{3}{16}$ to ⅜ inch size to depth of 3 inches. Fine sand to depth of 28 inches is placed upon gravel. Complete control and recording apparatus is provided. From 2½ to 3 per cent wash water is used, which is somewhat high because considerable fine floc reaches the filters.

Oil Well Pollution Necessitates Auxiliary Water Supply. C. K. Mathews. *Engineering News-Record*, vol. 100, No. 9, March 1, 1928, pp. 358–360. (Abstract by W. J. Downer.)

Munroe, La., obtained its water supply from the Ouachita River until it became grossly polluted by oil-well wastes a hundred miles distant in another State. The situation was remedied by using the old supply during high dilutions and storing an auxiliary supply in an impounding reservoir for periods of high salt concentrations.

A 6 m. g. d. capacity rapid sand filter, clear well, and elevated tank are being constructed. The old coagulating basin is being remodeled to serve as an aerator for primary alum treatment for taste, odor, and color reduction.

The Treatment of the Water Supply of the City of Columbus, Ohio. Charles Hoover. Proceedings of the American Society of Civil Engineers, vol. 54, No. 2, February, 1928, pp. 471–484. (Abstract by H. M. Freeburn.)

The Columbus water supply is taken from the Scioto River, in which, during a three-day period, turbidity has varied from 22 p. p. m. to 2,250 p. p. m., with a drop of total hardness from 285 p. p. m. to 64 p. p. m. *B. coli* content has at times risen to 100,000 per 100 cubic centimeters.

The river water is pumped to a receiving compartment and divided into two equal parts. One part, without treatment, flows to baffled mixing tanks, while the entire quantities of lime, soda ash, and alum solution are added to the other part, which is then mixed by rotating paddles for 10 minutes. This overtreated portion of water with floc already formed joins other portion of untreated water and the two are passed through baffled mixing tanks having an hour's retention period. Water then flows to six settling basins, two of which must be cleaned every three or four weeks, and others about once or twice a year. Carbon dioxide gas is applied to clear softened water before it passes to filters to neutralize any excess lime, to convert normal carbonate to bicarbonate form, and to prevent after-reactions or deposits in filters or distributing system.

Advantages of lime treatment are as follows: (1) Water safe bacteriologically when sufficient quantity is added to produce caustic alkalinity; (2) increased efficiency of sedimentation; (3) water low in turbidity, color, and organic matter; (4) freedom from objectional gases; (5) lower cost of filtration.

Methods of handling lime, manufacturing alum, and of producing carbon dioxide gas are described. Tabulations show results of operation and quantities and cost of chemicals used.

Making producer gas from coke and burning it under the boilers is perhaps the most economical method of producing carbon dioxide gas. It is possible to produce gas containing 17 to 18 per cent of CO_2, thus requiring an air compressor of only one-fourth the capacity required if coke were burned in open burner.

DEATHS DURING WEEK ENDED MAY 5, 1928

Summary of information received by telegraph from industrial insurance companies for the week ended May 5, 1928, and corresponding week of 1927. (From the Weekly Health Index, May 9, 1928, issued by the Bureau of the Census, Department of Commerce)

	Week ended May 5, 1928	Corresponding week, 1927
Policies in force	70, 830, 030	67, 576, 686
Number of death claims	14, 992	14, 043
Death claims per 1,000 policies in force, annual rate	11. 1	10. 8

Deaths from all causes in certain large cities of the United States during the week ended May 5, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, May 9, 1928, issued by the Bureau of the Census, Department of Commerce)

City	Week ended May 5, 1928		Annual death rate per 1,000 corresponding week 1927	Deaths under 1 year		Infant mortality rate, week ended May 5, 1928 [2]
	Total deaths	Death rate [1]		Week ended May 5, 1928	Corresponding week 1927	
Total (66 cities)	8,784	15.5	13.1	976	830	[3] 81
Albany [4]	54	23.5	18.8	3	6	61
Atlanta	100	20.5	12.1	12	5	
White	58		9.8	6	3	
Colored	42	(5)	17.6	6	2	
Baltimore [4]	247	15.6	15.4	26	18	83
White	197		14.1	20	10	80
Colored	50	(5)	22.9	6	8	94
Birmingham	94	22.1	14.1	10	9	86
White	50		10.6	5	3	69
Colored	44	(5)	19.7	5	6	113
Boston	302	19.8	14.0	49	26	136
Bridgeport	35			7	3	128
Buffalo	149	14.0	14.2	17	20	73
Cambridge	40	16.6	7.2	7	2	125
Camden	40	15.4	12.1	10	4	160
Canton	28	12.5	10.1	3	3	71
Chicago [4]	880	14.6	12.1	87	88	75
Cincinnati	169	21.4	17.5	19	6	115
Cleveland	231	12.0	9.6	25	13	68
Columbus	104	18.3	15.0	11	10	103
Dallas	58	13.9	12.1	5	7	
White	44		12.2	5	7	
Colored	14	(5)	11.4	0	0	
Dayton	41	11.6	13.6	4	4	66
Denver	95	16.9	13.3	9	6	
Des Moines	38	13.1	10.5	2	3	33
Detroit	366	13.9	11.9	64	40	99
Duluth	33	14.8	9.5	4	3	93
El Paso	49	21.7	12.9	6	8	
Erie	25			2	3	41
Fall River [4]	34	13.2	13.4	4	5	69
Flint	39	13.7	10.2	11	4	140
Fort Worth	28	8.7	8.9	4	5	
White	22		7.2	3	5	
Colored	6	(5)	21.3	1	0	
Grand Rapids	56	17.8	10.0	3	4	45
Houston	72			10	5	
White	54			7	1	
Colored	18	(5)		3	4	
Indianapolis	109	14.9	15.7	4	7	30
White	91		14.7	3	5	26
Colored	18	(5)	23.3	1	2	61
Jersey City	120	19.3	10.7	15	9	112
Kansas City, Kans	27	11.9	12.9	3	1	63
White	18		10.8	2	0	49
Colored	9	(5)	22.1	1	1	145
Kansas City, Mo	100	13.4	12.1	13	10	92
Knoxville	28	13.9	12.3	3	1	65
White	22		9.9	3	0	73
Colored	6	(5)	29.9	0	1	0
Los Angeles	161			13	26	37
Lowell	45	21.3	13.2	3	2	63
Lynn	24	11.9	13.9	4	0	101
Memphis	51	14.0	18.9	4	8	47
White	24		12.6	2	4	37
Colored	27	(5)	30.4	2	4	63
Milwaukee	167	16.1	12.9	22	19	98
Minneapolis	119	13.6	10.4	18	7	104
Nashville	50	18.9	15.1	5	4	79
White	29		12.7	5	3	107
Colored	21	(5)	21.4	0	1	0
New Bedford	29	12.7	10.0	5	3	108
New Haven	30	8.3	11.8	4	3	56
New Orleans	155	18.9	18.8	13	18	63
White	96		14.6	4	14	29
Colored	59	(5)	30.7	9	4	131

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended May 5, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, May 9, 1928, issued by the Bureau of Census, Department of Commerce)—Continued

City	Week ended May 5, 1928		Annual death rate per 1,000 corresponding week 1927	Deaths under 1 year		Infant mortality rate, week ended May 5, 1928 [2]
	Total deaths	Death rate [1]		Week ended May 5, 1928	Corresponding week 1927	
New York	1,941	16.9	13.4	223	193	90
Bronx Borough	243	13.3	11.0	24	18	73
Brooklyn Borough	670	15.2	11.8	84	74	84
Manhattan Borough	815	24.3	18.2	96	76	114
Queens Borough	176	10.8	9.6	18	20	72
Richmond Borough	37	12.8	15.3	1	5	18
Newark, N. J	94	10.4	10.7	14	9	72
Oklahoma City	28			2	1	
Omaha	59	13.8	13.1	5	3	58
Paterson	56	20.2	9.4	1	5	17
Philadelphia	603	15.3	12.4	67	38	90
Pittsburgh	216	16.8	16.7	31	44	101
Portland, Oreg	73			3	3	32
Providence	61	11.1	15.1	4	12	35
Richmond	65	17.5	12.5	4	5	52
White	42		9.2	1	2	20
Colored	23	[3]	20.6	3	3	110
Rochester	76	12.1	14.9	7	18	57
St. Louis	285	16.3	12.4	20	17	67
St. Paul	76	15.8	10.6	2	5	19
Salt Lake City [4]	32	12.1	13.8	3	0	49
San Antonio	74	17.7	19.0	17	21	
San Diego	46	20.1	20.4	0	2	0
San Francisco	157	14.0	13.0	2	5	13
Schenectady	21	11.8	9.0	3	2	94
Somerville	23	11.7	13.3	3	3	104
Spokane	27	12.9	12.4	1	4	26
Springfield, Mass	45	15.7	15.6	4	2	63
Syracuse	60	15.7	13.5	7	5	85
Tacoma	16	7.6	13.6	2	1	51
Toledo	91	15.2	14.2	10	8	96
Trenton	44	16.6	16.4	6	3	102
Washington, D. C	138	13.1	15.3	13	16	74
White	85		16.0	6	9	50
Colored	53	[3]	13.0	7	7	129
Waterbury	32			7	4	203
Wilmington, Del	44	17.9	11.1	5	4	132
Worcester	67	17.7	10.1	4	6	49
Yonkers	21	9.1	11.4	2	2	46
Youngstown	37	11.1	15.1	5	6	67

[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 65 cities.
[4] Deaths for week ended Friday, May 4, 1928.
[5] 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; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; Washington, D. C., 25.

PREVALENCE OF DISEASE

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

UNITED STATES

CURRENT WEEKLY STATE REPORTS

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

Reports for Weeks Ended May 12, 1928, and May 14, 1927

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 12, 1928, and May 14, 1927

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927
New England States:								
Maine	4	5	38	32	32	119	0	0
New Hampshire	1				5		0	
Vermont					73	139	0	0
Massachusetts	98	84	66	10	1,002	392	1	2
Rhode Island	4	3	2		221	2	0	0
Connecticut	24	20	71	3	381	58	1	0
Middle Atlantic States:								
New York	324	489	[1] 194	[1] 18	4,021	972	30	9
New Jersey	97	103	40	10	2,114	111	10	1
Pennsylvania	120	164			2,527	692	10	2
East North Central States:								
Ohio	124		229		1,073		14	
Indiana	16	18	56	25	470	187	0	0
Illinois	95	110	95	17	275	1,155	9	11
Michigan	67	104	12	4	1,170	259	4	2
Wisconsin	18	28	838	89	71	457	12	13
West North Central States:								
Minnesota	13	37	22	3	116	168	2	1
Iowa	4				18		1	
Missouri	23	47	65		519	244	17	1
North Dakota	3		55		11	71	0	0
South Dakota	2	1	5	2	29	71	0	0
Nebraska	2	6	3		131	255	0	0
Kansas	7	15	11	3	202	1,029	2	0
South Atlantic States:								
Delaware		2			43	5	0	0
Maryland [2]	30	36	16	19	817	26	0	1
District of Columbia	14	18	4	1	181	5	0	0
Virginia								
West Virginia	9	8	190	5	120	185	3	0
North Carolina	19	10			1,114	1,987	1	1
South Carolina	18	14	419	941	264	411	0	0
Georgia	8	6	86	73	160	83	0	0
Florida	8	12	4	18	101	104	0	0

[1] New York City only.

