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REPORT ON STUDIES OF THE EFFICIENCY OF WATER-PURIFICATION PROCESSES

Studies of the bacterial efficiency of municipal water purification plants have formed a logical part of the stream pollution investigations undertaken by the Public Health Service under authority of an act of Congress of 1912. These investigations, having dealt principally with the public health aspects of stream pollution, the safety of public water supplies, and, more especially, the relation between the sanitary quality of such supplies and the permissible degree of pollution of their sources, have been subjects of basic importance for inquiry. A report on these studies by Sanitary Engineer H. W. Streeter, has just been issued as Public Health Bulletin No. 172.

The main objectives of the studies dealt with in this report are the following:

(a) An appraisal of the bacterial efficiency of well-designed and well-operated municipal water purification plants treating sewage-polluted river waters; and

(b) A determination, if possible, of the maximum limit of bacterial pollution of river water supplies, as delivered for treatment, consistent with the production of effluents conforming to specified standards of bacterial quality.

In the latter connection, reference is made to a limiting standard, recommended in 1914 by the International Joint Commission, defining the maximum permissible density of *B. coli* in raw waters taken from the international boundary waters of Canada and the United States for purification.

During a period of 13 months in 1915-16, the Public Health Service undertook a preliminary observational study of the Cincinnati and Louisville filtration plants, taking their raw water supplies from the Ohio River. From this study a well-defined relation was found to exist between variations in the bacterial quality of the raw water and concurrent variations in the quality of the effluents obtained at successive stages of treatment, including the final stage. From this relationship it was indicated that the maximum *B. coli* index of the raw water, consistent with the production of a final (chlorinated) effluent conforming to the original United States Treasury Department drinking water standard, was about 630 per 100 cubic centimeters. The corresponding limit fixed by the International

Joint Commission raw water standard was 500 *B. coli* (index) per 100 cubic centimeters.

Further studies of the problem were delayed, owing to the war, and were not resumed until 1923, when a collective survey of 17 municipal water-filtration plants was undertaken, 10 of these plants being located along the Ohio River and the remainder on other rivers in the Eastern and Middle Western States. From this survey, the following tentative conclusions were drawn:

1. Under normal conditions of their operation, all of the plants studied have shown a fairly definite relationship as existing between variations in the bacterial quality of their raw-water supplies and concurrent variations in the quality of effluents produced by them at successive stages of treatment.

2. In general, the nature of this relationship has been found to be expressed by the equation $E=cR^n$, in which (R) represents the bacterial content of the raw, or influent, water, (E) that of the effluent water, and (c) and (n) empirical constants.

3. The over-all efficiency of bacterial purification, when expressed in terms of *B. coli* removal, appears to be influenced to a relatively slight, if any, extent by changes in temperature and other seasonal conditions, or by variations in raw-water turbidity, all other conditions being equal.

4. According to the best statistical evidence afforded by the surveys, as based on the mean performance of the 10 Ohio River plants, the maximum *B. coli* index of raw river waters of the Ohio River type, consistent with producing a final chlorinated effluent conforming to the revised Treasury Department standard, approximates 5,000 per 100 cubic centimeters. The corresponding maximum raw-water *B. coli* index consistent with producing *unchlorinated* effluents meeting the same standard was found, however, to average as low as 60 per 100 cubic centimeters. Plants more highly elaborated than the average, such as those equipped with double-stage sedimentation and coagulation, appear to be able to produce satisfactory chlorinated effluents from river waters having a *B. coli* index somewhat in excess of 10,000 per 100 cubic centimeters.

5. Water purification plants operated along the Ohio River are unable, under existing conditions of pollution of this stream, to produce unchlorinated effluents conforming, as an average, to the revised Treasury Department *B. coli* standard, though they are able, by the continuous and effective use of chlorine, to produce, for a large part of the time, chlorinated effluents meeting this standard. On the basis of the average limit of tolerance above stated, two of the Ohio River plants surveyed, located, respectively, at Ironton, Ohio, and Ashland, Ky., were indicated as being overburdened by excessive bacterial pollution of the river in the zone from which their raw-water supplies are obtained.

6. With one exception, all of the seven plants surveyed, located elsewhere than on the Ohio River, were able to produce satisfactory final effluents from raw waters having a *B. coli* index not exceeding 5,000 per 100 cubic centimeters. Two plants of this group, located, respectively, at Albany, N. Y., and Chester, Pa., were shown to be overburdened by excessive raw water pollution, on the basis of the criterion above given.

Aside from those above stated, no final conclusions can be drawn from the surveys described until their results have been checked against the results of experimental studies in progress at this time, and possibly also further surveys of full-scale plants located in other sections of the country. Systematic and well-correlated observations of full-scale plant performance thus far have included no examples of plants found west of the Mississippi River and but one example of plants treating water from the Great Lakes.

Public Health Bulletin No. 172, containing the full report, may be purchased from the SUPERINTENDENT OF DOCUMENTS, Government Printing Office, Washington, D. C., at \$1 per copy.

COOPERATIVE RURAL HEALTH WORK OF THE PUBLIC HEALTH SERVICE IN THE FISCAL YEAR 1927¹

By L. L. LUMSDEN, *Surgeon, United States Public Health Service*

In the fiscal year ended June 30, 1927, the United States Public Health Service cooperated in demonstration projects in rural health work in 86 counties, or districts comparable to counties, in 18 States, as follows:

Alabama.—Colbert, Franklin, Jackson, Lauderdale, Lawrence, Limestone, Madison, Talladega, and Walker Counties.

Arkansas.—Jefferson and Pulaski Counties.

California.—San Diego and Santa Barbara Counties and San Joaquin district.

Georgia.—Baker, Decatur, Floyd, Glynn, Grady, Laurens, and Walker Counties.

Iowa.—Dubuque County.

Kansas.—Jefferson, Lyon, and Ottawa Counties.

Kentucky.—Mason County.

Louisiana.—La Fourche and Washington Parishes.

Massachusetts.—Cape Cod district.

Mississippi.—Harrison, Hinds, Union, and Washington Counties.

Missouri.—Dunklin, Greene, Jackson, Marion, New Madrid, Nodaway, Pemiscot, Pettis, St. Francois, and St. Louis Counties.

¹ This report applies to work provided for with funds appropriated specifically for "Special studies of and demonstration work in rural sanitation." It does not include all cooperative activities of the Public Health Service in rural communities.

Montana.—Cascade and Lewis and Clark Counties.

New Mexico.—Bernalillo, Chaves, Dona Ana, Eddy, McKinley, Santa Fe, Union, and Valencia Counties.

North Carolina.—Edgecombe County.

Oklahoma.—Oklahoma, Okmulgee, and Ottawa Counties.

Tennessee.—Anderson, Gibson, Hamilton, Morgan, Obion, Rhea, and Weakley Counties.

Virginia.—Charlotte, Chesterfield, Greenville, Henry, Lee, Prince Edward, Pulaski, Roanoke, Smyth, and Washington Counties.

West Virginia.—Brooke, Boone, Gilmer, Hancock, Harrison, Kanawha, Logan, Marion, Marshall, Preston, Roane, and Wood Counties.

The results were thoroughly in line with the conclusions in the reports on this activity for the fiscal years 1920,² 1921,³ 1922,⁴ 1923,⁵ 1924,⁶ 1925,⁷ and 1926.⁸

Plan of Work

The plan of the work was similar to that carried out in each of the six preceding fiscal years. (Reprints Nos. 615, 699, 887, 964, 1047, and 1118.)

The authorization for this work is in the act of February 15, 1893 (ch. 114, 27 Stat. L. 449); the act of August 14, 1912 (ch. 288, 37 Stat. L. 309); and in the annual appropriation acts. The appropriation is specifically for "special studies of and demonstration work in rural sanitation."

The work is conducted in cooperation with State and local health authorities. It is made a part of a well-rounded comprehensive program of local health service.

Through such connection as this with county health service projects the Public Health Service can perform most economically and efficiently its duty toward meeting its responsibility in helping prevent the spread of human infection in interstate traffic. The cooperative projects also furnish most favorable opportunities for studies, by the Public Health Service, "of the diseases of man and conditions influencing the propagation and spread thereof." Thus, this rural sanitation activity serves a number of important general purposes besides those specified in the appropriating act, and though very limited as yet in extent it appears to contribute to the work of the Federal Government for the promotion of the general welfare.

² Reprint No. 615, from Public Health Reports of Oct. 1, 1920, p. 15.

³ Reprint No. 699, from Public Health Reports of Oct. 7, 1921, p. 17.

⁴ Reprint No. 788, from Public Health Reports of Sept. 29, 1922, p. 22.

⁵ Reprint No. 887, from Public Health Reports of Dec. 14, 1923, p. 24.

⁶ Reprint No. 964, from Public Health Reports of Oct. 17, 1924, p. 23.

⁷ Reprint No. 1047, from Public Health Reports of Oct. 23, 1925, p. 33.

⁸ Reprint No. 1118, from Public Health Reports of Oct. 22, 1926, p. 37.

The demonstration work in rural sanitation can not, under the provisions of the appropriating act, be conducted in a community unless the State, county, or municipality in which the community is located, agrees to pay at least one-half the expenses of such demonstration work. The funds provided by the State, county, and municipalities, inclusive, for support of the average demonstration project far exceed the allotment from the Federal fund, and in almost all instances the appropriation from the local official sources (county, township, or town) covers considerably more than 50 per cent of the budget.

Under this cooperative arrangement the rural sanitation work of the Public Health Service is carried out in each project by a local health force intended to be permanent and is made a part of a general program of rural health work deemed suitable to the locality. Thus, it is accomplished more economically and with more lasting effects from a demonstration standpoint than it could be if undertaken by a specialized force working a comparatively short time in the locality.

The unit for the work, as a rule, is the county, but it may be a group of townships in the same vicinity or two or three adjacent counties. Under the cooperative arrangements a good program of health work can be carried out in practically any rural county or district in the United States at a cost to the county or district easily within its means. The average cooperative demonstration project is conducted on a cost basis of less than 50 cents per capita of population served, and furnishes a striking example of efficiency with economy in public service. In many counties efficient whole-time county health service can be provided at an annual cost of less than \$2 to the local taxpayer with real property assessed at \$5,000 to \$6,000.

An annual budget of \$10,000 will provide in most sections of this country the services of a county health department force consisting of one whole-time officer, one whole-time sanitary inspector, one whole-time health nurse, and one office clerk. Such a force can render highly effective health service in the average county with a population of about 25,000 and an area of about 500 square miles. For larger units of population larger forces are needed and should be provided, especially after the first year or two of operation.

The members of the working forces in the cooperative demonstration projects are appointed by the proper local government authorities, but the appointees must be acceptable to the cooperating official agencies—the State board of health and the United States Public Health Service. The only ground upon which the interests of the cooperating agencies are likely to meet with respect to the appointments is fitness for efficient services. With such expressed understanding, the local authorities at times may be relieved of local political embarrassment in exercising their appointing power.

All salient branches of health work, such as acute communicable disease-control measures, sanitation of private homes and public places, malaria prevention, tuberculosis control, goiter prevention, infant and maternity hygiene, venereal disease prevention, school hygiene, etc., are carried out in the projects. Attention is expected to be concentrated upon the different branches of the work in what appears to be the most advantageous sequence. The various activities can be dovetailed with one another so that every dollar invested and every unit of energy expended may yield the biggest possible return in health promotion and disease prevention. The director of the unit, the county or district health officer or sanitary officer, is given full responsibility for the detailed execution of the work. He has from time to time, and can secure at any time, advice and counsel and active assistance from specially experienced representatives of the State board of health and the Public Health Service.

By having all salient branches of health work for the community conducted under the direction of one head, the whole-time county health officer, who is given a status of field agent in the United States Public Health Service, and in some of the States that of deputy State health officer, a maximum of service can be rendered with a minimum of overhead expense, lost motion, and friction. Through good business management, the funds invested in the enterprise can be made to yield a remarkable dividend in the protection and promotion of human health and in a money saving to the community, resulting from the prevention of sickness and loss in wage earning, amounting to many times the cost of the service.

This plan of cooperative rural health work has been evolved in the course of field experience and has been tested under a wide range of local conditions. It seems applicable to all the rural districts of the United States. The provision of means for a reasonably rapid extension of this work would, according to all the evidence, prove highly advantageous from every standpoint—individual, community, State, and national.

Appropriation

The appropriation for the rural sanitation work of the Public Health Service in the fiscal year 1927 was \$75,000. Against the amount appropriated was set up a budget saving of \$2,000. The unexpended balance from the operations of the preceding fiscal year was \$509.91.⁹ Thus, \$73,509.91 was available.

⁹ This balance was due not to an excessive amount of money being available but to temporary suspensions of the work and consequent decreased expenditure in some of the projects to which allotments had been made for the whole fiscal year 1926. Such suspensions are necessitated by various local circumstances and can not be anticipated when the contracts are made. With the existing differences between the Federal fiscal year and the fiscal years of some of the States and localities in which the work is conducted, it would not be practicable, without lessening the degree of economy striven for, to arrange contracts so that the allotment of Federal funds to every project would be expended exactly by the end of the Federal fiscal year.

Rural health work is applicable to communities in the United States comprising about 60 per cent (or over 70,000,000) of our total population. Such communities include open country, incorporated towns and villages (with populations under 2,500), and, as the county is the logical political unit for official rural health-work administration, many towns and cities with populations from 2,500 to 50,000.

Under modern conditions of transportation and travel, rural and urban health conditions react upon each other. Therefore, rural health work is of importance to our entire population. The recent epidemic of typhoid fever in Montreal, Canada,¹⁰ furnished a dreadful example of the relationship of insanitary rural conditions to urban health. The sanitary quality of the tremendous volume of raw foods now shipped daily through interstate traffic is of keen importance, for both humane and business reasons, to our public and our private interests and should be enhanced and safeguarded by reasonably adequate, coordinated, joint activities of governmental agencies—local, State, and Federal. To undertake sanitary control of traffic and travel by inspection and quarantine at our city borders and on our interstate lines now would be futile and ridiculous. The efficient local health department, in doing its local work, performs duty of state-wide and nation-wide importance with which the State and the Federal health services are concerned. Therefore, it seems, from a sanitary standpoint, reasonable and proper for State and Federal agencies to encourage and help in the development and permanent maintenance of such departments.

Only about 17 per cent of our rural population is as yet provided with local health service approaching adequacy under the direction of whole-time, local (county or district) health officers.¹¹ Because of lack of efficient, whole-time rural health service, infections of man are conveyed very frequently across interstate lines.

In our rural communities there are about 1,000,000 persons incapacitated all the time by illness, much of which is preventable; about 70 per cent of the school children are handicapped by physical defects, most of which are preventable or remediable; about 30 per cent of persons of military age are incapacitated for arduous productive labor or for general military duty, largely from preventable causes; and over 60 per cent of the men and women between 40 and 60 years of age are in serious need of physical reparation, largely as a result of preventable causes. In view of these conditions, there is no room for reasonable doubt about the need for more and better rural health service in this country.

The following table presents the annual death rates from all causes and from certain types of diseases per 100,000 of population

¹⁰ Report of the United States Public Health Service on the Montreal Typhoid Fever Situation. Public Health Reports, vol. 42, No. 29, pp. 1893-1903, July 22, 1927.

¹¹ Reprint No. 1155, from Public Health Reports of Apr. 29, 1927.

in the rural and the urban districts of the registration area of the United States for the period 1900 to 1924, inclusive. These figures are taken from the Mortality Statistics of the Bureau of the Census. The registration area comprised about 40.5 per cent of our total population in 1900, and about 88.4 per cent in 1924. In these statistics, the term "cities" includes cities with populations of 10,000 or over, and "rural" includes open country and villages, towns, and cities with populations under 10,000.

Death rate per 100,000 in the registration area

Year	Part of registration area	All causes	Typhoid fever	Malaria	Diphtheria	Influenza	Tuberculosis (respiratory system)	Diarrhea and enteritis (under 2 years)
1924	Cities	1,276.7	4.5	0.6	10.9	15.4	76.6	28.3
	Rural	1,089.5	8.6	4.0	8.1	22.9	78.9	28.4
1923	Cities	1,320.0	4.6	0.6	13.3	31.4	81.7	33.3
	Rural	1,150.0	8.7	4.8	11.1	56.8	83.9	30.8
1922	Cities	1,268.2	4.8	0.9	15.6	23.6	83.0	35.1
	Rural	1,096.3	10.0	6.0	14.0	68.3	84.9	29.4
1921	Cities	1,229.7	5.8	0.9	19.3	9.3	84.5	43.3
	Rural	1,089.7	11.9	6.1	16.4	13.3	85.6	39.3
1920	Cities	1,410.0	5.5	0.9	18.9	61.2	102.0	52.2
	Rural	1,190.0	9.6	5.9	12.1	79.3	97.7	35.1
1919	Cities	1,390.9	6.1	0.9	19.0	81.6	115.8	52.0
	Rural	1,190.0	11.8	6.2	11.2	113.2	106.1	36.7
1918	Cities	1,990.0	8.7	0.9	17.7	298.3	143.2	68.6
	Rural	1,630.0	15.4	4.8	10.5	301.1	122.0	48.2
1917	Cities	1,820.0	16.2	1.0	19.6	12.7	189.5	70.2
	Rural	1,300.0	16.2	4.9	12.3	21.9	116.5	52.8
1916	Cities	1,500.9	10.8	0.7	16.6	19.2	134.1	72.1
	Rural	1,290.0	15.6	4.8	11.7	34.5	111.1	53.7
1915	Cities	1,420.0	10.9	0.7	17.6	11.8	136.8	68.8
	Rural	1,230.0	13.4	2.8	12.9	19.9	111.8	44.7
1914	Cities	1,450.0	13.4	0.8	21.0	6.8	139.1	75.7
	Rural	1,290.0	16.9	2.9	13.8	11.1	110.2	50.2
1913	Cities	1,500.0	16.1	1.0	21.7	8.5	139.7	84.9
	Rural	1,270.0	19.6	3.2	14.7	16.2	110.2	59.6
1912	Cities	1,470.0	15.6	1.1	19.6	7.1	141.8	83.6
	Rural	1,240.0	17.0	4.1	15.5	13.1	110.8	49.3
1911	Cities	1,590.0	18.7	1.2	21.5	10.4	150.8	91.3
	Rural	1,340.0	22.2	3.7	15.1	21.3	118.7	55.8
1910	Cities	1,990.0	23.4	1.0	25.7	10.6	155.5	118.0
	Rural	1,340.0	23.3	1.7	15.9	18.4	110.5	77.3
1909	Cities	1,540.0	19.4	1.0	24.4	9.2	154.6	103.6
	Rural	1,300.0	20.9	1.8	15.0	17.7	109.9	66.7
1908	Cities	1,590.0	23.5	1.0	26.7	16.1	162.1	113.2
	Rural	1,330.0	23.2	1.6	16.5	26.6	111.8	74.9
1907	Cities	1,750.0	30.8	1.6	29.3	18.8	176.0	122.4
	Rural	1,400.0	25.1	2.0	18.1	32.1	119.8	68.6
1906	Cities	1,783.4	34.2	2.1	32.7	8.0	194.0	-----
	Rural	1,405.7	28.6	2.7	20.2	13.3	121.9	-----
1905	Cities	1,716.8	22.0	1.8	30.1	13.7	178.5	-----
	Rural	1,430.6	23.0	3.5	15.0	29.4	126.2	-----
1904	Cities	1,789.3	24.0	2.6	38.5	15.7	189.4	-----
	Rural	1,442.6	23.7	3.3	17.5	29.5	131.1	-----
1903	Cities	1,707.3	24.6	2.5	41.8	14.7	179.7	-----
	Rural	1,367.8	24.5	3.7	17.7	24.7	120.7	-----
1902	Cities	1,705.8	25.8	3.7	39.8	7.0	177.4	-----
	Rural	1,337.9	26.9	4.3	17.0	14.6	120.7	-----
1901	Cities	1,890.0	28.5	5.4	52.4	24.2	204.1	-----
	Rural	1,520.0	34.6	7.2	26.5	29.6	138.0	-----
1900	Cities	1,890.0	28.5	5.4	52.4	24.2	204.1	-----
	Rural	1,520.0	34.6	7.2	26.5	29.6	138.0	-----

The death rate from all causes for each year within this period is shown to have been lower in the rural than in the urban population. This fact taken alone suggests that rural life is longer and, in general, healthier than urban life.

The decline in the death rate in this quarter of a century has been greater among the urban than among the rural population. On a basis of 1,000 population, the average annual rates for the first five years and the last five years of the period were as follows:

	1900-1904	1920-1924	Decline
Cities.....	17.74	13.00	4.74
Rural.....	14.25	11.25	3.02
Difference.....	3.49	1.77	1.72

The greater decline in the urban rate probably has been due mainly to the better progress in sanitation and in more efficient health service in the cities with populations over 50,000. The age factor may have operated to some extent because the drift of population from country to city presumably involves the young more than it does the old.

It is important to note that the rural death rate is higher than the urban for malaria and influenza throughout the period, for typhoid fever for the last 16 years, and for tuberculosis of the respiratory tract for the last four years.

The relatively high prevalence of such communicable and preventable diseases in our rural population emphasizes the need of more efficient health service in our rural districts.

The results of efficient health service are in life saving, disease prevention, health promotion, and economic saving. The saving in dollars and cents amounts to many times over the cost of the service. Most of our rural county governments are not disposed to establish reasonably adequate county health service without an offer of financial assistance and competent counsel from some outside agency.

The amounts specifically appropriated by Congress for the rural sanitation work of the United States Public Health Service have been as follows:

Fiscal year—	Amount	Fiscal year—	Amount
1917.....	\$25,000	1923.....	\$50,000
1918.....	150,000	1924.....	50,000
1919.....	150,000	1925.....	74,300
1920.....	50,000	1926.....	75,000
1921.....	50,000	1927.....	75,000
1922.....	50,000	1928.....	85,000

The total for this activity in the last five fiscal years has been less than one forty-thousandth of the total congressional appropriation and less than 1 per cent of the sum appropriated for all the activities of the United States Public Health Service in the same period.

Expenditures

The expenditures in the fiscal year 1927 totaled \$70,471.52. Of this sum, \$65,356.09 was expended in allotments for direct support

of cooperative projects in counties or districts, and \$5,115.43 was expended for general administration, supervision of local projects, and special studies of the problem of rural sanitation.

With the increasing general interest in whole-time rural health service the demands upon the Public Health Service for cooperation far exceeded the money (\$73,509.91) available for allotment. In view of the overwhelming number of insistent and yet thoroughly reasonable requests from State and local authorities for cooperation, extreme care had to be exercised to prevent an overcommitment of the funds. The balance remaining at the end of the fiscal year was \$3,038.39.¹²

For the support of the work in the 86 local projects the expenditures from all sources totaled \$921,570.02. Of this sum, \$65,356.09 was allotted from the rural sanitation funds of the Public Health Service; an aggregate of \$774,889.56 was derived from State, county, and municipal governmental sources; and \$81,324.37 was derived from other sources, including local health associations, tuberculosis associations, local Red Cross chapters, the International Health Board, and the Children's Bureau of the United States Department of Labor. Thus, this investment of the Federal funds appropriated for rural sanitation work was met with odds of over 13 to 1.

It is both significant and encouraging that organizations entering the public health field to promote or conduct some specialized activity—such as typhoid fever prevention, hookworm control, tuberculosis prevention, trachoma control, malaria control, venereal-disease prevention, school hygiene, or advancement of child and maternity hygiene—realize, as a rule, after practical experience, the advantage of dovetailing their specific activities in with and making them a part of a well-rounded, comprehensive program of local official health service under the immediate direction of a qualified, whole-time local health officer. Such arrangement is obviously in the interest of efficiency with economy in public health-work in our rural districts.

Detailed Data

The expenditures from the different sources for support of the cooperative demonstration projects, the scope, the principal activities, and some of the results of the work are presented in the accompanying tabular statement.

In attempting to measure the efficiency of health service, consideration is to be given to the local conditions—climatic, topographical, geographical, social, economic, and other—under which the work is done, the duration, nature, and scope of the activities, the cost of the service, and the results achieved. The 86 cooperative projects

¹² This balance will be reduced considerably by payment of bills yet to be received for freightage and telegraphing within the fiscal year.

listed in this tabular statement present a wide range of local conditions. From equivalent, well-directed efforts, much larger results are obtainable in one project than in another. Considering the cost of the service, the activities and results reported, and the findings from direct surveys of the situations by representatives of the Public Health Service and the State boards of health concerned, it is apparent that in the fiscal year 1927 some of the projects were highly successful, others were not up to reasonable expectations, and the average was good. In rural health work, as in other business, the personal equation of the director of the unit is, in most instances, the main factor making for success or failure.

A careful, analytical, and comparative study of the data in the table should be of interest to anyone competent to make such a study, and should be of especial interest to existing and prospective whole-time county (or local district) health officers.

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927

Counties (or districts)	Anderson, Tenn.	Baker, Ga.	Bernalillo, N. Mex.	Boone, W. Va.	Brooke, W. Va.	Cape Cod health district, Massachusetts	Cascade, Mont.	Chaves, N. Mex.
Period of work in fiscal year 1927	Jan. 1, 1927, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	Dec. 1, 1926, to June 30, 1927	Oct. 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927
Year of cooperation	First	Third	Third	First	First	Sixth	Seventh	Seventh
A. EXPENDITURES								
1. Rural sanitation fund (P. H. S.)	\$324.96	\$1,000.00	\$287.50	\$175.00	\$225.00	\$2,499.96	\$1,200.00	\$200.00
2. State	221.08	1,000.00	11,836.13	1,406.49	7,929.37	2,493.46	1,500.00	600.00
3. County	774.70	1,852.10		2,812.66		3,463.63	10,511.03	7,494.45
4. Municipalities				1,406.49	2,300.00		10,511.02	
5. Other agencies								333.29
Total	1,320.83	3,852.10	12,123.63	5,800.66	10,454.37	8,458.97	28,722.05	8,682.74
B. ACTIVITIES								
1. Educational:								
(a) Lectures	21	5	25	129	310	37	20	3
(b) Attendance	844	112	1,025	2,678	7,848	1,785	1,428	125
(c) Bulletins distributed	4,060	2,218	2,184	4,931	1,068	6	40,283	2,475
(d) Newspaper articles	22	46	41	47	37	32	27	2
(e) Circular letters	116	1,431	494	1,805	406	11	3,225	6
(f) Health exhibits		1		2			484	
2. Sanitary inspections:								
(a) Private premises	933	1,922	2,497	33	137	163	1,014	1,177
(b) Public premises—schools, churches, stores, camps, etc.		371	818	75	212	79	618	362
3. Special inspections:								
(a) Dairies			92		68		115	164
(b) Other food-producing or food-handling places	40	332	687	4	177	153	185	313
4. Examinations:								
(a) For tile extension advice					101			
(b) For marriage license					5			
(c) For work certificates (children)								
(d) For lunacy				6				
(e) Of prisoners								
(f) Of food handlers			977	1				
5. Acute communicable disease control:								
(a) Visits to cases, carriers, contacts, or suspects		118	3,288	790	252		1,660	683
(b) Cases of carriers quarantined		134	1,667	438	137		862	347

	2	16	3	9	5	69	19
6. Venereal disease control:							
(a) Suspects examined.....	12	112		9	3	682	
(b) Prophylactic treatments.....							
(c) Curative treatments.....							
7. Tuberculous control:							
(a) Number examined.....	1	1	5	29	480	59	
(b) Positive.....	1	1	3	33	16	64	
(c) Negative.....			2	6	206	28	
(d) Placed in institutions.....	1					10	
(e) Home visits.....			27	64	294	140	
8. Persons treated for removal of hookworm.....	88		4	1			
9. Persons treated for prevention or cure of gonorrhea.....			2		1		
10. Sankak tests.....		843		2,917	750	1,011	23
11. Cows tuberculin tested.....							
12. Immunization:							
(a) Complete antityphoid inoculations.....	516	29	791	492	14	185	36
(b) Antimalarial vaccination.....	645	2,373	3,597	1,521	600	1,814	459
(c) Complete diphtheria toxin-antitoxin inoculations.....	65	45		1,481	36	1,074	134
(d) Persons treated with antitoxin for immediate protection against diphtheria.....			9	21	39		84
(e) Persons given antirabic treatment.....	2	13	1				
13. Child hygiene:							
(a) Prenatal—							
(1) Cases given advice.....			254	80	44		57
(2) Examinations.....				12	19		
(3) Office consultations.....				7	28		
(4) Group conferences.....			52	14	12		30
(5) Home visits.....			4	4	4		4
(6) Midwives instructed.....			93	414	114		92
(b) Infant and preschool—	6			4			
(1) Babies and children examined.....		1	154	347	140	595	175
(2) Office consultations, mothers.....		1	46	65	24	405	33
(3) Group conferences with mothers.....			4	40	11	25	1
(4) Home visits.....			217	280	609	373	365
(c) School—							
(1) Children examined.....	623	2,815	1,264	3,231	2,087	6,783	2,071
(2) Found defective.....	390	911	1,094	2,166	901	5,618	565
(3) Defects found.....	620	914	2,149	3,918	1,080	9,554	620
(4) Consultations, parents (office and school).....	3,286	2	86	244	320	189	243
(5) Home visits.....	1,964	21	81	223	1,530	143	806
(6) Talks to classes or drills in hygiene.....	1,772	91	43	463	1,199	10	357
(7) Exclusions for communicable disease.....	99	1,088	331	281	207	373	210
(d) Nutritional classes—							
(1) Cases attending.....				89			
14. Antimalaria work.....			5				

! Project was not operating from Feb. 1 to June 1, 1927.

