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COMPLETENESS OF REPORTING OF MEASLES, WHOOPING COUGH, AND CHICKEN POX AT DIFFERENT AGES[1]

Hagerstown Morbidity Studies: Supplement to Study No. II[2]

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In almost any serious study of disease incidence, the variation with age is an important question. Graphs showing the age curves of the various diseases are frequently included in text books of epidemiology and public health. Sometimes, indeed, the basic mode of public health attack rests fundamentally upon age variations; for example, it has been quite frequently urged (Brownlee (1), Godfrey (2), Ruhland (3)) that the most promising procedure in combating measles mortality lies in the protection of infants and very young children against infection, because the case fatality of the disease is very much greater in infancy than in the later years of childhood.

In practically all instances, morbidity studies necessarily rest upon cases reported to the health departments by physicians; and it is generally recognized that some diseases are reported quite incompletely. In the Hagerstown study it was found that 64.1 per cent of the cases of measles were seen by physicians, and that of these cases 40.3 per cent were reported to the health department, the net result being that only 25.8 per cent of the entire case incidence was reported (4).

The question therefore arises: Is this incompleteness of reporting the same at all ages? If, for example, reporting is decidedly better in the school ages, due possibly to the activities of school physicians and nurses, then many of the published quantitative statements as to age variation in communicable diseases, and inferences based thereon, would be subject to more or less revision.

In the present paper, the Hagerstown data are analyzed in order to determine whether the completeness of case reporting in that city was constant with age; and, if not, what the type of variation was.

[1] From the Office of Statistical Investigations, U. S. Public Health Service, in cooperation with the Department of Biometry and Vital Statistics (Paper No. 134), School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, Md.

[2] Preceding Hagerstown Morbidity Studies published are—

I. A Study of Illness in a General Population Group: Method of Study and General Results. Pub. Health Rep., vol. 41, No. 39, Sept. 24, 1926. Reprint No. 1113.

II. The Reporting of Notifiable Diseases in a Typical Small City. Pub. Health Rep., vol. 41, No. 41, Oct. 8, 1926. Reprint No. 1116.

It will be recalled that, in the study, about a fourth of the population of the city was visited by trained investigators at intervals of about six weeks during a period of 28 months. It seems permissible, therefore, to accept the case records so obtained, particularly for diseases of more than a few days' duration, as practically complete for the canvassed population.

It is unpracticable at this late date to obtain a record of the cases in the canvassed population that were reported to the local health department. The canvassed population, however, was not confined to one or two sections of the city, but represented nearly all sections and white persons of various economic and social classes. It would, therefore, seem reasonable to accept the incidence rates, as found in the canvassed population, as closely approximating the actual rate for the white population of the city as a whole.

The record of the number of reported cases for the whole city of Hagerstown is available in convenient age groups from the Maryland State Department of Health.

Table 1 shows the age incidence of measles, whooping cough, and chicken pox (*a*) among the white surveyed population as indicated by cases found by periodic canvasses, and (*b*) among the white population of Hagerstown as indicated by cases reported to the local health department. Figure 1 shows graphically the rates for the three diseases, semilogarithmic charts being used in order that the shape of the curves would be comparable whether the actual rates were high or low. The rates are given in 2-year age groups up to 10 years.

TABLE 1.—*Incidence of certain communicable diseases at specific ages among the white population of Hagerstown, Md., as found by periodic canvasses and as reported to the local health department, calendar years 1922 and 1923*

Age (years)	Canvassed group (white)						
	Mean population [1]	Number of cases found by periodic canvasses, 1922–23			Mean annual case rate per 1,000 (based on cases found by periodic canvasses)		
		Measles	Whooping cough	Chicken pox	Measles	Whooping cough	Chicken pox
Under 2	326	102	67	25	156.4	102.8	38.3
2 and 3	288	112	56	37	194.4	97.2	64.2
4 and 5	373	137	69	49	183.6	92.5	65.7
6 and 7	400	131	56	54	163.8	70.0	67.5
8 and 9	352	46	21	10	65.3	29.8	14.2
Under 5	760	270	154	80	177.6	101.3	52.6
5 to 9	979	258	115	95	131.8	58.7	48.5
10 to 14	798	26	11	9	16.3	6.9	5.6
15 and over	4,887	6	10	1	.6	1.0	.1
All ages	7,424	560	[2] 291	185	37.7	19.6	12.5

[1] Average number of persons under observation at indicated ages in the survey.
[2] Includes 1 unknown age.

TABLE 1.—*Incidence of certain communicable diseases at specific ages among the white population of Hagerstown, Md., as found by periodic canvasses and as reported to the local health department, calendar years 1922 and 1923*—Continued

Age (years)	City of Hagerstown (white)						
	Mean population [1]	Number of cases reported to local health department 1922-23			Mean annual case rate per 1,000 (based on cases reported to local health department)		
		Measles	Whooping cough	Chicken pox	Measles	Whooping cough	Chicken pox
Under 2	1,257	47	34	10	18.7	13.5	4.0
2 and 3	1,208	107	47	12	44.3	19.5	5.0
4 and 5	1,175	154	39	24	65.5	16.6	10.2
6 and 7	1,169	172	30	44	73.6	12.8	18.8
8 and 9	1,165	72	18	18	30.9	7.7	7.7
Under 5	3,054	232	105	39	38.0	17.2	6.4
5 to 9	2,920	320	63	69	54.8	10.8	11.8
10 to 14	2,491	28	14	12	5.6	2.8	2.4
15 and over	19,872	13	4	2	.3	.1	.05
All ages	28,337	593	186	122	10.5	3.3	2.2

[1] By graphic graduation of 1923 estimates from U. S. Census data.