[2] Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 12, 1928, and May 14, 1927—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927
East South Central States:								
Kentucky	4		50		222		0	
Tennessee	6	5	115	36	170	85	1	1
Alabama	13	17	405	21	366	255	0	0
Mississippi	9	5						
West South Central States:								
Arkansas	6		348	53	351	40	0	0
Louisiana	22	21	59	14	237	53	2	0
Oklahoma [3]	20	4	293	42	430	356	1	1
Texas	14		53		194		1	
Mountain States:								
Montana	1	3		1	11	19	1	2
Idaho	1	2			1	25	0	0
Wyoming	1	1			16	108	1	0
Colorado	7	10			20	269	4	0
New Mexico	1	10			184	211	0	0
Arizona	17	3	9		119	147	1	0
Utah [3]	2	7	3			24	2	0
Pacific States:								
Washington	10	9			130	338	1	3
Oregon	3	9	22	17	40	264	0	1
California	83	99	36	20	109	1,523	3	3

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927
New England States:								
Maine	1	0	20	45	0	0	3	0
New Hampshire	0		12		0		0	
Vermont	1	0	1	7	0	0	0	0
Massachusetts	1	2	242	421	0	0	5	6
Rhode Island	0	0	27	14	0	0	1	0
Connecticut	0	0	98	105	0	0	2	0
Middle Atlantic States:								
New York	4	3	618	971	5	13	10	14
New Jersey	0	0	229	312	2	0	5	4
Pennsylvania	3	1	412	559	0	0	16	16
East North Central States:								
Ohio	1		247		41		9	
Indiana	0	0	99	154	109	134	2	4
Illinois	0	2	239	247	76	26	9	15
Michigan	1	0	318	279	18	42	4	5
Wisconsin	3	3	272	166	5	13	13	6
West North Central States:								
Minnesota	2	0	116	184	0	1	1	1
Iowa	0		50		54		1	
Missouri	0	0	82	91	62	19	8	7
North Dakota	0	0	19	32	0	3	1	1
South Dakota	0	0	33	52	4	13	0	0
Nebraska	0	0	84	31	34	10	1	1
Kansas	0	0	165	104	97	15	6	2
South Atlantic States:								
Delaware	0	0	1	4	0	0	0	0
Maryland [2]	1	0	73	56	0	0	7	5
District of Columbia	2	0	47	25	0	2	1	0
Virginia						4		
West Virginia	0	0	34	39	35	26	7	1
North Carolina	1	0	17	11	46	33	7	11
South Carolina	1	1	8	11	7	21	7	42
Georgia	0	1	22	11	0	27	11	24
Florida	0	1	5	5	8	51	7	21
East South Central States:								
Kentucky	0		64		38		7	
Tennessee	0	0	14	23	23	6	8	18
Alabama	3	0	3	5	5	20	6	24
Mississippi	0	1	5	1	2	45	5	12

[2] Week ended Friday.

[3] Exclusive of Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 12, 1928, and May 14, 1927—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927	Week ended May 12, 1928	Week ended May 14, 1927
West South Central States:								
Arkansas	0	0	14	6	4	0	4	30
Louisiana	0	0	12	4	16	6	15	16
Oklahoma [3]	0	0	61	25	125	31	7	18
Texas	0	----	66	----	94	----	3	----
Mountain States:								
Montana	0	0	13	19	19	16	3	0
Idaho	0	0	4	8	6	6	0	0
Wyoming	0	0	31	23	1	2	0	0
Colorado	0	0	66	158	6	13	1	0
New Mexico	0	0	16	11	9	8	1	7
Arizona	0	1	4	34	16	1	0	2
Utah [2]	0	0	3	28	12	1	1	0
Pacific States:								
Washington	0	0	44	40	39	41	1	2
Oregon	1	0	22	22	52	14	3	3
California	7	5	161	213	13	34	18	6

[2] Week ended Friday.

[3] Exclusive of Tulsa.

Reports for Week Ended May 5, 1928

DIPHTHERIA	Cases
District of Columbia	14
Iowa	7
INFLUENZA	
District of Columbia	4
MEASLES	
District of Columbia	215
Iowa	13
MENINGOCOCCUS MENINGITIS	
Iowa	1

SCARLET FEVER	Cases
District of Columbia	43
Iowa	53
SMALLPOX	
District of Columbia	1
Iowa	31
TYPHOID FEVER	
Iowa	4

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	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
March, 1928										
Delaware	0	5	2	----	54	----	0	22	0	0
Hawaii Territory	2	75	4	----	14	----	0	10	0	9
April, 1928										
Connecticut	6	103	47	----	1,476	----	0	293	0	6
Nebraska	5	25	423	----	317	----	0	413	0	1
North Dakota	19	26	221	----	38	----	3	190	8	3

March, 1928

	Cases
Chicken pox:	
Delaware	14
Hawaii Territory	78
Conjunctivitis, follicular:	
Hawaii Territory	114
Dysentery (amebic):	
Hawaii Territory	2
Hookworm disease:	
Hawaii Territory	13
Mumps:	
Delaware	45
Hawaii Territory	47
Tetanus:	
Hawaii Territory	2
Trachoma:	
Hawaii Territory	99
Whooping cough:	
Delaware	5
Hawaii Territory	2

April, 1928

	Cases
Chicken pox:	
Connecticut	318
Nebraska	167
North Dakota	47
Conjunctivitis:	
Connecticut	10
German measles:	
Connecticut	47

April, 1928—Continued

	Cases
Impetigo contagiosa:	
North Dakota	2
Lead poisoning:	
Connecticut	4
Lethargic encephalitis:	
Connecticut	1
North Dakota	3
Mumps:	
Connecticut	895
Nebraska	209
North Dakota	62
Ophthalmia neonatorum:	
North Dakota	1
Rabies in animals:	
Connecticut	2
Septic sore throat:	
Connecticut	6
Nebraska	15
Tetanus:	
Connecticut	1
Trichinosis:	
Connecticut	2
Vincent's angina:	
North Dakota	15
Whooping cough:	
Connecticut	441
Nebraska	27
North Dakota	47

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 99 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,275,000. The estimated population of the 93 cities reporting deaths is more than 30,590,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended April 28, 1928, and April 30, 1927

	1928	1927	Estimated expectancy
Cases reported			
Diphtheria:			
42 States	1,305	1,529	----------
99 cities	773	1,015	843
Measles:			
40 States	17,843	14,735	----------
99 cities	7,688	3,799	----------
Poliomyelitis:			
42 States	19	20	----------
Scarlet fever:			
42 States	3,846	4,536	----------
99 cities	1,583	2,006	1,271
Smallpox:			
42 States	976	734	----------
99 cities	152	122	109
Typhoid fever:			
42 States	142	275	----------
99 cities	26	49	44
Deaths reported			
Influenza and pneumonia:			
93 cities	1,343	926	----------
Smallpox:			
93 cities	0	0	----------

City reports for week ended April 28, 1928

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

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1919 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, 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			
NEW ENGLAND									
Maine:									
Portland	76,400	7	1	0	0	0	6	10	1
New Hampshire:									
Concord	[1] 22,546	0	0	0	0	0	1	0	1
Manchester	84,000	0	2	0	0	2	11	0	3
Vermont:									
Barre	[1] 10,008	2	1	0	0	0	0	0	0
Burlington	[1] 24,089	0	1	0	0	0	4	0	0
Massachusetts:									
Boston	787,000	23	34	19	4	2	229	15	16
Fall River	131,000	2	3	1	2	1	0	1	3
Springfield	145,000	3	2	4	0	0	7	19	4
Worcester	193,000	3	4	17	1	1	51	30	3
Rhode Island:									
Pawtucket	71,000	0	1	1	0	0	10	16	2
Providence	275,000	0	8	7	0	0	238	4	4
Connecticut:									
Bridgeport	[2]	1	5	3	2	2	9	0	4
Hartford	164,000	5	5	5	0	0	55	15	11
New Haven	182,000	12	2	1	0	0	87	45	11
MIDDLE ATLANTIC									
New York:									
Buffalo	544,000	1	9	17	-------	0	76	38	20
New York	5,924,000	127	248	226	155	38	1,769	44	346
Rochester	321,000	2	9	1	2	0	37	13	9
Syracuse	185,000	21	4	0	-------	0	153	10	14
New Jersey:									
Camden	131,000	3	5	10	0	0	81	1	4
Newark	459,000	20	11	23	19	0	302	11	15
Trenton	134,000	1	3	10	0	1	10	4	4
Pennsylvania:									
Philadelphia	2,008,000	71	69	51	0	15	1,236	56	49
Pittsburgh	637,000	15	16	14	0	14	143	54	37
Reading	114,000	8	2	1	0	1	16	3	6
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	411,000	5	7	10	0	4	56	0	19
Cleveland	960,000	34	23	49	35	2	58	110	22
Columbus	285,000	8	3	3	7	7	79	8	7
Toledo	295,000	20	4	4	12	6	190	9	12
Indiana:									
Fort Wayne	99,900	2	2	2	0	0	2	0	4
Indianapolis	367,000	23	3	7	0	1	148	75	26
South Bend	81,700	1	1	2	0	0	1	0	1
Terre Haute	71,900	5	1	0	0	0	0	0	0
Illinois:									
Chicago	3,048,000	50	71	83	58	24	33	27	143
Springfield	64,700	11	0	1	2	2	3	8	1

[1] Estimated, July 1, 1925.

[2] No estimate made.