* Considerable.

! Little.

* None.

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Anderson, Tenn.	Baker, Ga.	Bernalillo, N. Mex.	Boone, W. Va.	Brooke, W. Va.	Cape Cod health district, Massachusetts	Cascade, Mont.	Chavez, N. Mex.
Period of work in fiscal year 1927	Jan. 1, 1927, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	Dec. 1, 1926, to June 30, 1927	Oct. 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927
Year of cooperation	First	Third	Third	First	First	Sixth	Seventh	Seventh
B. ACTIVITIES								
15. Laboratory examinations:								
(a) Positive.....		\$47	\$237	\$46	\$9	\$135	\$159	\$159
(b) Negative.....		109	1,948	44	31	189	1,367	466
Total.....		156	2,235	90	40	323	1,526	645
C. RESULTS								
1. Sanitary privies installed:								
(a) Septic or L. R. S.....	88					2		
(b) Water-tight vault.....	10					3		
(c) Bucket and box.....	262	63	101	4	5	46		
(d) Pit.....		63	101	4	6	51		
Total.....	310	63	101	4	6	116		
2. Privies restored to sanitary type.....		27	91	14	23	5	51	354
3. Septic tanks installed.....	11	5	10			40		33
4. New sewer connections.....	23	2	456		34		218	453
5. New water connections.....	26	4	269		30	14	63	426
6. Wells or springs improved.....	34	66	80	15	17			3
7. Public milk supplies radically improved.....		71	113		18	6		44
8. Public food-handling places radically improved.....		28	32		7	5	1	
9. Places producing foods for sale radically improved.....	266		589			2		
10. Dwellings effectively screened against flies and mosquitoes.....		59	7		14	4		
11. Stables made sanitary.....	10	54	2,159	1	76	133	783	1,481
12. Nuisances corrected.....			2	5			41	1
13. Convictions for violation sanitary laws.....					68			2
14. Nutritional cases improved.....								
15. Corrections of physical defects induced:								
(a) In infants.....					38		12	3
(b) In preschool children.....					146		4	4
(c) In school children.....		88	4	91	433		2,766	166
(d) In adults.....					12			3

* Sanitary officers' estimate of number of sanitary privies installed in county within 6-month period is 2,000, but only 310 have as yet been inspected in detail and approved by him.

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Colbert, Ala.	Decatur, Ga.	Dona Ana, N. Mex.	Dubuque, Iowa	Dunklin, Mo.	Eddy, N. Mex.	Edgecombe, N. C.	Floyd, Ga.	Franklin, Ala.	Gibson, Tenn.
Period of work in fiscal year 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927
Year of cooperation	Sixth	Fourth	Third	Sixth	Fifth	Fourth	Eighth	Fourth	Fourth	Second
A. EXPENDITURES										
1. Rural sanitation fund (P. H. S.)	\$600.00	\$1,000.00	\$290.75	\$300.00	\$700.00	\$300.00	\$987.46	\$300.00	\$300.00	\$900.00
2. State	4,200.00	1,000.00		2,150.00	2,150.00	150.00	3,583.16	2,496.96	2,496.96	4,140.00
3. County	6,114.37	5,492.91	7,126.51	3,169.92	4,173.05	6,020.56	6,008.31	6,637.12	4,339.94	5,900.17
4. Municipalities	3,702.89		698.99	14,111.56				2,400.00		
5. Other agencies				1,300.00	450.00				1,775.00	2,700.00
Total	14,617.46	7,492.91	8,126.25	18,871.48	7,473.05	6,470.56	10,588.93	9,337.12	8,914.82	13,040.17
B. ACTIVITIES										
1. Educational:										
(a) Lectures	133	17	18	45	65	19	26	15	48	184
(b) Attendance	8,094	1,637	656	3,669	3,510	801	3,179	1,596	3,273	7,901
(c) Bulletins distributed	6,177	3,048	570	13,982	4,610	4,233	1,048	28,687	10,980	2,190
(d) Newspaper articles	36	47	39	37	190	225	8	52	24	36
(e) Circular letters	8,390	3,275	548	237	2,115	225	1,999	5,759	5,759	1
(f) Health exhibits		5			1				1	
2. Sanitary inspections:										
(a) Private premises	735	549	333	664	622	39	3,079	370	2,649	621
(b) Public premises—schools, churches, stores, camps, etc.	704	141	978	629	67	30	1,117	155	224	226
3. Special inspections:										
(a) Dairies	224	9	179	155	12	52	46		24	78
(b) Other food-producing or food-handling places	2,286	5		638		68	1,388		242	312
4. Examinations:										
(a) For life extension advice	247				155				108	46
(b) For marriage license	1								88	
(c) For work certificates (children)	5									
(d) For urinary	24							270		
(e) Of prisoners	116				25					
(f) Of food handlers	110				112				16	
(g) Of carriers					7				2	
5. Acute communicable disease control:										
(a) Visits to cases, carriers, contacts, or suspects	422	287	3,376	2,455	190	134	481	775	197	222
(b) Cases of carriers quarantined	271	122	1,880	329	51	82	424	174	165	152

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Colbert, Ala.	Decatur, Ga.	Dona Ana, N. Mex.	Dubuque, Iowa	Dunklin, Mo.	Eddy, N. Mex.	Edgecombe, N. C.	Floyd, Ga.	Franklin, Ala.	Gibson, Tenn.
Period of work in fiscal year 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927
Year of cooperation	Sixth	Fourth	Third	Sixth	Fifth	Fourth	Eighth	Fourth	Fourth	Second
3. ACTIVITIES—continued										
6. Venereal disease control:										
(a) Suspects examined.....	139	70	1	151	57	9	359	59	28	95
(b) Prophylactic treatments.....	327	91	1	477	45	1	846	193	31	656
(c) Curative treatments.....	42	27	2	29	55	3	82	8	56	47
7. Tuberculosis control:										
(a) Number examined.....	42	42	2	19	3	1	41	2	22	15
(b) Positive.....	42	25	2	26	37	1	41	5	17	33
(c) Negative.....	4	17	0	7	7	0	30	0	5	16
(d) Placed in institutions.....	231	304	43	103	79	1	539	170	104	85
(e) Home visits.....									13	
8. Persons treated for removal of hookworm.....										
9. Persons treated for prevention or cure of gonorrhea.....										
10. Sickles tested.....	578		30	41						
11. Cows tuberculin tested.....			2,964	1,634				690	233	465
12. Immunization:										
(a) Complete antityphoid inoculations.....	2,101	720	308	25	8,394	146	1,601	4,164	2,614	7,843
(b) Antismalpix vaccination.....	288	3,169	960	25	260	445	968	2,352	1,405	522
(c) Complete diphtheria toxin-antitoxin inoculations.....		881	81	8,208	49	68	533	2,232	3,371	376
(d) Persons treated with antitoxin for immediate protection against diphtheria.....	6	3	82	25				40	9	23
(e) Persons given antirabic treatment.....		10	7	2				24	3	
13. Child hygiene:										
(a) Prenatal—										
(1) Cases given advice.....	70		425	72	120	18	480	113	68	61
(2) Examinations.....	7			14	17	11	120		2	8
(3) Office consultations.....	1					2	40		5	
(4) Group conferences.....	16						114			
(5) Home visits.....	118		424	339		14	578	386	56	115
(6) Midwives instructed.....	36	18	64			25	132	21	8	
(b) Infant and preschool—										
(1) Babies and children examined.....	604	70	656	164	141	415	316	97	350	81
(2) Office consultations, mothers.....	14	303	96	105	105		26		136	53

(c) Group conferences with mothers.....	65	12	30	1,687	433	12	195	3	2
(d) Home visits.....	749	68	2,900	5,569	3,876	2,282	676	572	624
Schools.....	3,150	2,227	.....	3,927	2,901	2,262	1,203	3,110	3,390
(1) Children examined.....	1,605	1,287	.....	3,927	2,901	2,262	1,203	1,871	2,319
(2) Found defective.....	1,967	1,742	.....	6,367	5,497	3,269	323	2,985	3,977
(3) Consultations, parents (office and school).....	27	3,809	30	2,414	130	11	68	561	186
(4) Home visits.....	532	280	222	1,566	35	3	.....	434	124
(5) Talks to classes or drills in hygiene.....	41	93	24	67	210	68	.....	8	1
(6) Talks to classes for communicable disease.....	.....	65	227	221	66	.....	137	24	4
(7) Excursions from.....	.....	.....	.....	806	.....	.....	.....	.....	.....
(d) Nutritional classes—	(f) (f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
(1) Cases attending.....	210	481	139	610	67	44	226	51	51
14. Antimalaria work.....	447	659	454	4,872	91	148	619	133	232
15. Laboratory examinations:	657	1,140	563	5,352	158	192	884	184	268
(a) Positive.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
(b) Negative.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	113	203	61	44	.....	.....	90	83	393
C. RESULTS	106	26	323	48	.....	.....	80	12	5
1. Sanitary privies installed:	75	22	35	6	.....	.....	26	7	10
(a) Septic or L. R. S.....	3	17	61	219	.....	.....	2	23	120
(b) Water-tight vault.....	5	9	23	237	.....	.....	2	76	86
(c) Bucket and box.....	7	2	33	27	.....	.....	35	6	206
(d) Pit.....	.....	.....	52	1	44	2	52	.....	.....
Total.....	113	203	61	1	44	.....	90	83	393
2. Privies restored to sanitary type.....	21	25	323	48	.....	.....	80	12	5
3. Septic tanks installed.....	75	22	35	6	.....	.....	26	7	10
4. New sewer connections.....	3	17	61	219	.....	.....	2	23	120
5. New water connections.....	5	9	23	237	.....	.....	2	76	86
6. Wells or springs improved.....	7	2	33	27	.....	.....	35	6	206
7. Public milk supplies radically improved.....	.....	.....	66	69	.....	.....	12	.....	.....
8. Public food-handling places radically improved.....	.....	.....	34	18	.....	.....	2	.....	.....
9. Places producing foods for sale radically improved.....	.....	.....	100	2	.....	.....	5	.....	.....
10. Dwellings effectively screened against flies and mosquitoes.....	1,412	301	86	434	27	15	150	4	142
11. Stables made sanitary.....	217	.....	3	806	104	1	306	285	142
12. Nuisances corrected.....	.....	.....	614	.....	.....	.....	.....	1	120
13. Convictions for violation sanitary laws.....	.....	.....	10	.....	.....	.....	4	.....	.....
14. Nutritional cases improved.....	24	434	96	39	.....	.....	12	.....	.....
15. Corrections of physical defects induced:	366	44	44	1,670	231	84	84	389	.....
(a) In infants.....	.....	.....	11	141	.....	.....	.....	.....	.....
(b) In preschool children.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
(c) In school children.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
(d) In adults.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* None.

* Little.

* Considerable.

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Glimmer, W. Va.	Glynn, Ga.	Grady, Ga.	Greene, Mo.	Hamilton, Tenn.	Hancock, W. Va.	Harrison, Miss.	Harrison, W. Va.	Hinds, Miss.	Jackson, Ala.
Period of work in fiscal year 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to Mar. 31, 1927
Year of cooperation	Third	Eighth	Second	Eighth	Second	Fifth	Eighth	Fourth	Third	First
A. EXPENDITURES										
1. Rural sanitation fund (P. H. S.)	\$374.97	\$300.00	\$982.50	\$190.28	\$2,499.96	\$924.97	\$1,500.00	\$925.00	\$600.00	\$1,060.78
2. State	4,095.08		1,000.00	1,000.00	1,030.50	2,808.39	1,006.18	2,658.08	2,658.08	1,583.08
3. County	4,096.82	14,152.30	1,921.25	4,675.00	10,742.83	3,378.32	21,184.32	11,051.89	10,038.90	5,285.01
4. Municipalities		692.00		7,383.00			791.99		12,304.26	1,060.60
5. Other agencies				4,265.00	1,030.50	958.30		397.49	4,211.92	
Total	8,387.84	15,354.30	3,903.75	17,463.28	15,303.79	8,064.98	24,484.49	11,974.38	29,711.61	6,998.81
B. ACTIVITIES										
1. Educational:										
(a) Lectures	60	63	22	44	130	24	81	214	156	95
(b) Attendance	2,021	3,815	3,024	4,085	23,652	945	11,503	8,602	10,855	8,015
(c) Bulletins distributed	2,983	4,090	2,945	6,940	3,945	8,593	4,817	22,929	5,369	9,890
(d) Newspaper articles	26	31	1	6,117	117	19	239		78	41
(e) Circular letters	3,094	1,266	1,046	3,675	2	1,787	4,467	12	6,487	1,069
(f) Health exhibits	1		8	9	4			9		1
2. Sanitary inspections:										
(a) Private premises	144	5,098	300	8	5,492	25	12,630	925	7,398	2,989
(b) Public premises—schools, churches, stores, camps, etc.	71	193	190	78	4,022	1	3,464	186	120	264
3. Special inspections:										
(a) Dairies	68	607	44	129	601		137	34	918	16
(b) Other food-producing or food-handling places	68	809			339		9	27	10,823	266
4. Examinations:										
(a) For life extension advice	147	10		53	170		107	5	57	7
(b) For marriage license		16		1	208	2	1	1		
(c) For work certificates (children)	8	6		32	18		4	12		
(d) For lunacy	96	2		63	21	97	7	391		
(e) Of prisoners	24	237		67	67		93		1	
(f) Of food handlers										
5. Acute communicable disease control:										
(a) Visits to cases, carriers, contacts, or suspects	48	1,394	105	859	548	341	166	610	241	97
(b) Cases or carriers quarantined	34	308	47	205	282	97	1,305	434	204	72

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Gilmer, W. Va.	Glynn, Ga.	Grady, Ga.	Greene, Mo.	Hamilton, Tenn.	Hancock, W. Va.	Harrison, Miss.	Harrison, W. Va.	Hinds, Miss.	Jackson, Ala.
Period of work in fiscal year 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to Mar. 31, 1927
Year of cooperation	Third	Eighth	Second	Eighth	Second	Fifth	Eighth	Fourth	Third	First
	8 4 12 12	51	163		535		277 10	2		1
	36	51	163		535		322	308	704	173
							609	310	704	173
C. RESULTS										
1. Sanitary privies installed:										
(a) Septic or T. R. S.		328	27		157		719	838	70	140
(b) Water-tight vault.		178	74		82		257	4	11	8
(c) Bucket and box.			15		113		5	5	325	12
(d) Pit.			34		136		388	4	14	10
Total			2		98		13	40	30	6
2. Privies restored to sanitary type.		46	82		70		35			
3. Septic tanks installed.		100	3		213		37			
4. New sewer connections.		28	15		110		44			
5. New water connections.		72	309		946		29	784	389	104
6. Wells or springs improved.					32		11			1
7. Public milk supplies radically improved.										
8. Public food handling places radically improved.										
9. Places producing foods for sale radically improved.										
10. Dwellings effectively screened against flies and mosquitoes.										
11. Stables made sanitary.										
12. Nuisances corrected.										
13. Convictions for violation sanitary laws.										
14. Nutritional cases improved.										
15. Corrections of physical defects induced:										
(a) In infants.	1	9		1						
(b) In preschool children.	1	72		13						
(c) In school children.	1	136	22	373	135		1,503	48	1,933	59
(d) In adults.	1			8						84

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Jackson, Mo.	Jefferson, Ark.	Jefferson, Kans.	Kanawha, W. Va.	La-fourche, La.	Lauderdale, Ala.	Laurens, Ga.	Lawrence, Ala.	Lewis and Clark, Mont.	Limestone, Ala.
Period of work in fiscal year 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	Sept. 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927
Year of cooperation	Third	Second	Second	First	Third	Eighth	Sixth	Second	Sixth	Fourth
A. EXPENDITURES										
1. Rural sanitation fund (P. H. S.)	\$450.00	\$1,500.00	\$2,400.00	\$250.00	\$600.00	\$1,074.96	\$300.00	\$1,249.92	\$2,400.00	\$300.00
2. State	3,539.96	600.00	6,000.00	2,284.20	1,200.00	2,233.32	3,790.00	4,596.00	300.00	2,499.96
3. County	9,086.77	3,000.00	6,589.34	12,706.03	1,800.00	4,200.00	4,460.00	5,141.37	2,548.56	4,992.45
4. Municipalities	220.96	2,760.00	.....	.....	.....	230.00	.....	.....	2,548.58	.....
5. Other agencies	1,120.00	4,758.13	.....	1,618.98	.....	6,391.05	.....	1,350.00	300.00	1,542.50
Total	14,417.69	12,618.13	8,989.34	16,859.21	3,600.00	14,126.33	4,760.00	8,991.22	8,097.14	9,334.91
B. ACTIVITIES										
1. Educational:										
(a) Lectures	132	37	8	85	86	101	54	104	14	135
(b) Attendance	14,326	2,322	710	5,361	10,627	6,420	3,790	4,596	1,070	10,996
(c) Bulletins distributed	41,065	3,283	8,574	5,006	453	27	550	7,099	2,339	7,665
(d) Newspaper articles	306	31	132	53	4	125	125	54	138	69
(e) Circular letters	17,000	2,294	5,651	1,114	63	8,556	490	391	107	2,317
(f) Health exhibits	1	15	2	4	.....	.....	1	2	4	.....
2. Sanitary inspections:										
(a) Private premises	284	334	20	974	.....	1,112	200	1,133	69	1,248
(b) Public premises—schools, churches, stores, camps, etc.	192	61	1	632	196	.....	126	365	111	522
3. Special inspections:										
(a) Dairies	44	103	.....	32	.....	94	87	.....	92	18
(b) Other food-producing or food-handling places	3	1,196	.....	83	19	453	86	275	174	930
4. Examinations:										
(a) For life extension advice	52	74	.....	36	69	68	26	3	107	88
(b) For marriage license	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
(c) For work certificates (children)	188	2	.....	185	2	52	5	1	.....	144
(d) For lunacy	.....	4	.....	.....	.....	13	.....	.....	.....	11
(e) Of prisoners	.....	16	38	381	.....	30	.....	.....	.....	21
(f) Of food handlers	.....	21	4	.....	29	.....	68	.....	.....	45
Total	16	21	4	.....	29	.....	68	.....	.....	25

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Jackson, Mo.	Jefferson, Ark.	Jefferson, Kans.	Kansawa, W. Va.	La-fourche, La.	Landerdale, Ala.	Levens, Ga.	Lawrence, Ala.	Lewis and Clark, Mont.	Limestone, Ala.
Period of work in fiscal year 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	Sept. 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927
Year of cooperation	Third	Second	Second	First	Third	Eighth	Sixth	Second	Sixth	Fourth
B. ACTIVITIES—continued										
5. A ante communicable disease control:										
(a) Visits to cases, carriers, contacts, or suspects	1, 837	646	101	261	162	287	160	135	606	294
(b) Cases or carriers quarantined	1, 838	243	264	384	113	340	63	130	184	63
6. Venereal-disease control:										
(a) Suspects examined	20	588	17	7	3	117	56	1	19	265
(b) Prophylactic treatments	4	885	17		15	202	45		2	444
(c) Curative treatments	8						25			
7. Tuberculosis control:										
(a) Number examined	88	97	8	127	6	32	36	4	27	83
(b) Positive	33	10	1	14	2	13	18	2	18	26
(c) Negative	6	47	7	113	4	19	23	2	9	56
(d) Placed in institutions	14	13		8		4	10		8	
(e) Home visits	733	196	16	230	2	154	23	90	81	111
8. Persons treated for removal of hookworm										
9. Persons treated for prevention or cure of gonorr.										
10. Schick tests										
11. Cows tuberculin tested		23	4	278	127	151		1	151	3
12. Immunisation:		790	168	4, 747		1, 054			2, 113	765
(a) Complete antityphoid inoculations	63	1, 758	12	1, 122	1, 968	4, 700	5, 600	2, 340	78	4, 889
(b) Antimalarial vaccination	5, 441	661	686	5, 629	4, 423	1, 342	3, 072	416	188	341
(c) Complete diphtheria toxin-antitoxin inoculations	43	112	1, 243	467	2, 585	90	2, 080		496	189
(d) Persons treated with antitoxin for immediate protection against diphtheria	61	93	4	33		89	64		42	19
(e) Persons given antirabic treatment	104			4		38	92			5
13. Child hygiene:										
(a) Cases given advice	100	187	11	838		77	51	180	82	84
(b) Examinations	60	3	1	1	4	5	60	26	26	26
(c) Office consultations	7	12	1	1		29	60	2	35	15
(d) Group conferences	8	198		35		22	30		35	
(e) Home visits	64	297		338	4	173	38	208	112	112
(f) Midwives instructed	16	72				64	51	3	33	80

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Loosa, W. Va.	Lyon, Kans.	Madison, Ala.	Marion, Mo.	Marion, W. Va.	Marshall, W. Va.	Mason, Ky.	McKinley, N. Mex.	Morgan, Tenn.	New Madrid, Mo.
Period of work in fiscal year 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to Nov. 30, 1926	July 1, 1926, to June 30, 1927
Year of cooperation	Sixth	Second	Eighth	Second	Fifth	Third	Eighth	Fourth	Second	Sixth
A. EXPENDITURES										
1. Rural sanitation fund (P. H. S.)	\$275. 00	\$1, 200. 00	\$300. 00	\$600. 00	\$225. 00	\$899. 96	\$300. 00	\$284. 17	\$270. 80	\$900. 00
2. State	11, 168. 41	4, 480. 28	7, 990. 99	2, 611. 07	9, 781. 61	2, 875. 00	2, 264. 10	2, 700. 00	366. 96	1, 943. 23
3. County			5, 891. 68	3, 217. 06		6, 404. 82	3, 391. 44	4, 451. 23	366. 96	3, 820. 00
4. Municipalities		1, 800. 00	3, 790. 09	2, 384. 91		2, 449. 92	1, 894. 53			250. 00
5. Other agencies										
Total	11, 441. 41	7, 480. 28	20, 461. 66	12, 163. 53	11, 156. 61	12, 629. 70	7, 880. 07	7, 435. 40	1, 004. 70	6, 610. 23
B. ACTIVITIES										
1. Educational:										
(a) Lectures	104	46	141	114	68	61	30	122	12	87
(b) Attendance	2, 568	2, 942	7, 091	4, 427	3, 407	4, 969	2, 945	2, 425	2, 250	4, 250
(c) Bulletin distributed	3, 187	3, 710	5, 281	5, 286	5, 170	12, 272	4, 597	3, 366	820	3, 260
(d) Newspaper articles	80	64	216	50	186	87	162	30	6	120
(e) Circular letters	105	1, 445	3, 124	2, 372	16	4, 455	593	144		2, 269
(f) Health exhibits	1	4	1	2		2	10	9		
2. Sanitary inspections:										
(a) Private premises	1, 687	60	12, 067	405	167	154	356	606	832	300
(b) Public premises—schools, churches, stores, camps, etc.	349	322	179	233			280	163		79
3. Special inspections:										
(a) Dairies	84	84	167	283	59	91	359	46		1
(b) Other food-producing or food-handling places	121	121	716	370	146	347	1, 378	162		
4. Examinations:										
(a) For life extension advice			109	64						
(b) For marriage license			282							
(c) For work certificates (children)	11		482	34		6	39			
(d) For lunacy	3	14	21	2	4					
(e) Of prisoners	168	69	293	10		19	77			
(f) Of food handlers	56	7	120	177						
5. Acute communicable disease control:										
(a) Visits to cases, carriers, contacts, or suspects	585	2, 032	346	2, 845	299	1, 176	155	498		146
(b) Cases or carriers quarantined	591	893	111	912	589	442	46	245		50

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Loran, W. Va.	Lyon, Kans.	Madison, Ala.	Marion, Mo.	Marion, W. Va.	Marshall, W. Va.	Mason, Ky.	McKinley, N. Mex.	Morgan, Tenn.	New Madrid, Mo.
Period of work in fiscal year 1927	July 1, 1926 to June 30, 1927	July 1, 1926 to June 30, 1927	July 1, 1926 to June 30, 1927	July 1, 1926 to June 30, 1927	July 1, 1926 to June 30, 1927	July 1, 1926 to June 30, 1927	July 1, 1926 to June 30, 1927	July 1, 1926 to June 30, 1927	July 1, 1926 to Nov. 30, 1926	July 1, 1926 to June 30, 1927
Year of cooperation	Sixth	Second	Eighth	Second	Fifth	Third	Eighth	Fourth	Second	Sixth
C. RESULTS										
1. Sanitary privies installed:	195	7	45	7	268	7	6	1	1	1
(a) Septic or L. R. S.										
(b) Water-tight vault			45							
(c) Bucket and box		18	67	38			10	72	423	5
(d) Pit	86									10
Total	281	25	112	45	268	7	25	72	423	11
2. Privies restored to sanitary type	418	14	441	90	3	71	89	26		1
3. Septic tanks installed	4	109	21	5		3	3			60
4. New sewer connections	28	112	193	16		38	108	27		61
5. New water connections	22	88	29	22	1		144	30		
6. Wells or springs improved	13	58	2	42		5	60	7	19	
7. Public milk supplies radically improved	58	5	0	0		5	25	1		
8. Public food-handling places radically improved	9	3	4	18	39	100	1	13		2
9. Places producing foods for sale radically improved					18	2				
10. Dressings effectively screened against flies and mosquitoes	11		21	4		2	2,865	30	344	30
11. Staples made sanitary										
12. Nuisances corrected	215	52	462	219	53	80	343	39	10	
13. Convictions for violation sanitary laws	2	2	12	12		1	2			
14. Nutritional cases improved	362	34					144	80		90
15. Corrections of physical defects induced:										
(a) In infants	26		18	2	3	2	32	39		90
(b) In preschool children	1,536	417	372	364	1,082	2	87	47		70
(c) In school children			4	4		6	491	321		180
(d) In adults		2				6	20	51		215

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Nodaway, Mo.	Obion, Tenn.	Oklahoma, Okla.	Oklmullgee, Okla.	Ottawa, Kans.	Ottawa, Okla.	Femisco, Mo.	Pettis, Mo.	Preston, W. Va.	Pulaski, Ark.
Period of work in fiscal year 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927
Year of cooperation	Sixth	Second	Third	Second	Second	Eighth	Second	Sixth	Fifth	Third
A. EXPENDITURES										
1. Rural sanitation fund (P. H. S.)	\$376.09	\$300.00	\$999.96	\$1,999.92	\$1,200.00	\$1,999.92	\$225.00	\$371.67	\$375.00	\$1,999.92
2. State	1,898.33	1,699.78	1,499.78	2,499.96	3,102.84	3,519.96	1,125.00	2,554.81	5,153.61	600.00
3. County	7,577.47	5,080.28	3,102.84	4,719.06	5,689.92	6,810.00	2,614.76	3,000.00	6,948.10	11,134.68
4. Municipalities				179.50			1,200.00	450.00		
5. Other agencies								988.76	1,250.00	
Total	9,810.90	9,085.28	5,512.58	9,398.43	6,889.92	12,329.88	5,164.76	7,565.24	13,924.71	13,734.58
B. ACTIVITIES										
1. Educational:										
(a) Lectures	126	176	3	110	11	163	30	53	502	116
(b) Attendance	5,100	10,915	200	3,920	530	4,943	3,650	2,761	11,856	6,768
(c) Bulletins distributed	12,583	4,514	2,753	10,982	8,716	18,190	5,775	11,750	5,474	1,824
(d) Newspaper articles	106	56	4	27	95	178	40	178	37	53
(e) Circular letters	3,138	312		401	1,460	853	1,013	2,803	2,603	535
(f) Health exhibits		1	2	3		4	4	20	2	3
2. Sanitary inspections:										
(a) Private premises	259	1,516	45	935	42	853	192	16	1,757	756
(b) Public premises—schools, churches, stores, camps, etc.	133	47	99	1,359	176	1,043	28	104	540	149
3. Special inspections:										
(a) Dairies		57	2	69	8	29		7	49	50
(b) Other food-producing or food-handling places		473	144	155		31			216	1
4. Examinations:										
(a) For life-extension advice	43	91		6	186					40
(b) For marriage license										
(c) For work certificates (children)		10		4		17	20	7	10	3
(d) For lunacy		33		13	13	28	75	9	15	5
(e) Of prisoners				3		1		4		
(f) Of food handlers										
(g) Of communicable disease control:										
(a) Visits to cases, carriers, contacts, or suspects	391	133	145	250	332	289	50	245	236	230
(b) Cases or carriers quarantined	238	130	62	300	328	199	18	160	302	22