It may be seen from Figure 1 that the age curves as indicated by the more complete data from the canvassed population vary considerably from those indicated by the cases reported to the department of health. In the case of measles, the maximum incidence as revealed by the canvass occurs at from 2 to 5 years of age, whereas the reported incidence indicates a maximum at 6 to 7 years of age. Beyond this age, the two curves decline in a fairly similar way.

In the case of whooping cough, the maximum incidence as revealed by the canvass occurs under two years of age and the maximum reported incidence occurs from 2 to 3 years of age, both maxima being well under school ages.

In the case of chicken pox the incidence found in the canvassed population is about as high at ages 3 to 6 as at 6 to 7 years, but the reported cases have a distinct maximum at 6 to 7 years, the rates under school ages being very much less than the rate at 6 to 7 years of age.

If the rates in the canvassed population be assumed to be representative of the rates for the city as a whole, we may approximate the completeness of reporting at various ages by computing the percentage that the reported incidence rate is of the rate in the canvassed population. Such percentages are shown in Table 2 and Figure 2.

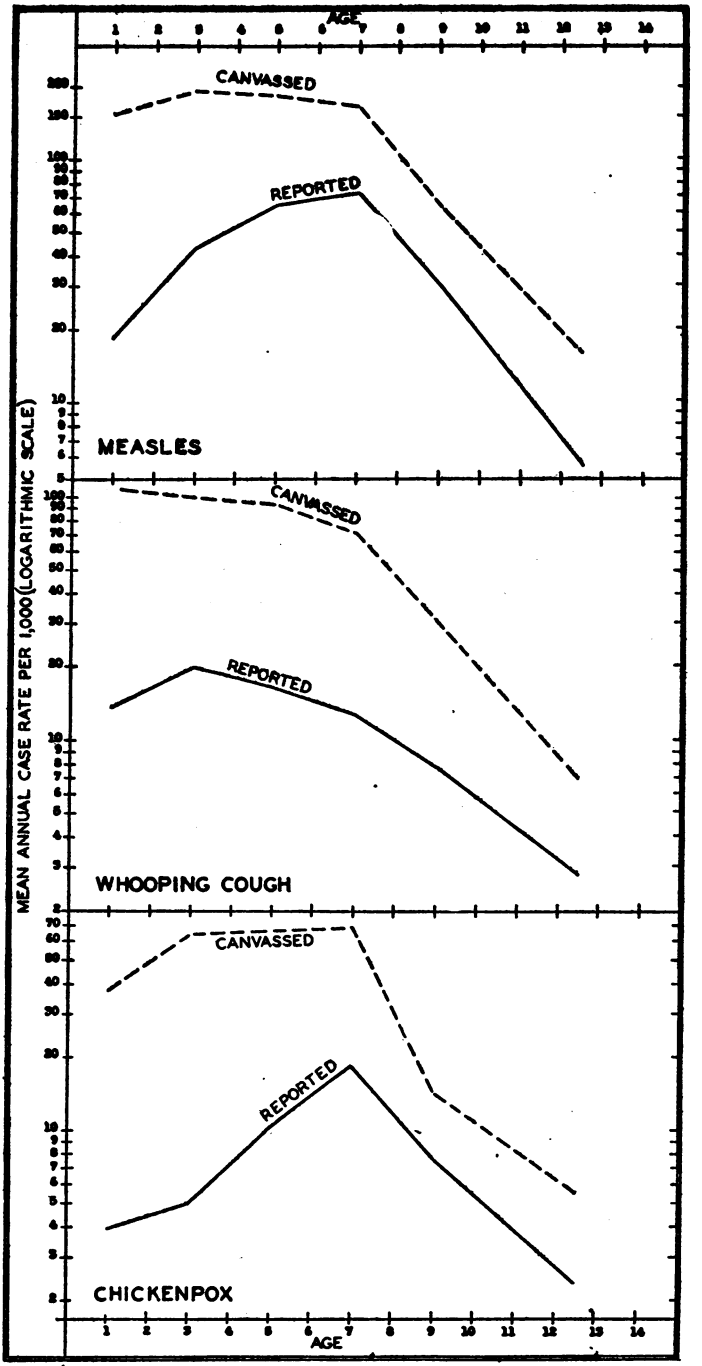

FIGURE 1.—Case rates for certain diseases at specific ages among the white population of Hagerstown, Md., as found by periodic canvasses and as reported to the local health department, calendar years 1922 and 1923

TABLE 2.—*Estimated completeness of reporting to the health department of certain communicable diseases at specific ages, Hagerstown, Md., 1922 and 1923*

Age (years)	Estimated per cent of cases that were reported		
	Measles	Whooping cough	Chicken pox
Under 2	12.0	13.1	10.4
2 and 3	22.8	20.1	7.8
4 and 5	35.7	25.3	15.5
6 and 7	44.9	18.3	27.9
8 and 9	47.3	25.8	54.2
Under 5	21.4	17.0	12.2
5 to 9	41.6	18.4	24.3
10 to 14	34.4	40.6	42.9
15 and over	50.0	10.0	50.0
All ages	27.9	16.8	17.6

The curves representing the completeness of reporting at different ages differ somewhat in form, but they suggest that, in Hagerstown,