City reports for week ended April 28, 1928—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 NORTH CENTRAL—continued									
Michigan:									
Detroit	1,290,000	16	47	38	9	7	628	29	54
Flint	136,000	6	3	0	0	0	85	34	8
Grand Rapids	156,000	1	4	2	0	1	16	9	3
Wisconsin:									
Kenosha	52,700	21	1	0	0	0	1	0	0
Milwaukee	517,000	69	12	3	42	5	1	26	36
Racine	69,400	7	2	0	21	1	1	6	2
Superior	[1] 39,671	----	0	----	----	----	----	----	----
WEST NORTH CENTRAL									
Minnesota:									
Duluth	113,000	3	0	1	8	3	0	4	2
Minneapolis	434,000	43	14	14	0	6	102	167	9
St. Paul	248,000	13	11	6	0	0	2	23	0
Iowa:									
Davenport	[1] 52,469	1	0	0	0	----	0	0	----
Des Moines	146,000	0	2	0	0	----	0	0	----
Sioux City	78,000	6	1	0	0	----	5	13	----
Waterloo	36,900	16	0	2	0	----	1	10	----
Missouri:									
Kansas City	375,000	13	5	1	0	3	35	82	16
St. Joseph	78,400	0	1	0	0	0	0	7	0
St. Louis	830,000	19	38	17	0	1	357	18	----
North Dakota:									
Fargo	[1] 26,403	4	0	0	0	0	0	3	1
Grand Forks	[1] 14,811	0	0	0	0	----	0	0	----
South Dakota:									
Aberdeen	[1] 15,036	0	0	0	0	----	0	0	----
Sioux Falls	[1] 30,127	0	0	0	0	----	1	0	----
Nebraska:									
Lincoln	62,000	10	1	2	0	0	0	15	0
Omaha	216,000	3	2	1	0	0	4	0	12
Kansas:									
Topeka	56,500	9	1	0	3	2	6	6	0
Wichita	92,500	24	1	1	0	0	10	5	4
SOUTH ATLANTIC									
Delaware:									
Wilmington	124,000	0	2	2	0	0	5	8	4
Maryland:									
Baltimore	808,000	48	24	21	20	4	492	21	24
Cumberland	[1] 33,741	1	1	0	1	0	0	0	1
Frederick	[1] 12,035	0	0	0	0	0	33	0	1
District of Columbia:									
Washington	528,000	18	12	17	3	3	168	0	15
Virginia:									
Lynchburg	30,500	0	0	2	0	0	0	1	1
Norfolk	174,000	2	1	0	0	0	62	0	5
Richmond	189,000	2	2	1	0	0	131	0	4
Roanoke	61,900	6	1	0	0	0	23	1	4
West Virginia:									
Charleston	50,700	0	0	0	0	0	2	0	0
Wheeling	[1] 56,208	0	1	2	0	1	3	1	1
North Carolina:									
Raleigh	[1] 30,371	4	0	0	0	1	27	0	2
Wilmington	37,700	7	0	1	0	0	1	0	2
Winston-Salem	71,800	6	0	1	0	0	19	12	11
South Carolina:									
Charleston	74,100	4	0	0	10	1	3	0	4
Columbia	41,800	8	0	0	0	1	0	27	11
Greenville	[1] 27,311	0	0	0	0	0	0	2	0
Georgia:									
Atlanta	[2]	7	1	1	18	3	23	8	5
Brunswick	[1] 16,809	0	0	0	0	0	6	0	0
Savannah	94,900	6	0	0	4	3	0	1	3
Florida:									
Miami	[1] 69,754	26	3	1	1	0	9	21	2
St. Petersburg	[1] 26,847	0	0	0	0	0	0	0	0
Tampa	102,000	4	1	1	0	0	10	14	0

[1] Estimated, July 1, 1925.

[2] No estimate made.

City reports for week ended April 28, 1928—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	58,500	0	1	1	0	0	5	0	3
Louisville	311,000	-------	3	-------	-------	-------	-------	-------	-------
Tennessee:									
Memphis	177,000	3	3	2	0	3	41	9	8
Nashville	137,000	2	1	2	0	2	53	2	4
Alabama:									
Birmingham	211,000	6	1	1	50	2	78	17	12
Mobile	66,800	0	1	1	0	0	3	0	
Montgomery	47,000	2	0	1	0	-------	5	0	-------
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	[1] 31,643	1	0	0	0	-------	0	0	-------
Little Rock	75,900	17	0	0	1	1	7	2	3
Louisiana:									
New Orleans	419,000	2	7	11	11	7	1	0	13
Shreveport	59,500	0	0	0	0	0	13	0	5
Oklahoma:									
Oklahoma City	[2]	2	1	2	11	0	20	5	9
Tulsa	133,000	32	1	0	0	-------	5	29	-------
Texas:									
Dallas	203,000	10	3	2	1	1	9	1	6
Fort Worth	159,000	16	1	2	1	1	14	3	3
Galveston	49,100	0	0	1	0	0	0	0	4
Houston	[1] 164,954	4	2	6	0	0	58	0	10
San Antonio	205,000	0	1	5	0	0	11	1	5
MOUNTAIN									
Montana:									
Billings	[1] 17,971	0	0	0	0	0	0	0	0
Great Falls	[1] 29,883	9	0	0	0	0	1	0	0
Helena	[1] 12,037	0	0	0	0	0	0	0	0
Missoula	[1] 12,668	0	0	0	0	0	0	0	0
Idaho:									
Boise	[1] 23,042	0	0	0	0	0	0	0	0
Colorado:									
Denver	285,000	40	11	8	-------	4	76	139	6
Pueblo	43,900	7	1	1	0	0	18	1	2
New Mexico:									
Albuquerque	[1] 21,000	4	0	0	0	0	7	0	0
Utah:									
Salt Lake City	133,000	37	3	6	0	1	0	0	4
Nevada:									
Reno	[1] 12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	----------	20	4	2	0	-------	84	15	-------
Spokane	[2] 109,000	8	2	0	0	-------	0	0	-------
Tacoma	106,000	6	1	0	0	0	30	51	4
Oregon:									
Portland	[1] 282,383	34	7	1	0	0	32	2	4
California:									
Los Angeles	[2]	84	39	12	17	5	13	57	28
Sacramento	73,400	4	2	2	0	0	5	15	1
San Francisco	567,000	69	19	6	2	0	19	59	4

[1] Estimated, July 1, 1925.

[2] No estimate made.

City reports for week ended April 28, 1928—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	3	0	0	0	2	0	0	0	10	14
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	8
Manchester	3	3	0	0	0	0	0	0	0	0	18
Vermont:											
Barre	1	0	0	0	0	1	0	0	0	0	3
Burlington	1	0	0	0	0	0	0	0	0	0	2
Massachusetts:											
Boston	64	64	0	0	0	11	1	2	1	38	258
Fall River	4	13	0	0	0	0	0	0	0	0	29
Springfield	6	17	0	0	0	1	0	0	0	8	31
Worcester	9	5	0	0	0	3	0	0	0	15	65
Rhode Island:											
Pawtucket	0	0	0	0	0	1	0	0	0	0	17
Providence	9	30	0	0	0	5	1	0	0	1	69
Connecticut:											
Bridgeport	11	7	0	0	0	3	0	0	0	2	42
Hartford	4	2	0	0	0	0	0	0	0	4	46
New Haven	9	2	0	0	0	3	1	0	0	38	56
MIDDLE ATLANTIC											
New York:											
Buffalo	21	43	0	0	0	13	0	0	0	12	160
New York	276	401	0	0	0	113	10	1	0	178	1,764
Rochester	15	10	0	0	0	2	0	0	0	7	83
Syracuse	11	20	0	0	0	5	0	0	0	47	78
New Jersey:											
Camden	6	4	0	0	0	0	0	0	0	1	43
Newark	27	30	0	0	0	4	1	2	0	29	92
Trenton	4	2	0	0	0	1	1	0	0	0	33
Pennsylvania:											
Philadelphia	95	87	0	0	0	47	3	3	1	97	590
Pittsburgh	29	26	0	0	0	12	1	1	0	18	214
Reading	3	17	0	0	0	0	0	0	0	4	33
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	21	37	2	0	0	14	1	1	0	10	160
Cleveland	42	16	0	0	0	20	1	0	0	60	202
Columbus	8	12	1	0	0	4	0	0	0	1	96
Toledo	14	5	2	0	0	5	0	0	0	8	79
Indiana:											
Fort Wayne	5	4	3	0	0	0	0	0	0	2	26
Indianapolis	9	11	11	3	0	4	0	0	1	10	96
South Bend	4	2	0	2	0	0	0	0	0	1	15
Terre Haute	3	1	1	3	0	0	0	0	0	0	------
Illinois:											
Chicago	117	100	2	2	0	62	2	1	0	141	912
Springfield	3	13	0	10	0	2	0	0	0	3	30
Michigan:											
Detroit	90	119	2	2	0	25	2	0	0	63	342
Flint	6	20	1	21	0	1	0	1	0	7	33
Grand Rapids	7	3	1	0	0	1	0	0	0	6	35
Wisconsin:											
Kenosha	3	1	0	0	0	0	0	0	0	6	5
Milwaukee	27	74	1	0	0	5	0	0	0	11	149
Racine	4	8	1	0	0	1	0	0	0	1	14
Superior	2	------	1	------	------	------	1	------	------	------	------
WEST NORTH CENTRAL											
Minnesota:											
Duluth	8	5	1	0	0	2	0	1	0	1	35
Minneapolis	47	21	5	0	0	3	1	0	0	11	103
St. Paul	27	14	4	0	0	0	0	0	0	38	69
Iowa:											
Davenport	1	1	4	0	------	------	0	0	------	0	------
Des Moines	6	6	2	10	------	------	0	0	------	0	------
Sioux City	2	1	2	0	------	------	0	0	------	1	------
Waterloo	1	3	0	2	------	------	0	0	------	2	------