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts).....	Nodaway, Mo.	Oblon, Tenn.	Oklahoma, Okla.	Oklmull-gee, Okla.	Ottawa, Kans.	Ottawa, Okla.	Pemisscot, Mo.	Pettis, Mo.	Preston, W. Va.	Pulaski, Ark.
Period of work in fiscal year 1927.....	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927
Year of cooperation.....	Sixth	Second	Third	Second	Second	Eighth	Second	Sixth	Fifth	Third
B. ACTIVITIES—continued										
6. Venereal disease control:										
(a) Suspects examined.....	3	124	37	67		156	55	375	22	5
(b) Prophylactic treatments.....		197	1,286	250		916	131	1,492	46	1
(c) Curative treatments.....										
7. Tuberculosis control:										
(a) Number examined.....	22	12	4	83	1	12	15	56	6	21
(b) Positive.....	3	9	3	35	1	7	8	17	2	10
(c) Negative.....	19	3	1	48		4	7	39	4	11
(d) Placed in institutions.....		1		13		2	4	6		6
(e) Home visits.....	30	33	6	126	3	3	36	412	37	37
8. Persons treated for removal of hookworm.....		8					71		244	6
9. Persons treated for prevention or cure of goiter.....	28									
10. Schick tests.....	195									
11. Cows tuberculin tested.....	11				69		25			2,130
12. Immunization:										
(a) Complete antityphoid inoculations.....	5	3,656	3,141	946	15	401	4,206	14	1,418	10,147
(b) Antismalpox vaccinations.....	25	269	1,803	3,496	15	452	194	40	1,319	890
(c) Complete diphtheria toxin-antitoxin inoculations.....		950	1,172	26	303		443		1,277	76
(d) Persons treated with antitoxin for immediate protection against diphtheria.....	7	29	6	18	1	34				2
(e) Persons given antitrab treatment.....	1	9				23				1
13. Child hygiene:										
(a) Prenatal:										
(1) Cases given advice.....	24	10		15	6	14	38	36	200	13
(2) Examinations.....		4		9	1	3	2	2	3	
(3) Office consultations.....		8		7	6		10	6	8	1
(4) Group conferences.....									32	
(5) Home visits.....				4	24		35	14	424	14
(6) Midwives instructed.....	46			16						
(b) Infant and preschool:										
(1) Babies and children examined.....	157	185		26	280	47	131	514	572	88
(2) Office consultations, mothers.....	157	35		21	409	45	68	438	18	149

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Rhea, Tenn.	Roane, W. Va.	St. Francois, Mo.	St. Louis, Mo.	San Diego, Calif.	San Joaquin, Calif.	Santa Barbara, Calif.	Santa Fe, N. Mex.	Talladega, Ala.	Union, Miss.
Period of work in fiscal year 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1927, to June 30, 1927
Year of cooperation	Second	Second	Fifth	Second	Third	Fifth	Third	Fifth	Eighth	First
A. EXPENDITURES										
1. Rural sanitation fund (P. H. S.)	\$649.92	\$300.00	\$718.00	\$600.00	\$2,496.96	\$999.96	\$1,364.14	\$300.00	\$1,199.91	\$150.00
2. State	423.00	1,969.43	2,372.98	3,404.00	3,300.00	91,714.70			3,289.94	920.40
3. County	1,484.83	3,933.79	2,318.78	13,394.98	40,684.50		7,028.82	4,000.00	3,327.80	1,943.06
4. Municipalities			363.13	370.00			1,106.00		1,274.31	
5. Other agencies		1,969.49	11,922.23	1,663.00		1,800.00			840.00	920.09
Total	2,569.75	8,177.71	13,324.73	19,399.98	43,484.46	94,514.66	8,532.96	4,300.00	11,891.98	3,933.25
B. ACTIVITIES										
1. Educational:										
(a) Lectures	33	29	26	39	75	63	38	9	59	14
(b) Attendance	967	2,063	2,310	2,460	3,466	5,235	2,635	404	1,138	1,125
(c) Bulletins distributed	2,881	16,309	11,544	16,900	5,601	1,568	418	84	3,013	
(d) Newspaper articles	17	43	71	73	8	324	79	34	41	
(e) Circular letters	310	1,545	878	4,883	407	22,673	1,077	43	2,401	760
(f) Health exhibits		5	5	1						
2. Sanitary inspections:										
(a) Private premises	1,568	146	949	989	2,266	3,711	188	343	2,921	7
(b) Public premises—schools, churches, stores, camps, etc.		93	188	207	459	1,569	146	190	568	2
3. Special inspections:										
(a) Dairies		27		43	2,687	6,774	17	57	110	3
(b) Other food-producing or food-handling places	166	36	4	8	1,654	7,118	37	20	1,648	9
4. Examinations:										
(a) For life extension advice				11		5,263			21	
(b) For marriage license				97		20			19	
(c) For work certificates (children)		3	4	1					53	
(d) For lunacy				39		297			7	
(e) Of prisoners		18		427					84	
(f) Of food handlers									10	
5. Acute communicable disease control:										
(a) Visits to cases, carriers, contacts, or suspects		34	2,640	1,394	3,442	17,777	383	460	290	30
(b) Cases or carriers quarantined		10	820	1,840	1,813	459	176	483	57	21

	40	95	47	5	1,041	1	10	270	6
6. Venereal disease control:									
(a) Suspects examined.....	50	239	134		9,680	11	6	1,410	
(b) Prophylactic treatments.....	173	69	116	17	217	59		65	
(c) Curative treatments.....	11	7	96	6	65	20		34	
7. Tuberculosis control:	163	62	30	11	162	39		31	
(a) Number examined.....	16	4	19	3	47	1	1		
(b) Positive.....	1	263	709	82	689	153		786	
(c) Negative.....								3	
(d) Placed in institutions.....									
(e) Home visits.....									
8. Persons treated for removal of hookworm.....	1								
9. Persons treated for prevention or cure of gonorrhea.....									
10. Schick tests.....	270		140	11,434	1,581		10	3	
11. Cows tuberculin tested.....							37	590	
12. Immunisation:									
(a) Complete antityphoid inoculations.....	1,389	110	31	108	772		97	1,439	364
(b) Antimalarial vaccinations.....	934	709	1,374	371	2,008	405	652	704	180
(c) Complete diphtheria toxin-antitoxin inoculations.....		1,879	292	131	4,140		42	96	932
(d) Persons treated with antitoxin for immediate protection against diphtheria.....	5		26		68		42	50	
(e) Persons given antitoxic treatment.....	2		22		15		8	26	1
13. Child hygiene:									
(a) Prenatal:									
(1) Cases given advice.....	10								
(2) Examinations.....	10	28	30	44	374	7	9	60	
(3) Office consultations.....	10		21		348	4		56	
(4) Group conferences.....	11	1	19	1	197	1	3	5	
(5) Home visits.....									
(6) Midwives instructed.....		26	225	70	242	10	6	129	
(b) Infant and preschool:									
(1) Babies and children examined.....	102	407	378	362	4,030	18	26	1,131	137
(2) Office consultations, mothers.....	79	394		125	1,270	1	13	91	
(3) Group conferences with mothers.....	2	1	4	52	46			76	3
(4) Home visits.....	2	348	338	678	10,847	39	13	954	
(c) School:									
(1) Children examined.....	3,414	5,876	4,077	2,522	10,950	3,452	3,051	3,906	1,022
(2) Round defective.....	2,408	4,166	3,522	1,771	4,348	871	489	2,810	573
(3) Defects found.....	4,197	17,825	8,463	2,425	6,008	1,565	980	3,077	1,096
(4) Consultations, parents (office and school).....	20	215	385	88	1,079	1,467	64	81	
(5) Home visits.....	15	703	667	2,122	16,733	1,009	20	188	
(6) Talks to classes or drills in hygiene.....	106	200	42	344	686	121	19	26	
(7) Exclusions for communicable disease.....	40	17	172	83	2,436	69	451		
(8) Nutritional classes.....									
(9) Cases attending.....				140					
14. Antimalaria work.....									
15. Laboratory examinations:									
(a) Positive.....	70	235	223	52	1,192	16	21	296	13
(b) Negative.....	71	669	142	736	4,338	40	26	620	27
Total.....	141	904	365	798	5,530	56	47	916	40

* Little.

* Considerable.

* None.

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Rhea, Tenn.	Roane, W. Va.	St. Francois, Mo.	St. Louis, Mo.	San Diego, Calif.	San Joaquin, Calif.	Santa Barbara, Calif.	Santa Fe, N. Mex.	Taladega, Ala.	Union, Miss.
Period of work in fiscal year 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927
Year of cooperation	Second	Second	Fifth	Second	Third	Fifth	Third	Fifth	Eighth	First
C. RESULTS										
1. Sanitary privies installed:										
(a) Septic or L. R. S.		12	2	8					1	
(b) Water-tight vault										
(c) Bucket and box	557	39	19	10			11	23	20	4
(d) Pit									123	
Total	557	51	21	18			11	23	144	4
2. Privies restored to sanitary type	194	2	97	70			16	80	98	
3. Septic tanks installed	6	7	14	14	508		9	4	4	
4. New sewer connections	52	19	23	151	1,707	667	27	27	10	
5. New water connections	3	4	37	119	1,707	532	52	28	19	
6. Wells or springs improved	30	34	7	67	1, 14		4	3	6	2
7. Public milk supplies radically improved				12				17	3	
8. Public food-handling places radically improved	6	17	5		200		5	18	18	
9. Places producing foods for sale radically improved		16					4	4	4	
10. Places producing feeds for sale radically improved	5	5						4	10	
11. Dwellings effectively screened against flies and mosquitoes		3		13			1	68	137	
12. Stables made sanitary	17	45	73	570	33	652	31	186	245	
13. Nuisances corrected				36		3	2		4	
14. Convictions for violation, sanitary laws			107		124			1		
15. Nutritional cases improved										
Corrections of physical defects included:										
(a) In infants	1	2	2	13	3	14	2		7	
(b) In preschool children				11	13	49	1		13	
(c) In school children	178	1, 187	1, 187	162	310	1, 215	223	10	264	273
(d) In adults	6			71	22	609	4	1		

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Union, N. Mex.	Va. lencia, N. Mex.	Walker, Ala.	Walker, Ga.	Wash- ington, La.	Washing- ton, Miss.	Weakley, Tenn.	Wood, W. Va.	10 Virginia counties	Total
Period of work in fiscal year 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	Nov. 1, 1926, to June 30, 1927	July 1, 1926, to June 30, 1927	
Year of cooperation	Seventh	Fourth	Eighth	Eighth	Sixth	Fourth	Second	First	First to ninth	
A. EXPENDITURES										
1. Rural sanitation fund (P. H. S.)	\$275.00	\$300.00	\$898.66	\$1,740.00	\$2,100.00	\$1,350.00	\$300.00	\$300.00	\$3,716.25	\$45,358.09
2. State	150.00	445.00	1,873.00	4,837.19	2,000.16	6,649.32	1,947.50	3,291.94	10,015.05	213,708.56
3. County	5,262.88	6,094.29	4,783.51	4,837.19	2,822.08	3,869.71	3,778.31	3,693.99	14,023.25	480,694.41
4. Municipalities		560.00	1,773.00		1,320.32	2,730.00		2,000.00		80,304.39
5. Other agencies						700.00				51,324.37
Total	5,687.88	7,319.29	9,334.17	6,677.19	8,242.56	9,329.03	8,573.31	9,185.93	27,757.45	921,570.02
B. ACTIVITIES										
1. Educational:										
(a) Lectures	27	93	117	93	62	240	285	156	396	6,708
(b) Displays	725	4,813	4,436	5,405	6,078	5,625	11,322	15,220	30,354	373,604
(c) Bulletins distributed	405	2,052	1,060	3,206	19,894	3,559	2,940	4,130	12,920	526,263
(d) Newspaper articles	21	9	31	15	21	96	29	240	141	5,683
(e) Circular letters	500	582	74	572	2,001	1,225	643	544	2,055	161,899
(f) Health exhibits	4	7		1	1		6			530
2. Sanitary inspections:										
(a) Private premises	241	219	1,938	2,501	5,447	9,882	462	630	16,891	132,790
(b) Public premises—schools, churches, stores, camps, etc.	129	314	192	161	283	2,116	211	485		26,956
3. Special inspections:										
(a) Dairies	11	5	109	319	373	10	46	144		16,782
(b) Other food-producing or food-handling places	100	26	354	72	83	1,217	898	547	2,223	41,105
4. Examinations:										
(a) For life extension advice	1		97		72	10				8,259
(b) For marriage license			117		2					758
(c) For work certificates (children)		6	50	67				53		1,943
(d) For lunacy	19	50	60				7			636
(e) Of prisoners	15	11	72				16			3,999
(f) Of food handlers	21		84	14	70			1,074		3,760
5. Acute communicable disease control:										
(a) Visits to cases, carriers, contacts, or suspects	2,226	1,146	491	239	129	190	165	109		66,097
(b) Cases or carriers quarantined	747	1,168	400	48	78	64	164	109		25,378

Compilation of data, by counties, on cooperative demonstration work in rural sanitation in the fiscal year 1927—Continued

Counties (or districts)	Union, N. Mex.	Var- lence, N. Mex.	Walker, Ala.	Walker, Ga.	Wash- ington, La.	Washing- ton, Miss.	Weakley, Tenn.	Wood, W. Va.	10 Virginia counties		Total
									July 1, 1926, to June 30, 1927	First to month	
Period of work in fiscal year 1927	Seventh	Fourth	Eighth	Eighth	Sixth	Fourth	Second	First	July 1, 1926, to June 30, 1927	First to month	
Year of cooperation	Seventh	Fourth	Eighth	Eighth	Sixth	Fourth	Second	First	July 1, 1926, to June 30, 1927	First to month	
6. Venereal disease control:											
(a) Suspects examined	27	12	68	3	3	59	3	410			7,282
(b) Prophylactic treatments	1	11	41	10		67	20	1,180			1,185
(c) Curative treatments											31,688
7. Tuberculosis control:											
(a) Number examined	11	9	47	23	15	61	14	36		160	5,006
(b) Positive	5	3	24	2	8	54	2	1			1,299
(c) Negative	6	6	23	21	7	7	11	35			3,707
(d) Placed in institutions											10,966
(e) Home visits	7	62	112	32	34	189	23	42			1,811
8. Persons treated for removal of hookworm			78		117			104			1,361
9. Persons treated for prevention or cure of gonorr.		284									6,289
10. Sanitary tests											64,247
11. Cows tuberculin tested			578	1,898	1,097		2,047	175		3,116	
12. Immunization:											
(a) Complete antityphoid inoculations	28	26	1,660	1,903	2,149	49,075	4,368	2,026	987		167,164
(b) Antismalpix vaccination	433	608	11,141	13	621	1,491	763	1,180	2,086		68,812
(c) Complete diphtheria toxin-antitoxin inoculations	6	80	660	660	843	577	1,546		6,317		88,996
(d) Persons treated with antitoxin for immediate protection against diphtheria		3	123		33	23					1,755
(e) Persons given antiviral treatment			49	3		1					568
13. Child hygiene:											
(a) Prenatal—											
(1) Cases given advice	2	103	103	9	81	86	41	261			6,407
(2) Examinations	8		1		26			261			1,530
(3) Office consultations	21	101	4	21	65		1	63			1,283
(4) Group conferences			81		8			6			638
(5) Home visits		107	184	18	137	78	45	46			7,255
(6) Midwives instructed	5	31	2		4	115	3	4			2,049
(b) Infant and preschool—											
(1) Babies and children examined	63	414	119	50	221	14	48	169			23,995
(2) Office consultations, mothers	14	45	23	101	167		20	20			7,581
(3) Group conferences with mothers	7		36	27							1,389
(4) Home visits	202	326	386	37	304	109	367	23			39,688

The Cape Cod Project

The cooperative rural health work begun in May, 1921, under the direction of a whole-time district health officer in a group of the 15 towns (townships) in Cape Cod, Mass.,¹³ continued on its original basis to January 1, 1927, when, under a special act of the Massachusetts Legislature, the local health service was organized on a county basis and became operative as the Barnstable County Health Department, under the direction of a whole-time county health officer.

In the period of over five and a half years of service on the district plan the number of towns participating in the project was each year 10 or 11. The appropriations for health service in the towns participating were pooled into one fund, and the same person was appointed health officer for each of the towns. In order for a town to be included or to continue for another year in the combination, its board of selectmen had to obtain authorization from the citizens under a practically unanimous consent agreement at a town meeting. The citizens realized that the cooperative district plan provided, at small additional cost, more and better health service than they had obtained previously from their town unit part-time health service. Therefore, they continued to support the district plan until a better arrangement could be made. Such district plan, with its demonstrated success on Cape Cod, seems applicable to those States in which the town, township, or borough, instead of the county, is the rural unit of local government with respect to public health administration.

The establishment of the whole-time health service on a county unit basis simplifies administration, enhances satisfactory coordination of all local health activities, and presents other practical advantages. The appropriation made by the county commissioners for the support of the Barnstable County Health Department in the calendar year 1927 is \$8,500, as against \$5,840 provided by the 10 towns included in the Cape Cod Health Bureau district for health service in the calendar year 1926.

Barnstable County, Mass., is the first county in New England to establish a county health department. The precedent is of historic interest and is expected to prove of both local and far-reaching practical importance.

¹³ Reprint No. 693 from Public Health Reports of Oct. 7, 1921, pp. 11, 12; Reprint No. 738, from Public Health Reports of Sept. 20, 1922, p. 14; Reprint No. 887, from Public Health Reports of Dec. 14, 1923, p. 16; Reprint No. 964, from Public Health Reports of Oct. 17, 1924, p. 18; Reprint No. 1047, from Public Health Reports of Oct. 23, 1925, p. 27; and Reprint No. 1218, from Public Health Reports of Oct. 23, 1926, p. 31.

Sanitary Officer Projects in Virginia and Tennessee Counties

The plan of special demonstration work in rural sanitation inaugurated in Virginia in the fiscal year 1920 was carried out in 10 counties¹⁴ in that State and in three counties¹⁵ in Tennessee in the fiscal year 1927. This plan, which is described in previous reports,¹⁶ continues to prove highly successful. It meets remarkably well the situations in rural counties in which effective health work, if done at all, must be done on a low-cost basis, and in which outdoor sanitary measures are especially needed. The cost for such service in the average county is about \$2,750 a year. The county sanitary officer is engaged on a whole-time basis. He does not have to be a graduate in medicine or engineering, but he must be a trained, practical sanitarian. Along with his sanitary work, he carries out, with the active cooperation of the local physicians, most of the other activities expected of a whole-time county health officer with a medical degree.

The results accomplished in the county sanitary officer projects become more impressive from year to year. Some of these counties are now among the foremost in the list of rural counties in the United States presenting high-grade demonstrations in sanitary progress.

This county sanitary officer plan, after eight years of testing, appears to offer to the counties to which it is appropriate as large a return on the investment for county health service as any other yet tried of proposed.

The following excerpts from a report submitted by Scientific Assistant Geo. S. Bote, who, as a representative of both the Public Health Service and the Virginia State Board of Health, had supervision of the county sanitary officer projects in Virginia during the fiscal year 1927, are indicative:

The sanitary officer plan of health work was started in Virginia, through the cooperation of the United States Public Health Service with the State board of health, in 1919. It has been in continuous operation since its inception and the service has allotted funds and furnished personnel to assist the State board of health in promoting and developing it. It was devised to provide full-time health service at small cost for those counties of the State in which the assessed values were low and in which no organized health work was being carried on.

It has worked admirably in Virginia and has been the means of starting full-time health work in rural counties many years sooner than would have otherwise been the case. So, to-day, because of this economical arrangement, we find that the people in these counties have a trained sanitary officer to care for their

¹⁴ Charlotte, Chesterfield, Greensville, Henry, Lee, Prince Edward, Pulaski, Roanoke, Smyth, and Washington.

¹⁵ Anderson, Morgan, and Rhea.

¹⁶ Reprint No. 615, from Public Health Reports of Oct. 1, 1920, pp. 10, 12; Reprint No. 699, from Public Health Reports of Oct. 7, 1921, pp. 12, 14; Reprint No. 788, from Public Health Reports of Sept. 29, 1922, pp. 14, 17; Reprint No. 887, from Public Health Reports of Dec. 14, 1923, pp. 16, 18; Reprint No. 964, from Public Health Reports of Oct. 17, 1924, pp. 18, 21; Reprint No. 1047, from Public Health Reports of Oct. 23, 1925, pp. 27, 28; Reprint 1118, from Public Health Reports of Oct. 22, 1926, pp. 31, 32.

fundamental health needs in a systematic and efficient manner, and at a cost which is well within the means of even the smallest county. The money invested in the employment of a sanitary officer continues to give a high return on the investment and has brought about a reduction in the general mortality rate in those counties operating under this plan.

EXPANSION OF WORK

At the beginning of this fiscal year nine counties were in operation under the sanitary officer plan. During the year, financial arrangements were completed in Lee County and activities began there on January 1, 1927. This increased the number in operation to 10 counties for the latter half of the year.

Further expansion is assured for next year when two more counties will be added to the group. Appropriations for this purpose have already been made available in Essex and Fairfax Counties, and arrangements have been perfected for the work to start July 1, 1927.

* * * * *

ACTIVITIES

The statistical sheet, which is attached hereto, shows in detail the activities carried on and the results accomplished during the year in the 10 counties. From a study of this summary it can be seen that a wide field of endeavor has been covered, and that excellent results have been obtained. The major activities, however, have been directed toward securing sanitary excreta disposal, safe water supplies, clean milk, and screened homes. Some work on mosquito control was done in practically all of the counties.

SANITARY EXCRETA DISPOSAL

Progress has been made in the sanitation of the homes, schools, stores, dairies, and business places located in these counties. During the year, 1,447 places were provided with sanitary privies of various types, 369 of these being homes which never before had a toilet of any kind. The resanitation of many homes was accomplished, and 1,684 privies of sanitary type, which had become insanitary after years of usage, were fixed over and again restored to a sanitary condition.

* * * * *

In addition to the sanitary privies, 379 septic tanks were built to care for the sewage from homes provided with running water and inside plumbing fixtures. These septic tanks, with adequate subsoil drainage systems, took the place, in many instances, of open sewers and overflowing cesspools.

In the privy-construction work this year each sanitary officer has endeavored to build a better type of sanitary toilet. The double-wood slab and the concrete-slab type of privies have been installed in greater numbers than ever before. The need for more durable and lasting construction is clearly indicated by the number of sanitary privies which needed repairing during the year.

NEW-TYPE PRIVY SEAT LID

The new-type privy seat lid, which was designed several years ago for the purpose of eliminating the moisture of condensation on the privy seats, has been thoroughly tested. It has proved a valuable adjunct to the sanitary equipment. It has been widely used by the sanitary officers throughout the State. In addition to 2,500 such lids which were distributed at one time, many local carpenters have copied the model and made the lids locally. Reports received in response to inquiries show that the lid is effective in preventing the moisture of condensation.

CONCRETE-SLAB FIT PRIVY

Further experimenting was done in the manufacture of the concrete slab. During the year the sanitary officer of Prince Edward County conceived the idea of making the slabs at a central point and hauling them to the homes. He also decided that slabs made of cinder concrete would be practicable. He selected a site, had forms made, and proceeded with the experiment.

The material used in making each slab was $1\frac{1}{2}$ bags of cement and 10 shovels of sand mixed with cinders, which would pass through a half-inch mesh screen. The slabs were made 3 inches thick, $4\frac{1}{2}$ feet wide by $5\frac{1}{2}$ feet long, and were reinforced with iron rods and fencing wire. Six slabs were poured at one time. They were allowed to cure or set up for seven days, when they were hauled to the place at which they were to be installed. They were handled rather roughly and so far there has been no breakage. With this experience it is evident that a cinder-concrete slab 3 inches thick is practicable and has sufficient strength for this class of work. It weighs about one-third less than concrete made with the usual mixture of gravel, stone, and sand. This makes it much easier to handle and transport. The actual cost of material and labor with wooden-seat riser, lids, and ventilator is \$4.50 at the place of manufacture. A local drayman moves the slabs from the plant to the homes for \$1 each.

In Chesterfield County two small schools, which were equipped with concrete-slab privies, were discontinued in the school consolidation program. The central school needed sanitary toilets and the question arose as to whether it would be cheaper to build new toilets or move the concrete slabs from the schools which had been abandoned. The county sanitary officer advocated moving the toilets to the new location. A truck with trailer was secured and the privies and slabs were moved a distance of 7 miles and installed over new pits at a cost of \$10 per privy.

This further demonstrates the economy of this particular type of sanitary privy and shows that the slabs can be moved without breakage or excessive cost. The concrete slab has so many advantages over the wood cover—especially with respect to maintenance—that it should be advocated and used by preference whenever practicable.

SEWER EXTENSIONS AND CONNECTIONS

The total number of feet of sewer extension for the year is 15,985, and the number of sewer connections is 340.

In Roanoke County rather unique methods were used by the sanitary officer for securing sewer extensions. In the town of Vinton he created interest to the extent that the property owners paid one half the cost and the town the other half in building a line 1,623 feet long. Two other extensions just outside the corporate limits of South Salem were built under his direction. He did the engineering work, purchased the material, and supervised the laying of the pipe, the property owners paying all costs. The combined length of these two lines was 709 feet and they accommodated 23 homes. In the town of Salem 10,433 feet of new lines have been laid, and the homes are being connected as fast as the lines are ready for service. These extensions made possible 120 sewer connections, most of which were substituted for sanitary privies of the box and can type.

In the town of Farmville, in Prince Edward County, 630 feet of new sewer mains were laid and 23 sewer connections secured. The town council has authorized the laying of 600 feet more.

In the town of Martinsville, in Henry County, 2,370 feet of new sewer mains were put down and 43 homes joined up.

In Emporia, in Greensville County, 220 feet were laid, and this line takes care of seven homes which had previously been served by box and can privies.

The town of Pulaski, in Pulaski County, has recently passed a bond issue for \$60,000 to be used for sewer extensions. It is estimated that this will provide sufficient funds for laying about 5 miles of sewer lines in the town. When this project is completed, it will be possible for more than 80 per cent of the homes in Pulaski to secure a sewer connection.

WATER SUPPLIES

The protection and improvement of the water supplies has occupied a considerable amount of the time of the sanitary officers. They have given attention to both municipal and individual supplies. As a routine procedure they make frequent inspection of the municipal and community supplies and collect samples for examination. In the course of their visits to the homes they have been able to induce a number of improvements to the individual supplies. The tabulation sheet shows 745 water connections, 98 new wells, 80 old wells improved and rendered sanitary, 80 open springs protected, and 15 cisterns built. This makes a total of 1,018 places which have been provided with a safe water supply during the year and is a very noticeable increase over previous years.

Due to the drought it was necessary for the town of Pulaski to supplement its regular water supply. After considering several available sources it was decided to use the South Fork of Peak Creek and pump the water directly into the mains. Under the supervision of the sanitary officer a chloride-of-lime treatment plant was set up, and this was operated under his direction throughout the time the auxiliary supply was used. The old reservoir went completely dry for a few days, and it was necessary to pump all the water used in Pulaski from Peak Creek. No outbreaks of typhoid or dysentery occurred following the use of this water, which indicates that the sterilization process was effectively carried out. The dam at the old reservoir has since been raised, and it now has a storage capacity of 256,000,000 gallons of water. It is thought that this will remedy the situation and there will be no further water shortage in Pulaski for many years to come.

* * * * *

Three water-main extension projects were completed in Roanoke County. The total footage was 2,682 feet, of which 557 feet were laid in Salem, 462 feet in Vinton, and 1,663 feet in the county outside town or city limits. As a result, 318 water connections were made and this number of homes have been provided with pure drinking water. Samples collected from the water supply for South Salem showed that it was polluted. The sanitary officer immediately installed a chlorinated-lime treatment plant, and subsequent samples have been found excellent on bacteriological examination.