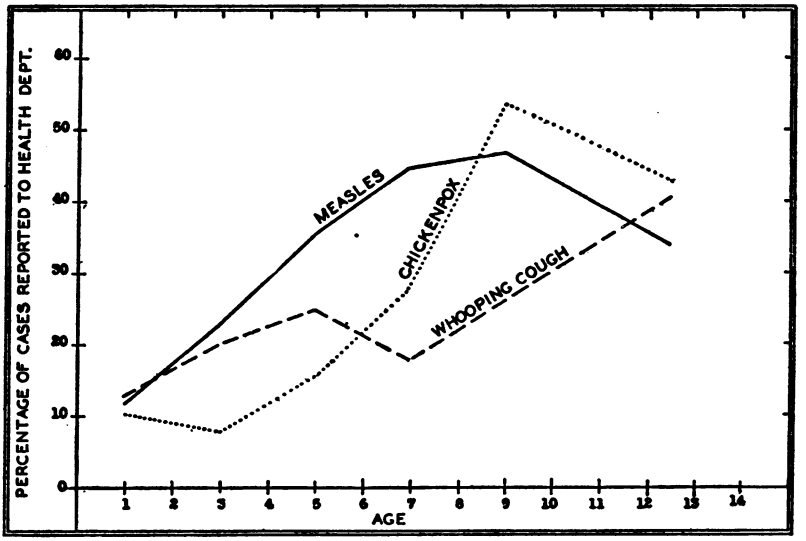

FIGURE 2.—Estimated completeness of morbidity reporting of certain communicable diseases at specific ages, Hagerstown, Md., calendar years 1922 and 1923.

there is a tendency for reporting to be better in the early school years (6 to 9) than in the preschool ages. Thus, in the case of measles, the reporting from ages 6 to 9 was by this calculation about 45 per cent complete, while in the earlier years the reporting averaged less than 25 per cent complete.

Data collected by E. S. Godfrey, which are as yet unpublished, indicate that in a survey of Albany, N. Y., the completeness of measles case reporting was found to be 40 per cent for ages under 1; 49 per cent for all ages under 5; and 62 per cent for ages 5 to 9. The

Albany findings are seen to be in qualitative agreement with the Hagerstown results in indicating poorer reporting in the younger ages, but the deficiency in the early ages is less pronounced in Albany than in Hagerstown.

There is, of course, a possibility of appreciable error in assuming that the rates in the canvassed population are representative of the rates for the population of the city as a whole. It may be recalled that, according to Hagerstown Study No. II, the number of cases of scarlet fever actually reported to the health department was slightly more than would be expected on the basis of the number of cases *seen by physicians* in the canvassed population. However, only 34 cases of scarlet fever occurred in the canvassed population, and the possibility of error would, therefore, be considerably greater in scarlet fever than in measles, whooping cough, and chicken pox with 568, 374, and 232 cases, respectively, occurring in the canvassed population during the 28-month period of observation.

It should be noted that Hagerstown Study No. II considered the whole 28-month period of observation; but, because of the difficulty of getting records for the city of Hagerstown, it was expedient in this study to use only the calendar years 1922 and 1923. Moreover, in Study No. II, it was attempted to estimate the percentage of cases *seen by physicians* that were reported to the health department, whereas in the present study the estimates of completeness of reporting relate to all cases, whether or not they were seen by physicians. Of course, the latter percentages are smaller than those shown in Study No. II, because a considerable proportion of these cases were not attended by a physician, and, hence, were practically all unreported.

Table 3 shows the percentage of cases of different ages that were attended by a physician.

TABLE 3.—*Percentage of cases of different ages that were attended by a physician—white families in the Hagerstown canvassed population, 1922 and 1923*

Age (years)	Total number of cases [1]			Number of cases attended by a physician			Percentage of cases attended by a physician		
	Measles	Whooping cough	Chicken pox	Measles	Whooping cough	Chicken pox	Measles	Whooping cough	Chicken pox
Under 2	100	65	24	64	37	13	64.0	56.9	54.2
2 and 3	112	54	37	78	29	18	69.6	53.7	48.6
4 and 5	133	66	49	82	28	15	61.7	42.4	30.6
6 and 7	129	55	54	90	30	32	69.8	54.5	59.3
8 and 9	45	20	10	29	11	5	64.4	55.0	50.0
Under 5	267	150	79	179	78	37	67.0	52.0	46.8
5 to 9	252	110	95	164	57	46	65.1	51.8	48.4
10 to 14	26	11	9	15	3	4	57.7	27.3	44.4
15 and over	6	10	1	5	3	1	83.3	30.0	100.0
All ages	551	[2] 282	184	363	[2] 142	88	65.9	50.4	47.8

[1] Excludes a few cases in which it was not known whether a physician was in attendance.
[2] 1 unknown age in total.

It would not appear that the greater incompleteness of reporting in the pre-school ages is due to fewer cases being seen by physicians. In fact, the percentage of cases that were attended by a physician is in the case of measles and whooping cough slightly higher for children under 5 years than for those 5 to 9 years of age.

To summarize: The purpose in presenting the data of this study is two-fold—first, to indicate that very probably completeness of reporting to health departments varies with the age of the cases, and that, on this account, many tables showing age variations of reported morbidity must be used with caution; second, to urge the collection, in future surveys, of similar data.

The tables and graphs here shown are not presented as individually significant in a quantitative sense; still less are they presented as representative of cities in general. On the contrary it is likely that the picture will vary from place to place, depending upon the varying practice of local health departments.

ACKNOWLEDGMENTS

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Appreciation is also expressed to the individuals referred to in Study No. II, who were responsible for the original observations and tabulations.

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SOME BIOCHEMICAL RELATIONSHIPS IN A POLLUTED STREAM

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Since the purification processes in a polluted stream are mainly biological phenomena, there should exist a relationship between the causative organisms and their various chemical products.

A survey, extending over a period of a year, has been made of the extent and intensity of pollution in the Raritan River, N. J. This paper is an attempt to point out some of the general relationships between the microorganisms and their chemical products as revealed in these studies. A detailed report of the results will be published later.

The whole Raritan drainage area is 1,105 square miles. In the upper reaches the river passes through a hilly country which is sparsely populated. In the lower reaches it runs through marshy lands into the Raritan Bay. It is between these sections that the maximum density of the contributing population exists. The tide affects the river up to a point about 2 miles above the city of New Brunswick.