City reports for week ended April 28, 1298—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—con.											
Missouri:											
Kansas City	12	39	2	1	0	11	1	0	0	9	121
St. Joseph	3	9	0	4	0	0	0	0	0	0	----
St. Louis	34	28	4	3	0	15	1	1	1	29	270
North Dakota:											
Fargo	2	4	0	0	0	1	0	1	0	12	10
Grand Forks	1	2	0	0	----	----	0	0	----	0	----
South Dakota:											
Aberdeen	2	0	0	0	----	----	0	0	----	1	----
Sioux Falls	1	9	1	0	----	----	0	0	----	0	5
Nebraska:											
Lincoln	1	0	1	2	0	0	0	0	0	1	24
Omaha	3	4	9	4	0	0	0	0	0	0	52
Kansas:											
Topeka	4	7	1	3	0	0	0	0	0	10	8
Wichita	1	6	0	18	0	1	0	0	0	2	36
SOUTH ATLANTIC											
Delaware:											
Wilmington	5	4	0	0	0	2	0	0	0	3	27
Maryland:											
Baltimore	35	43	1	0	0	20	2	1	1	40	237
Cumberland	0	2	0	0	0	0	0	0	0	0	12
Frederick	0	0	0	0	0	0	0	0	0	0	6
District of Columbia:											
Washington	23	51	1	1	0	10	1	0	0	3	159
Virginia:											
Lynchburg	0	0	0	0	0	0	0	0	0	3	9
Norfolk	0	3	0	2	0	3	0	1	0	4	----
Richmond	1	1	0	0	0	4	1	1	0	2	54
Roanoke	1	0	1	0	0	1	0	0	0	0	17
West Virginia:											
Charleston	2	1	1	0	0	2	0	0	0	1	18
Wheeling	2	1	0	0	0	0	0	0	0	0	10
North Carolina:											
Raleigh	0	0	1	14	0	1	0	0	0	1	15
Wilmington	0	0	0	0	0	0	0	0	0	1	14
Winston-Salem	0	1	5	0	0	1	0	0	0	0	24
South Carolina:											
Charleston	0	1	0	0	0	2	0	0	0	1	22
Columbia	0	0	1	0	0	2	0	0	0	1	42
Greenville	0	3	1	0	0	0	0	0	0	2	5
Georgia:											
Atlanta	4	9	5	0	0	4	1	0	0	4	75
Brunswick	0	0	0	0	0	1	0	0	0	0	3
Savannah	1	2	0	2	0	2	0	0	0	3	37
Florida:											
Miami	0	1	1	0	0	1	0	0	0	0	28
St. Petersburg	1	----	0	----	0	1	0	----	0	----	9
Tampa	0	0	0	0	0	0	1	1	0	0	----
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	4	0	0	0	1	0	0	0	0	17
Louisville	8	----	1	----	----	----	1	----	----	----	----
Tennessee:											
Memphis	5	7	3	1	0	8	1	1	0	3	73
Nashville	2	7	1	12	0	3	0	0	0	6	42
Alabama:											
Birmingham	3	2	7	1	0	4	1	0	0	2	85
Mobile	0	1	1	0	0	3	0	0	0	0	23
Montgomery	1	2	0	0	----	----	0	0	----	0	----

City reports for week ended April 28, 1928—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	----	3	----
Little Rock	0	5	0	1	0	3	0	0	0	0	----
Louisiana:											
New Orleans	5	7	0	0	0	18	2	0	0	4	146
Shreveport	0	0	1	0	0	0	1	0	0	2	34
Oklahoma:											
Oklahoma City	2	8	2	9	0	1	0	0	0	0	33
Tulsa	1	12	2	3	----	----	0	0	----	10	----
Texas:											
Dallas	2	11	3	6	0	2	0	0	0	12	40
Fort Worth	1	21	3	5	0	5	1	0	0	0	32
Galveston	0	2	0	0	0	0	0	4	0	0	15
Houston	1	0	1	0	0	5	0	1	1	0	53
San Antonio	1	2	0	0	0	10	1	1	0	0	81
MOUNTAIN											
Montana:											
Billings	2	0	0	1	0	0	0	0	0	1	4
Great Falls	1	0	1	1	0	0	0	0	0	0	10
Helena	1	0	0	1	0	2	0	0	0	0	8
Missoula	1	1	0	0	0	0	0	0	0	0	3
Idaho:											
Boise	1	0	0	0	0	0	0	0	0	0	14
Colorado:											
Denver	11	17	1	0	0	11	0	0	0	28	101
Pueblo	0	1	0	3	0	2	0	0	0	0	20
New Mexico:											
Albuquerque	1	0	0	0	0	2	1	0	0	0	9
Utah:											
Salt Lake City	2	4	1	8	0	4	0	0	0	7	39
Nevada:											
Reno	0	0	0	3	0	0	0	0	0	0	5
PACIFIC											
Washington:											
Seattle	8	4	2	2	----	----	1	0	----	5	----
Spokane	4	10	5	11	----	----	0	0	----	2	----
Tacoma	2	0	4	0	0	0	0	0	0	2	27
Oregon:											
Portland	8	1	6	34	0	1	1	2	0	0	66
California:											
Los Angeles	24	11	5	0	0	28	1	0	0	55	287
Sacramento	1	0	0	1	0	2	1	0	0	0	28
San Francisco	16	18	2	3	0	11	0	0	0	15	170

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
MIDDLE ATLANTIC									
New York:									
New York	45	18	10	2	0	0	1	0	0
New Jersey:									
Camden	0	0	0	1	0	0	0	0	0
Newark	3	1	2	1	0	0	0	0	0
Pennsylvania:									
Philadelphia	2	1	0	0	0	0	0	0	0
Pittsburgh	2	3	0	3	0	0	0	0	0

City reports for week ended April 28, 1928—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	1	1	0	0	0	0	0	0	0
Cleveland	4	1	0	0	0	0	0	0	0
Columbus	2	2	0	0	0	0	0	0	0
Toledo	2	0	0	0	0	0	0	0	0
Indiana:									
Indianapolis	0	1	0	0	0	0	0	0	0
Terre Haute	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago	9	8	0	0	0	0	1	0	0
Michigan:									
Detroit	3	3	0	1	0	0	0	0	0
Wisconsin:									
Milwaukee	1	0	0	0	0	0	1	0	0
WEST NORTH CENTRAL									
Missouri:									
Kansas City	3	1	0	0	0	0	0	0	0
St. Louis	4	2	1	0	0	0	0	0	0
Kansas:									
Topeka	1	1	0	0	0	0	0	0	0
SOUTH ATLANTIC [1]									
Maryland:									
Baltimore	0	0	0	2	0	0	1	0	0
South Carolina:									
Charleston	0	0	0	0	0	2	0	0	0
Georgia:									
Atlanta	0	1	0	0	0	1	0	0	0
Savannah	0	0	0	0	1	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Nashville	1	0	0	0	0	0	0	0	0
Alabama:									
Birmingham	0	0	0	0	1	0	0	0	0
Mobile	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	1	1	0	0	0
Louisiana:									
New Orleans	0	0	0	0	3	1	0	0	0
Shreveport	0	0	0	0	0	1	0	0	0
Oklahoma:									
Oklahoma City	0	0	0	1	0	0	0	0	0
Tulsa	2	0	0	0	0	0	0	0	0
Texas:									
Dallas [2]	0	0	0	1	2	2	0	0	0
Fort Worth	0	0	0	0	0	1	0	0	0
Houston	1	1	0	0	0	0	0	0	0
MOUNTAIN									
Colorado:									
Denver	4	3	0	0	0	0	0	0	0
Pueblo	1	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City	0	0	0	0	0	0	0	1	0
PACIFIC									
Washington:									
Spokane	1	0	0	0	0	0	0	0	0
Tacoma	0	0	0	0	0	0	0	1	1
California:									
Los Angeles	1	1	0	0	0	0	0	1	0
Sacramento	2	2	0	0	0	0	0	0	0
San Francisco	0	0	0	0	0	0	0	1	0

[1] Typhus fever: 1 case at Miami, Fla., and 1 case at Tampa, Fla.
[2] Rabies (in man): 1 death at Dallas, Tex.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended April 28, 1928, compared with those for a like period ended April 30, 1927. The population figures used in computing the rates are approximate estimates as of July 1, 1927 and 1928, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 31,050,000 in 1927 and 31,657,000 in 1928. The 95 cities reporting deaths had nearly 30,370,000 estimated population in 1927 and nearly 30,961,000 in 1928. 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, March 25 to April 28, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Mar. 31, 1928	Apr. 2, 1927	Apr. 7, 1928	Apr. 9, 1927	Apr. 14, 1928	Apr. 16, 1927	Apr. 21, 1928	Apr. 23, 1927	Apr. 28, 1928	Apr. 30, 1927
101 cities	139	190	132	200	144	174	137	179	[2] 129	171
New England	110	137	126	181	168	105	131	135	133	95
Middle Atlantic	181	263	188	269	209	271	204	270	172	242
East North Central	146	159	121	169	116	135	116	131	[3] 132	137
West North Central	84	158	101	170	101	109	80	141	84	158
South Atlantic	121	157	88	117	82	141	82	135	86	105
East South Central	85	61	25	66	40	86	40	30	[4] 58	76
West South Central	108	178	132	335	160	141	124	124	100	178
Mountain	115	108	4[illegible]	170	133	108	80	188	133	99
Pacific	74	170	77	125	74	115	102	157	56	188

MEASLES CASE RATES

101 cities	1,388	837	1,277	867	1,340	766	1,362	788	[2] 1,285	638
New England	2,014	205	1,874	270	1,726	223	1,743	295	1,593	323
Middle Atlantic	1,491	127	1,504	159	1,739	172	1,824	145	1,862	231
East North Central	1,023	925	1,034	957	998	885	817	797	[3] 731	637
West North Central	748	1,821	762	1,300	861	1,314	986	1,552	1,017	1,225
South Atlantic	2,905	1,091	2,285	936	2,115	1,311	2,358	1,589	1,767	1,017
East South Central	1,696	284	958	608	1,117	396	1,536	517	[4] 1,345	375
West South Central	836	935	436	2,114	428	1,005	380	1,249	396	922
Mountain	752	3,443	708	2,788	743	2,080	761	1,793	840	1,542
Pacific	580	2,761	447	3,051	524	2,207	393	2,103	386	1,528

SCARLET FEVER CASE RATES

101 cities	303	440	273	394	226	391	264	362	[2] 265	339
New England	405	530	331	367	301	423	264	346	329	402
Middle Atlantic	398	612	366	594	273	581	287	528	312	446
East North Central	266	329	252	272	194	285	272	298	[3] 277	289
West North Central	257	467	263	433	277	396	288	342	275	333
South Atlantic	221	197	179	177	154	150	170	161	214	191
East South Central	204	172	100	177	234	218	200	167	[4] 167	193
West South Central	144	54	148	99	128	50	164	41	108	33
Mountain	186	1,210	239	941	239	950	212	932	203	950
Pacific	207	340	133	243	123	243	151	209	110	198

[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, 1927 and 1928, respectively.
[2] Superior, Wis., and Louisville, Ky., not included.
[3] Superior, Wis., not included.
[4] Louisville, Ky., not included.