In October a bond issue for \$75,000 was passed by the voters of Farmville, in Prince Edward County, for improvements to the present water system. These include a wash-water tank, a new intake line, a new standpipe, and three-quarters of a mile of 10-inch mains. The filters at the Farmville water plant were recently overhauled and rebuilt under the direction of the sanitary officer. This required one week of his time, but when it is considered that one out of every four persons in the whole county uses the Farmville water the importance of this work is at once realized. He also looked after the water supply at Hampden-Sidney College. Here he had repairs made to the chlorinator and supervised the cleaning of the filter several times during the year. In addition to the students, about 500 residents use the college water supply.

A bond issue of \$70,000 was carried in Martinsville, in Henry County, to enlarge the present water system. The new source of supply is at Beaver Creek, about $1\frac{1}{2}$ miles north of town. This has necessitated the laying of several miles of new mains, the building of additional filters, and the installation of a large pump for forcing the water into the standpipe.

The commercial concerns selling bottled spring water have not been neglected. Inspections are made regularly to collect samples and to see that the bottles are properly washed and sterilized. These plants distribute many thousands of gallons of water, some of it being shipped to distant communities.

MOSQUITO CONTROL

Mosquito-control work consisted of drainage, oiling, screening, and the stocking of ponds with *Gambusia* top minnows.

In Emporia, in Greensville County, a seepage area of 2 acres and $6\frac{1}{2}$ miles of drainage ditches were kept under control. A weekly oiling schedule was maintained, and 613,480 feet of ditches were oiled. It required 1,770 gallons of oil for this work. During the year 52,356 feet of ditch cleaning was done to keep the ditches free from obstructions. The fund for this work was provided by an appropriation of \$720 by the town council of Emporia.

* * * * *

A very successful county-wide screen-up campaign was inaugurated in Greensville County in April and continued throughout the summer months. Dealers selling screen wire were interviewed, and it was learned that during this time they had sold 17,500 feet of screen wire, 180 ready-made window screens, and 193 screen doors. In addition to this, one of the lumber mills reported the sale of 12,000 lineal feet of screen molding, which is used in the making of screen doors and windows.

One large drainage project was completed in Greensville County through the cooperation of the board of supervisors and the State highway commission. A canal six feet wide, with an average depth of $3\frac{1}{2}$ feet, and 1,422 feet in length was dug through Metcalf Swamp, which is located within half a mile of North Emporia. This canal drained about 50 acres of land, which has been a favorable breeding place for mosquitoes for a number of years. This is about one-fourth of the ditching which is necessary to completely drain this swamp. The cost of this project was \$400.39, and the work was done under the supervision of the sanitary officer.

In Farmville, in Prince Edward County, the sanitary officer had 1,000 feet of ditches dug and drained a bad mosquito breeding place in the residential section of town.

The sanitary officer in Chesterfield County removed a mosquito nuisance in three instances by stocking that number of ponds with *Gambusia* top minnows. In three other cases he accomplished the same results by inducing the digging of 2,360 feet of ditches, which drained some stagnant pools.

In Charlotte County, 300 feet of ditches were dug to drain a pond on the property of the Southern Railroad at Keysville. Mosquitoes had become a pest in that community and dippings showed the pond to be the breeding place.

During the year, 380 dwellings were completely screened and many times this number were partially screened.

MILK SUPPLIES

The milk supply in these counties is slowly being improved from year to year. The standard milk ordinance is in force in two towns, namely, Abingdon, in Washington County, and Pulaski, in Pulaski County.

Marked improvement is noted in the dairies furnishing milk to the town of Pulaski. During the year, two modern dairy barns were built. One of the

"A" grade dairies was equipped with a milking machine and another installed a bottling machine. One "C" grade dairy made the necessary improvements to raise it to grade "A." During the year Mr. LeFevre, associate milk specialist of the Public Health Service, made an inspection of all the dairies supplying milk to Pulaski and scored them according to the standard milk ordinance. After completing his work he made the following statement to the mayor of Pulaski: "The public may rest assured that when they buy grade milk 'A' produced in the Pulaski dairies they are getting really clean milk."

In other counties the provisions of the local milk ordinances were enforced. The chief efforts of the sanitary officers have been to procure a clean milk supply. During the year, 3,116 dairy cows were tested for tuberculosis and all reactors found were excluded from the herds.

SWIMMING POOLS

The construction of new swimming pools has lessened during the year, only two new pools being reported under construction. One of these is in the town of Martinsville and is for the accommodation of the colored bathers. The water for this pool will be secured from the town of Martinsville. The other pool is in Pulaski County located about 5 miles from the town of Pulaski. This will be equipped with shower baths, flush toilets, and a septic tank. The water will be treated with chlorine at regular intervals so as to insure its purity.

As in the past, the sanitary officers have assisted the owners in maintaining good sanitation at all swimming pools within their counties. Samples of water are collected at regular intervals and inspection is made to see that proper sanitation is maintained and that the bathing suits are sterilized after each using. The owners of these places welcome such inspection and also suggestions from time to time.

* * * * *

SMALLPOX CONTROL

No serious outbreak of smallpox occurred in any of the counties. The presence of smallpox was utilized by the sanitary officers in working up vaccination clinics in the communities in which the disease occurred. In this work they had the cooperation of the local physicians, who did the vaccinating. These clinics, together with the individual contacts vaccinated, resulted in 2,936 vaccinations. The usual control measures of quarantine, search for contacts, and terminal disinfection were carried out in all cases reported.

TYPHOID FEVER PREVENTION

Sanitation was advocated throughout the year as the best means of preventing typhoid fever. On receiving a report of the presence of a case of typhoid fever, the sanitary officer at once proceeded to make an investigation, trace the source of infection, and institute control measures to prevent its spread. The presence of this disease in a community was used to promote sanitation and to organize inoculation clinics. Many contacts were vaccinated and the net result was that 937 people were protected with the necessary three doses of typhoid vaccine.

An investigation of the cases revealed the fact that a large number of them were at widely separated rural homes, sanitary conditions at which were very bad. Usually an open spring and an open toilet were being used.

No typhoid deaths were reported from Henry or Chesterfield Counties. Exclusive of Lee County, there was, in the sanitary officer project counties, a total of 113 cases and 16 deaths for the fiscal year. This gives a typhoid case rate of 0.63 per thousand, and a death rate of 0.08 per thousand inhabitants for the nine counties. This is somewhat below the average for Virginia. The State case rate for the same period is 1 per thousand, and the State death rate is 0.1 per thousand.

* * * * *

DIPHTHERIA TOXIN ANTITOXIN CLINICS

The sanitary officers assisted in organizing and conducting toxin antitoxin clinics. In Pulaski County, assistance was given the superintendent of schools and the local board of health in advertising and organizing the work with the result that 1,115 children were treated.

In Washington County, clinics were held in Abingdon, Glade Spring, Meadow View, and Damascus. Three hundred and eighty seven children were immunized against diphtheria. Other clinics are to be held later.

In Chesterfield County, the county nurse and sanitary officer cooperated in holding a series of clinics. These were well attended and 2,421 children received the protective treatments against diphtheria. Other clinics were held in Roanoke County with 709 children treated, and in Prince Edward County, where 685 were immunized.

MOTION PICTURE MADE

During the year a motion picture showing each step in the construction of a septic tank from the digging of the hole to the completion of the subsoil drainage system was made. The picture was taken at a rural home in Chesterfield County. The sanitary officer assisted in arranging the many details necessary to complete the project. This reel, with proper titles explaining the picture, is now a part of the motion picture exhibit given by the State board of health throughout the counties of Virginia. It is thought that it will be very helpful in showing the people the proper way to build a septic tank, and in promoting sanitation work.

* * * * *

EDUCATION

The gospel of good health and improved sanitation was carried to the doorstep of the homes by nearly 17,000 home visits and personal interviews. These were supplemented by newspaper articles, distribution of State board of health literature, public talks, and moving-picture shows.

INVESTMENT FOR SANITARY IMPROVEMENTS

The following is an estimate of expenditures by individual property owners for sanitary improvements in the 10 county sanitary officers' projects within the fiscal year:

9 L. R. S. privies, at \$50 each.....	\$450. 00	
110 box and can privies, at \$6 each.....	660. 00	
1,315 pit privies, at \$20 each.....	26,300. 00	
13 chemical closets, at \$10 each.....	8,420. 00	
379 septic tanks, at \$100 each.....	37,900. 00	
340 sewer connections, at \$90 each.....	30,600. 00	
Total for sanitary toilets.....		\$104,460. 00
99 new wells, at \$100 each.....	9,800. 00	
80 old wells improved, at \$25 each.....	2,000. 00	
80 springs improved, at \$20 each.....	1,600. 00	
15 new cisterns, at \$100 each.....	1,500. 00	
47 cisterns repaired, at \$25 each.....	1,175. 00	
745 water connections, at \$50 each.....	37,250. 00	
Total for improved water supplies.....		53,325. 00
50,016 feet ditches cleaned, at 1½ cents per foot.....	653. 52	
1,422 feet new ditches.....	400. 39	
Grand total.....		158,838. 91

COST OF SANITARY OFFICER SERVICE

The budget for each county was \$2,500, of which the county appropriated \$1,500, the State allotted \$700, and the United States Public Health Service \$300.

The amounts expended by these agencies within the fiscal year are approximately as follows:

State board of health.....	\$10, 015. 95
Counties.....	14, 025. 25
U. S. Public Health Service ¹⁷	3, 716. 25
	27, 757. 45

* * * * *

MORTALITY REDUCTION

A study has been made to determine some of the results which have been accomplished to date in disease reduction under this plan of work in nine of the county projects now in operation. Four of the projects, those in Chesterfield, Greenville, Henry, and Roanoke Counties, have been in operation since this plan of work started. The Lee County project is excluded from the study as it did not begin until January 1, 1927.

The figures in the following tables apply to the calendar year instead of the fiscal year. As the records of the State board of health for deaths for years prior to 1913 are not available, the comparison in the older county projects is for a seven-year period, one year before the work started and one year after.

The representative counties selected for detailed tables are Smyth and Pulaski from the southwestern group and Greenville and Chesterfield from the southeastern group.

The fifth table gives a group summary of the nine counties.

Deaths from reportable diseases in Smyth County, Va., for equal periods before and after sanitary officer work began

Disease	Number of deaths		Reduction	
	1919-1922	1923-1926	Number	Per cent
Typhoid fever.....	14	9	5	35.7
Diphtheria.....	23	13	10	43.5
Scarlet fever.....	2	2	2	100
Tuberculosis.....	115	92	23	20
Pellagra.....	13	6	7	53.8
Measles.....	2	19	+17	+800
Meningitis.....	1	1		
Influenza.....	95	69	36	37.8
Whooping cough.....	10	18	+8	+80
Diarrhea and dysentery.....	88	51	37	42
All causes.....	1, 179	1, 165	14	1.2

¹⁷ In addition the salary of the director of this work was paid by this agency.

Deaths from reportable diseases in Pulaski County, Va., for equal periods before and after sanitary officer work began

Disease	Number of deaths		Reduction	
	1917-1921	1922-1926	Number	Per cent
Typhoid fever.....	14	7	7	50
Diphtheria.....	15	12	3	20
Scarlet fever.....	1	1	-----	-----
Tuberculosis.....	96	82	16	16.3
Infantile paralysis.....	1	1	-----	-----
Pellagra.....	2	4	+2	+100
Malaria.....	3	-----	3	100
Measles.....	12	15	+3	+25
Meningitis.....	-----	1	+1	+100
Influenza.....	168	50	100	64.8
Whooping cough.....	19	14	5	26.3
Diarrhea and dysentery.....	47	29	18	38.3
All causes.....	1,164	978	186	16

Deaths from reportable diseases in Greensville County, Va., for equal periods before and after sanitary officer work began

Disease	Number of deaths		Reduction	
	1913-1919	1920-1926	Number	Per cent
Typhoid fever.....	39	14	25	64.1
Diphtheria.....	6	7	+1	+16.6
Smallpox.....	2	-----	2	100
Tuberculosis.....	145	110	35	24.1
Pellagra.....	9	6	3	33.3
Malaria.....	76	14	62	81.5
Measles.....	9	4	5	55.5
Influenza.....	139	51	88	63.3
Whooping cough.....	38	13	20	69.6
Diarrhea and dysentery.....	55	45	10	18.1
All causes.....	1,389	935	454	32.6

Deaths from reportable diseases in Chesterfield County, Va., for equal periods before and after sanitary officer work began

Disease	Number of deaths		Reduction	
	1913-1919	1920-1926	Number	Per cent
Typhoid fever.....	32	8	24	75
Diphtheria.....	18	19	+1	+5.5
Scarlet fever.....	5	-----	-----	-----
Tuberculosis.....	267	165	102	38
Pellagra.....	29	5	24	82.7
Malaria.....	41	2	39	95.1
Measles.....	14	9	5	35.7
Meningitis.....	-----	1	+1	+100.0
Influenza.....	117	74	43	36.7
Whooping cough.....	29	15	14	48.2
Diarrhea and dysentery.....	122	79	43	35.2
All causes.....	2,112	1,611	501	24

Comparative table of deaths from reportable diseases in nine sanitary officer counties for equal periods before and after sanitary officer work started

Disease	Before health work began	After health work was in operation	Reduction	
			Number	Per cent
Typhoid fever.....	255	112	143	56
Diphtheria.....	160	124	36	22.5
Smallpox.....	3	1	2	66.6
Scarlet fever.....	19	17	2	10.5
Tuberculosis.....	1,559	1,460	99	6.3
Infantile paralysis.....	11	4	7	63.6
Pellagra.....	95	53	42	44.2
Malaria.....	122	16	106	86.8
Measles.....	91	98	+7	+7.6
Meningitis.....	9	9		
Influenza.....	940	580	360	38.2
Whooping cough.....	175	150	25	14.2
Diarrhea and dysentery.....	637	498	139	20.2
All causes.....	12,604	11,675	929	7.3

It will be noted that the individual county tables show an increase in the number of deaths from certain diseases. All of them, however, show a reduction in typhoid fever, diarrhea and dysentery, tuberculosis, and deaths from all causes. The group summary shows a reduction in deaths from all of the diseases with the exception of measles. The deaths from this disease show an increase of 7.6 per cent. This is one of those diseases which sanitation has little, if anything, to do with. The outstanding results are 56.6 per cent reduction in typhoid fever deaths; 20 per cent reduction in deaths from diarrhea and dysentery; 86.8 per cent reduction in malaria deaths; 6.3 per cent reduction in tuberculosis deaths; and a 7.3 per cent reduction in deaths from all causes.

In order to contrast the percentage of prophylactic measures and sanitary improvements with the percentage of disease reduction, the following statistics are submitted:

There are 35,003 homes in the nine counties. Our records show that 32.8 per cent of the homes have been completely screened and a larger number partially screened. Forty-three and one-tenth per cent are now using water from supplies which have been classed as safe, and 66.6 per cent have been equipped with some form of safe excreta disposal system. Continuous maintenance work has been carried on, and we find that 7,305 sanitary toilets which needed repairs were repaired and restored to a sanitary condition. In other words, 31.2 per cent of the sanitary equipment has been overhauled.

According to the 1920 census, the population of these counties is 178,654. Data collected from the survey cards show that 42.9 per cent of the population have been vaccinated against smallpox; 8.5 per cent against typhoid fever, and 5.1 per cent against diphtheria.

Of the 321 organized dairies located in these counties, 70 per cent have been rated as in good sanitary condition. Fifty-eight and six-tenths per cent of the cows in these herds have been tuberculin tested.

Of the 529 schools located in these counties, 44.4 per cent have a safe water supply; 72.7 per cent have sanitary drinking facilities; and 95.6 per cent are provided with sanitary excreta disposal systems.

Three-County Project in Georgia

The project in the southwestern part of Georgia inaugurated in the fiscal year 1924 and described in the report for that year¹⁸ and

¹⁸ Reprint No. 964, from Public Health Reports of Oct. 17, 1924, p. 22.

discussed in the reports for the fiscal years 1925¹⁹ and 1926²⁰ was continued throughout the fiscal year 1927.

Due to the discontinuance of the financial assistance from the State board of health for the support of the work, this cooperative project as originally organized had to be terminated on June 30, 1927.

In this project one whole-time health officer, a physician with training in health work, served as health officer of each of three adjacent counties. Under his direction there was on duty in each of the three counties an assistant health officer, a layman with practical training in sanitary work, and, in one of the counties, there was on duty also a county health nurse.

The special purpose of this cooperative project was to demonstrate an economical plan of public-health administration adapted to counties with resources too limited for each to support readily a complete, whole-time county health department.

The project appears, from a demonstration standpoint, to have been a marked success. The work was conducted under exceptional difficulties and thereby was given a severe test. The plan carried out in the three-county project in Georgia seems right in general principle and is applicable to numerous groups of counties in the United States.

Special Features

In Bernalillo County, N. Mex., in April, the county health department found, by routine bacteriological examination, evidence of sewage pollution in the water supply of the principal city of the county, Albuquerque. This supply was obtained from a number of wells. Some of the wells were found clean and others contaminated. The contaminated wells were eliminated from the source of supply and chlorination of the water from the other wells was begun at once. No outbreak of typhoid fever or other intestinal disease occurred. This illustrates how vigilant health service may prevent outbreaks of disease. Many serious typhoid fever outbreaks which have occurred in this country would have been prevented if the communities affected had had the sort of preepidemic health service which Albuquerque had in this instance. The field agent-county health officer attributes a 50 per cent reduction in the typhoid rate for 1927 in this county to the energetic campaign of his department for improved sanitation.

In Dona Ana County, N. Mex., in May, a case of typhoid fever was reported from a dwelling which is bisected by the line between New Mexico and Texas. Upon investigation by the Dona Ana County health officer, two cases of typhoid fever were found in this house—one being cared for in a room on the New Mexico side and

¹⁹ Reprint No. 1047, from Public Health Reports of Oct. 22, 1925, pp. 28-29.

²⁰ Reprint No. 1118, from Public Health Reports of Oct. 22, 1926, pp. 32-33.

the other in a room on the Texas side. The county health officer in his capacity as such had no jurisdiction over the case in the room in the Texas half of the house, but in his dual capacity of health officer of Dona Ana County and field agent of the United States Public Health Service he had precautionary measures carried out in both halves of the house and there has since been no evidence of further interstate spread of infection in this home. In the same month a child residing in the adjacent Texas county, which is without whole-time county health service, returned to school in Dona Ana County while still in the infectious stage of scarlet fever. The case was discovered promptly and the child was sent back home. Contacts in the school were kept under observation, and the two or three cases developing among them were isolated immediately.

In Jefferson County, Kans., measures were carried out promptly to prevent outbreaks of smallpox in two striking instances. In one instance over 200 persons were exposed to a case of smallpox at a Christmas entertainment, and in the other about 100 persons were exposed to three cases at a funeral. In both cases all contacts were vaccinated immediately and none of them developed the disease.

In Washington County, Miss., 49,075 persons were given anti-typhoid injections. About 40,000 received the injections in the month of May when the county health department with considerable assistance from outside was carrying out an energetic and well-organized program of sanitary measures to prevent disease in the wake of the flood. Practically the whole area of this county was inundated during the Mississippi Valley floods in the spring of 1927.

In Pulaski County, Ark., another flood-stricken county, 10,417 persons were given antityphoid injections, and over 2,000 acres of inundated land were oiled periodically to prevent anopheline mosquito breeding.

In Dubuque County, Iowa, 8,208 complete immunization (toxin-antitoxin) treatments against diphtheria were given within the fiscal year. The health officer reported that, at the end of the year, nine-tenths of the enrolled school children in the county were recorded as having had the diphtheria preventive. In Dubuque County, since the whole-time county health department began operating in 1921, the number of cases of communicable disease reported for the month of June has averaged 27 as against 156 for the month of June, 1920. The economic saving to the community from the reduction in the prevalence of this group of diseases alone appears to have given a large return on the investment for the health service. Notwithstanding this and the many other obvious net advantages of the service, the county government failed to continue its part of the appropriation for the whole-time county-city health work and the cooperative project in Dubuque County terminated on June 30, 1927.

In Mason County, Ky., 92 persons were examined at a tuberculosis clinic conducted August 10-12, 1926, with the active cooperation of the local practicing physicians and of specialists from the State tuberculosis association. Of the persons examined, 26 were found to have active tuberculosis, and only one of these had previous knowledge of his affliction. The local practicing dentists, in cooperation with the county health officer, made dental examinations of all children attending schools in the city of Maysville in this county.

In Weakley County, Tenn., an orthopedic clinic was held in July 1926, for indigent cripples. Through cooperation with the surgeons of a clinic in a nearby city, arrangement was made for hospital treatment and care of each of the 23 cases examined.

In Rhea County, Tenn., where one of the county sanitary officer projects has been in operation since October 1, 1925, remarkable progress has been made in sanitation, and a reduction of 80 per cent in the rate of prevalence of typhoid fever appears to have resulted. In Dayton, the principal incorporated town in this county, an election was held in December, 1926, to float bonds for the extension of the sewerage system throughout the corporate limits, and not a vote was cast against the issue. The week ended March 29, 1927, was health week in Rhea County. The program was sponsored by the business men's club, the county tuberculosis association, the county board of health, the county school board, and the parent-teacher's association. Every local physician cooperated actively, making health examinations, without charge, of all persons applying within the week. Among the many examined were 761 school children, and parents were notified of the 999 physical defects found among these school children.

In Decatur County, Ga., one of the counties in the three-county project, excellent publicity for the health work was obtained in the local press. Among the ingenious devices for effective publicity was a full page advertisement of various local businesses in their relationship to sanitation and health. This was carried in the Bainbridge Post-Searchlight, as shown in the accompanying cut.

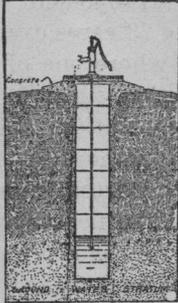
In Obion County, Tenn., practically every local physician cooperated actively in a nose and throat clinic for school children. At this clinic, 22 operations for removal of tonsils or adenoids, or both, were performed in one day by local nose and throat surgeons who rendered their services gratuitously.

In Ottawa County, Kans., every physician and every dentist in the county contributed free and helpful service to the county health department in a series of conferences for preschool children. At nine of these conferences, held in different parts of the county the last week of May and the first week of June, 199 children were examined.

Proper Food Means Better Health
 Our Refrigerator Protects
 You in This Respect.
"YES WE DELIVER"
Grocery Company
 Phones 384-385

We Use Sanitary Paper Cups
 at Our Fount.
Drug Store

Sanitary Homes Must Have
 Good Plumbing.
 K S
 GOT IT
 Plumbing, Electrical and all
 Building Materials.

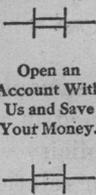


A Safe Well
 This is the type of Well recommended by the State Health department. It will keep your water supply safe. Is your water pure? Have your Sanitary Officer examine it for you.

Every Modern Facility for
 Examining Your Eyes.
*Good Eye Sight is One of
 Your Most Precious Gifts*
OPTICAL PARLOR

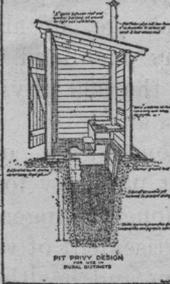
Good Health Depends on
PLENTY FRESH AIR
 Let Us Repair Your Car So You
 Can Ride.
Garage

Good Food Keeps Your Body
 Going.
 Good Gas Keeps Your Car Going
WE HAVE IT!
 Gas Motor Oil
SERVICE STATION

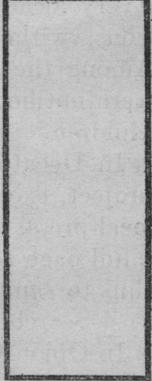
Sanitate and
 Save Your Life.

 Open an
 Account With
 Us and Save
 Your Money.
 The Bank
 & Trust Company



Old Type Privy.
 This is the type of Privy that spreads disease. It causes the spread of Typhoid Fever, Flux, Cholera, Summer Complaint, Tuberculosis and other diseases. Let's get rid of them in Decatur County.



PIT PRIVY DESIGN.
 This is the type of Sanitary Privy every rural home should have in Decatur County. Its cost is small. Less than one case of sickness. Your Sanitary Officer will show you how to build one. Do it now before some member of your family is made sick. If you have no bulletin get one from the Health Department.



**"GOOD CLOTHING PREVENTS
 PNEUMONIA"**
We Sell Good Clothing

*Healthful Homes are Screened
 and Well Painted.*
**We Sell Good Screening and Building
 Materials.**

In Walker County, Ala., 11,141 persons were vaccinated for protection against smallpox within the fiscal year. The records show that since 1913 over 50 per cent of the total population of the county have been vaccinated against smallpox and over 40 per cent against typhoid fever.

Walker County was the first county in Alabama to have a whole-time county health officer. The position was established in the last part of 1913 and has been maintained since then. Walker County was one of the counties of which the Public Health Service made a complete house-to-house sanitary survey in 1915.²¹ The cooperative project in this county has furnished a good demonstration of well-rounded, well-coordinated, efficient, and economical county-wide health service. Marked progress has been made in environmental sanitation, in personal hygiene, and in the application of specific measures for the prevention of disease since the whole-time service was established. The results are reflected in the lowered death rate—especially from the diseases, such as typhoid fever, diarrhea and enteritis, diphtheria, scarlet fever, malaria, and tuberculosis, which are the more readily susceptible to control measures. The infant death rate per 1,000 of living births in 1913—the year immediately before the whole-time health service became operative—was 155; in 1926 it was 60. The death rate per 1,000 population for all causes in 1926 was 10.9, as against 17 in 1913. The population of Walker County is now about 60,000. A lowering of the death rate by 6 points, therefore, means 360 less deaths a year. For every death prevented by health work about 10 cases of incapacitating disease are prevented. The average case of such illness prevented would cost in wage loss and in expenses for the care of the sick about \$100. Thus the economic saving to the citizens of Walker County from their investment for progressive health work can be estimated at \$360,000 a year. The average annual expenditure from all sources for the support of the county health department service in this county for the last five years has been \$8,800.41.

General Progress in Rural Health Work

Progress in the development of whole-time rural (county) health service in the United States continued in the fiscal year 1927. According to data²² collected by the rural sanitation office from the State health departments, the number of counties or equivalent divisions provided with local health service reaching all rural sections thereof, under the direction of whole-time county or district health officers, was 337 at the beginning of the calendar year 1927, as compared with 307, 280, 250, 230, 202, 161, and 109 at the beginning of the

²¹ Public Health Bulletin No. 94, pp. 153-168.

²² Reprint No. 1115 from Public Health Reports of Apr. 29, 1927.

calendar years 1926, 1925, 1924, 1923, 1922, 1921, and 1920, respectively. The gain of 228 within this seven-year period, though much less than it might have been had means been provided for a larger degree of cooperation from the Federal and State official agencies, is significant.

The prospects are good for a better rate of progress in this vitally important field in the next seven years. Our public-health administrators generally now appear convinced that local official health service under the direction of a whole-time local health officer is the most essential element in the development of an adequate system of effective and economical public-health service in the United States, and that most of the work of the Federal and State health agencies should be conducted with and through such local health departments. The principle of cooperative rural health work appears sound in theory and is successful in practice. State health departments in increasing number from year to year are obtaining authorization and appropriations to enable them more nearly to do their due and proportionate part in the development and maintenance of whole-time county health service.

Nothing progresses like progress. The progress made in the construction of good public roads, in the provision of improved public-school facilities, and in other important governmental enterprises in our rural communities generally within the last 25 years furnishes a basis of optimism for an increased rate of development from now on in efficient economical whole-time official county health service in this country.

It appears at this time that of all the fields of activity in which our governmental and other agencies might operate at increased rate for the promotion of the welfare of our people no other offers greater net advantages than does that of rural health service. In view of the results accomplished in the demonstration projects and the needs of the situation, there is reason to expect a more active and constructive interest in the development and maintenance of well-balanced comprehensive whole-time county health service than has been manifested heretofore. With a marked increase in such service, there would no longer be an excuse for the numerous makeshifts or expedients in rural health work programs which, though comparatively expensive and ineffective, are now supported by many of our public-health minded citizens.

During the recent floods in the Mississippi Valley the advantages of previously operating whole-time county health departments were definitely demonstrated. In the flood-stricken counties provided with such departments the whole-time health officers, as a rule, performed with remarkable promptness and efficiency in the organization

of working forces and in the carrying out of measures for both immediate and post-flood sanitary protection of the stricken people. The contrast between this work in the minority of the counties which had whole-time county health departments and in those not so provided stood out sharply. Since the flood several cooperating agencies, including the United States Public Health Service, the International Health Board, and the State health departments directly concerned, have undertaken to develop whole-time county health departments in the (approximately) 90 flood-stricken counties which did not have such organizations at the time of the flood. This undertaking has been attended with a number of practical difficulties, such as obtaining comparatively small appropriations from the hard-pressed county governments for the support of the budgets and securing promptly satisfactory personnel to fill the positions in the county health departments for which financial provision has been made. It is going forward, however, as well as was reasonably to be expected.