The lower Raritan River receives the raw sewage from a total population of about 100,000. The effluent from the Plainfield, North Plainfield, and Dunellen disposal plant is also discharged into the river. In addition, the wastes from various industrial plants are discharged, mostly without treatment. The pollution from this source is estimated to be equivalent to the sewage of 80,000 people.

The flow of the river for the year 1927, when the survey was carried on, was 30 per cent higher than the average for the preceding five years.

METHODS

There were established seven regular sampling stations along the river. The tributaries are left out in the present discussion.

Station [1]	Distance	Total contributing population [2]
	Miles	
1. South Branch	0	
3. Below the towns of Raritan and Somerville	10	12,000
6. Below Bound Brook	26	20,500
7. Raritan Landing Bridge (below a dam)	30	20,500
8. Below New Brunswick	32	64,700
9. Sayreville	37	72,600
10. Perth Amboy	40	117,600

[1] Below sewer outfalls.

[2] 1926 N. J. Industrial Directory.

Samples were taken twice a month for a year with the exception of September, when weekly samples were taken.

The analyses consisted of pH values, alkalinity, chlorides, ammonia, nitrites, nitrates, suspended solids, ash, dissolved oxygen, 5-day biochemical oxygen demand, total bacteria, *B. coli*, and the plankton. Bacterial counts were made on nutrient broth agar incubated at 20° C.

RESULTS

B. coli and total bacteria.—The summer and winter averages for *B. coli* and total bacteria are given in Figures 1 and 2. The total numbers of bacteria and *B. coli* increase at first gradually, then very rapidly as the river flows downstream and the pollution increases. The increase in numbers is most pronounced between Bound Brook and New Brunswick. The maximum bacterial density becomes apparent at a point just below New Brunswick. In addition to the pollution due to New Brunswick, the cumulative effect of all the pollution entering the river before this point has to be reckoned with. It has been pointed out, in the studies conducted by the United States Public Health Service (1) (3) on the Ohio and Illinois Rivers, that the *B. coli* tend to increase to a maximum at a point 10 to 30 hours below the sewer outlets.

There is a close parallelism between the total bacteria and *B. coli*. The average numbers of both the total bacteria and *B. coli* are higher in summer than in winter. At station 10, plate counts were higher in winter than in summer. Similar relationships have been observed in the surveys of the Illinois and Ohio Rivers conducted by the United States Public Health Service.

There are three major factors in the bacterial purification of the Raritan River:

(1) Self-purification.
(2) Dilution with sea water.
(3) The effect of salt water itself on the bacteria.

To evaluate the importance of each of these factors is difficult, because all of them become more or less effective at about the same point. The zone of maximum pollution and the zone of maximum dilution are not very far apart. However, certain indirect evidences can be advanced to show the importance of each factor.

High temperatures prevailing in the summer months accelerated the rate of multiplication of the organisms and the rate of decomposition of the polluting organic material. In spite of the greater demand of oxygen thus created, actually less oxygen was available on account of the low solubility at high temperatures. Partially anaerobic conditions might have resulted, since the dissolved oxygen at New Brunswick during the warm months of summer was as low

as 30 per cent of saturation, with an average for the entire year of 60 per cent.

In short stretches of a river when large quantities of decomposable organic matter are present and with temperatures favorable for maxi-

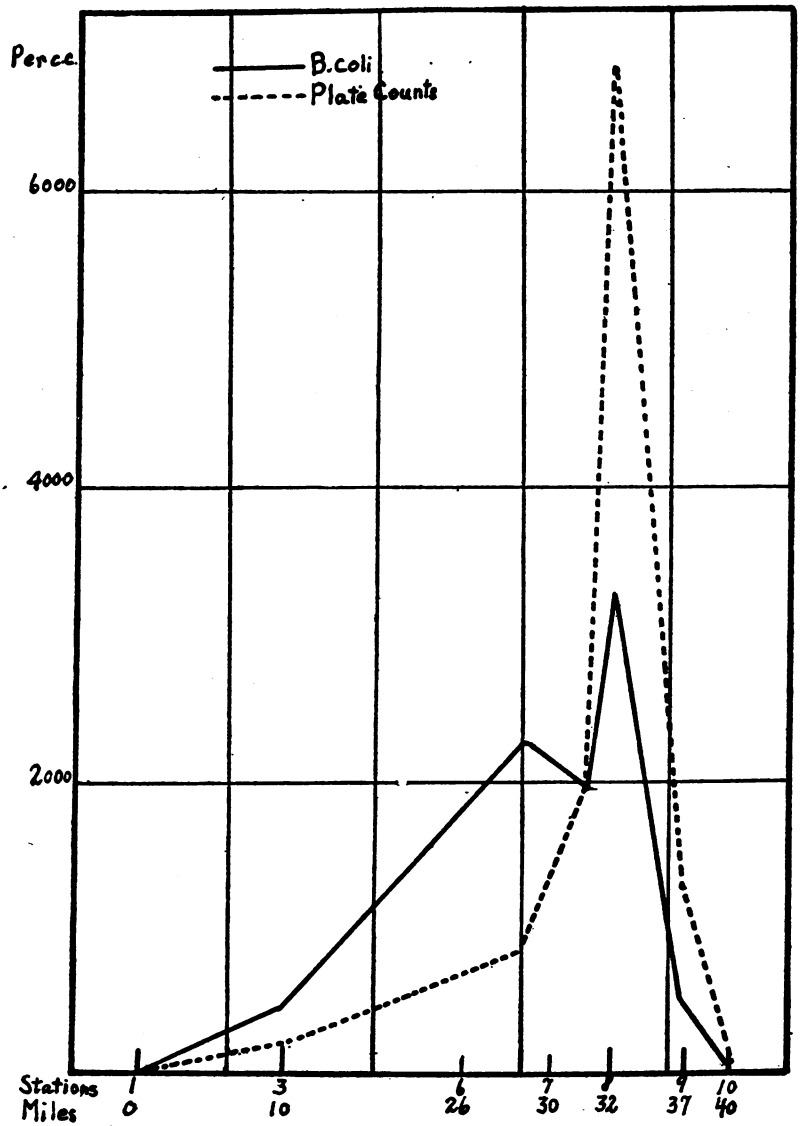

FIGURE 1.—Comparison of summer averages of *B. coli* and the agar plate counts in hundreds per c. c.

mum decomposition, oxygen may not be replenished by diffusion fast enough in spite of a maximum amount of aeration. In addition, around coarse suspended particles or near sludge banks there may be created a partially anaerobic condition while oxygen is present in the surrounding medium.