Summary of weekly reports from cities, March 25 to April 28, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued

SMALLPOX CASE RATES

	Week ended—									
	Mar. 31, 1928	Apr. 2, 1927	Apr. 7, 1928	Apr. 9, 1927	Apr. 14, 1928	Apr. 16, 1927	Apr. 21, 1928	Apr. 23, 1927	Apr. 28, 1928	Apr. 30, 1927
101 cities	25	28	18	26	20	24	22	33	[2] 25	21
New England	0	2	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	24	33	24	37	24	32	31	29	[3] 28	33
West North Central	64	30	84	42	49	55	60	40	68	38
South Atlantic	68	61	14	25	11	27	12	65	33	18
East South Central	30	122	10	86	35	96	20	162	[4] 102	66
West South Central	36	62	4	103	16	87	8	95	28	25
Mountain	142	9	106	27	150	27	168	54	150	9
Pacific	23	68	18	55	74	26	59	97	43	65

TYPHOID FEVER CASE RATES

101 cities	5	8	4	8	5	8	6	7	[2] 4	8
New England	5	12	2	7	9	9	7	0	5	5
Middle Atlantic	4	6	1	6	5	5	6	7	3	5
East North Central	2	1	3	5	1	1	3	3	[3] 2	6
West North Central	2	2	6	2	8	12	6	4	6	4
South Atlantic	21	16	12	9	4	13	9	11	7	16
East South Central	10	20	15	35	20	35	15	30	[4] 7	30
West South Central	12	25	16	37	20	17	20	12	24	12
Mountain	0	0	0	0	0	9	0	27	0	9
Pacific	3	24	8	8	3	18	3	10	0	18

INFLUENZA DEATH RATES

95 cities	29	22	34	23	30	21	28	18	[2] 32	18
New England	11	12	16	7	9	16	7	12	14	7
Middle Atlantic	29	21	31	26	27	21	26	20	34	21
East North Central	24	15	40	9	27	11	28	11	[3] 36	10
West North Central	18	4	16	17	24	12	41	21	31	12
South Atlantic	21	38	19	40	30	38	16	22	30	29
East South Central	78	106	73	74	84	90	68	58	[4] 55	37
West South Central	86	30	107	51	90	42	45	30	37	47
Mountain	53	27	80	36	53	18	53	0	44	9
Pacific	14	24	7	17	14	14	14	10	17	21

PNEUMONIA DEATH RATES

95 cities	222	163	215	162	207	153	198	159	[2] 198	143
New England	225	156	179	140	177	156	166	151	138	184
Middle Atlantic	264	186	244	198	243	175	242	199	246	168
East North Central	207	147	241	131	199	141	192	135	[3] 214	128
West North Central	130	93	122	137	175	128	155	124	90	56
South Atlantic	230	225	179	150	209	184	181	179	172	153
East South Central	288	133	397	218	183	138	235	160	[4] 226	133
West South Central	242	161	185	140	238	76	197	81	189	123
Mountain	106	161	97	242	186	152	106	161	106	188
Pacific	118	128	105	117	88	117	81	97	125	117

[2] Superior, Wis., and Louisville, Ky., not included.
[3] Superior, Wis., not included.
[4] Louisville, Ky., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1927 and 1928, 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	
			1928	1927	1928	1927
Total	101	95	31,657,000	31,050,300	30,960,700	30,369,500
New England	12	12	2,274,400	2,242,700	2,274,400	2,242,700
Middle Atlantic	10	10	10,732,400	10,594,700	10,732,400	10,594,700
East North Central	16	16	7,991,400	7,820,700	7,991,400	7,820,700
West North Central	12	10	2,683,500	2,634,500	2,566,400	2,518,500
South Atlantic	21	21	2,981,900	2,890,700	2,981,900	2,890,700
East South Central	7	6	1,048,300	1,028,300	1,000,100	980,700
West South Central	8	7	1,307,600	1,260,700	1,274,100	1,227,800
Mountain	9	9	591,100	581,600	591,100	581,600
Pacific	6	4	2,046,400	1,996,400	1,548,900	1,512,100

FOREIGN AND INSULAR

THE FAR EAST

Report for the week ended April 14, 1928.—The following report for the week ended April 14, 1928, 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:

Plague, cholera, or smallpox was reported present in the following ports:

PLAGUE

Aden Protectorate.—Aden.
India.—Bassein, Bombay, Rangoon.

CHOLERA

India.—Bassein, Calcutta, Madras, Negapatam, Rangoon, Tuticorin.
French India.—Pondicherry.
Siam.—Bangkok.
French Indo-China.—Saigon.

SMALLPOX

Egypt.—Alexandria, Suez.
India.—Bombay, Calcutta, Madras, Moulmein. Nagapatam, Rangoon.
French India.—Pondicherry.
Straits Settlements.—Singapore.
Dutch East Indies.—Belawan-Deli, Banjermasin.
China.—Canton, Shanghai, Hong Kong.
Japan.—Osaka, Shimonoseki.
Kwantung.—Dairen.
South Manchuria.—Changchun.

Returns for the week ended April 14 were not received from Samarinda, Dutch East Indies; Basra, Iraq; or Vladivostok, Union of Soviet Socialist Republics.

CANADA

Provinces—Communicable diseases—Two weeks ended April 21, 1928.—The Canadian Ministry of Health reports cases of certain communicable diseases from seven provinces of Canada for the two weeks ended April 21, 1928, as follows:

WEEK ENDED APRIL 14, 1928

	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Influenza	14			3				17
Smallpox				6		2	4	12
Typhoid fever	1		14	5		5	4	29

WEEK ENDED APRIL 21, 1923

Cerebrospinal fever				1		3		4
Influenza	15					75		90
Smallpox				18		23	2	43
Typhoid fever		1	16	4	2			23

Quebec—Communicable diseases—Week ended April 28, 1928.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended April 28, 1928, as follows:

Disease	Cases	Disease	Cases
Chicken pox	54	Scarlet fever	103
Diphtheria	45	Smallpox	19
German measles	19	Tuberculosis	39
Influenza	3	Typhoid fever	26
Measles	261	Whooping cough	28

CHINA

Hong Kong—Plague—May 4, 1928.—A case of plague was reported in Hong Kong, China, May 4, 1928.

ECUADOR

Duran—Guayaquil—Plague—March, 1928.—During the month of March, 1928, 10 cases of plague with 1 death were reported in Ecuador, of which 4 cases with 1 death occurred at Duran (Eloy Alfaro) and 6 cases at Guayaquil.

Plague-infected rats.—During the same period, of 20,846 rats taken, 21 rats were found plague infected.

Guayaquil—Smallpox.—During the period under report, 24 cases of smallpox with 1 death were reported at Guayaquil.

Esmeraldas Province—Epidemic bacillary dysentery—April 7, 1928.—Bacillary dysentery in epidemic form was reported present in Esmeraldas Province, Ecuador, April 7, 1928.

GERMANY

In German cities the birth, death, and infant mortality rates were all lower in February, 1928, than they were in February, 1927. The following table gives vital statistics for 49 German cities for January and February, 1928, and 46 cities for February, 1927:

	1928—49 cities		February, 1927—46 cities
	January	February	
Marriages	9,657	11,929	10,213
Live births, total	20,401	19,530	18,718
Live births, illegitimate	2,936	2,849	2,875
Deaths, total	18,125	15,800	18,595
Deaths under 1 year of age	2,014	1,838	1,998
Deaths from—			
Tuberculosis	1,529	1,408	1,425
Diseases of respiratory organs	2,443	1,959	3,144
Heart diseases	2,349	2,066	2,195
Rates per 1,000 population:			
Marriages	6.5	8.5	7.8
Births, total	13.7	14.0	14.3
Births, illegitimate	2.0	2.0	2.2
Deaths—			
Total	12.1	11.3	14.2
Tuberculosis	1.02	1.01	1.09
Respiratory organs	1.64	1.40	2.40
Heart disease	1.57	1.48	1.68
Infant mortality	100	97	107

ITALY

Communicable diseases—January 16–29, 1928.—During the two-week period, January 16 to 29, 1928, communicable diseases were reported in the Kingdom of Italy as follows:

Disease	Jan. 16–22, 1928		Jan. 23–29, 1928	
	Cases	Communes affected	Cases	Communes affected
Anthrax	20	16	10	10
Cerebrospinal meningitis	3	3	9	9
Chicken pox	313	122	410	121
Diphtheria	498	287	458	264
Dysentery	4	3	6	4
Lethargic encephalitis	6	6	8	8
Measles	2,380	310	2,896	341
Poliomyelitis	5	5	6	6
Scarlet fever	351	168	353	164
Typhoid fever	368	230	448	229

JAPAN

Tokyo, city and district—Dysentery—January 29–March 24, 1928.—During the eight weeks January 29 to March 24, 1928, dysentery was reported in Tokyo city and district (prefecture) as follows: Tokyo city, cases 186, deaths 62; prefecture, cases 197, deaths 102. Population of city, 1,995,567; population of prefecture, 2,489,577.

SALVADOR

Mortality for January and February, 1928.—During the months of January and February, 1928, the total numbers of deaths occurring in the Republic of Salvador were 3,111 and 2,638, respectively. Population in 1927, 1,688,000.

San Salvador.—During the same period deaths from communicable diseases were reported in the city of San Salvador as follows:

Disease	January, 1928	February, 1928
Gastroenteritis	20	22
Tuberculosis	19	18
Typhoid fever	1	1

Population, 1927: 88,000.

UNION OF SOUTH AFRICA

Orange Free State.—Plague—During the week ended March 24, 1928, two fatal cases of plague, in natives, were reported in the Orange Free State, in Bultfontein area, on a farm.

Plague infection in veldt rodents.—Area of spread.—During the past few months plague infection in veldt rodents is stated to have spread

in the Union of South Africa from the Coega River Valley, in the Uitenhage district, where its existence has been recognized for some years past, eastward as far as the Sundays River Valley, southward throughout the entire Port Elizabeth district and the immediate vicinity of the town of Port Elizabeth, and westward to a point 5 miles east of Thornhill railway station. No definitely plague-infected rodents have been found, but numerous decomposed carcasses of rodents, evidently dead from plague, have been found within 5 miles of the town.

Typhus fever.—During the week ended March 24, 1928, typhus fever was reported in the Cape Province in five districts; in Natal, at Pietermaritzburg municipality, with three cases in Europeans, and present on an estate at Braemar, Umzinto district.