Whole-time county health departments as usually organized, in order to be satisfactorily effective in time of disaster, must be in full operation before the disaster. They can not, as a rule, be organized and put on an operating basis of high efficiency within a few days or even a few weeks to meet an unusual critical situation. In view of the preventable-disease disaster with which every populated county in the United States not provided with efficient health service is frequently visited, there appears sufficient reason why there should be an increased rate of development of efficient whole-time county health service in every section of the United States.

Summary

The 86 cooperative projects in the fiscal year ended June 30, 1927, yielded results exceeding in value manyfold the cost of the work. Among the activities and results presented in the tabular statement (pp. 2554 to 2557), to which especial consideration may be given, are the following:

1. Public lectures presenting the principles and details of sanitation to over 378,604 persons.
2. Over 159,740 sanitary inspections of premises, with explanation of findings to occupants or owners of the properties.
3. Physical examination of over 219,600 school children, of whom over 132,000 were found to have incapacitating physical defects, with notification to parents or guardians of defects found.
4. Exclusion from public schools of 11,538 children affected with communicable diseases—such as diphtheria, scarlet fever, measles, whooping cough, scabies, and pediculosis—or presenting evidence of being carriers of the contagions of such diseases. This was brought about through active cooperation of school-teachers with the county

health departments, and it must have been a very considerable factor in preventing widespread infection.

5. Thirty-two thousand three hundred and fifty-four recorded treatments effecting correction of incapacitating physical defects among school children. These were brought about by written notification, to parents or guardians, of defects found, follow-up visits to homes of the children, making available proper clinical facilities, securing active cooperation of the local medical and dental professions, and other activities of the county or district health departments.

6. Bringing about treatments for correction of serious physical defects in 1,437 infants and 2,854 preschool children.

7. Treatments to correct iodine deficiency in 1,361 persons in endemic goiter districts.

8. Sixty-six thousand and ninety-seven visits to homes of cases of communicable disease to advise and show the afflicted households how to prevent spread of the infections.

9. Nine thousand one hundred and seventy-six visits by health nurses or health officers to prenatal cases to advise and assist expectant mothers in carrying out hygienic and physiological measures making for healthy mothers and healthy babies.

10. Instruction of 2,049 midwives in cleanly and careful methods.

11. Twenty-three thousand nine hundred and ninety-five infants and children of preschool age examined and over 39,688 home visits by health nurses or health officers to demonstrate hygienic measures for the promotion of the health and the protection of the lives of infants.

12. One hundred and sixty-seven thousand one hundred and sixty-four persons given immunization injections for protection against typhoid fever.

13. Ninety-three thousand eight hundred and thirteen persons vaccinated against smallpox.

14. Fifty-eight thousand nine hundred and ninety-five children treated with toxin-antitoxin mixture for immunization against diphtheria.

15. Sixty-four thousand two hundred and forty-seven cows tuberculin tested, with elimination of reactors from herds, to prevent communication of bovine tuberculosis to persons through the medium of milk.

16. One thousand five hundred and eleven persons treated effectively for relief from hookworm disease and for the prevention of the spread of the infection.

17. Marked reduction in the spread of malaria in hundreds of localities, with an aggregate population of several hundred thousand.

18. Thirty-one thousand six hundred and twenty-six treatments to rid persons of venereal disease infection and prevent the spread of the infection.

19. Special examination of 5,006 persons for tuberculosis, of whom 1,399 were found with an active tubercular process and were advised to place themselves in the care of their private physicians and to carry out hygienic measures. Five hundred and twenty-seven of the positive cases were sent to institutions maintained in whole or in part for the treatment of tuberculosis.

20. Twenty-five thousand three hundred and seventy-eight cases of dangerous communicable diseases quarantined to prevent the spread of infection in the local community, the State, and throughout the country.

21. The installation of 12,034 sanitary privies and 2,308 septic tanks at dwellings where previously there had been either insanitary privies or no toilets of any sort.

22. Nine thousand five hundred and sixty-nine privies repaired so as again to be of sanitary type.

23. Seven thousand three hundred and eighty-six homes connected for the first time with sanitary sewers.

24. Nine thousand four hundred and forty-seven homes provided with safe water supplies in place of contaminated water supplies.

25. Radical improvement of nine hundred and seventy public milk supplies (the milk from which was being distributed to a considerable extent through the channels of interstate commerce) to prevent the spread, through milk and milk products, of such infections as typhoid fever, scarlet fever, diphtheria, tuberculosis, septic sore throat, and infant diarrhea.

26. Eight thousand two hundred and fifty-nine adult persons (most of them over 40 years of age) examined and advised about measures to conserve their health and prolong their lives.

Such activities and results indicate that the plan of the work is both comprehensive and effective. Considered from both a public health and an economic standpoint, the total result of such work stands in importance to our national welfare second to none other obtainable from equivalent investment of public funds.

CURRENT WORLD PREVALENCE OF DISEASE

REVIEW OF THE MONTHLY EPIDEMIOLOGICAL REPORT ISSUED SEPTEMBER 15, 1927,
BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS' SECRETARIAT¹

Cholera.—A serious extension of cholera in Asiatic ports, especially on the Persian Gulf, occurred during July and August, according to the Monthly Epidemiological Report for September. Serious out-

¹ From the Office of Statistical Investigations, U. S. Public Health Service.

breaks of the disease began the latter part of July at Basra, Abadan, and Mohammerah; Bombay City and Madras City were both seriously infected; and early in August the disease was reported in Chinese ports as far north as Shanghai.

TABLE 1.—Cholera cases reported in the ports reporting to the Singapore bureau from June 12 to August 20, 1927

Maritime town	Cases or deaths	Week ended—									
		June		July						August	
		18	25	2	9	16	23	30	6	13	20
Basra	Cases	0	0	0	0	0	5	29	48	125	99
Abadan	do						(*)	122	66	27	
Mohammerah	do	0	0	0	0	0		52	34	16	69
Ahwaz	do								12	8	
Minab	Deaths									23	
Bombay	do	0	0	2	2	2	10	25	14	11	3
Negapatam	do	0	0	2	0	0	0	0	0	1	3
Madras	do	0	3	0	0	0	35	105	92	72	61
Calcutta	do	43	31	21	12	13	11	12	8	13	12
Bassein	do	2	1	2	13	0	1	0	0	0	0
Rangoon	do	0	1	0	0	0	0	1	0	1	0
Bangkok	Cases	3	4	1	1	1	4	0	0	1	1
Saigon and Cholon	do	2	2	2	2	1	1	0	0	0	0
Turane	do	0	2	2	1	1	1	0	6	2	1
Hai-phong	do	11	8	0	7	0	9	8	6	1	2
Macao	Deaths	0	0	0	0	0	0	1	0	2	1
Canton	Cases	0	3	0	1	3	0	0	10	7	
Amoy	do	0	0	0	0	0	0	0	0	5	6
Shanghai	Deaths	1	0	0	0	0	0	0	3	2	12

* Suspected cases were reported.

The following information on the outbreaks on the Persian Gulf and the measures taken for their control is given in the Report:

At Abadan, where the majority of the population consists of labor forces controlled by the Anglo-Persian Oil Co., the epidemic appears so far to have been brought under control immediately; the number of cases began to decrease from the second week of the outbreak. Its control is far more difficult at Basra and Mohammerah, neighboring towns on the Shat-el-Arab, a tidal river. A small decrease in the number of cases occurred at Basra, however, during the fifth week of the outbreak. Small towns farther inland where cases occurred are Ahwaz, on the Persian side of the river, and Gurmat Ali and Zubair, stations on the Iraq Railway within 15 miles of Basra. The infection had not penetrated farther inland by the middle of August, but it is obviously very difficult to control the further spread of the disease by vibrio carriers. The reported case mortality rate is very high (81 per cent); there had been 580 deaths among 716 cases reported in this area up to August 20.

An inoculation campaign is being carried out at Basra; no fewer than 115,000 persons had been inoculated by the middle of August, and inoculations were being steadily continued.

Cholera appeared on August 12 at Minab, a Persian town some 50 miles east of Bender Abbas, at the Strait of Ormuz.

The authorities of Iraq have suspended all third-class travel from Basra, and other passengers by air, land, or water must produce a certificate of inoculation. Similar measures were taken by the Syrian authorities against arrivals from Iraq.

In India the incidence of cholera was very high during the spring months. It continued high but without further increase in the total during June and the first half of July. The incidence was highest in the United Provinces and in Bihar and Orissa, and was spreading seriously in the Punjab, especially in Lahore. In Madras Presidency, where the number of cases increased from 1,226 during the week ended June 25 to 2,780 during the week ended July 9, the greatest prevalence was in the districts of Bellary, Kistna, and Guntur, indicating the spread of the disease from Bombay Presidency, where it has been epidemic since early in the spring. In the four weeks ended July 9 the deaths from cholera reported in India totaled 23,860, as compared with 21,394 in the preceding four weeks and with 3,802 in the corresponding four weeks of 1926.

In French Indo-China cholera incidence decreased during July, except in Annam, where 1,201 cases were reported, as against 882 in June. In Tonkin the number of cases dropped from 3,262 in June to 1,092 in July; and in Cochin China there was also a marked decline. The disease has not been prevalent in Laos or Cambodia.

Plague.—The incidence of plague in India, as usual, reached a minimum in July, and only 87 deaths were reported in the first week of July. The plague incidence from July 1, 1926, to June 30, 1927, has been "the most favorable on record since the reintroduction of plague in India 30 years ago." A summation of the weekly reports, which are provisional and for some districts incomplete, gives a total of 45,456 deaths ascribed to plague in the whole of India during the 52 weeks ended July 2, 1927. The previous most favorable "plague year" was 1921-22, when there were 62,220 deaths. The table below shows that the total has been favorable in all the different Provinces.

TABLE 2.—Deaths from plague in India, 1921-1927

Province	Number of deaths (the year ending June 30)					
	1922	1923	1924	1925	1926	1927 ¹
North-West Frontier.....	0	937	13,828	1,021	650	232
Punjab.....	7,876	41,703	246,264	48,902	66,617	7,930
Delhi.....	0	2,574	2,563	174	219	25
United Provinces.....	12,039	76,311	54,427	51,255	33,146	9,255
Bihar and Orissa.....	8,559	29,519	11,478	6,923	5,409	4,393
Central Provinces.....	7,661	23,603	13,950	6,807	4,837	5,451
Bombay Presidency.....	4,606	14,821	28,084	6,674	8,436	6,222
Hyderabad State.....	733	9,792	13,736	12,207	5,167	2,782
Mysore.....	6,771	5,797	5,091	1,568	3,821	2,487
Madras Presidency.....	7,179	11,441	7,739	2,960	1,560	1,769
Bengal and Assam.....	136	80	2	8	2	1
Burma.....	6,517	8,154	5,566	992	3,994	1,989
Other Indian States.....	243	3,143	6,239	5,239	13,546	2,910
Total.....	62,220	227,875	408,977	144,730	147,494	45,456

¹Total of 52 weeks ending July 2, 1927.

In Ceylon, plague was somewhat more prevalent in the first half of 1927 than in the preceding year, 74 cases having been reported during the first 28 weeks as compared with 12 cases during the corresponding period of 1926.

In Siam, only 22 cases of plague were reported during the first 28 weeks of 1927, as against 90 and 270 cases, respectively, in the corresponding period of 1926 and 1925.

Plague, though never extremely prevalent in French Indo-China, had a lower incidence than usual during the first seven months of 1927, when 52 cases were reported in Cambodia, 12 in Cochin China, and none in the other provinces. At Kwang-Chow-Wan, there were 130 cases reported in the same period.

The National Epidemic Prevention Bureau at Peking reported the sporadic occurrence, during April, of human and rat plague in Kwangtung and Fukien, both coast provinces of Southern China. No plague had been observed elsewhere in the country.

The plague situation in Java during the current year showed some improvement over the preceding three years. There was an increase in the number of cases in June in most of the infected districts, which is unusual, as June is, as a rule, a month of low incidence.

Plague cases continued to occur only sporadically in Egypt, and the total number of cases in 1927 up to August 5 was only 58, fewer than in any year since 1900. The plague situation in Uganda and in Kenya was better than a year ago; 216 cases were reported in June in Uganda and 67 in Kenya. In Madagascar, the plague incidence reached its annual minimum in June and July, but the reported incidence for the first half of 1927 was higher than for the corresponding period of any previous year of record. Plague was unusually prevalent in Nigeria.

The Gold Coast and other colonies on the Guinea coast have been free from plague since April, 1925; Reunion has been free from plague since February, 1927.

The Argentine Republic reported that two centers of pneumonic plague were found in July in the interior Provinces of Cordoba and Entre Rios. There were also isolated cases of bubonic plague in these Provinces as well as in the Territories of Pampa and Formosa. It was stated that the ports remain free from infection.

Yellow fever.—Cases of yellow fever continued to occur sporadically in August on the Gold Coast and in Senegal. There were four cases reported at Dakar between August 4 and 8 and one case at St. Louis on August 21.

Smallpox.—Smallpox has been unusually prevalent in Algeria during most of the current year, and, with 376 cases reported in July, that month recorded the highest number in many years. Of the cases, 295 were in the Department of Oran.

During the first half of 1927 there were 169,135 smallpox cases and 40,650 deaths reported in India, approximately the same number as for the first half of 1926 but higher than the normal incidence. The case fatality, on the average, was 24 per cent, but there were wide differences in the fatality in different parts of the country. In commenting on this fact the Report states:

The case mortality rate on the basis of reported cases and deaths was very high (about 40 per cent) in northern India (Punjab and the United Provinces), somewhat lower in Bengal, Bihar, and Orissa, and Bombay Presidency, but in Madras Presidency and in the Central Provinces only one-third as high as in northern India.

It is true that the records of both cases and deaths in India are mostly incomplete, but it is not probable that the regular increase of the case mortality rate from south to north and from east to west, which is shown in the table below, is due merely to errors of reporting.

TABLE 3.—Incidence and case fatality of smallpox in India during the first half of 1927

Province	Population (1921) in thousands	Cases	Deaths	Rate per 100,000 population	Case fatality, per cent
Northwest frontier.....	2,251	105	25	1.1	23.8
Punjab.....	20,685	8,850	3,597	17.4	40.6
United Provinces.....	45,376	3,969	1,539	3.4	38.9
Bihar and Orissa.....	34,002	68,407	15,059	44.3	22.0
Bengal.....	46,696	40,631	11,332	24.3	27.9
Assam.....	7,606	4,075	1,220	16.0	29.9
Burma.....	13,212	3,566	872	6.6	24.5
Hyderabad.....	12,472	2,712	644	5.2	23.7
Bombay Presidency.....	19,348	13,164	2,929	15.1	22.3
Central Provinces.....	13,913	13,953	1,764	12.7	12.6
Madras Presidency.....	42,319	8,601	1,190	2.8	13.8
Other Indian States.....	37,342	1,112	479	1.3	43.1
Total January-July	295,222	169,135	40,650	13.8	24.0
1927		169,135	40,650		24.5
1926		124,848	29,557		23.7

Enteric fever.—The enteric fever situation was, on the whole, favorable in July in most European countries. In England the incidence decreased toward the end of July, while fewer cases than usual were reported in July in Denmark, Norway, Sweden, and Finland. In England and Wales there were 321 cases during the four weeks ended August 20, as compared with 406 cases during the preceding four weeks, although the incidence ordinarily increases markedly at this time of year. In Germany fewer cases were reported in July and early in August than during the corresponding months of any previous year. It is to be noted in this connection that exceptionally cool and wet weather prevailed over the northern part of Europe in June and early in July.

Farther south in Europe the incidence may be characterized as normal, except in Italy, where it was above the normal (2,100 cases during the four weeks ended July 3, as against 1,274 cases during the corresponding period of the previous year). In the Serb-Croat-Slovene Kingdom the incidence was also higher than last year, and there was an outbreak at Belgrade, where 48 cases were reported during the first week of August. It seems to have been promptly controlled, as there were only 10 cases the following week. The crest of the seasonal curve for enteric fever is not reached until September or October, but its low prevalence in summer in many countries is probably of good augury for the autumn.

A comparison of the mortality from enteric fever in different groups of cities is shown in Table 4.

TABLE 4.—Mortality from typhoid fever in large towns in 1925 and 1926

Towns	Population in thousands	Number of deaths		Death rate per 100,000 population	
		1925	1926	1925	1926
107 English towns.....	19, 411	183	140	0.9	0.7
16 Scottish towns.....	2, 396	24	23	1.0	1.0
3 Scandinavian towns.....	1, 300	11	11	.8	.8
48 German towns.....	17, 024	336	483	2.0	2.8
47 German towns ¹	16, 597	330	223	2.0	1.3
14 Dutch towns.....	2, 411	57	44	2.4	1.8
30 Swiss towns.....	1, 184	16	13	1.4	1.1
2 Belgian towns.....	1, 126	39	22	3.5	2.0
5 French towns.....	3, 932	222	214	5.6	5.4
7 Italian towns.....	3, 447	483	646	14.0	18.7
49 Spanish towns.....	4, 263	890	1, 061	20.9	25.4
9 Czechoslovakian towns.....	1, 176	97	84	8.2	7.1
4 Polish towns.....	1, 995	256	306	12.8	15.4
79 Ukrainian towns.....	3, 460	443	528	12.8	15.3
2 towns of the U. S. S. R.....	3, 632	463	409	12.7	11.3
2 Egyptian towns.....	1, 351	445	438	32.9	32.4
21 Japanese towns.....	8, 741	-----	2, 325	-----	26.3
4 Indian towns.....	3, 128	909	1, 057	29.1	33.8
59 towns of the United States.....	20, 621	993	822	3.4	2.8

¹ Excluding Hanover.

It is seen that in Europe the incidence of the disease in general increases from north to south. In England and in the Scandinavian countries, the mortality was less than 1 per 100,000 population; in German, Dutch, and Swiss towns it was mostly between one and two per 100,000 (the explosive outbreak at Hanover in 1926, when the mortality was 60.9, being excluded). In southern and eastern Europe the death rates from enteric fever are mostly between 10 and 20 per 100,000; and in certain Spanish and Italian towns they exceeded 30.

Dysentery.—Although a seasonal increase in dysentery occurred in July and August in European countries where the disease is endemic, there were, on the whole, fewer cases than in previous years. In Germany, 306 cases were reported during the four weeks ended August 6, as compared with 417 cases during the corresponding period of the preceding year. In Poland, in the same four weeks, there were 502 cases reported, as against 1,062 in the preceding year. Countries farther south showed less improvement, but the incidence was not above normal.

Acute poliomyelitis.—No serious outbreaks of poliomyelitis were reported in Europe during July or the first half of August. The incidence in England and Wales was lower than last year and in Germany it was about the same, but the 1926 prevalence was somewhat above the normal. An outbreak of poliomyelitis began in Rumania in June and up to the end of the month 226 cases had been reported in Bucharest and 50 in the remainder of the country.

Lethargic encephalitis.—"The incidence of lethargic encephalitis is decreasing in most countries," states the Report, "and no important outbreak has occurred in Europe or in America during the last three years. Its seasonal fluctuations are becoming more and more uncertain; there was thus a slight increase in the number of cases in June in several countries of Northern Europe. In England and Wales there were 142 cases during the four weeks ended July 25, as against 121 cases during the preceding four weeks, but the incidence fell again in the following weeks. There was a slight increase of cases from May to July also in Scotland.

"In Sweden, the number of cases increased gradually from 6 in April to 18 in July, but fell again to 3 during the first half of August. In June, 18 cases were reported in Denmark, as against 7 in May; in July there were only 10 cases. There was a slight increase in July also in the Netherlands and in Belgium."

COURT DECISION RELATING TO PUBLIC HEALTH

Exclusive right to collect and dispose of garbage in city passed on.—(Kansas City, Mo., Court of Appeals; Harper et al. v. Richardson, 297 S. W. 141; decided June 27, 1927.) By virtue of a special ordinance the plaintiffs contracted with the city of St. Joseph, Mo., for the exclusive right to collect and dispose of all garbage in said city. The ordinance required householders to separate garbage from refuse matter, and also required the payment of fees monthly, in advance, by householders to the garbage contractor. The ordinance also provided that the contractor could not be required to remove garbage where the householder had neglected to comply with the requirement regarding separation of garbage from refuse matter or had failed to pay the stipulated fee, and the plaintiffs refused to remove garbage from certain premises because of failure to separate garbage from refuse and because of nonpayment of fee. The defendant removed garbage from those premises from which the plaintiffs had refused or failed to remove same, and an injunction was sought to restrain the defendant from collecting and disposing of garbage in the city. The judgment of the lower court was for the defendant and this was affirmed by the court of appeals. The following extracts from the latter court's opinion show the various points decided:

* * * That injunction is the proper remedy there is no doubt.

It may also be held as the established law that the city had the power to require that owners of garbage be compelled to separate the garbage from refuse matter and deposit same in cans at stated times and places for removal. * * *

It is also the law, as insisted by plaintiffs, that the owners of premises where garbage is collected should pay for its removal. * * *

It is also insisted that the power to regulate includes the power to make such regulation effective. The provisions of sections 8, 19, 20, and 24 were directed to this end, in that they provided a penalty of arrest and punishment for a violation of their provisions. These provisions are salutary and proper.

It must be remembered that it is the city's right, under the police power granted it by statute, to provide for the public health, and to this end its right to grant an exclusive franchise may not be questioned. The weakness of plaintiffs' position is that they assume a right under their franchise to penalize the property owners for infractions of the provisions of the ordinance providing an orderly and legal method of punishment, by taking into their own hands and executing a method of punishment, by refusing or neglecting to remove the garbage because not separated, and because the nominated fee for such removal was not paid in advance. Such a situation would defeat the very purpose for which the said special ordinance was enacted, to wit, the conservation of public health.

And so we hold that the chancellor was not in error in finding that defendant had the right to remove and dispose of the garbage for all persons from whose premises plaintiffs had refused to remove the same; that the chancellor was not in error in finding that defendant had the right to remove and dispose of garbage for all persons whose garbage plaintiffs had not offered to remove or requested the owners to permit the removal thereof by plaintiffs.

The chancellor's holding that the ordinance in question, in so far as it gave the exclusive right to plaintiffs to remove and dispose of said garbage was valid and binding, in so far as it provided for the safeguarding and protection of the citizens was not error.

Nor was the chancellor in error in finding that part of the ordinance permitting plaintiffs to refuse to remove garbage, and to permit it to remain upon said premises and rot thereon and become dangerous to the health of the citizens, to be void for the reason it is inconsistent [with] and contrary to the purposes which form the bases of its enactment.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Treatment of Chloro-Taste Problems. L. H. Enslow. *Canadian Engineer*, vol. 52, No. 24, June 14, 1927, pp. 585-587. (Abstract by R. E. Thompson.)

Recent advances in the prevention of taste following chlorination of water are reviewed and discussed in some detail. Such tastes are usually caused by the presence of end products of decay of vegetable or animal matter, including essential oils liberated from algae, or industrial wastes containing phenols or cresols, and by the action of free chlorine on pipe coatings. Tastes due to products of decay may usually be destroyed by increased application of chlorine, subsequently aerating the water or storing it for a few hours. Superchlorination of raw water and subsequent chlorination of effluent has been successful in combating taste due to this cause at Dallas, Tex. For prevention of taste due to phenol wastes, superchlorination and dechlorination and ammonia-chlorine treatment have been found effective, the former at Toronto, Ontario, and in laboratory experiments at Bay City, Mich., and the latter at Greenville, Tenn. Where pipe coatings are involved, the only remedy is to prevent the presence of residual chlorine in the water delivered to the distribution system. This may be effected by employing pre-chlorination only; use of ammonia with chlorine; storage of the chlorinated water; or lowering of the pH value, which insures a more rapid dissipation of the chlorine. Chlorine has been successfully used as an algicide at Lufkin, Mexia, and Texarkana, Tex.

Wells as a Source of Water Supply. Marcel Pequegnat. *Canadian Engineer*, vol. 52, No. 8, February 22, 1927, pp. 241-243. (Abstract by R. E. Thompson.)

Data given on the water supply of Kitchener, which is derived from artesian wells. An average daily consumption of almost 2 m. g. is obtained from 20 to 23 wells of depths ranging from 48 feet in gravel to 350 feet in rock strata. A scheme to obtain water from the Grand River, which will be the ultimate source, was deferred indefinitely in 1921 owing to public opinion and the fact that the cost of installation and maintenance of the filter and chlorinating plants necessary for treatment of the river supply would be excessive compared with cost of extending the present system.

As a result of development of the well supply there is a greater proportionate surplus of water than at any time in history of the works. The air lift system of pumping, although less efficient than deep well turbines, has been found most satisfactory, because of less trouble in operation. The method is very simple and flexible and enables the cleaning of the wells readily. In many cases the Kitchener water, objectionable on account of sulphurous odors, has been improved and rendered entirely usable by the aeration effected by the air lift system. Storage for 1,000,000 gallons has been provided at each of the well developments, sufficient for a normal day's consumption.

Protection of Provincial Water Supplies. Anon. *Canadian Engineer*, vol. 52, No. 17, April 26, 1927, pp. 461-463. (Abstract by R. E. Thompson.)

Details are given regarding the supervision of water supplies in each of the Provinces of the Dominion of Canada, including brief data regarding the supervisory body, its activities, authority, and officials. Each Province has a department of health, with the exception of Prince Edward Island, where conditions are such that there is no urgent need for an organization of this kind, the department of works having supervision over all matters pertaining to the public health. Water supply conditions in general in the Provinces are outlined.

A Long Struggle for Fresh Water. R. E. McDonnell and J. O. Herpin. *Water Works Engineering*, vol. 80, No. 12, June 8, 1927, pp. 783-784 and 881. (Abstract by Frank Raab.)

Port Arthur, Tex., with a population of 45,000, is located on Lake Sabine, about 15 miles from the Gulf of Mexico. This city struggled for 25 years to provide itself with a good fresh-water supply. At different times numerous deep wells were drilled which yielded a satisfactory water for a few years, but invariably the water became too salty for drinking and the wells had to be abandoned. At one time 30 wells, varying in depth from 200 to 2,000 feet, were sunk at a cost of \$50,000; but not any of these wells promised a satisfactory and abundant water supply.

Finally, a private concern undertook to bring water from the Neches River, which had a daily flow of 300,000,000 gallons. The water was brought in a canal 50 feet wide and 26 miles long. As soon as the water was available at the city limits, the city built a filter plant to purify and distribute the water. The plant has five 1,000,000-gallon filters, which number can be increased to ten. The water is aerated by spraying to remove gases and vegetable odors. Six electrically driven centrifugal pumps deliver the water. Much attention was paid to the beauty of the interior as well as the exterior of the filter plant, and the grounds were planted with trees, hedges, and shrubbery to give them an attractive appearance. The hearty cooperation of two large refineries which use a great deal of water made this project possible.

Great Advances in Water Softening. Charles P. Hoover. *Water Works Engineering*, vol. 80, No. 14, July 6, 1927, pp. 991-992 and 1019-1020. (Abstract by W. L. Havens.)

This article contains an excellent summary of modern ideas and present methods of water softening. It emphasizes the advantages and disadvantages and describes such equipment as pneumatic conveyors for the handling of chemicals, continuous line slaking machines, mechanical agitators for chemical mixing, sludge-removal equipment, and recarbonization plants. Tentative estimates are also given to compare the cost of zeolite and soda-ash treatment as applied to the Columbus filtration plant. Natural gas and kerosene oil are recommended as the most suitable fuels to be used for the generation of carbon-dioxide gas. For large installations, producer gas made from coke and then burned to complete combustion, is the most economical method. The paper contains the description of such a plant now under construction at Columbus. The effects of recarbonization and of the addition of sodium aluminate upon the corrosive properties of a water are also discussed.

Progress in the Purification of Water Supplies. Norman J. Howard. *Contract Record*, vol. 40, No. 52, December 29, 1926, pp. 151-155 and 143-144. (Abstract by R. E. Thompson.)

A review of progress in the treatment and purification of water, including filtration, coagulation, softening, correction of corrosiveness, codization, and chlorination. Recent improvements have included methods for reducing the ever increasing bacterial loading of filters, improved underdrain systems and mechanical filters, aeration and chemical treatment for soft corrosive waters, and improved chemicals for coagulation. The employment of mechanical clarifiers is extending. The disposal of industrial wastes which affect water supplies, and the treatment of water for the prevention of taste, has received a great deal of attention during the past year.

Water Supply and Drainage Problems in Scotland. Anon. *Surveyor*, vol. 72 No. 1849, July 1, 1927, pp. 3-4. (Abstract by R. E. Thompson.)