It has been shown that *B. coli* in feces (5) and fresh solids (2) increase in the first few days of decomposition before they finally are reduced in numbers. The studies of the United States Public Health Service (1) (3) have shown that *B. coli* increase at first below the point of maximum pollution before they are finally reduced. The higher the temperature, the nearer to the source would be the maximum zone of pollution; self-purification would be accomplished in summer at a point farther upstream than in winter. Actually in summer a higher degree of pollution is indicated at a point higher upstream than

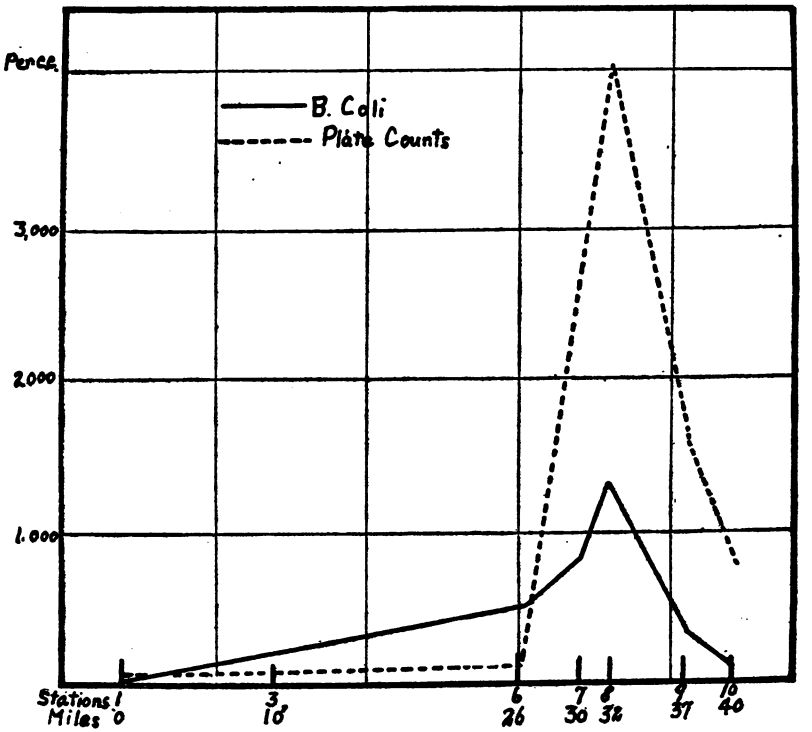

FIGURE 2.—Comparison of winter averages of *B. coli* and the agar plate counts in hundreds per c. c.

in winter. In the winter, on the other hand, the maximum zone of pollution would probably have extended farther downstream than it actually did, but for the counterbalancing effect of dilution.

A further evidence of self-purification is brought out by the effect of aeration afforded by the so-called Five Mile Dam, about 3 miles below Bound Brook. At the sampling point 2 miles below the dam, at the Raritan Landing Bridge, the regular increase in numbers of *B. coli* is temporarily arrested in the summer months. No such effect is noticed during the winter months. The depth of the water at this point is only 2 to 3 feet and the dam is 6 feet above the floor of the river. The water falls over the dam in a thin sheet, except after a

heavy rainfall. It is believed that the effect is mainly due to reaeration afforded by the dam and not to any retardation of the flow. The biochemical oxygen demand was not reduced, but the nitrates increased. (Figs. 5 and 6.) Presumably oxidation was not sufficient to bring about a reduction in the biochemical oxygen demand, but caused an increase of nitrates from the oxidation of ammonia and a reduction of *B. coli*.

The yearly averages of the chloride content of the waters from the last four sampling stations are given below:

	Miles from mouth	Chlorides
		P. p. m.
Landing Bridge	10	11.5
New Brunswick	8	90.0
Sayreville	3	2,344
Perth Amboy	0	6,960

The chloride content at Sayreville and Perth Amboy can be taken as an index of the extent of dilution by sea water. Taking the total salt concentration of sea water to be 35,000 p. p. m., of which 88 per cent is chlorides, there would be 7.5 per cent of sea water present at Sayreville and 22.5 per cent at Perth Amboy. The numbers of *B. coli* at Sayreville and Perth Amboy were 18.6 and 3.8 per cent, respectively, of those present at New Brunswick. Thus the zone of maximum reduction of numbers comes at the zone of maximum dilution with sea water. It is unlikely that the actual effect of salts plays a major part in the bacteria reduction, since sodium chloride begins to exert a toxic action on *B. coli* between one and two molar concentrations, according to Hotchkiss (4). The average and maximum sodium chloride concentrations encountered at the last two sampling stations are only a fraction of this toxic limit.

Bathing is a common practice in summer at many points along the river, with an average *B. coli* density of 2,500 per cubic centimeter or more. Winslow and Moxan (7) consider New Haven Harbor as a potential source of danger with a *B. coli* density of about 20 per cubic centimeter. As indicated above there is a wide gap between existing conditions and the establishment and acceptance of standards for bathing beaches, such as 1 *B. coli* per cubic centimeter. Either bathing in a large number of streams and watercourses must be prohibited or more lenient standards set, provided the latter are in accordance with scientific findings.