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

From medical officers of the Public Health Service, American consuls, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

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

Place		July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Week ended— January, 1928		February, 1928				March, 1928					April, 1928		
								21	28	4	11	18	25	3	10	17	24	31	7	14	21
China:																					
Amoy	C	28	72	16																	
	D	7	3																		
Canton	C	31	36	14	12	1															
	D	16	25	14	11	1											1	1			
Foochow	C	P	P	P													1	1			
Hong Kong	C	P	1	P																	
Shanghai (settlement and concession)—																					
Foreigners only	C	1	6	3																	
Including natives	D	20	74	7																	
Swatow	C	42	P	P	P																
	D		P	P	P																
Tientsin	C	P	15	2	P	1															
Dutch East Indies: Java—Batavia	C				28	3															
	D				18	3															
India	C	45,163	31,390	20,160	23,047	25,139	15,377	3,267	3,097	3,026	3,001	2,865	3,047	3,256							
	D	22,051	15,895	10,371	12,863	15,026	8,863	1,765	1,739	1,684	1,562	1,529	1,686	1,755							
Bassein	C									1			1	1			4	25	22	20	6
	D								1						1	1					
Bombay	C	42	3	2											1	1					
	D	30	2	2																	
Calcutta	C	87	76	101	199	428	176	39	36	70	58	80	99	162	164	190	148				
	D	40	39	64	138	281	125	18	24	38	32	35	42	63	101	94	122	114	112	111	97
Madras	C	547	59	14	13	1	1	1			1		3	11			7	1	2		
	D	278	48	8	7	2	1		3		1	2	2	7	7		2	1	1	4	5
Madras Presidency	C	7,660	3,056	2,050	3,073	3,702	1,864	1,163	1,301	1,305	912	930	839	621							
	D	3,513	1,581	1,055	1,736	2,104	984	623	813	726	498	504	457	357							
Negapatam	C							4													
	D							4	1		1	2	2							1	
Rangoon	C	1	2	6	2	8	4	4		1	1	10	12	3	4	4	7	8			
	D	1	2	5	5	6	3			1	1	8	4	2	4	2	3	6	5	2	7
Tuticorin	C			1		8													10	43	45
	D			1	37	14										1			8	26	32

India (French):																							
Chandernagor	C	1	1		6	10	14	1		5		2	2		1	2							
	D	1			6	10	9			1		2	2		1	1							
Karikal	C	18	1		1	1	8	9	7	8	8	2	2	2									
	D	12	1		1	1	4	5	4	5	5	2	1	2									
Pondicherry	C	12	15		1	25	11	2	3	2	5	17	10	6						1	2	3	
	D	11	15		1	21	12	2	3	2	3	12	4	3						1	2	3	
Indo-China: [1] Saigon	C		1	1			3	1	1		2	1	5	2	8	27	13	21	35	50	28		
	D						1				1	1	1		6	19	8	12	20	37	17		
Iraq [2]																							
Kwangchow-wan [1]																							
Philippine Islands: Manila	C	1																					
Siam	C	77	40	18	110	88	110	50	33	48	69	74	59	84	78	53	88			24			
	D	53	24	11	76	64	80	34	21	42	42	50	38	73	53	39	67			17			
Bangkok	C	2	3	5	4	3	21	11	28	28	34	23	17	12	8	8	12	16	24		30		
	D	1	1	3	2	2	11	7	16	26	17	12	11	7	6	5	5	12	11		13		
Straits Settlements: Singapore	C				7	5	23	2			1					1							
	D				5	4	12	1								1							
On vessel:																							
S. S. Adrastus: At Yokohama, Japan	C	1																					
	D	1																					
S. S. Hawaii Maru at Singapore from Saigon, French Indo-China	C																		P				
S. S. Tabaristan: At Basra, Iraq	C			1																			

[1] See 10-day table below.

[2] From July 19 to Dec. 26, 1927, 1,479 cases of cholera were reported in Iraq, with 1,063 deaths, as follows: Amarah Liwa, 261 cases, 205 deaths; Baghdad Liwa, 80 cases, 60 deaths; Basra Liwa, 421 cases, 330 deaths; Diwaniah Liwa, 122 cases, 72 deaths; Diyalah Liwa, 1 case, 1 death; Dulaim Liwa, 100 cases, 69 deaths; Hillah Liwa, 105 cases, 71 deaths; Kerbalah Liwa, 79 cases, 60 deaths; Kut Liwa, 66 cases, 44 deaths; Muntafiq Liwa, 244 cases, 151 deaths.

Place		July-September, 1927	October, 1927	November, 1927			December, 1927			January, 1928			February, 1928			March, 1928			April, 1928
				1-10	1-10	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-29	1-10	11-20	21-31	1-10
Indo-China (French):																			
Annam	C	3,179	226	13	75	38	16	2		79	95	93	23	36	14	18	18	23	17
Cambodia	C	251	180	56	1	28	21	12	39	30	9	15	38	22	51	33	22	92	43
Cochin-China	C	469	178	21	27	52	17	38	58	46	119	130	178	113	153	206	217	245	277
Laos	C	246	67	10															
Tonkin	C	1,297	1			1			2	1									1
Kwangchow-Wan	C	16																	

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

PLAGUE

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

Place		Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Week ended— January, 1928		February, 1928				March, 1928					April, 1928				May 4, 1928
							21	28	4	11	18	25	3	10	17	24	31	7	14	21	28	
Algeria: [1] Oran	C	1		2																		
	D	1																				
Arabia: Aden	C					19	13	22	54	89	63	45	77	158	189	148	151	163	108	59		
	D					7	8	8	33	55	50	31	26	99	134	135	134	126	97	48		
Argentina:																						
Bahia Blanca district	C				3																	
Buenos Aires	C									2												
Cordoba Province	C		P	P	10	2													5			
Firmat	C				1																	
Quilino	C				3																	
Rosario	C				4	5		4			1											
Santiago Province	C										1											
Ucacha	C				1																	
Azores: St. Michaels Island	C	2	3	3	3	2	3	1	2	2	1	1	1		1							
	D	1	1		1	1	1	1	1	1			1		1							
Brazil:																						
Bahia	C					4	2		2	1	4	4					P	2				
	D					4		1	2	1	2	3										
Porto Alegre	C												2									
Rio de Janeiro	C						1		1	2	1	1		1	2							
	D									1	2				2							
British East Africa: [1]																						
Tanganyiki	C		P	P	P	P			2				3									
	D								2				3									
Uganda	C	226	99	99	67	79	16			7	13											
	D	158	88	96	61	64	12			6	10											
Canary Islands:																						
Las Palmas	C		9		3	3	1				1				2		2					
	D				1	1	1				1											
Teneriffe	C						1	3	3	3												
	D						1		3													
Ceylon: Colombo	C	3	1		6	7	1	1	1		3	3	4	1	3		4					
	D	3			6	6	1	1			1	3	1	1	3		2					

China:																							
Hong Kong	C																						1
Tungliao	D		200																				
Dutch East Indies:																							
Balik-Papan	C					1																	
	D					1																	
Celebes—Makassar	C			6	2	6	2	1	1	1		1											
	D			6	2	5	2	1	1	1		1											
Java	D	432	779	829	1,017	751	197	214															
Batavia and West Java	C	68	130	132	154	128	46	37	27	27	31	15	24	33	19								
	D	68	129	132	152	128	44	37	27	27	31	15	24	33	19								
Cheribon	C				1																		
	D				1																		
East Java and Madura	C	18	17	10	8	7	5	2					1										
	D	18	17	10	8	7	5	2					1										
Pasoeroean Residency	C				P																		
Surabaya Residency	C				P													1					
	D																	1					
Surakarta Residency	C			P	P																		
Ecuador: Guayaquil [1]																							
Egypt:																							
Alexandria	C	1			12	5			1		1												
	D				7	2			1		1												
Beni-Souef	C																					4	
	D																					1	
Cairo	C					2																	
	D					2																	
Maghagha District	C																						
	D																				1		
Minieh Province	C																				32	9	
	D																				5	4	
Suez	C	1				1	1		3		3	4	3	3		4	7	3			3		
	D					1	1		1		3	3	2	1		2	3	4			2	2	
Greece:																							
Athens and Piræus	C	3	1			3																	
	D		1			1																	
Mitylene	C	5	1	3	3																		
Patras	C	2	1	1																			
	D		1	1																			
Hawaii Territory: Hawaii	D										1												
India	C	2,710	3,246	3,600	5,518	7,097	2,544	2,699	3,601	3,803	5,188	5,776	6,136										
	D	1,428	1,792	2,065	3,269	4,925	1,653	1,661	2,577	2,630	3,585	3,999	4,828										
Bassein	D	14	8	4	4	17	3	3		2	1	2	4	5	5	5	7	5	4	5			
Bombay	C	7	4			3	5	4	2	3	5	14	7	7	4	16							
	D	5	3			3	2	2	3	2	6	14	7	6	4	11	25	21	15	14			
Calcutta	C	18				2																	
	D	10						1											2				
Madras Presidency	C	465	583	470	791	550	107	132	79	134	142	112	64	53									
	D	230	298	282	359	206	63	64	60	69	79	72	34	27									
Rangoon	C	6	11	11	15	17	8	9	7	11	15	16	6	11	5	11	3						
	D	6	11	11	15	16	7	7	6	10	12	15	6	10	4	9	5	8	5	1			

[1] See monthly table below.

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

PLAGUE—Continued

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

Place		Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Week ended— January, 1928		February, 1928				March, 1928					April, 1928				May 4, 1928
							21	28	4	11	18	25	3	10	17	24	31	7	14	21	28	
Indo-China: [1] Saigon	C	2		1																		
Iraq:																						
Baghdad	C						1	1		2		1	1		2		1		1	4		
	D						1			1		1	1		2	1	1		1			
Dulaim Liwa	C								1													
Kwangchow-Wan [1]																						
Madagascar [1]																						
Mauritius [1]																						
Nigeria: [1] Lagos	C			17	13	10	2	3	3	2	2	3	2	1	2		2	3	2			
	D			17	13	8	3	3	3	2	2	3	2	1	2		2	3	1			
Peru [1]																						
Senegal: [2]																						
Baol	C	72	95	P	P																	
	D	33	40																			
Cayor	C	463	176	48																		
	D	233	88	28																		
Dakar	C	20	1																			
	D	12																				
Louga	C	5	8																			
	D	4																				
Rufisque	C	16																				
	D	12																				
Thies and vicinity	C	9	1	1													8					
	D	7															4					
Siam	C		13	1	3	16	5	3	6	6	13	4	11	14	7	8				11		
	D		9		2	11	1	1	5	5	10	4	10	12	6	9						
Bangkok	C		2			1		1	1		1						1					
	D			1		1		1	1		1						1					
Straits Settlements: Singapore	C			1						1	1	1		1		1						
	D			1						1	1	1				1						
Syria [1]																						
Tunisia [3]																						
Turkey: Constantinople	C	1	1		2																	
	D		1		1																	

Union of South Africa:																								
Cape Province	C				2	2		1																
	D				2	1		1																
Orange Free State	C				1	8			2		3	4	1				3	2						
	D				1	6			1		3	1					3	2						
U. S. S. R.:																								
Chita district	C		1																					
	D		1																					
Northern Caucasus	C	14	1																					
	D	10																						
Venezuela: State of Miranda—Tacata and Cua	C													P										
On vessel:																								
At La Plata, from Rosario, Argentina	C					1																		
S. S. Aghios Gerasimos, at Vigo, Spain	C				3																			

[1] See monthly table below.
[2] During January, 1928, 5 cases of plague were reported in interior of Senegal; 17 cases with 13 deaths during last 2 weeks in February; 8 cases and 4 deaths, Mar. 11 to 20, 1928.
[3] 8 cases of plague with 6 deaths were reported in Bengardane region, Tunisia, Mar. 17 to 27, 1928.