General discussion of water supply and drainage conditions in Scotland as described in the 8th Annual Report of the Scottish Board of Health. In cities and burghs, and in the larger special districts, the local authorities are unusually alive to these problems and deal with them adequately and efficiently, but in some of the smaller burghs and villages conditions are far from ideal, financial difficulties being the chief obstacle to progress. Specific cases are outlined. Drainage does not, as a rule, present such great difficulties as the provision of a water supply, the lack of the latter being usually the main difficulty in securing an efficient water-borne drainage system. The fact that many local authorities discharge untreated sewage into streams is commented upon. Here, again, financial difficulties are the chief obstacle. River surveys, which were inaugurated several years ago, are being continued. The board are not authorized by the river pollution prevention acts to bring compulsory measures to bear upon local authorities. Such improvements as have been effected as a result of correspondence have been of a minor character.

Superchlorination of Chlorophenol Tastes. Louis B. Harrison. *Journal American Water Works Association*, vol. 17, No. 3, March, 1927, pp. 336-340. (Abstract by M. S. Foreman.)

Many cities throughout the United States have been bothered with chlorophenol tastes in water supplies. The writer pointed out that the best method for eliminating these tastes is to keep phenol out of water supplies. In spite of the many precautions taken by industries to control phenol wastes, some invariably finds its way into water supplies.

The author studied the effect of adding various quantities of chlorine to three different kinds of phenolic wastes, namely, dilute phenol solution, gas-works wastes, and wood-distillation wastes. It was found that an excess of chlorine, 1.2 to 2.0 p. p. m. at 38° F., would entirely eliminate chlorophenol tastes after

24 hours in the samples used. Tables given show that each waste requires a different intensity of chlorine to eliminate the phenol taste. Since a considerable quantity of residual chlorine is left, sodium sulphite was added to eliminate this excess. A table shows the minimum time required for the reaction of chlorine and phenolic wastes before the Na_2SO_3 could be added. Two factors which may alter the chlorophenol reaction are pH and temperature. With such a wide variation of temperature in nature it is questionable whether superchlorination is practicable on a large scale.

The Calcutta New Water Works. Anon. *All-India Local and Municipal Self-Govt. Gazette*, vol. 14, No. 2, February 14, 1927, pp. 31-32. (Abstract by R. E. Tarbett.)

Construction now under way for an increased water supply for Calcutta calls for additional river intakes, low-lift pumps, a 200,000,000 gallon settling reservoir, 17 additional filters, presumably slow sand, with a capacity of 50,000,000 gallons per day, additional high-duty pumping equipment, a new holding reservoir of 12,000,000 gallons capacity, new force mains, and a considerable increase in the distribution system. When completed, the capacity of the filtered water system will be 85,000,000 gallons per day.

The pumping equipment for the unfiltered water supply has been replaced with new equipment so as to furnish 65,000,000 gallons per day.

With the completion of the work a continuous supply will be available, whereas at present the supply is available only between the hours of 6 a. m. to 10 a. m. and 3 p. m. to 6 p. m.

DEATHS DURING WEEK ENDED OCTOBER 8, 1927

Summary of information received by telegraph from industrial insurance companies for the week ended October 8, 1927, and corresponding week of 1926. (From the Weekly Health Index, October 12, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Oct. 8, 1927	Corresponding week 1926
Policies in force.....	68, 600, 130	65, 494, 760
Number of death claims.....	11, 235	10, 866
Death claims per 1,000 policies in force, annual rate.....	8. 5	8. 7

Deaths from all causes in certain large cities of the United States during the week ended October 8, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, October 12, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Oct. 8, 1927		Annual death rate per 1,000 corre- sponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Oct. 8 1927 ¹
	Total deaths	Death rate ¹		Week ended Oct. 8, 1927	Corre- sponding week 1926	
Total (66 cities).....	6, 150	11. 1	11. 4	710	803	59
Albany ²	23	10. 0	14. 5	4	5	83
Atlanta.....	64			7	11	
White.....	31			2	7	
Colored.....	33	(³)		5	4	
Baltimore ⁴	209	13. 3	11. 9	20	24	93
White.....	154		10. 2	24	17	93
Colored.....	55	(³)	21. 9	6	7	93
Birmingham.....	54	13. 1	11. 9	5	10	
White.....	24		10. 2	3	5	
Colored.....	30	(³)	14. 5	2	5	

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended October 8, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, October 12, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Oct. 8, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Oct. 8 1927
	Total deaths	Death rate		Week ended Oct. 8, 1927	Corresponding week 1926	
Boston	314	14.1	14.0	28	43	78
Bridgeport	22			1	8	19
Buffalo	117	11.1	12.6	15	18	63
Cambridge	26	10.9	16.7	3	4	53
Camden	22	8.6	13.9	3	6	52
Ganton	20	9.2	6.2	8	4	71
Chicago	638	10.7	10.4	72	59	62
Cincinnati	107	13.5	17.9	16	19	100
Cleveland	171	9.1	9.6	23	25	61
Columbus	36	6.5	13.2	6	17	56
Dallas	35	8.7	12.8	3	10	
White	30		10.4	3	9	
Colored	5	(^o)	29.0	0	1	
Dayton	36	10.4	11.5	4	6	66
Denver	78	14.0	13.0	9	10	
Des Moines	26	9.1	10.4	2	1	33
Detroit	232	9.1	10.3	46	37	73
Duluth	16	7.3	11.1	1	5	22
El Paso	21	9.6	12.9	6	2	
Erie	34			2	3	39
Fall River	32	12.5	10.0	5	8	88
Flint	26	9.5	11.5	13	10	212
Fort Worth	41	13.0	8.2	2	4	
White	31		7.8	1	3	
Colored	10	(^o)	11.0	1	1	
Grand Rapids	24	7.9	12.0	2	6	29
Houston	58			7	3	
White	36			4	2	
Colored	22	(^o)		3	1	
Indianapolis	80	11.2	13.1	5	14	39
White	66		12.8	5	11	45
Colored	14	(^o)	15.4	0	3	0
Jersey City	69	11.2	10.3	10	4	75
Kansas City, Kans.	39	17.4	12.0	3	7	58
White	28		10.8	3	4	67
Colored	11	(^o)	17.8	0	3	0
Kansas City, Mo.	75	10.2	15.0	8	18	
Knoxville	24	12.3		4		
White	18			4		
Colored	6	(^o)		0		
Los Angeles	276			15	22	43
Louisville	66	10.8	12.7	2	13	17
White	46		10.3	2	10	19
Colored	20	(^o)	26.4	0	3	0
Lowell	22	10.4	13.7	6	4	116
Lynn	25	12.4	11.0	6	3	159
Memphis	74	21.6	22.7	12	8	
White	42		16.5	8	6	
Colored	32	(^o)	33.9	4	2	
Milwaukee	120	11.8	9.9	18	6	84
Minneapolis	90	10.6	12.6	4	11	23
Nashville	33	12.5	14.5	4	3	
White	23		15.4	4	3	
Colored	10	(^o)	12.0	0	0	
New Bedford	16	7.0	14.0	1	7	17
New Haven	38	10.7	11.2	3	4	42
New Orleans	188	19.4	15.9	18	14	
White	94		10.6	11	6	
Colored	64	(^o)	31.1	7	8	
New York	1,158	10.1	10.2	125	123	52
Bronx Borough	178	10.0	7.0	14	12	45
Brooklyn Borough	302	8.3	9.3	43	39	44
Manhattan Borough	490	14.1	13.7	52	55	61
Queens Borough	97	6.3	7.6	15	12	64
Richmond Borough	51	11.0	11.7	1	5	19
Newark, N. J.	104	11.6	11.7	14	20	69
Oakland	46	9.0	11.4	3	6	35
Oklahoma City	24			1	5	
Omaha	34	8.1	10.4	1	5	11
Paterson	43	15.6	9.1	4	1	71

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended October 8, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, October 12, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Oct. 8, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Oct. 8 1927
	Total deaths	Death rate		Week ended Oct. 8, 1927	Corresponding week 1926	
Philadelphia.....	400	10.2	11.4	39	55	52
Pittsburgh.....	150	12.2	11.1	17	25	50
Portland, Oreg.....	45			4	6	42
Providence.....	64	11.9	8.5	6	4	51
Richmond.....	61	16.6	12.4	5	5	66
White.....	36		9.3	3	2	64
Colored.....	25	(¹)	19.9	2	3	76
Rochester.....	63	10.1	11.5	4	10	34
St. Louis.....	220	13.7	10.9	14	23	
St. Paul.....	43	9.0	11.1	2	2	18
Salt Lake City ²	20	7.7	10.6	4	2	61
San Antonio.....	58	14.3	10.2	9	12	
San Diego.....	24	15.4	15.2	6	3	128
San Francisco.....	159	14.4	14.3	10	4	62
Schenectady.....	11	6.2	14.0	3	3	90
Seattle.....	73			2	4	21
Somerville.....	19	9.7	8.3	3	2	108
Spokane.....	21	10.0	15.3	2	3	50
Springfield, Mass.....	31	11.0	10.1	0	3	0
Syracuse.....	44	11.6	12.4	1	4	13
Tacoma.....	16	7.8	7.4	1	1	24
Toledo.....	55	9.4	10.6	5	13	48
Trenton.....	57	21.7	14.0	8	5	139
Waterbury.....	11			0	1	0
Wilmington, Del.....	22	9.1	11.8	6	4	149
Worcester.....	47	12.6	16.2	9	5	108
Yonkers.....	15	6.6	9.9	1	5	23
Youngstown.....	22	6.8	9.8	3	5	42

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 Data for 60 cities.

⁵ Deaths for week ended Friday Oct. 7, 1927.

⁶ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; and Richmond, 32.

MEASLES—continued

	Cases
Maryland ¹	19
Massachusetts.....	108
Michigan.....	30
Minnesota.....	2
Missouri.....	5
Montana.....	3
Nebraska.....	2
New Jersey.....	13
New Mexico.....	11
New York.....	99
North Carolina.....	113
Oklahoma ²	36
Oregon.....	13
Pennsylvania.....	226
Rhode Island.....	7
South Carolina.....	177
South Dakota.....	1
Tennessee.....	19
Texas.....	3
Vermont.....	1
Washington.....	30
West Virginia.....	6
Wisconsin.....	57

MENINGOCOCCUS MENINGITIS

Arkansas.....	2
California.....	4
Colorado.....	2
Illinois.....	6
Iowa ¹	2
Kansas.....	1
Louisiana.....	2
Maryland ¹	1
Michigan.....	1
Minnesota.....	1
Missouri.....	1
Montana.....	2
Nebraska.....	1
New Jersey.....	3
New York.....	2
Oklahoma ²	1
Pennsylvania.....	2
Texas.....	1
Washington.....	1
West Virginia.....	1
Wisconsin.....	8

POLIOMYELITIS

Arizona.....	6
Arkansas.....	13
California.....	26
Colorado.....	11
Connecticut.....	8
Illinois.....	26
Indiana.....	13
Iowa ¹	5
Kansas.....	26
Louisiana.....	1
Maine.....	12
Maryland ¹	2
Massachusetts.....	78
Michigan.....	21
Minnesota.....	5
Missouri.....	20
Montana.....	2

¹ Week ended Friday.

POLIOMYELITIS—continued

	Cases
Nebraska.....	13
New Jersey.....	9
New Mexico.....	15
New York.....	38
Ohio.....	77
Oklahoma ²	13
Oregon.....	19
Pennsylvania.....	33
Rhode Island.....	2
South Carolina.....	3
South Dakota.....	2
Tennessee.....	3
Texas.....	10
Utah ¹	2
Vermont.....	1
Virginia.....	2
Washington.....	33
West Virginia.....	14
Wisconsin.....	12
Wyoming.....	3

SCARLET FEVER

Alabama.....	25
Arizona.....	4
Arkansas.....	6
California.....	90
Colorado.....	38
Connecticut.....	15
Delaware.....	2
Florida.....	6
Georgia.....	24
Idaho.....	9
Illinois.....	134
Indiana.....	67
Iowa ¹	11
Kansas.....	77
Louisiana.....	7
Maine.....	9
Maryland ¹	24
Massachusetts.....	157
Michigan.....	95
Minnesota.....	78
Mississippi.....	13
Missouri.....	77
Montana.....	12
Nebraska.....	47
New Jersey.....	53
New Mexico.....	11
New York.....	146
North Carolina.....	116
Oklahoma ²	37
Oregon.....	21
Pennsylvania.....	210
Rhode Island.....	13
South Carolina.....	18
South Dakota.....	31
Tennessee.....	29
Texas.....	25
Utah ¹	8
Vermont.....	2
Washington.....	30
West Virginia.....	67
Wisconsin.....	72
Wyoming.....	9

² Exclusive of Oklahoma City and Tulsa.

SMALLPOX

	Cases
Alabama.....	1
Arkansas.....	3
California.....	3
Idaho.....	1
Illinois.....	18
Indiana.....	6
Iowa ¹	4
Kansas.....	15
Louisiana.....	10
Michigan.....	9
Minnesota.....	1
Mississippi.....	1
Missouri.....	13
Montana.....	4
Nebraska.....	3
North Carolina.....	5
Oklahoma ¹	6
Oregon.....	24
South Carolina.....	2
South Dakota.....	4
Tennessee.....	25
Texas.....	4
Utah ¹	10
Washington.....	11
Wisconsin.....	7

TYPHOID FEVER

Alabama.....	32
Arizona.....	7
Arkansas.....	26
California.....	8
Colorado.....	13
Connecticut.....	5
Delaware.....	2

¹ Week ended Friday.

TYPHOID FEVER—continued

	Cases
Florida.....	3
Georgia.....	26
Illinois.....	28
Indiana.....	36
Iowa ¹	3
Kansas.....	48
Louisiana.....	5
Maine.....	6
Maryland ¹	24
Massachusetts.....	8
Michigan.....	27
Minnesota.....	10
Mississippi.....	10
Missouri.....	30
Montana.....	4
Nebraska.....	2
New Jersey.....	9
New Mexico.....	49
New York.....	46
North Carolina.....	22
Oklahoma ¹	85
Oregon.....	15
Pennsylvania.....	37
South Carolina.....	36
South Dakota.....	5
Tennessee.....	54
Texas.....	25
Utah ¹	6
Vermont.....	1
Washington.....	4
West Virginia.....	41
Wisconsin.....	9
Wyoming.....	1

¹ Exclusive of Oklahoma City and Tulsa.

Reports for Week Ended October 8, 1927

DIPHTHERIA

	Cases
District of Columbia.....	22
Georgia.....	45

INFLUENZA

District of Columbia.....	1
Georgia.....	19

MEASLES

District of Columbia.....	3
Georgia.....	17

MENINGOCOCCUS MENINGITIS

Georgia.....	1
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POLIOMYELITIS

	Cases
District of Columbia.....	1
Georgia.....	10

SCARLET FEVER

District of Columbia.....	11
Georgia.....	34

TYPHOID FEVER

District of Columbia.....	4
Georgia.....	34

mated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended October 1, 1927, and October 2, 1926

	1927	1926	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
43 States.....	1,733	1,650	
96 cities.....	758	716	816
Measles:			
42 States.....	750	1,061	
96 cities.....	149	209	
Poliomyelitis:			
43 States.....	595	88	
Scarlet fever:			
43 States.....	1,656	1,741	
96 cities.....	492	559	492
Smallpox:			
43 States.....	147	79	
96 cities.....	26	6	11
Typhoid fever:			
43 States.....	844	1,417	
96 cities.....	109	245	204
<i>Deaths reported</i>			
Influenza and pneumonia:			
91 cities.....	353	417	
Smallpox:			
91 cities.....	0	0	

City reports for week ended October 1, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence 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 week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population, July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland.....	75,333	1	1	0	0	0	0	0	2
New Hampshire:									
Concord.....	22,546	0	1	0	9	0	0	0	0
Vermont:									
Barre.....	10,008	0	0	0	0	0	0	4	0
Massachusetts:									
Boston.....	779,620	14	23	15	2	0	16	3	11
Fall River.....	128,992	0	3	6	0	0	1	0	0
Springfield.....	142,065	0	2	8	0	0	1	0	1
Worcester.....	190,757	10	5	5	0	0	0	4	3
Rhode Island:									
Fawtucket.....	69,760	0	1	1	0	0	0	0	2
Providence.....	287,918	0	4	4	0	0	0	0	3

City reports for week ended October 1, 1937—Continued

Division, State, and city	Population, July 1, 1936 estimated	Chick-en pox, cases re-ported	Diphtheria		Influenza		Meas-les, cases re-ported	Mumps, cases re-ported	Pneu-monia, deaths re-ported
			Cases, esti-mated expec-tancy	Cases re-ported	Cases re-ported	Deaths re-ported			
NEW ENGLAND—con.									
Connecticut:									
Bridgeport.....	(1)	0	7	5	0	0	0	0	1
Hartford.....	160, 197		5						
New Haven.....	178, 927	0	3	2	0	0	5	3	2
MIDDLE ATLANTIC									
New York:									
Buffalo.....	538, 016	7	15	16		0	6	3	7
New York.....	5, 873, 356	16	98	121	3	7	9	7	61
Rochester.....	316, 786	0	7	1		0	2	3	5
Syracuse.....	182, 003	0	6	2		0	12	0	5
New Jersey:									
Camden.....	128, 642	1	4	4	0	0	0	0	1
Newark.....	452, 513	5	8	10	2	0	3	7	0
Trenton.....	132, 020	0	4	6	0	0	0	0	2
Pennsylvania:									
Philadelphia.....	1, 979, 364	13	47	68		2	0	11	31
Pittsburgh.....	631, 563	7	20	24		0	81	7	13
Reading.....	112, 707	1	2	0		0	4	0	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	409, 333	0	11	13	0	1	0	0	3
Cleveland.....	936, 495	15	34	67	1	0	4	16	7
Columbus.....	279, 836	0	6	6	0	0	1	0	0
Toledo.....	287, 380	0	13	2	0	0	3	1	2
Indiana:									
Fort Wayne.....	97, 846	0	3	4	0	1	0	0	0
Indianapolis.....	358, 819	2	12	6	0	0	2	10	8
South Bend.....	80, 091	0	1	0	0	0	0	0	0
Terre Haute.....	71, 071	0	1	0	0	0	0	0	1
Illinois:									
Chicago.....	2, 995, 239	8	71	53	2	2	5	5	26
Springfield.....	63, 923	0	2	0	1	1	1	1	0
Michigan:									
Detroit.....	1, 245, 824	4	55	34	0	1	2	13	10
Flint.....	130, 316	0	10	5	0	0	0	2	1
Grand Rapids.....	153, 698	0	4	1	0	1	2	0	0
Wisconsin:									
Kenosha.....	50, 891		1						
Milwaukee.....	509, 192	12	14	5	0	0	1	6	4
Racine.....	67, 707	0	2	0	0	0	1	0	0
Superior.....	39, 671	0	1	0	0	0	0	0	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	110, 502	0	2	0	0	0	1	0	0
Minneapolis.....	425, 435	4	25	21	0	0	0	0	3
St. Paul.....	246, 001	3	18	2	0	2	0	0	1
Iowa:									
Davenport.....	52, 469	0	1	0	0		1	0	
Des Moines.....	141, 441	1	7	0	0		1	0	3
Sioux City.....	76, 411	0	2	0	0		0	0	
Waterloo.....	36, 771	0	0	1	0		0	1	
Missouri:									
Kansas City.....	367, 481	2	7	1	0	2	0	0	4
St. Joseph.....	78, 342	0	2	0	0	0	0	0	4
St. Louis.....	821, 543	0	35	25	0	0	1	2	
North Dakota:									
Fargo.....	26, 403	0	1	0	0	0	0	1	0
Grand Forks.....	14, 811	0	1	0	0	0	0	0	
South Dakota:									
Aberdeen.....	15, 036	0	0	0	0		0	1	
Sioux Falls.....	30, 127	0	1	0	0		0	0	
Nebraska:									
Lincoln.....	60, 941	2	0	1	0	0	0	0	0
Omaha.....	211, 768	0	14	2	0	0	1	0	3
Kansas:									
Topeka.....	55, 411	2	1	9	0	0	0	1	0
Wichita.....	88, 367	1	2	1	0	0	0	5	1

1 No estimate made.

City reports for week ended October 1, 1927—Continued

Division, State, and city	Population, July 1, 1925, estimated	Chick-en pox, cases re-ported	Diphtheria		Influenza		Mea-sles, cases re-ported	Mumps, cases re-ported	Pneu-monia, deaths re-ported
			Cases, esti-mated expect-ancy	Cases re-ported	Cases re-ported	Deaths re-ported			
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	122, 049	1	2	0	0	0	0	0	2
Maryland:									
Baltimore.....	796, 296	9	18	24	2	0	1	3	10
Cumberland.....	33, 741	0	1	0	1	0	0	0	0
Frederick.....	12, 035	1	1	1	0	0	0	0	0
District of Columbia:									
Washington.....	497, 906	1	10	16	0	0	2	0	9
Virginia:									
Lynchburg.....	30, 395	4	1	4	0	0	0	0	1
(1) Norfolk.....		0	3	1	0	0	2	0	0
Richmond.....	186, 403	0	18	12	0	0	2	0	3
Roanoke.....	58, 208	0	5	4	0	0	2	0	0
West Virginia:									
Charleston.....	49, 019	0	2	3	2	2	0	0	0
Wheeling.....	56, 208	1	1	1	0	0	0	0	1
North Carolina:									
Raleigh.....	30, 371	1	4	5	0	0	0	0	0
Wilmington.....	37, 061	1	1	3	0	0	0	0	1
Winston-Salem.....	69, 031	0	4	0	0	0	3	4	2
South Carolina:									
Charleston.....	73, 125	0	1	1	6	0	0	0	0
Columbia.....	41, 225		2						
Greenville.....	27, 311	0	2	1	0	0	0	0	0
Georgia:									
(1) Atlanta.....		0	8	10	8	0	1	0	6
Brunswick.....	16, 809	0	0	0	0	0	0	0	0
Savannah.....	93, 134	0	2	1	0	0	1	0	0
Florida:									
Miami.....	69, 754	0		0	2	0	2	0	0
St. Petersburg.....	26, 847		0		0	0			1
Tampa.....	94, 743	0	1	1	0	0	0	0	1
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	58, 309	0	2	0	0	0	0	0	2
Lexington.....	46, 895	0		0	0	0	0	0	0
Louisville.....	305, 935	0	8	1	0	0	0	0	4
Tennessee:									
Memphis.....	174, 533	1	5	4	0	0	3	2	2
Nashville.....	136, 220	0	4	2	0	2	1	1	3
Alabama:									
Birmingham.....	205, 670	0	7	2	2	2	0	0	5
Mobile.....	65, 955	0	2	1	0	1	0	0	1
Montgomery.....	46, 481	0	2	3	1	0	0	3	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	31, 643	0	1	0	0	0	0	0	3
Little Rock.....	74, 216	0	1	1	0	0	0	1	0
Louisiana:									
New Orleans.....	414, 493	0	8	8	7	5	0	0	8
Shreveport.....	57, 857	3	1	1	0	0	0	1	2
Oklahoma:									
Oklahoma City.....	(1)	0	2	5	0	0	0	0	2
Tulsa.....	124, 478	1		4	0	0	0	1	0
Texas:									
Dallas.....	194, 450	0	7	23	0	0	1	0	3
Galveston.....	48, 375	0	0	0	0	0	0	0	0
Houston.....	164, 964	0	3	6	0	0	0	0	5
San Antonio.....	198, 069	0	1	8	0	0	0	0	1
MOUNTAIN									
Montana:									
Billings.....	17, 971	0	0	0	0	0	0	0	0
Great Falls.....	29, 883	3	1	0	0	0	0	0	1
Helena.....	12, 037	1	1	0	0	0	0	0	0
Missoula.....	12, 668	1	0	0	0	0	0	0	0

¹ No estimate made.

City reports for week ended October 1, 1927—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN—contd.									
Idaho:									
Boise.....	23,042	0	0	1	0	0	0	2	0
Colorado:									
Denver.....	280,911	0	15	0	0	0	0	0	0
Pueblo.....	43,787	0	4	0	0	0	0	0	0
New Mexico:									
Albuquerque.....	21,000	0	0	0	0	0	0	1	1
Utah:									
Salt Lake City.....	130,948	7	4	7	0	0	0	0	3
Nevada:									
Reno.....	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	(1)	7	6	10	0	0	4	2	0
Spokane.....	108,897	3	3	2	0	0	0	0	0
Tacoma.....	104,456	1	4	4	0	0	0	0	2
Oregon:									
Portland.....	282,388	6	6	4	0	0	1	1	2
California:									
Los Angeles.....	(1)	6	32	18	6	1	4	7	7
Sacramento.....	72,260	1	2	1	0	0	1	1	1
San Francisco.....	557,530	17	17	11	1	1	9	7	3

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.....	1	0	0	0	0	1	2	0	0	8	20
New Hampshire:											
Concord.....	0	0	0	0	0	1	0	0	0	0	11
Vermont:											
Barre.....	0	0	0	0	0	0	0	0	0	0	1
Burlington.....	0	0	0	0	0	0	0	0	0	0	0
Massachusetts:											
Boston.....	21	21	0	0	0	14	4	2	0	17	182
Fall River.....	1	3	0	0	0	2	2	0	0	0	23
Springfield.....	3	1	0	0	0	0	0	0	0	0	28
Worcester.....	4	5	0	0	0	5	0	0	0	2	49
Rhode Island:											
Pawtucket.....	1	2	0	0	0	2	1	0	0	0	17
Providence.....	2	7	0	0	0	4	2	2	0	2	58
Connecticut:											
Bridgeport.....	3	1	0	0	0	0	1	0	0	1	26
Hartford.....	2	0	0	0	0	0	0	0	0	0	0
New Haven.....	3	2	0	0	0	0	2	0	0	4	32
MIDDLE ATLANTIC											
New York:											
Buffalo.....	9	12	0	0	0	11	2	0	0	23	132
New York.....	45	49	1	0	0	77	40	25	0	114	1,147
Rochester.....	3	2	0	0	0	3	1	3	0	2	59
Syracuse.....	5	4	0	0	0	7	2	1	0	2	42
New Jersey:											
Camden.....	3	0	0	0	0	1	2	0	0	0	33
Newark.....	6	5	0	0	0	8	2	2	0	37	92
Trenton.....	1	1	0	0	0	3	0	0	0	1	24
Pennsylvania:											
Philadelphia.....	31	31	0	0	0	30	14	3	0	29	405
Pittsburgh.....	20	15	0	0	0	7	4	2	1	7	145
Reading.....	0	1	0	0	0	0	0	1	0	0	24

1 No estimate made.

2 Pulmonary tuberculosis only.

City reports for week ended October 1, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	7	3	0	0	0	5	2	2	0	0	110
Cleveland.....	15	28	0	0	0	28	4	0	0	13	147
Columbus.....	4	12	0	0	0	8	1	1	1	1	68
Toledo.....	6	4	0	0	0	7	3	2	0	5	57
Indiana:											
Fort Wayne.....	1	1	0	0	0	3	1	0	1	1	25
Indianapolis.....	5	13	0	1	0	3	3	0	0	8	94
South Bend.....	2	2	0	0	0	1	0	0	0	0	10
Terre Haute.....	1	0	0	0	0	2	0	0	0	0	21
Illinois:											
Chicago.....	48	27	0	0	0	53	8	0	0	85	589
Springfield.....	1	11	0	0	0	1	1	0	0	0	14
Michigan:											
Detroit.....	38	25	1	0	0	20	7	3	1	60	235
Flint.....	6	14	0	0	0	1	1	2	0	4	33
Grand Rapids.....	5	7	1	0	0	0	1	1	0	4	26
Wisconsin:											
Kenosha.....	1		0								
Milwaukee.....	15	6	0	0	0	0	0	3	0	18	105
Racine.....	3	2	0	0	0	0	0	0	0	2	12
Superior.....	1	1	0	0	0	0	0	0	0	0	5
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	5	3	0	0	0	1	0	0	0	5	24
Minneapolis.....	25	13	1	0	0	0	2	1	0	1	56
St. Paul.....	11	6	2	0	0	2	2	0	0	6	61
Iowa:											
Davenport.....	1	0	0	0			0	0		0	
Des Moines.....	4	3	0	1		2	0	0		0	35
Sioux City.....	1	0	0	0			1	0		2	
Waterloo.....	2	0	0	0			0	0		0	
Missouri:											
Kansas City.....	5	3	0	0	0	4	2	2	0	1	79
St. Joseph.....	2	1	0	5	0	0	1	1	1	1	25
St. Louis.....	18	5	0	0	0	11	6	3	0	14	245
North Dakota:											
Fargo.....	0	5	0	0	0	0	0	0	0	0	6
Grand Forks.....	1	4	0	0			0	0		0	
South Dakota:											
Aberdeen.....	1	0	0	0			0	0		1	
Sioux Falls.....	1	0	0	0			0	0		0	
Nebraska:											
Lincoln.....	1	3	0	0	0	0	0	0	0	0	9
Omaha.....	3	0	0	0	0	2	1	0	0	0	49
Kansas:											
Topeka.....	2	1	0	0	0	2	1	0	0	3	27
Wichita.....	2	3	0	1	0	0	2	3	0	3	21
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	2	1	0	0	0	0	0	0	0	1	29
Maryland:											
Baltimore.....	8	6	0	0	0	20	11	1	2	40	209
Cumberland.....	0	0	0	0	0	2	1	1	0	0	6
Frederick.....	0	0	0	0	0	0	0	0	0	0	1
District of Columbia:											
Washington.....	7	10	0	0	0	9	4	3	0	0	144
Virginia:											
Lynchburg.....	1	1	0	0	0	0	1	1	0	0	7
Norfolk.....	0	2	0	0	0	4	1	0	0	0	
Richmond.....	6	5	0	0	0	1	2	2	0	2	52
Roanoke.....	2	7	0	0	0	0	1	0	0	0	22
West Virginia:											
Charleston.....	1	4	0	0	0	0	1	1	1	0	14
Wheeling.....	3	0	0	0	0	1	1	0	0	0	23
North Carolina:											
Raleigh.....	1	0	0	0	0	3	1	0	0	4	15
Wilmington.....	1	1	0	0	0	0	0	0	0	0	7
Winston-Salem.....	2	5	0	0	0	2	2	0	0	1	18