Relation between bacteria and plankton.—In Figure 3 is presented the relation between *B. coli* and the plankton indicative of pollution. The blue-green algæ, the green flagellates, and the nongreen flagellates were considered as the most important forms. If these forms be taken

as an index of pollution, the river would be considered polluted farther upstream than it would if the numbers of *B. coli* are used as an index. It is probable that the saprophytic forms of these organisms attack the soluble polluting material somewhat sooner than they do *B. coil.* After the peak at Bound Brook the pollutional forms of plankton decreased more rapidly than the bacteria, probably also due to the effect of the dam. At New Brunswick the numbers reached a second

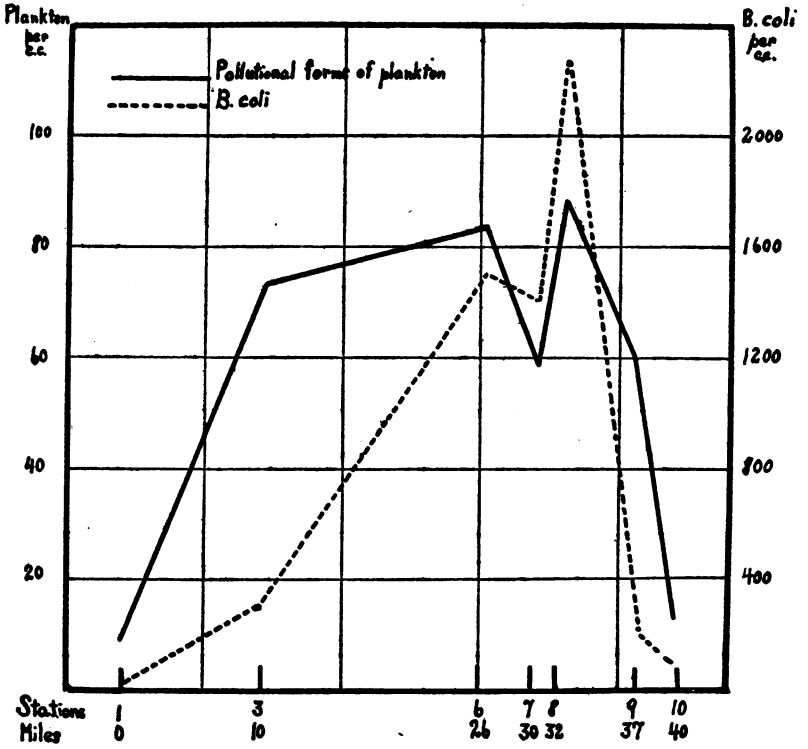

FIGURE 3.—Comparison of pollutional types of plankton and *B. coli* (yearly averages)

maximum, after which they were reduced greatly in a manner similar to the bacteria.

In Figure 4 is presented a comparison of the yearly averages of the pollutional and nonpollutional forms of the plankton at the different points of the river. As nonpollutional forms are included the diatoms and the green algæ—the two forms most commonly encountered. The nonpollutional forms increase in the same way as the pollutional forms as long as the pollution is not excessive (up to Somerville and Raritan). At Bound Brook, however, the numbers are greatly reduced. There is no material increase on account of the dam, but at New Brunswick a sudden rise occurs. After a slight decrease at Sayreville their numbers are further increased at Perth Amboy.

The diatoms and green algæ encountered at the last two or three stations belonged to different genera than those above the salt-water mark. The increase in numbers of the nonpollutional forms below New Brunswick where maximum pollution is evident, is to be attributed to the salt-water types.

As Purdy has shown (6) the study of the plankton is a good index of pollution and self-purification. The blue-green algæ and the green and nongreen flagellates take a course similar to that of the *B. coli* in

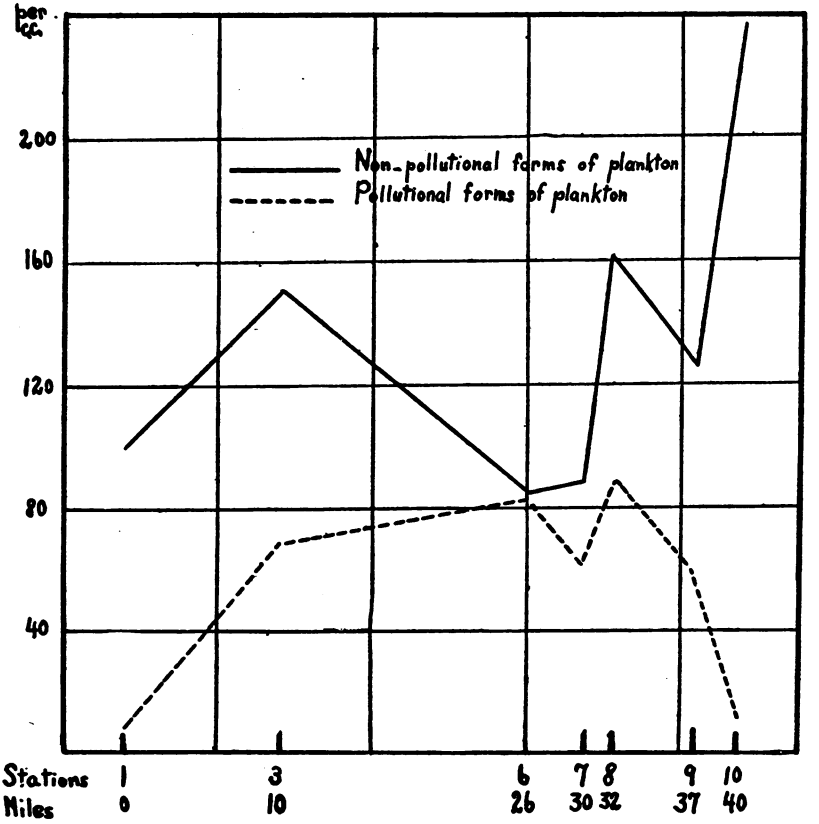

FIGURE. 4.—Comparison of pollutional and nonpollutional types of plankton (yearly averages)

the river. The diatoms and green algæ, with the exception of the salt-water forms, are least abundant at the zone of maximum pollution.