Place		July–September, 1927	October–December, 1927	January, 1928	February, 1928	March, 1928	April, 1928
Algeria: Algiers	C		2				
Angola	C		3				
British East Africa: Kenya	C	95	62	26	24		
Ecuador: Guayaquil	C	15	18	4	6	10	
	D		5	4	3	1	
Indo-China (French)	C	14	10	7		5	4
Kwangchow-wan						18	
Madagascar	C	314	692	427	342		
	D	286	605	388	317		
Ambositra Province	C	7	25	105	67		
	D	7	17	96	66		
Antsirabe Province	C	39	109	117	108		
	D	38	108	117	108		
Itasy Province	C	36	104	33	19		
	D	41	94	29	17		
Madagascar—Continued.							
Moramanga Province	C	12	95	19	25		
	D	12	83	19	24		
Tananarive Province	C	211	408	155	123		
	D	189	354	129	102		
Mauritius	C	1					
Nigeria	C	32	63	16	16		
	D	29	61	16	16		
Peru	C	34	34		41		
	D	19	11		14		
Callao	D	3	3				
Lima	C		7				
	D		3				
Senegal	C						52
	D						32
Syria: Beirut	C		2				

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

SMALLPOX

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

Place		July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Week ended— January, 1928		February, 1928				March, 1928					April, 1928			
								21	28	4	11	18	25	3	10	17	24	31	7	14	21	28
Algeria [1]	C	459	382	683	661	170	129	17	18	20	16	30		28	14	3				12		
Algiers	C					3	9	3	1	7	4	4		5	1		2	2	1			
Oran	C	9	16	11	20	39	29	2	2	4	3	1		2	2		2	10		3		
Angola. [1]																						
Arabia: Aden	C				1	3	1					1										
Brazil: [1]																						
Para	C	1																				
Rio de Janeiro	C	6	10		1																	
	D	4	9		1											1						
British East Africa: [1]																						
Kenya—Mombasa	C																1					
Tanganyiki	D	21	8	P	P	P	8	4	0	1												
British South Africa:																						
Northern Rhodesia	C	55	39	164	185	252	236	3		230		79	117	38	63		54	8				
	D	1	2	11	64	62	31			23		6	32	2	3		9					
Southern Rhodesia	C				3	2	1			P	3	2	4	P	3	4	1	2				
	D												1									
Canada:																						
Alberta	C	17	17	23	10	10	11	1	19	1	6		3		7	7	20	7	13	4	2	3
Calgary	C	1														1						
Edmonton	C			1	1	8	5	1			2	1		11	1	1	11	1	7	2		
British Columbia: Vancouver	C		2			4	8	11	3	1	11	2	1	3	4	2	5	6	4	11		
Manitoba	C	13	9	7	19	7	11		1													
Winnipeg	C	5	4	2	2	2	2	1	1													
New Brunswick	C						1						1									
Nova Scotia	C		2	1																		
Halifax	C		1	1																		
Ontario	C	60	22	96	264	347	212	52	77	63	51	40	51	36	20	19	35	20	9	6	18	18
Hamilton	C					2										2						
Kingston	C				1		1				1									2		1
Ottawa	C	27	40	67	134	63	60	20	16	23	9	11	3	1	7	6	8	10	2		3	1
Toronto	C		2	10	34	39	28	8	5	1	6	4	4	2	4	2	3	3	1	2	4	4
Windsor	C			9																		

Quebec	C	1		8	25	16	44	7		11	8	11	13		18	22	40	35	15	20	25		
Montreal	C				1		8	3	4	1		5	1	3		6	3				6	2	
Quebec	C					4	5		5				2	5	4	3	4	4	5	4			
Riviere du Loup	C				3																		
Sherbrooke	C																	3					
Saskatchewan	C	14	68	31	34	58	52	39	15	9	34	7	8		7	14	7		12	2	23	15	
Moose Jaw	C	10	16	3		1	4	4	2	3	2		2	6	5	2	5			3			
Regina	C	8		5	1	1												1	2	3	2		
Saskatoon	C					2	4	13	1		1		2										
Ceylon: Colombo	C	1			1	2		1		1	2	2	1	3					1				
	D	1				1		1									1						
China:																							
Amoy	C														1	1	2	1					
Antung	C						1														1		
Canton	C		1												2	3	2		2	1			
	D		1																				
Chefoo	C		1	P		P										P							
	D		1												1								
Foochow	C	P	P	P	P	P	P		P		P		P		P								
Hong Kong	C	1	2				1	1		1		1	3		3	5	7	10	10	4	4		
	D	1	2				1		1	1			1	1	2		2	5	12	7	2		
Manchuria—																							
Changchun	C					1			4											2			
Dairen	C			1	2	1	5	1		5	9	3	4	6				4	6	7	3		
	D			1					1	2	5	4	2	1									
Fushun	C		1		1																		
Harbin	C					2	1		2	1	2	2	1	3	1	2	3						
Mukden	C			2	1				1		3	18		3				1			3		
Pensihu	C			1																			
Shanghai—																							
Foreigners only	C							1	2		2	1	1	1	3	1	1	3	2				
Including natives	D							3	2	3	3	5	4	4	6	2	1	3	3	3	1		
Tientsin	C		4	13	8	9	8	20	10	10	8	5	2	2	11	4							
Chosen.[1]																							
Curacao (alastrim)	C							2				3											
Dominican Republic: Santo Domingo	C															2							
Dutch East Indies:																							
Borneo—																							
Pontianak	C												1										
Samarinda district	C				P																		
Southand East Borneo Residency	C	P																					
Java—																							
Batavia and West Java	C	4		4	25					1	3		1		1	4							
	D				15																		
East Java and Madura	C	4	22	8	9	9	5	2						8									
	D			1																			
Sumatra—Medan	C					3	9	3	5	5	10	7	3	1	3	6							
	D					2	3	4	4		3				2	4							
Ecuador [1]																							

[1] See 10-day and monthly tables below.

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

SMALLPOX—Continued

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

Place		July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Week ended— January, 1928		February, 1928				March, 1928					April, 1928			
								21	28	4	11	18	25	3	10	17	24	31	7	14	21	28
Egypt	C		3			4	4				1		1	1					52	11		
	D		1	1		1													33	6		
Cairo	C					2																
France [1]																						
Gold Coast [1]																						
Great Britain:																						
England and Wales	C	568	508	473	902	1,041	1,175	405	370	386	369	369	392	365	347	359	342	322	318	321	326	
Birmingham	C	1		1				14	17	11	2	1		2		1				1		
Bradford	C				11	19	32	6	9	7	2	7	1		4	9		5	5	3	2	
Bristol	C			6	4	8			2		1			1	3		2	8	2	1	10	
Cardiff	C				1		1											5				
Leeds	C	5	3	7	5	16	11	1			2	1	2	4	2	3	5	3	3	2	2	
Liverpool	C						1								1							
London	C							2		1	1	10	1	2	1	10	5	1	1	7	5	
Manchester	C			3	6	25	5	11	6	4	4	1	4	1	2	4	3	3	4	2	4	
Newcastle on Tyne	C	1	2	6	9	55	22	14	3	4	6	4	1	4	3	3	4		2			
Nottingham	C						13	4	8	6	9	6	1	3	1	5	1	6	1	4	4	
Sheffield	C	2	1	10	6	9	14	4		4		1	2	2	1				1		10	
Stoke on Trent	C	1					4			1		2	4	3	6	11			1	4	10	
Greece: [1] Saloniki	D	2																				
India	C	5,911	4,398	3,153	4,052	6,731	10,676	4,129	3,631	5,159	4,858	4,567	4,220	5,251								
	D	1,668	1,120	715	927	1,650	2,429	964	803	988	954	1,073	938	949								
Bassein	C	1									1											
	D	1																				
Bombay	C	33	12	10	4	9	14	10	23	10	18	29	23	46	51	49	58	62	49	56	57	
	D	19	8	2	3	2		2	8	7	7	15	13	23	22	24	33	36	27	32	34	
Calcutta	C	27	22	5	5	25	36	14	11	23	10	9	18	14	30	20	29	45	40	49	51	
	D	25		6	2	11	27	10	7	10	7	5	11	10	24	15	21	33	35	32	42	
Karachi	C														1	1						
	D														1							
Madras	C	6	7	8	7	11	21	9	16	20	29	15	33	21	31	30	27	45	81	49	36	
	D		2		2	3	6	3	2	2	1	3	3	3	10	5	3	6	15	16	8	
Negapatam	C	3	1				5		4	2	2	1		1	1					1		
	D	2	1				3		2	1										1		

Rangoon	C	14	9	17	6	14	136	41	34	103	97	68	82	132	95	96	82	92	50	62	45
	D	3	2	3	1	4	31	13	10	18	23	22	24	26	32	28	17	34	23	24	17
Vizagapatam	C		3				3	2	1	5	2		1		1			3			2
	D		2					6	1		1										
India (French):																					
Karikal	C	3	1	2	P																
	D	3	1	2																	
Pondicherry	C	39	37	38	42	41	65	15	17	15				6	3		6	5	7	12	
	D	31	37	38	42	41	50	15	17	15				6	3		6	5	7	12	
Indo-China: [1] Saigon	C	1	1			1	3						2		1						
Iraq:																					
Baghdad	C		1	7	5	25	23	7	6	3	3	2		3	2	3	1				
	D		1	4	4	14	12	3	5	2	1	1		1	2	3	1				
Basra	C	1	4	2	3	4	2	1				1		2	4	4	1				
	D	1	4	2	1	3	1									1	1				
Italy:																					
Leghorn	C													1		1					
Palermo	C																	3	2	1	3
Rome and vicinity	C		1					2													
Jamaica (outside Kingston) (alastrim)	C	6	9	9	7	3	2		4	1		1	3		6	3	2				
Kingston (alastrim)	C		3	2																	
Japan:																					
Nagasaki	C	2																			
	D	1																			
Tokyo	C							2	1		1		1		3	1	3				
	D								1					1	1						
Tokyo Prefecture	C																17				
Latvia [1]																					
Mauretania	C											P	P								
Mexico: [1]																					
Acapulco	C		2		1																
	D		2		1																
Chihuahua	D						1														
Jalisco (State)	C																		P		
Guadalajara	D					2								1					2	2	1
Manzanillo	D						1									1					
Mexico City and surrounding territory	C					4				1	1	2									
San Luis Potosi	D	1																			
Tampico	C												1								
Torreon	D	1		2																	
Morocco [1]																					
Nigeria: [1] Southern Province	C													7			40	26			
Palestine: Jerusalem	C					1			1								28	1			
	D								1												
Persia [1]																					
Poland	C	2				1	6	1	1	1		1				1					
	D	1																			
Porto Rico [2]																					

[1] See 10-day and monthly tables below.