City reports for week ended October 1, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
SOUTH ATLANTIC— continued											
South Carolina:											
Charleston.....	0	0	0	2	0	0	2	0	0	0	16
Columbia.....	0		0			0	0				
Greenville.....	1	2	0	0	0	1	0	2	0	0	5
Georgia:											
Atlanta.....	6	14	0	0	0	2	4	0	0	0	68
Brunswick.....	0	0	0	0	0	0	0	0	0	0	3
Savannah.....	0	0	0	0	0	0	2	0	0	0	30
Florida:											
Miami.....		1		0	0	3		0	0	0	31
St. Petersburg.....	0		0		0	1	0		0	0	14
Tampa.....	0	1	0	0	0	3	0	0	0	0	23
EAST SOUTH CEN- TRAL											
Kentucky:											
Covington.....	0	3	0	0	0	0	0	0	0	0	17
Lexington.....		1		0	0	0		0	0	0	15
Louisville.....	3	7	0	0	0	5	5	3	0	4	58
Tennessee:											
Memphis.....	3	4	0	0	0	2	5	4	1	0	43
Nashville.....	4	3	0	0	0	3	4	5	1	2	42
Alabama:											
Birmingham.....	5	3	0	0	0	5	4	7	0	2	63
Mobile.....	0	2	0	0	0	1	1	0	0	0	20
Montgomery.....	1	1	0	0	0	0	4	0	0	0	
WEST SOUTH CEN- TRAL											
Arkansas:											
Fort Smith.....	0	0	0	0		0	1			5	
Little Rock.....	1	4	0	0	0	1	2	0	0	0	
Louisiana:											
New Orleans.....	2	1	0	0	0	14	4	0	1	1	152
Shreveport.....	1	1	0	0	0	1	1	1	0	0	20
Oklahoma:											
Oklahoma City.....	1	0	0	1	0	1	2	1	0	0	22
Tulsa.....		5						0		0	
Texas:											
Dallas.....	3	11	0	2	0	1	2	1	1	0	40
Galveston.....	1	0	0	0	0	1	0	0	0	0	11
Houston.....	1	4	0	0	0	2	1	0	0	0	56
San Antonio.....	0	4	0	0	0	5	1	1	0	0	38
MOUNTAIN											
Montana:											
Billings.....	0	0	0	0	0	0	0	0	0	4	4
Great Falls.....	1	0	0	0	0	0	0	1	0	0	9
Helena.....	0	1	0	0	0	0	0	0	0	0	3
Missoula.....	0	2	0	1	0	0	1	0	0	0	4
Idaho:											
Boise.....	0	0	0	0	0	0	0	0	0	0	3
Colorado:											
Denver.....	5		1				3				
Fueblo.....	1	0	0	0	0	0	0	0	0	0	4
New Mexico:											
Albuquerque.....	0	1	0	0	0	6	2	0	1	0	18
Utah:											
Salt Lake City.....	2	1	0	5	0	2	2	2	0	13	24
Nevada:											
Reno.....	0	0	0	0	0	0	0	0	0	0	4
PACIFIC											
Washington:											
Seattle.....	8	4	1	0			1	2		6	
Spokane.....	5	1	2	7			1	2		1	
Tacoma.....	3	0	0	1	0	0	1	0	0	0	21
Oregon:											
Portland.....	6	4	2	12	0	2	3	1	0	3	67
California:											
Los Angeles.....	9	14	2	0	0	29	4	0	1	12	
Sacramento.....	1	0	0	1	0	5	1	2	0	1	28
San Francisco.....	7	10	0	0	0	7	1	1	0	14	106

City reports for week ended October 1, 1927—Continued

Division, State, and city	Meningo-coccus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Maine:									
Portland.....	0	0	0	0	0	0	0	1	0
Massachusetts:									
Boston.....	0	1	1	0	0	0	2	31	7
Fall River.....	0	0	0	0	0	0	0	1	0
Worcester.....	0	0	0	0	0	0	0	1	1
Rhode Island:									
Pawtucket.....	0	0	0	0	0	0	0	2	0
Providence.....	1	0	0	0	0	0	1	0	0
Connecticut:									
New Haven.....	0	0	0	0	0	0	0	1	0
MIDDLE ATLANTIC									
New York:									
New York.....	5	1	5	5	0	0	14	40	4
New Jersey:									
Newark.....	0	0	0	0	0	0	1	3	0
Pennsylvania:									
Philadelphia.....	1	1	0	0	0	0	1	6	1
Pittsburgh.....	1	1	0	0	0	0	0	6	2
Reading.....	1	0	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	0	0	0	0	0	0	0	5	1
Cleveland.....	0	0	2	0	0	0	1	14	1
Columbus.....	0	0	0	1	0	0	0	0	0
Indiana:									
Fort Wayne.....	0	0	0	0	0	0	0	1	0
South Bend.....	0	0	0	0	0	0	0	1	0
Illinois:									
Chicago.....	6	3	3	1	1	1	4	12	1
Springfield.....	0	0	0	0	0	0	0	1	0
Michigan:									
Detroit ¹	1	0	0	1	0	0	1	10	1
Grand Rapids.....	0	0	0	0	0	0	0	3	0
Wisconsin:									
Milwaukee.....	1	0	0	0	0	0	0	2	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	0	0	0	0	0	0	0	2	1
Minneapolis.....	1	1	1	1	0	0	0	2	0
Iowa:									
Des Moines.....	0	0	0	0	0	0	0	1	0
Waterloo.....	0	0	0	0	0	0	0	1	0
Missouri:									
Kansas City.....	0	0	0	0	0	0	0	7	0
St. Louis.....	1	1	0	0	0	0	1	0	0
North Dakota:									
Fargo.....	0	0	0	0	0	0	0	2	0
South Dakota:									
Sioux Falls.....	0	0	0	0	0	0	0	1	0
Kansas:									
Topeka.....	0	0	0	0	0	0	0	2	1
Wichita.....	0	0	0	0	0	0	0	3	1
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	0	0	0	0	0	0	0	1	0
Maryland:									
Baltimore.....	1	1	0	0	0	2	1	0	0
Cumberland.....	0	0	0	0	0	0	0	1	0
District of Columbia:									
Washington.....	0	0	0	0	0	0	1	3	0
Virginia:									
Lynchburg.....	0	0	0	0	0	0	0	1	0
West Virginia:									
Wheeling.....	0	0	0	0	0	0	0	1	0

¹ Rabies (human): 1 case at Detroit, Mich.

City reports for week ended October 1, 1927—Continued

Division, State, and city	Meningo- coccus meningitis		Lethargic encephalitis		Pellagra		Poliomylitis (infan- tile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti- mated expect- ancy	Cases	Deaths
SOUTH ATLANTIC—continued									
North Carolina:									
Winston-Salem.....	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston ¹	0	0	0	0	1	0	0	0	0
Georgia:									
Savannah ²	0	0	0	0	0	1	0	0	0
Florida:									
Miami.....	1	1	0	0	0	0	0	0	0
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	0	0	0	0	0	0	0	1	0
Tennessee:									
Memphis.....	0	0	0	0	0	1	0	0	0
Nashville.....	0	0	0	0	1	1	0	3	0
Alabama:									
Birmingham ³	0	0	0	0	1	1	0	0	0
Montgomery.....	0	0	0	0	2	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock.....	0	0	0	0	0	2	0	0	0
Louisiana:									
New Orleans.....	0	0	1	1	2	2	0	0	0
Shreveport.....	0	0	0	0	0	2	0	0	0
Oklahoma:									
Oklahoma City.....	0	0	2	0	0	0	0	0	0
Texas:									
Dallas.....	0	0	0	0	0	0	0	4	1
Houston.....	0	0	0	0	0	1	0	0	0
MOUNTAIN									
New Mexico:									
Albuquerque.....	0	0	0	0	0	0	0	1	1
Utah:									
Salt Lake City.....	0	0	0	0	0	0	0	2	0
Nevada:									
Reno.....	0	0	0	0	0	0	0	1	1
PACIFIC									
Washington:									
Seattle.....	0	0	0	0	0	0	0	1	0
Spokane.....	3	0	0	0	0	0	0	0	0
Tacoma.....	0	0	0	0	0	0	0	9	2
Oregon:									
Portland.....	4	1	0	0	0	0	1	0	0
California:									
Los Angeles.....	0	0	2	0	1	0	1	6	1
Sacramento.....	0	0	0	0	0	0	0	0	1
San Francisco.....	0	0	0	2	1	1	1	1	0

¹ Dengue: 4 cases at Charleston, S. C.² Typhus fever: 1 case and 1 death at Savannah, Ga., and 1 case at Birmingham, Ala.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended October 1, 1927, compared with those for a like period ended October 2, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had

estimated aggregate populations of approximately 30,445,000 in 1926 and 30,966,000 in 1927. The 95 cities reporting deaths had nearly 29,785,000 estimated population in 1926 and nearly 30,296,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, September 4 to October 1, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926¹

DIPHTHERIA CASE RATES

	Week ended—									
	Sept. 4, 1926	Sept. 5, 1927	Sept. 11, 1926	Sept. 10, 1927	Sept. 18, 1926	Sept. 17, 1927	Sept. 25, 1926	Sept. 24, 1927	Oct. 2, 1926	Oct. 1, 1927
101 cities.....	73	² 84	75	94	84	101	107	³ 103	127	⁴ 129
New England.....	26	88	88	98	35	53	73	91	66	⁵ 115
Middle Atlantic.....	89	77	53	90	63	106	70	96	81	123
East North Central.....	99	57	78	90	95	82	128	⁶ 105	133	⁷ 130
West North Central.....	67	⁸ 69	75	64	95	125	127	87	143	123
South Atlantic.....	69	⁹ 89	186	109	110	112	127	106	162	¹⁰ 162
East South Central.....	41	51	103	107	109	117	134	82	299	66
West South Central.....	80	164	86	151	77	138	69	206	210	197
Mountain.....	91	117	173	153	237	225	137	234	292	¹¹ 143
Pacific.....	134	73	91	92	99	92	212	¹² 72	174	120

MEASLES CASE RATES

101 cities.....	25	¹ 21	27	20	28	20	38	² 27	37	³ 26
New England.....	33	58	35	63	19	20	38	39	21	⁴ 58
Middle Atlantic.....	17	18	11	16	10	14	9	30	10	33
East North Central.....	31	11	20	15	23	18	24	⁵ 18	25	⁶ 13
West North Central.....	10	16	10	10	12	28	28	20	10	6
South Atlantic.....	9	⁷ 18	19	14	9	14	11	36	13	⁸ 26
East South Central.....	31	10	16	10	16	10	10	15	5	20
West South Central.....	0	42	4	17	4	17	0	0	0	4
Mountain.....	36	9	100	36	73	45	118	45	109	⁹ 0
Pacific.....	91	42	158	84	212	45	308	¹⁰ 53	327	47

SCARLET FEVER CASE RATES

101 cities.....	51	¹ 57	58	52	65	69	79	² 67	100	³ 84
New England.....	59	60	80	53	75	102	71	123	104	⁴ 105
Middle Atlantic.....	25	38	32	30	44	46	56	42	51	59
East North Central.....	58	80	61	65	60	89	80	⁵ 70	98	⁶ 102
West North Central.....	131	69	93	91	129	87	153	60	198	79
South Atlantic.....	37	⁷ 60	56	60	48	78	78	107	110	⁸ 106
East South Central.....	57	76	109	97	119	46	83	46	98	117
West South Central.....	26	59	47	46	30	42	52	50	69	105
Mountain.....	82	63	73	54	82	99	118	153	319	⁹ 72
Pacific.....	70	34	88	31	118	55	118	¹⁰ 75	174	76

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.

² Greenville, S. C., not included.

³ Fort Wayne, Ind., and Tacoma, Wash., not included.

⁴ Hartford, Conn., Kenosha, Wis., Columbia, S. C., Greenville, S. C., and Denver, Colo., not included.

⁵ Hartford, Conn., not included.

⁶ Fort Wayne, Ind., not included.

⁷ Kenosha, Wis., not included.

⁸ Columbia, S. C., and Greenville, S. C., not included.

⁹ Denver, Colo., not included.

¹⁰ Tacoma, Wash., not included.

Summary of weekly reports from cities, September 4 to October 1, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

SMALLPOX CASE RATES

	Week ended—									
	Sept. 4, 1926	Sept. 3, 1927	Sept. 11, 1926	Sept. 10, 1927	Sept. 18, 1926	Sept. 17, 1927	Sept. 25, 1926	Sept. 24, 1927	Oct. 2, 1926	Oct. 1, 1927
101 cities.....	2	4	2	4	2	5	3	6	1	4
New England.....	0	0	0	0	0	0	0	0	0	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	0	7	2	3	0	0	1	1	0	7
West North Central.....	0	2	2	12	0	22	2	8	2	12
South Atlantic.....	9	10	2	2	9	4	6	0	4	4
East South Central.....	10	0	0	10	0	0	0	10	0	0
West South Central.....	4	0	0	4	4	4	13	0	0	8
Mountain.....	0	36	0	9	0	27	0	162	9	108
Pacific.....	13	18	16	13	19	37	19	10	22	5

TYPHOID FEVER CASE RATES

101 cities.....	40	32	45	30	53	33	44	28	42	49
New England.....	12	21	17	39	33	46	9	63	17	510
Middle Atlantic.....	34	28	34	27	55	37	45	24	26	18
East North Central.....	20	15	20	7	29	16	26	10	33	7
West North Central.....	42	10	50	32	26	24	26	14	40	20
South Atlantic.....	91	71	104	58	80	31	91	45	114	9
East South Central.....	178	183	284	112	248	153	165	87	129	117
West South Central.....	43	55	39	75	60	38	77	71	47	17
Mountain.....	9	54	18	63	82	36	36	36	82	54
Pacific.....	46	8	27	8	35	16	21	14	19	18

INFLUENZA DEATH RATES

95 cities.....	3	4	4	4	4	5	6	3	6	11
New England.....	0	2	0	5	0	0	5	0	2	50
Middle Atlantic.....	2	3	4	3	3	4	3	2	2	4
East North Central.....	4	5	4	4	3	2	3	1	5	7
West North Central.....	4	4	0	0	4	4	8	2	0	8
South Atlantic.....	0	7	0	6	6	9	9	11	9	4
East South Central.....	16	5	0	10	5	0	10	10	10	25
West South Central.....	9	13	18	13	22	17	22	9	35	22
Mountain.....	9	18	36	9	0	9	9	0	18	90
Pacific.....	0	0	0	7	7	10	7	10	7	7

PNEUMONIA DEATH RATES

95 cities.....	51	56	51	62	53	60	65	59	69	11
New England.....	50	49	40	65	54	39	75	70	87	60
Middle Atlantic.....	59	72	65	67	51	60	70	70	71	62
East North Central.....	34	51	37	59	40	53	45	43	59	41
West North Central.....	36	23	30	44	51	46	55	25	70	33
South Atlantic.....	64	42	44	50	55	77	79	66	66	67
East South Central.....	52	46	41	112	52	102	88	82	109	87
West South Central.....	49	82	97	65	115	60	93	69	66	95
Mountain.....	64	54	64	90	118	99	55	54	155	72
Pacific.....	78	55	57	52	53	86	78	63	28	45

¹ Greenville, S. C., not included.

² Fort Wayne, Ind., and Tacoma, Wash., not included.

³ Hartford, Conn., Kenosha, Wis., Columbia, S. C., Greenville, S. C., and Denver, Colo., not included.

⁴ Hartford, Conn., not included.

⁵ Fort Wayne, Ind., not included.

⁶ Kenosha, Wis., not included.

⁷ Columbia, S. C., and Greenville, S. C., not included.

⁸ Denver, Colo., not included.

⁹ Tacoma, Wash., not included.

¹⁰ Hartford, Conn., Kenosha, Wis., Greenville, S. C., and Denver, Colo., not included.

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

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,443,800	30,966,700	29,783,700	30,295,900
New England.....	12	12	2,211,600	2,245,900	2,211,000	2,245,900
Middle Atlantic.....	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central.....	16	16	7,650,200	7,810,600	7,650,200	7,810,600
West North Central.....	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic.....	21	20	2,799,500	2,878,100	2,737,700	2,835,700
East South Central.....	7	7	1,028,300	1,023,500	1,028,300	1,028,500
West South Central.....	8	7	1,215,800	1,243,300	1,181,500	1,210,400
Mountain.....	9	9	572,100	580,000	572,100	580,000
Pacific.....	6	4	1,946,400	1,991,700	1,473,300	1,512,800

FOREIGN AND INSULAR

CHOLERA ON VESSEL

Steamship "Morea"—At Hong Kong—September 2, 1927.—The steamship *Morea* from London via Singapore was reported at Hong Kong, September 2, 1927, infected with cholera. The *Morea* was reported at Colombo, Ceylon, September 14, and at Perim, September 21; destination, Suez.

THE FAR EAST

Report for week ended September 24, 1927.—The following report for the week ended September 24, 1927, was transmitted by the eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Small-pox		Maritime towns	Plague		Cholera		Small-pox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
Iraq: Basra.....	0	0	10	8	0	0	Siam: Bangkok.....	0	0	2	0	0	0
Ceylon: Colombo.....	1	1	0	0	0	0	Straits Settlements: Singapore.....	0	0	1	1	0	0
British India:							French Indo-China: Tu- rane.....	0	0	3	2	0	0
Bombay.....	1	1	0	1	0	0	China:						
Tuticorin.....	0	0	1	0	0	0	Amoy.....	0	0	14	6	0	0
Madras.....	0	0	7	2	1	0	Shanghai (Int. S.)..	0	0	2	2	0	0
Calcutta.....	0	0	11	2	2	0	Canton.....	0	0	1	0	0	0
Bassein.....	6	0	0	0	0	0	Newchwang.....	0	0	17	4	0	0
Rangoon.....	0	0	0	6	1	0	Tientsin.....	0	0	1	0	0	0
Dutch East Indies:							Kwantung: Dairen.....	0	0	0	0	0	0
Banjermasin.....	0	0	0	0	33	0							
Makassar.....	0	0	0	0	0	0							
Balikpapan.....	0	0	0	0	5	0							

11 plague-infected rat was found during the week.

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

ASIA

Aden Protectorate.—Aden, Perim.
Arabia.—Bahrein.
Persia.—Bender-Abbas, Bushire, Lingah, Mohammerah.
India.—Karachi, Chittagong, Cochin, Negapatam, Moulmein, Vizagapatam.
Portuguese India.—Nova Goa.
Federated Malay States.—Port Swettenham.
Straits Settlements.—Penang.
Dutch East Indies.—Batavia, Pontianak, Semarang, Cheribon, Padang, Belawa, Deli, Tarakan, Palembang, Menado, Sabang, Surabaya.

ASIA—continued

Sarawak.—Kuching.
British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.
Portuguese Timor.—Dilly.
Philippine Islands.—Iloilo, Jolo, Cebu, Zamboanga, Manila.
French Indo-China.—Haiphong, Saigon and Cholon.
China.—Tsingtao
Hong Kong.
Macao.
Wei-hai-wei.

ASIA—continued

Formosa.—Keelung, Takao.
Chosen.—Chemulpo, Fusan.
Manchuria.—Yingkow, Antung, Harbin, Mukden, Changchun.
Kwantung.—Port Arthur.
Japan.—Nagasaki, Yokohama, Niigata, Shimodake, Moji, Tsuruga, Kobe, Osaka, Hakodate.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Carnarvon, Thursday Island, Cairns, Port Moresby.
New Guinea.—Port Moresby.
New Britain Mandated Territory.—Rabaul and Kokopo.
New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.
Western Samoa.—Apia.
New Caledonia.—Noumea.
Fiji.—Suva.

Reports had not been received in time for publication from—

Italian Somaliland.—Mogadiscio.
Aden Protectorate.—Kamaran.
Dutch East Indies.—Samarinda.
Union of Socialist Soviet Republics.—Vladivostok.

Belated information:

Week ended September 10: *Pondicherry* and *Karikal*—NW.

Movement of infected ships:

The mail steamer *Montreal Maru* arrived September 20 from Chittagong infected with cholera.

AUSTRALASIA AND OCEANIA—continued

Hawaii.—Honolulu.
Society Islands.—Papeete.

AFRICA

Egypt.—Alexandria, Port Said, Suez.
Anglo-Egyptian Sudan.—Port Sudan, Suakin.
Eritrea.—Massaua.
French Somaliland.—Djibouti.
British Somaliland.—Berbera.
Kenya.—Mombasa.
Zanzibar.—Zanzibar.
Tanganyika.—Dar-es-Salaam.
Seychelles.—Victoria.
Portuguese East Africa.—Mozambique, Beira, Lourenço-Marques.
Union of South Africa.—East London, Port Elizabeth, Cape Town, Durban.
Mauritius.—Port Louis.
Reunion.—Saint Denis.
Madagascar.—Majunga, Diego-Suarez, Tamatave.

AMERICA

Panama.—Colon, Panama.

BRAZIL

Mortality—Deaths from certain causes—Manaos—August, 1927.—During the month of August, 1927, 148 deaths from all causes were reported at Manaos, Brazil, including leprosy, 2; malaria, 45; paratyphoid fever, 1; tuberculosis, 17. Population, estimated, 88,872.

CANADA

Communicable diseases—Week ended October 1, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended October 1, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever				2				2
Influenza	33							33
Poliomyelitis				2	2		28	32
Smallpox				6		12	5	23
Typhoid fever	2	1	27	21	2	1	6	60

Communicable diseases—Quebec—Week ended October 1, 1927.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended October 1, 1927, as follows:

Disease	Cases	Disease	Cases
Chicken pox.....	5	Scarlet fever.....	49
Diphtheria.....	48	Tuberculosis.....	46
German measles.....	4	Typhoid fever.....	27
Measles.....	16	Whooping cough.....	5

Typhoid fever—Montreal—January 2–October 8, 1927.—The following table gives the cases of typhoid fever and deaths from this disease reported at Montreal, Quebec, Canada, since January 1, 1927:

Week ended—	Cases	Deaths	Week ended—	Cases	Deaths
Jan. 8, 1927.....	3	1	May 28, 1927.....	353	38
Jan. 15, 1927.....	4	3	June 4, 1927.....	239	37
Jan. 22, 1927.....	1	2	June 11, 1927.....	128	36
Jan. 29, 1927.....	3	1	June 18, 1927.....	86	.....
Feb. 5, 1927.....	1	0	June 25, 1927.....	75	23
Feb. 12, 1927.....	0	0	July 2, 1927.....	66	21
Feb. 19, 1927.....	1	2	July 9, 1927.....	52	10
Feb. 26, 1927.....	1	1	July 16, 1927.....	39	4
Mar. 5, 1927.....	9	1	July 23, 1927.....	22	9
Mar. 12, 1927.....	203	4	July 30, 1927.....	23	10
Mar. 19, 1927.....	393	14	Aug. 6, 1927.....	16	5
Mar. 26, 1927.....	568	22	Aug. 13, 1927.....	20	5
Apr. 2, 1927.....	649	48	Aug. 20, 1927.....	14	4
Apr. 9, 1927.....	386	40	Aug. 27, 1927.....	8	3
Apr. 16, 1927.....	175	38	Sept. 3, 1927.....	27	.....
Apr. 23, 1927.....	125	43	Sept. 10, 1927.....	17	.....
Apr. 30, 1927.....	105	23	Sept. 17, 1927.....	13	2
May 7, 1927.....	106	19	Sept. 24, 1927.....	6	3
May 14, 1927.....	367	16	Oct. 1, 1927.....	18	.....
May 21, 1927.....	770	25	Oct. 8, 1927.....	14	1

Vital statistics—Quebec—July, 1927.—Births and deaths in the Province of Quebec for the month of July, 1927, were reported as follows:

Estimated population.....	2,604,000	Deaths from—Continued.	
Births.....	6,781	Diphtheria.....	31
Birth rate per 1,000 population.....	31.25	Heart disease.....	214
Deaths.....	2,666	Influenza.....	27
Death rate per 1,000 population.....	12.28	Measles.....	11
Deaths under 1 year.....	774	Pneumonia.....	119
Infant mortality rate.....	114.14	Scarlet fever.....	14
Deaths from—		Syphilis.....	3
Accidents (all).....	97	Tuberculosis (pulmonary).....	200
Cancer.....	124	Tuberculosis (other forms).....	60
Cerebrospinal meningitis.....	10	Typhoid fever.....	55
Diabetes.....	16	Whooping cough.....	40
Diarrhea.....	247		

CHINA

Epidemic pneumonic plague—Mongolia—October 11, 1927.—Under date of October 11, 1927, an epidemic outbreak of pneumonic plague, with approximately 200 deaths, was reported on the northern frontier of Mongolia, China.

CUBA

Communicable diseases—Habana—September, 1927.—During the month of September, 1927, communicable diseases were reported in Habana, Cuba, as follows:

Disease	New cases	Deaths	Remain- ing under treat- ment Sept. 30, 1927	Disease	New cases	Deaths	Remain- ing under treat- ment Sept. 30, 1927
Chicken pox.....	2	.....	8	Measles.....	12	.....	24
Diphtheria.....	5	1	1	Paratyphoid fever.....	.....	.....	1
Leprosy.....	3	1	16	Scarlet fever.....	1	.....	1
Malaria ¹	56	.....	58	Typhoid fever ¹	45	3	63

¹ Many of these cases from the interior.

Typhoid fever—Malaria—Santiago de Cuba¹—September 25–October 1, 1927.—During the week ended October 1, 1927, 8 cases of typhoid fever with 2 deaths were reported at Santiago de Cuba. It was stated that there were 104 cases of malaria officially reported in the city on October 1, 1927.

GERMANY

Cancer—Tuberculosis—Berlin—1926.—During the year 1926 there were reported at Berlin, Germany, 6,195 deaths from cancer and related causes, and 3,930 deaths from tuberculosis of the respiratory organs. Population on date of taking census, August 1, 1927, 4,164,631.

Poliomyelitis—Leipzig—September 29, 1927.—Under date of September 29, 1927, a serious outbreak of acute poliomyelitis was reported at Leipzig, Germany.

JAMAICA

Smallpox (alastrim)—August 28–September 24, 1927.—During the four-week period ended September 24, 1927, 7 cases of smallpox (reported as alastrim) were reported in the Island of Jamaica, at localities other than Kingston. During the week ended September 17, no case was reported.

Other communicable diseases.—During the same period other communicable diseases were reported in the Island of Jamaica as follows:

Disease	Cases		Disease	Cases	
	Kingston	Other localities		Kingston	Other localities
Chicken pox.....	4	6	Poliomyelitis.....	.....	2
Dysentery.....	1	16	Puerperal fever.....	1	1
Erysipelas.....	.....	1	Tuberculosis.....	15	49
Leprosy.....	1	.....	Typhoid fever.....	19	71

Population of Kingston, 62,707; Island, 926,000.

MADAGASCAR

Plague—July 16–31, 1927.—During the two-week period ended July 31, 1927, 25 cases of plague with 23 deaths, occurring in four provinces, were reported in Madagascar. The distribution according to provinces was as follows: Ambositra—cases 5, deaths 5; Itasy—cases 4, deaths 4; Moramanga—cases 4, deaths 4; Tenanarive—cases 12, deaths 10. The distribution of occurrence according to type was as follows: Bubonic, 15; pneumonic, 8; septicemic, 2.