Bacteria, biochemical oxygen demand, and ammonia nitrogen.—It was considered of interest to compare the total numbers of bacteria, the biochemical oxygen demand, and the ammonia nitrogen. It was expected that there would be a relationship between the bacteria, their food, and certain end products of decomposition. Barring the effect of industrial wastes, the biochemical oxygen demand is a good index of the amount of easily decomposable organic material, while the

ammonia nitrogen, being the end product of the decomposition of nitrogenous materials, should give a fair measure of the rate of decomposition. Thus, in general, the greater the food supply, i. e., the pollution, the greater should be the bacterial numbers and the ammonia nitrogen in the river. The relations are shown in Figure 5.

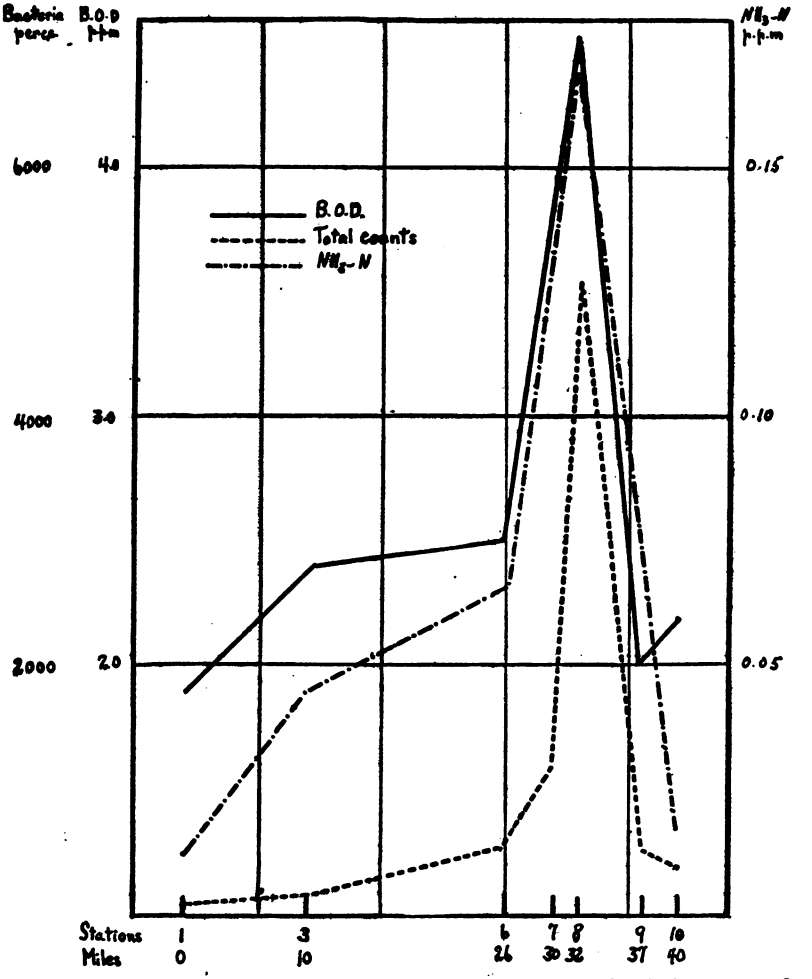

FIGURE 5.—Comparison of biochemical oxygen demand, agar plate counts in hundreds per c. c., and ammonia nitrogen (yearly averages)

Any one of these three tests gives an accurate picture of the extent of pollution. Of the three, the *B. coli* and the biochemical oxygen demand are to be preferred—the first because of its sensitivity, and the second because it represents in a fair and accurate way the total amount of oxygen required to stabilize the polluting material. The amount of ammonia nitrogen present at any moment is the resultant of several factors, such as (1) the rate of its production from the organic

material (2) the nature of the organic material itself, (3) the rate at which it is assimilated by the bacteria, (4) the rate at which it is converted into nitrates, and (5) the rate at which it is reduced from nitrates. From the diversity of reactions that cause the production