[2] The report of the presence of smallpox in the vicinity of Fajardo, Porto Rico, which has appeared in the Public Health Reports, was erroneous. No smallpox has been reported in Porto Rico for several years.

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

SMALLPOX—Continued

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

Place		July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Week ended— January, 1928		February, 1928				March, 1928					April, 1928			
								21	28	4	11	18	25	3	10	17	24	31	7	14	21	28
Portugal: [1]																						
Lisbon	C		3	8	4	10	12	5	2	2	3	3	9	4	4		2	3				
	D					1																
Oporto	C		1																			
Senegal: Dakar	C												8		26	17						
	D															12						
Siam	C	51	27	6	1	9	23	13	7	5	10	1	7	1	3		2	3				
	D	10	15			1	2	1	1	2		1	1		1			2				
Bangkok	C		3		1	1	3															
	D		1				1															
Spain: [1]																						
Malaga	D				1	1																
Seville	C						1															
Valencia	C			1			2								1		1	1				
Straits Settlements: Singapore	C				1					1		1				1						
Switzerland	C						2															
Syria [1]																						
Tunisia: Tunis	C						4		3			2	4	2	6	1			1	2		
Union of South Africa:																						
Cape Province	C	P		P				P			P											
Natal	C										P	P			P							
Orange Free State	C	P			P	P	P	P			P											
Transvaal	C			P	7																	
Upper Volta	C											2	3				2			P		
Union of Soviet Socialist Republics [1]																						
Venezuela: Maracaibo	D		2	1							1				1							
On vessel: S. S. Arendskerk at Singapore from Amoy, China	C																	P				

[1] See 10-day and monthly tables below.

Place		July, 1927	August, 1927	September, 1927	October, 1927	November, 1927	December, 1927			January, 1928			February, 1928			March, 1928			Apr. 1-10, 1928
							1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-29	1-10	11-20	21-31	
Algeria	C	376	459	382	682	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Oran	C	14	10	16	11	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Indo-China (French)	C	19	3	21	25	38	10	4	20	----	40	18	50	31	90	57	71	69	----
Syria:																			
Aleppo	C	----	----	----	----	----	----	----	1	----	1	----	----	----	----	----	----	----	----
Beirut	C	----	----	----	----	----	1	----	1	----	----	15	11	26	----	12	7	4	3
	D	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2	1
Damascus	C	----	3	5	22	13	4	6	2	11	2	----	----	----	----	----	1	----	----

Place		July-September, 1927	October, 1927	November, 1927	December, 1927	January, 1928	February, 1928	March, 1928
Angola	C	51	73	71	7	10	----	----
	D	----	2	----	----	----	----	----
Congo	C	5	77	----	----	----	----	----
Cuanza-Norte	C	1	----	----	----	----	----	----
Cuanza-Sul	C	----	2	----	7	10	----	----
Loanda	C	1	----	----	----	----	----	----
Zaire	C	3	4	1	----	----	----	----
Brazil: Porto Alegre	C	11	4	1	----	----	1	----
British East Africa: Zanzibar	C	----	2	----	----	----	----	----
	D	----	1	----	----	----	----	----
Chosen	C	21	2	2	----	4	21	----
	D	6	----	1	----	2	8	----
Ecuador: Guayaquil	C	4	1	1	4	2	9	24
	D	----	----	----	----	----	----	1
France	C	37	7	4	14	11	10	13
Gold Coast	C	7	4	----	----	----	1	----
Greece	C	10	4	----	5	6	11	19
	D	----	----	----	----	----	2	2

Place		July-September, 1927	October, 1927	November, 1927	December, 1927	January, 1928	February, 1928	March, 1928
Latvia	C	----	2	----	----	----	1	----
Mexico	D	221	132	157	----	----	----	----
Morocco	C	180	81	140	401	55	47	80
Nigeria	C	820	223	93	----	275	----	----
	D	173	51	30	----	39	----	----
Persia	D	----	----	2	----	7	----	----
Portugal	C	----	----	----	----	143	115	----
	D	----	----	----	----	22	8	----
Spain: Madrid	D	----	----	1	----	----	----	----
U. S. S. R.:								
Railways, etc	C	26	7	11	15	18	----	----
Other territories in Europe	C	366	220	471	565	----	----	----
Transcaucasus, Siberia, and Central Asia	C	80	40	21	20	----	----	----
Ukraine	C	27	11	20	17	6	----	----

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

TYPHUS FEVER

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

Place		July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Nov. 20–Dec. 17, 1927	Dec. 18, 1927–Jan. 14, 1928	Week ended— January, 1928		February, 1928				March, 1928					April, 1928		
								21	28	4	11	18	25	3	10	17	24	31	7	14	21
Algeria:[1]																					
Algiers	C								1					1	2	1	1	2	5	1	
	D													1							
Oran	C						4		2			2	1	6	1	1		2	1	1	
Argentina[1]																					
Austria: Vienna	C									1											
Bulgaria:[1] Sofia	C			17	6	1	6	1								3		3	14		
	D				1																
Chile:																					
Antofagasta	D			1																	
Talcahuano	D		1														1				
Valparaiso	C		1		1	2	1							1							
	D	2	1		2																
China:[1]																					
Manchuria—																					
Dairen	C																			7	
Harbin	C	2			1																
Tientsin	C		2																		
Chosen[1]																					
Czechoslovakia[1]																					
Egypt	C	2		12	4	14	8	2	6		1		13	3	1		1	1		2	1
	D	3		5		8	4		2				5	3			1				
Cairo	C					3															
	D					3															
Port Said	C			1		1															
Greece[1]																					
Ireland (Irish Free State)	C									1										1	
Cork County	C					3	1														
Donegal County, Letterkenny	C			4																	
Japan[1]																					
Latvia[1]																					
Lithuania[1]																					

Mexico:																					
Guadalajara	D					1															
Mexico City, including municipalities in Federal District	C	17	19	18	28	17	15	2	1		2	1		4	3	6	6				
	D				2	1	5							3	1		3				
Monterey	D																1				
Morocco [1]	C						342	257	214	370	210	141			175	172	167	219	190	186	
Palestine	C	11	1	5	3	9	8		2	2	1	1	2	6	1	5			2	3	
Peru [1]																					
Poland	C	50	35	19	64	93	195	101	92	87	66	57	62	57	89	90	90	125			
	D	6	2	4	11	10	16	4	3	5	7	10	3	7	6	5	6	7			
Portugal: [1] Oporto	C	1			1						1										
Rumania	C	36	16	17	22	35	68			15	24		14	26	28	29					
	D	1		2			3			2	7			4	1	2					
Syria: [1] Aleppo	C		2				2														
Tunisia	C	14		3	1	1	6	4				1				13		5			1
Union of South Africa:																					
Cape Province	C	P	P	P	P	P	1	P	P	1	P	P	P				P				
Natal	C	P	P	P	P	2	3		P		1	P	P			P	P				
Orange Free State	C			P		P				P	P	P	P				P				
Transvaal	C	1		5	P	P											P				
U. S. S. R. [1]																					
Yugoslavia [1]																					
On vessel: S. S. Gaika at Durban, Natal—from Mauritius	C													1							

[1] See 10-day and monthly tables below.

Place		1927				November, 1927			December, 1927			January, 1928			February, 1928		
		July	August	September	October	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-29
Algeria	C	67	33	10	12												
	D	13			1												
Algiers	C	2	2	6	2												
Bulgaria	C	12	24	7	2						2	7	6		8	12	6
	D		1	2	1						1		1		1	2	2
Morocco	C	148	76	7	11	5	14	7	5	6	75						

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

TYPHUS FEVER—Continued

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

Place		July–September, 1927	October, 1927	November, 1927	December, 1927	January, 1928	February, 1928	March, 1928
Argentina: Rosario	C			1				
	D				1	1		
China: Shanghai	D			1				
Chosen	C	90	16	26	38	183	400	
	D	8	1	2	3	19	44	
Chemulpo	C	3				1		
Gensan	C	2				1		
	D					1		
Seoul	C	5	2					
	D	1	1					
Czechoslovakia	C	12	1		6			2
Greece: Athens	C	3			1	2	2	
Japan	C	1		1				
Latvia	C	6					1	
Lithuania	C	69	9	18	27	86	137	
	D	14	1	1	1	10	12	
Mexico	D	64	36	29				
Peru:								
Arequipa	D	3	2		1	2		
La Oroya	C					P	P	P
Lima	C	8						
Turkey	C						17	
	D						1	
U. S. S. R.:								
Railways, etc.	C	77	23	33	46	41		
Transcaucasus, Siberia, and Central Asia	C	208	61	49	80	7		
Ukraine	C	295	151	198	282	533		
Other territories in Europe	C	1,839	521		1,403			
Yugoslavia	C	20	1	1		7	24	3
	D	5				3		

YELLOW FEVER

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

Place		July 3–30, 1927	July 31–Aug. 27, 1927	Aug. 28–Sept. 24, 1927	Sept. 25–Oct. 22, 1927	Oct. 23–Nov. 19, 1927	Week ended— Nov. 26, 1927	December, 1927 3	10	17	24	31	January, 1928 7	14	21	28	February, 1928 4	11	18	25
Belgian Congo:																				
Boma	C											3								
	D											2								
Matadi	C											6	12	11	1	5	8			1
	D											2	6	8	2	5	6			
Dahomey:																				
Grand Popo	C						1													
	D						1													
Porto Novo	C	1																		
	D	1																		
Gold Coast: [1]																				
Ashanti Obuasi	C		1																	
	D		1																	
Ivory Coast	C	1									1									
	D	1									1									
Liberia: Monrovia	C			1																
Nigeria	C			2																
	D			2																
Senegal	C	3	10	21	31	38														
	D	3	9	21	31	28														
Dakar	C	1			12	14	2	1	4			1	1							
	D				7	10	2	1	4			1	1							
Togoland	C		1																	
	D		1																	

[1] See monthly table below.

Place		July	August	September	October
Gold Coast	C	15	2	6	1
	D	4	2	4	1

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