MAURITIUS

Plague—Port Louis—May–June, 1927.—Under date of August 4, 1927, a fatal case of plague was reported to have occurred at Port Louis, Island of Mauritius, during the period May–June, 1927.

SENEGAL

Plague—Yellow fever—September 19–25, 1927.—During the week ended September 25, 1927, 129 cases of plague with 75 deaths were reported in Senegal, West Africa. The distribution according to locality was as follows: *Interior*—Baol region, cases 13, deaths 7; Cayor region, cases 104, deaths 58; in Louga district, which was stated to have been immune to plague for a number of years, cases 5, deaths 4; and in Thiès district, cases 5, deaths 4. One case of plague with 1 death was reported at Dakar and 1 case with 1 death at Rufisque.

Yellow fever.—During the period under report, 3 fatal cases of yellow fever were reported in Senegal, of which 1 case, in a Syrian, occurred at Pout, and 2 cases, 1 in a European physician and 1 in a Portuguese half-caste, at Thiès.

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

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

Reports Received During Week Ended October 21, 1927¹

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Amoy.....	Aug. 28–Sept. 3.....	18	1	Prevalent.
Canton.....	do.....	10	6	
Swatow.....	Aug. 28–Sept. 10.....			
Tientsin.....	Aug. 27–Sept. 10.....	4		
India:				
Bombay.....	Aug. 21–Sept. 3.....	4	3	
Calcutta.....	Aug. 28–Sept. 3.....	18	10	
Madras.....	Sept. 4–10.....	8	11	
Iraq:				
Basra.....	Sept. 11–17.....	9	9	
Siam.....				Aug. 21–27, 1927: Cases, 25; deaths, 15. Apr. 1–Aug. 27, 1927: Cases, 708; deaths, 493
Cholera on vessel:				
Steamship Morea.....	Sept. 2.....			At Hong Kong, from London via Singapore. At Colombo, Ceylon, Sept. 14; Perim, Sept. 21. Destination, Suez

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

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

Reports Received During Week Ended October 21, 1927—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Ceylon:				
Colombo.....	Aug. 28-Sept. 3....	1	1	
China:				
Mongolia.....	Oct. 11.....		200	Approximate. Outbreak on northern border. Type pneumonic.
Egypt.....				Jan. 1-Sept. 9, 1927: Cases, 66; corresponding period, year 1926, cases, 128.
Alexandria.....	Aug. 27-Sept. 2....	1		
India:				
Bombay.....	Aug. 21-Sept. 3....	3	2	
Calcutta.....	do.....	18	10	
Madras presidency.....	Aug. 14-20.....	176	88	
Rangoon.....	Aug. 28-Sept. 3....	1		
Java:				
Batavia.....	do.....	18	18	Province.
Surabaya.....	Aug. 14-20.....	4	4	
Madagascar.....				July 16-31, 1927: Cases, 25; deaths, 23.
Provinces—				
Amboitra.....	July 16-31.....	5	5	Bubonic.
Itasy.....	do.....	4	4	Bubonic, 1; pneumonic, 2; septicemic, 1.
Moramanga.....	do.....	4	4	Bubonic, 4; pneumonic, 1; septicemic, 1.
Tananarive.....	do.....	12	10	Bubonic, 7; pneumonic, 5; of which cases 2; deaths, 2 (bubonic) were at Tananarive Town.
Mauritius:				
Port Louis.....	May-June.....	1	1	
Senegal.....				Sept. 19-25, 1927: Cases, 129; deaths, 75.
Interior—				
Baol region.....	Sept. 19-25.....	13	7	
Cayor region.....	do.....	104	58	
Louga district.....	do.....	5	4	Stated to have been immune for a number of years.
Thiès district.....	do.....	5	4	
Urban—				
Dakar.....	do.....	1	1	
Rufisque.....	do.....	1	1	
Siam.....				Apr. 1-Aug. 27, 1927: Cases, 10; deaths, 7.

SMALLPOX

Brazil:				
Bahia.....	Aug. 7-13.....	1		
Porto Alegre.....	Aug. 1-31.....	3		
Rio de Janeiro.....	Sept. 4-17.....	3	6	
Canada:				
Alberta.....	Sept. 25-Oct. 1....	5		
Manitoba—				
Winnipeg.....	Oct. 2-8.....	1		
Ontario.....	Sept. 25-Oct. 1....	6		
Ottawa.....	Oct. 2-8.....	15		
Saskatchewan.....	Sept. 25-Oct. 1....	12		
China:				
Tientsin.....	Sept. 4-10.....		4	
Great Britain:				
England and Wales.....	Sept. 11-24.....			Cases, 251.
Sheffield.....	Sept. 18-24.....	1		
India:				
Bombay.....	Aug. 21-Sept. 3....	7	5	
Calcutta.....	Aug. 28-Sept. 3....	4	2	
Rangoon.....	do.....	2	1	
Iraq:				
Basra.....	Sept. 11-17.....	1	1	
Italy:				
Florence.....	Sept. 18-24.....	1		
Jamaica.....				Aug. 28-Sept. 24, 1927: Cases, 7 (Reported as alastrim.)
Java:				
East Java and Madura—				
Surabaya.....	Aug. 14-20.....	4		

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

Reports Received During Week Ended October 21, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Mexico: Torreon.....	Sept. 25-Oct. 1.....		2	Aug. 31-27, 1927: Cases, 25; deaths, 2. Apr. 1-Aug. 27, 1927: Cases, 223; deaths, 32.
Siam.....				
Venezuela: Maracaibo.....	Sept. 6-12.....		2	

TYPHUS FEVER

Algeria: Algiers.....	Sept. 1-10.....	1		In native.
Egypt: Cairo.....	May 21-June 24.....	5	4	
Guatemala: Guatemala.....	Aug. 25-31.....		1	
Mexico: Mexico City.....	Sept. 19-24.....	5		Including municipalities in Federal District.
Palestine.....				Sept. 6-19, 1927: Cases, 5; in four localities.
Poland.....				Aug. 7-24, 1927: Cases, 24; deaths, 2.
Syria: Aleppo.....	Sept. 11-17.....	2		
Union of South Africa: Cape Province.....	Aug. 20-27.....			Outbreaks in 3 districts.

YELLOW FEVER

Senegal: Pout.....	Sept. 19-25.....	1	1	In a Syrian.
Thies.....	do.....	2	2	1 in European doctor; 1 in Portuguese half-caste.

Reports Received from June 25 to October 14, 1927¹

CHOLERA

Place	Date	Cases	Deaths ¹	Remarks
China:				
Amoy.....	May 22-Aug. 27.....	31	8	Present.
Canton.....	May 1-Aug. 27.....	47	23	
Foochow.....	July 24-Aug. 27.....			
Hong Kong.....	July 17-23.....	2	2	
Kulangsui.....	June 21.....	1		
Shanghai.....	June 19-25.....	2		
Do.....	July 31-Sept. 3.....		61	In international settlement and French concession.
Swatow.....	May 15-Aug. 27.....	138	13	
India.....	Apr. 17-Aug. 13.....			Cases, 143,274; deaths, 82,048.
Bombay.....	May 8-Aug. 20.....	121	53	
Calcutta.....	May 8-Aug. 27.....	651	387	
Karachi.....	May 29-June 4.....	1	1	
Madras.....	June 19-Sept. 3.....	789	410	
Rangoon.....	May 8-Aug. 13.....	18	14	
India, French settlements in.....	Mar. 30-July 16.....	171	109	
Indo-China (French).....	Apr. 1-Aug. 10.....			Cases, 13,640.
Annam.....	do.....	2,936		
Cambodge.....	do.....	335		
Cochin-China.....	do.....	1,519		
Saigon.....	June 4-July 21.....	10	4	
Laos.....	July 11-Aug. 10.....	137		
Tonkin.....	Apr. 1-Aug. 10.....	9,713		

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

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

Reports Received from June 25 to October 14, 1927—Continued

CHOLERA—Continued

Place	Date	Cases	Deaths	Remarks
Iraq:				
Baghdad.....	July 24-30.....	29	18	
Basra.....	July 17-Sept. 10.....	374	279	
Japan:				
Yokohama.....	July 31-Aug. 6.....	1	1	
Persia:				
Abedan.....	July 24-Aug. 13.....	215	183	
Ahwaz.....	July 31-Aug. 13.....	20	13	
Minab.....	Aug. 7-13.....	23	23	
Mohammerah.....	July 17-Aug. 27.....	194	155	
Nasseri.....	July 19-31.....	10	10	
Philippine Islands:				
Manila.....	July 17-Aug. 27.....	2	2	
Bulacan Province.....	June 7-July 8.....	3	3	
Leyte Province—				
Barugo.....	June 29.....	1	1	
Carigara.....	June 23.....	1	1	Final diagnosis not received.
Palo.....	May 18.....	1	1	
Siam:				
Bangkok.....	May 1-Aug. 20.....	45	14	Cases, 291; deaths, 177.
On vessel:				
S. S. Adrastus.....	Reported Aug. 6.....	1	1	At Yokohama, Japan.
S. S. War Mehtar (oil tanker).....	Aug. 4.....	1	1	At Saffagha, Egypt.

PLAGUE

Algeria:				
Algiers.....	Aug. 21-31.....	1	4	
Oran.....	Aug. 21-Sept. 10.....	5	4	
Argentina				
Buenos Aires.....	Jan. 1-Aug. 2.....	4	3	Cases, 80; deaths, 44.
Cordoba.....	Jan. 11-Aug. 6.....	52	29	
Corrientes.....	June 1.....	1	1	
Entre Rios.....	Mar. 29-Aug. 13.....	8	1	
Santa Fe.....	Apr. 28-May 16.....	4	3	
Territory—				
Chaco—				
Barranqueras.....	May 29.....	2	2	
Formosa.....	June 25.....	3	2	
Pampa.....	July 27-Aug. 2.....	4	4	
Rio Negro.....	Aug. 6.....	1	1	
City—				
Merou.....	Reported July 14.....	1	1	Present.
Rossario.....	May 7.....	1	1	
Santa Fe.....	May 16.....	4	2	
Azores:				
St. Michaels Island.....	May 15-Aug. 27.....	6	6	
Ribeira Grande.....	June 12-18.....	1	1	
Brazil:				
Sao Paulo.....	June 3-9.....	1	1	
British East Africa:				
Kenya:				
Mombassa.....	Apr. 24-July 31.....	73	14	
Nairobi.....	July 24-30.....	1	1	
Tanganyika.....	May 22-28.....	6	6	
Do.....	Mar. 29-May 28.....	87	87	
Do.....	July 24-Aug. 6.....	10	10	
Uganda.....	Jan. 1-Feb. 28.....	138	121	
Do.....	Mar. 27-June 18.....	366	300	
Canary Islands:				
Laguna district—				
Tejina.....	June 17.....	1	1	
Las Palmas.....	Oct. 8.....	4	4	
Ceylon:				
Colombo.....	May 1-Aug. 27.....	18	11	Plague rats, 4.
China:				
Amoy.....	July 3-23.....	2	2	Present in surrounding country.
Tientsin.....	Aug. 14-20.....	2	2	
Ecuador:				
Guayaquil.....	June 1-July 31.....	2	2	Rats taken, 48290; found infected, 34.

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

Reports Received from June 25 to October 14, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Egypt	May 1-Sept. 3			Cases, 15; deaths, 4.
Alexandria	June 4-Sept. 2	3		
Beni-Souef	June 4-July 13	5	2	
Biba	June 4-10	1		At Nama.
Dakhalia	June 24-July 9	6	1	
Minia	Aug. 8-9	4		
Port Said	June 24-July 21	4	1	
Suez	Sept. 4	1		
Tanta district	June 4-10	1		
Greece	May 1-June 30	4	3	
Athens	June 1-Aug. 29	3		Including Piraeus.
Mytilene	Aug. 9	1		
Patras	May 30-Sept. 4	8	1	
Hawaii Territory:				
Hamakua	July 15			1 plague rodent.
Honokaa	May 17-23	2	2	
Kukuihaele	Aug. 12-17	1	1	1 plague rodent.
Pasuiilo	July 26-Aug. 1		4	
India	Apr. 17-July 16			Cases, 22,523; deaths, 8,580.
Bombay	May 8-Aug. 20	95	81	
Madras	May 1-Aug. 13	706	344	
Rangoon	May 8-Aug. 27	63	58	
Indo-China (French)	Apr. 1-Aug. 10	60		
Kwang-Chow-Wan	May 21-July 31	73		
Iraq:				
Baghdad	Apr. 8-May 28	12	1	
Java:				
Batavia	May 1-Aug. 27	243	244	Province.
East Java and Madura	May 22-July 10	28	27	
Paseroean Residency	May 9			Outbreak reported at Nagdiwano.
Surabaya	Apr. 17-Aug. 6	56	55	Mar. 16-Apr. 30, 1927; Cases, 256; deaths, 135.
Madagascar:				
Province—				
Ambositra	Mar. 16-July 15	94	87	
Antsirabe	Mar. 16-May 15	8	8	
Miarinarivo (Itasy)	Mar. 16-July 15	65	59	
Moramanga	May 16-July 15	24	23	
Tananarive	Mar. 16-July 15	221	194	
Tananarive Town	Mar. 16-June 30	22	20	
Nigeria	Mar. 1-May 31	228	177	
Peru	Apr.-May 31			Cases, 22; deaths, 8.
Departments—				
Ica	Apr. 1-30	1		
Lambaveque	do	1		
Libertad	Apr. 1-May 31	7	4	
Lima	do	13	4	
Lima City	Apr. 1-30	5	1	
Senegal	May 23-Sept. 11			Cases, 901; deaths, 531.
Baol	June 2-Sept. 18	127	62	
Cayor Frontier	July 4-Sept. 18	712	415	
Dakar	June 20-Sept. 18	145	93	
Facel	July 6	17	8	
Guindel	June 20-26	11	2	
M' Bour	July 6-10	28	23	
Medina	June 13-19	2	2	
Pout	July 4-10	1		
Ruffsque	May 23-Sept. 18	222	166	
Thies district	do	29	11	
Tivaouane	June 2-July 17	50	32	
Siam	Apr. 1-Aug. 20			Cases, 10; deaths, 7.
Bangkok	May 8-June 11	2	1	
Syria:				
Beirut	June 11-July 10	3		
Tunisia	Apr. 21-July 10	144		
Tunis	July 25-Aug. 1	1		
Turkey:				
Constantinople	May 13-19	1		
Union of South Africa:				
Cape Province—				
Maraisburg district	May 1-14	2	2	Native.
Orange Free State—				
Edenburg district	July 17-26	3	3	Natives; on farm.
Rouxville district	July 24-Aug. 6	2	2	

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

Reports Received from June 25 to October 14, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
On vessel:				
S. S. Avoroff.....	June 24-30.....	1		On Greek warship at port of Athens. At Duala, French Cameroons, from Nigeria. At Piraeus, Greece. At Dakar, Senegal, from ports south. At Gefle, Sweden, from Rufisque, Senegal.
S. S. Capatric.....	Aug. 23.....	3	1	
S. S. Elcano.....	Aug. 19.....	1		
S. S. Madonna.....	Aug. 24.....	1		
S. S. Ransholm.....	Aug. 5.....	3		

SMALLPOX

Algeria.....	Apr. 21-July 31.....			Cases, 882.
Algiers.....	May 11-June 30.....	8		
Oran.....	May 21-Sept. 10.....	51		
Angola.....	June 1-July 15.....	18		
Arabia:				
Aden.....	July 17-Aug. 1.....	2	1	
Brazil:				
Porto Alegre.....	July 1-31.....	5		
Rio de Janeiro.....	May 22-Sept. 3.....	20	13	
British East Africa:				
Kenya.....	Apr. 24-May 14.....	7	14	
Tanganyika.....	Mar. 29-June 18.....	2	22	
Zanzibar.....	Apr. 1-May 31.....	19	7	
British South Africa:				
Northern Rhodesia.....	Apr. 30-Aug. 26.....	161	3	
Canada.....	June 5-Sept. 24.....			Cases, 540.
Alberta.....	June 12-Sept. 24.....			Cases, 110.
Calgary.....	June 12-Aug. 27.....	9		
British Columbia—				
Vancouver.....	May 23-Sept. 4.....	4		
Manitoba.....	June 5-Sept. 17.....			Cases, 38.
Winnipeg.....	June 12-Sept. 16.....	21		
Nova Scotia.....	Sept. 11-17.....	1		
Ontario.....	June 5-Sept. 24.....			Cases, 215.
Ottawa.....	June 12-Oct. 1.....	141		
Sarnia.....	Aug. 7-13.....	1		
Toronto.....	June 19-Sept. 24.....	11		
Quebec.....	June 19-Aug. 27.....	15		
Saskatchewan.....	June 12-Sept. 24.....			Cases, 126.
Moose Jaw.....	Aug. 14-Sept. 24.....	21		
Regina.....	July 17-Aug. 27.....	10		
Ceylon.....	May 1-7.....			Cases, 3; deaths, 1.
Colombo.....	July 31-Aug. 6.....	1	1	
China:				
Amoy.....	May 8-28.....	1		Present in surrounding country.
Do.....	July 3-16.....			
Antung.....	July 4-31.....	3		
Chefoo.....	May 8-14.....			Present.
Foochow.....	May 8-Aug. 27.....			Do.
Hong Kong.....	May 8-Aug. 20.....	20	19	
Manchuria—				
Anshan.....	May 22-28.....	1		
Changchun.....	May 15-July 30.....	8		
Dairen.....	May 2-July 3.....	10	5	
Fushun.....	May 15-July 30.....	10		
Harbin.....	June 14-July 10.....	4		
Kaiyuan.....	July 3-9.....	2		
Mukden.....	May 22-July 30.....	6		
Pensihu.....	July 3-9.....	1		
Seuping kai.....	May 8-July 9.....	3		
Tientsin.....	May 8-July 30.....	18		
Chosen.....	Feb. 1-June 30.....			Cases, 507; deaths, 205.
Chinnampo.....	Apr. 1-May 31.....	2		
Fusan.....	Apr. 1-30.....	1		
Gensan.....	May 1-31.....	1		
Seishin.....	Apr. 1-30.....	1		
Curaçao.....	May 29-June 4.....	1		Alastrim.
Ecuador:				
Guayaquil.....	June 1-30.....	2		

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

Reports Received from June 25 to October 14, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Egypt.....	May 7-July 29.....			Cases, 21; deaths, 3.
Alexandria.....	May 21-June 17.....	4	1	
Cairo.....	Jan. 22-Apr. 15.....	14	3	
France.....	Apr. 1-July 31.....			Cases, 201.
Lille.....	July 24-30.....	1		
Paris.....	May 21-July 31.....	14	2	
Gold Coast.....	Mar. 1-June 30.....	41	7	
Great Britain:				Cases, 2,964.
England and Wales.....	May 22-Sept. 10.....			
Birmingham.....	Aug. 14-20.....	1		
Bradford.....	May 29-June 11.....	2		
Cardiff.....	June 19-July 2.....	4		
Leeds.....	July 17-Sept. 3.....	13		
Liverpool.....	July 17-30.....	1		
London.....	May 15-June 18.....	2		
Newcastle upon Tyne.....	June 12-Aug. 13.....	5		
Sheffield.....	June 12-Aug. 6.....	25		
Stoke-on-Trent.....	Aug. 21-27.....	1		
Scotland—				
Dundee.....	May 29-Sept. 3.....	6		
Greece.....	June 1-30.....	14		
Salonika.....	July 12-Aug. 15.....		2	
Guatemala:				Cases, 72,048; deaths, 19,005.
Guatemala City.....	June 1-30.....		9	
Guinea (French).....	June 4-10.....	9		
India.....	Apr. 17-Aug. 13.....			Cases, 318.
Bombay.....	May 28-Aug. 20.....	232	150	
Calcutta.....	May 8-Aug. 27.....	390	301	
Karachi.....	May 18-Aug. 6.....	10	5	
Madras.....	May 22-Sept. 3.....	28	6	
Rangoon.....	May 8-Aug. 27.....	183	155	
India, French Settlements in.....	Mar. 20-June 18.....	174	111	
Indo-China (French).....	Mar. 21-Aug. 10.....			Cases, 318.
Saigon.....	May 14-Aug. 19.....	3	1	
Iraq:				Reported as alastrim. Cases, 19.
Baghdad.....	Apr. 10-Sept. 4.....	3	1	
Basra.....	do.....	4	3	
Italy.....	Apr. 10-May 21.....	13		
Rome.....	June 13-July 10.....	2		
Jamaica.....	May 29-Aug. 27.....	30		
Japan.....	Apr. 3-May 7.....			Reported as alastrim. Cases, 19.
Nagasaki City.....	June 20-Aug. 14.....	26	7	
Taiwan Island.....	May 21-31.....	1		
Java:				Deaths, 557.
Batavia.....	May 22-Aug. 20.....	7		
East Java and Madura.....	Apr. 24-July 30.....	13		
Latvia.....	Apr. 1-30.....	1		
Mexico.....	Mar. 1-May 31.....			Present.
Durango.....	June 1-30.....		1	
La Oroya.....	Apr. 1-June 30.....		1	
Monterey.....	July 1-31.....	6	4	
San Luis Potosi.....	May 29-Aug. 13.....		11	
Tampico.....	June 1-July 31.....	1	2	
Torreon.....	Aug. 7-13.....		1	
Morocco.....	Apr. 1-July 31.....	207		
Netherlands India:				Epidemic in 2 localities. Epidemic outbreak. Do.
Borneo—				
Holoe Soengei.....	Apr. 21.....			
Pasir Residency.....	Apr. 30-May 6.....			
Samarinda Residency.....	May 21-27.....			
Nigeria.....	Mar. 1-June 30.....	2,352	570	
Paraguay:				Deaths, 557.
Asuncion.....	July 10-23.....		2	
Persia:				Present.
Teheran.....	Feb. 21-June 22.....		14	
Poland.....	Apr. 10-Aug. 6.....	20	2	
Portugal:				Present.
Lisbon.....	May 29-Sept. 17.....	19	1	
Oporto.....	Sept. 3-9.....	1		
Senegal:				Present.
Medina.....	July 4-10.....	7		
Siam.....	Apr. 1-Aug. 20.....			Cases, 198; deaths, 50.
Bangkok.....	May 1-July 23.....	13	7	
Spain:				Cases, 198; deaths, 50.
Madrid.....	Aug. 1-31.....		1	
Valencia.....	May 29-June 4.....	2		

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

Reports Received from June 25 to October 14, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks	
Straits Settlements.....	June 12-18.....			Cases, 3.	
Singapore.....	Apr. 1-June 18.....	7	2		
Sumatra:					
Medan.....	June 5-Aug. 20.....	3			
Switzerland:					
Berne.....	June 26-July 2.....	1			
Syria:					
Damascus.....	Aug. 11-31.....	3			
Tunisia.....	Apr. 1-June 10.....			Cases, 10.	
Tunis.....	June 1-10.....	1			
Union of South Africa:					
Cape Province.....	July 17-Aug. 20.....			Outbreaks.	
Elliott district.....	May 11-June 10.....				Do.
Idutywa district.....	July 3-9.....				Do.
Kalanga district.....	May 11-June 10.....				Do.
Mount Ayliffe district.....	July 31-Aug. 6.....				Do.
Orange Free State.....	Aug. 7-13.....				Do.
Transvaal—					
Barberton district.....	May 1-7.....			Do.	
Venezuela:					
Maracaibo.....	July 12-18.....		1		

TYPHUS FEVER

Algeria.....	Apr. 21-July 20.....			Cases, 399; deaths, 39.
Algiers.....	May 11-Aug. 31.....	26		
Oran.....	May 21-Aug. 31.....	34		
Bulgaria.....	Mar. 1-July 10.....			Cases, 226; deaths, 20.
Sofia.....	June 4-Aug. 5.....	2		
Chile:				
Antofagasta.....	Apr. 16-May 31.....	1		
Concepcion.....	May 29-June 4.....		1	
La Calera.....	Apr. 16-May 31.....	1		
Ligua.....	Mar. 16-31.....	2		
Puerto Montt.....	Apr. 16-May 31.....	1		
Santiago.....	do.....	5	1	
Talcahuano.....	July 10-16.....		1	
Valparaiso.....	Apr. 16-Sept. 3.....	5	3	
China:				
Manchuria—				
Harbin.....	July 25-31.....	3		
Mukden.....	May 29-June 4.....	1		
Tientsin.....	July 10-16.....	1		
Chosen.....	Feb. 1-June 30.....			Cases, 721; deaths, 60.
Chemulpo.....	May 1-July 31.....	1		
Gensan.....	do.....	4		
Seoul.....	Apr. 1-July 31.....	32	3	
Czechoslovakia.....	do.....			Cases, 55.
Egypt.....	May 28-July 29.....			Cases, 120; deaths, 18.
Alexandria.....	May 21-Aug. 5.....	13	5	
Cairo.....	Jan. 15-May 20.....	37	12	
Estonia.....	Apr. 1-June 30.....			Cases, 5.
Greece.....	June 1-30.....	2		
Athens.....	June 1-July 31.....		9	
Iraq:				
Baghdad.....	Apr. 24-30.....	1		
Irish Free State:				
Cork County.....	July 3-9.....	1		In urban district.
Latvia.....	Apr. 1-July 31.....	32		
Lithuania.....	Feb. 1-July 31.....	347	42	
Mexico.....	Feb. 2-May 31.....			Deaths, 140.
Mexico City.....	May 29-Sept. 17.....	54			Including municipalities in Federal district.
San Luis Potosi.....	July 31-Aug. 6.....		1	
Morocco.....	Apr. 1-Aug. 20.....	952		
Palestine.....	May 24-Sept. 5.....			Cases, 19.
Haifa.....	May 24-Aug. 29.....	8		
Jaffa.....	Aug. 2-15.....	2		
Jerusalem.....	June 28-Aug. 15.....	3		
Mahneim.....	May 17-23.....	1		In Safad district.
Nazareth.....	July 19-23.....	1		
Safad.....	May 17-Aug. 8.....	10		
Peru:				
Arequipa.....	Apr. 1-30.....		1	

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

Reports Received from June 25 to October 14, 1927—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Poland.....	Apr. 10-Aug. 13...	1,056	98	
Portugal:				
Lisbon.....	May 23-June 4.....	1		
Oporto.....	Aug. 20-27.....	1		
Rumania.....	Apr. 3-July 23.....	956	64	
Spain:				
Seville.....	Aug. 19-25.....		2	
Tunisia.....	Apr. 22-July 20.....			Cases, 158.
Tunis.....	July 5-Aug. 21.....	2		
Turkey:				
Constantinople.....	May 13-19.....		2	
Union of South Africa.....	Apr. 1-30.....			Cases, 55; deaths, 8, native. In
Cape Province.....	Apr. 1-Aug. 6.....	42	5	Europeans, cases, 2.
Albany district.....	June 5-11.....			Outbreaks.
East London.....	May 22-28.....	1		Do.
Glen Gray district.....	May 1-7.....			Do.
Kentani district.....	June 26-July 2.....			Do.
Port Elizabeth.....	Aug. 7-13.....	1		
Qumbu district.....	May 1-7.....			Do.
Umzimkulu district.....	June 26-July 2.....			Do.
Natal.....	Apr. 1-Aug. 6.....	7	3	
Impendhle district.....	June 5-11.....			Do.
Orange Free State.....	Apr. 1-July 23.....	5		
Transvaal.....	Apr. 1-30.....	1		
Johannesburg.....	July 3-Aug. 20.....	19	5	
Yugoslavia.....	May 1-Aug. 31.....			Cases, 24; deaths, 5.

YELLOW FEVER

Ashanti:				
Obuasi.....	Aug. 6.....	1	1	
Dahomey (West Africa):				
Porto Novo.....	July 1.....	1	1	In Syrian woman.
Gold Coast.....	Apr. 1-June 30.....	60	22	
Do.....	Aug. 4.....	2		
Ivory Coast.....	July 29.....	1	1	
Liberia:				
Monrovia.....	May 29-July 8.....	4	5	
Senegal.....	May 27-July 31.....			Cases, 5; deaths, 2.
Dakar.....	July 9.....	1		
Do.....	Aug. 8.....	2	2	
Do.....	Sept. 17.....			Present.
Island of Goree.....	Aug. 22-Sept. 4.....	2	2	
Khembole.....	Aug. 1-14.....	3		
M'Bour.....	May 27-June 19.....	5	5	
Ouakam.....	June 2-Aug. 14.....	4	2	
St. Louis.....	Aug. 1-14.....	2	2	
Thies.....	July 10.....	1	1	In European.
Do.....	Sept. 12-18.....	1	1	
Tiaroye.....	Aug. 22-Sept. 4.....	1	1	
Tivaouane.....	May 27-Sept. 11.....	6	5	
Togoland:				
Meiatza.....	Aug. 15-21.....	1	1	