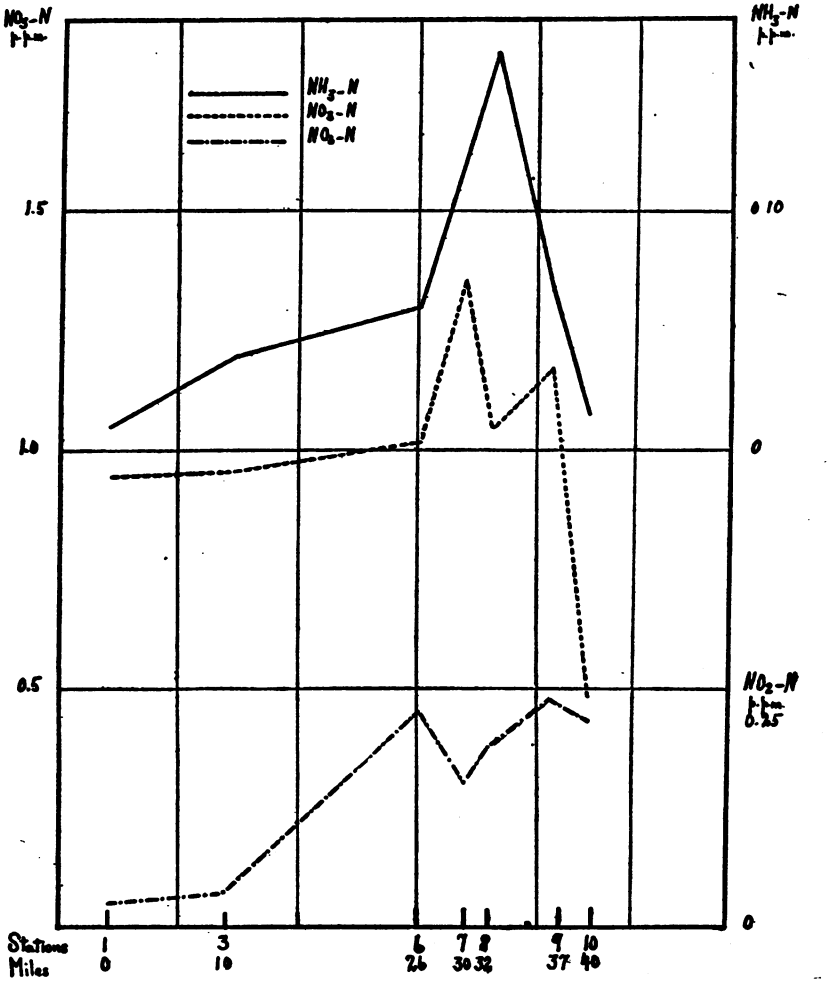

FIGURE 6.—Comparison of ammonia and nitrate and nitrite nitrogens (yearly averages)

and consumption of ammonia it would become apparent that it can not always be taken as a safe index of pollution.

Ammonia, nitrate and nitrite nitrogen, and the dissolved oxygen.—To compare the changes in the different forms of nitrogen, the yearly averages of ammonia, nitrate and nitrite nitrogen are presented in Figure 6. The nitrates were moderately high (about 1 p. p. m.) in the three upper sampling stations. Pollution in this section was only

moderate, and nitrification was not affected. Between Bound Brook and the station below the dam at Landing Bridge nitrates showed a striking increase, due to the influence of the dam. This again emphasizes the influence of small dams in increasing nitrification in a stream. In spite of the decided increases in nitrates, the amount of ammonia nitrogen was not reduced, but on the contrary increased simultaneously, indicating that its production was proceeding unabated. At New Brunswick a decided loss of nitrates occurred. The loss was probably due to the arresting of nitrification on account of excessive pollution and also to a certain degree due to denitrification. Nitrates increased again at Sayreville, probably due to the

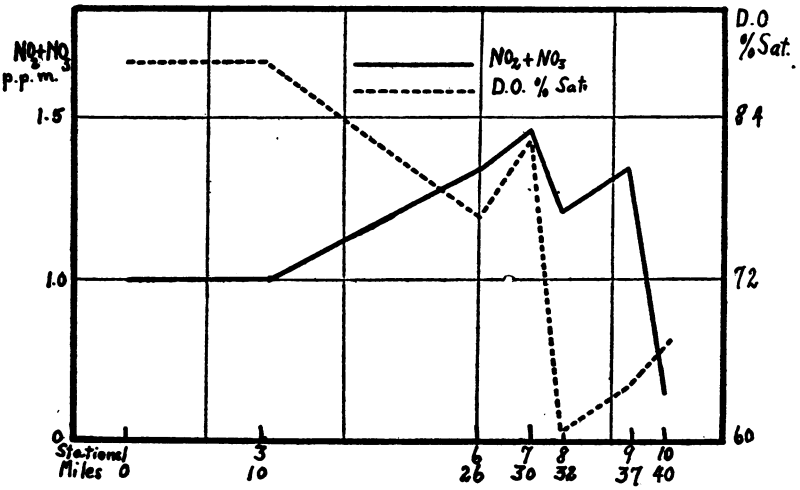

FIGURE 7.—Comparison of nitrite and nitrate nitrogen and dissolved oxygen (per cent saturation) (yearly averages)

relative reduction of pollution. At Perth Amboy, where sea water was mixed in greater proportions, the nitrates decreased sharply.

As was to be expected, the increase in nitrites took place at a point farther upstream than did that in nitrates. There was a decrease in nitrites between Bound Brook and the Landing Bridge station. At this latter point nitrites were converted into nitrates faster than they were formed from ammonia. Nitrites did not suffer a loss below New Brunswick similar to that shown by the nitrates.

The relation between nitrite and nitrate nitrogen and dissolved oxygen is presented in Figure 7. The nitrites and nitrates were added together as a potential source of oxygen and compared with the actual amounts of dissolved oxygen. The nitrites and nitrates increased as long as the oxygen saturation was 80 per cent or more. It would appear that pollution up to this point was not sufficient to have a detrimental effect on nitrification. When the average oxygen saturation dropped to 60 per cent there was loss of nitrates. Prob-

ably not only nitrification was retarded but an actual loss of nitrates, due to reduction, might have taken place. Although it has been shown that the nitrates are not utilized until practically all the dissolved oxygen is consumed, it is possible, as indicated in the discussion above, that localized anaerobic zones around organic particles might be established in a medium which is not completely deficient of oxygen.

In the relationship pointed out above the underlying assumption has been that the increases in ammonia, nitrites, and nitrates are the result of pollution and bacterial activities caused by domestic sewage and are not materially affected by industrial wastes discharging ammonia, nitrites, and nitrates. Wastes of such character could not be traced to any factories during the survey. Moreover, assuming an average monthly discharge of the river of 1,000 second-feet, not less than 2,700 pounds of nitrates per day should be thrown into the river in order to cause an increase of 0.5 p. p. m. nitrate content.

SUMMARY AND CONCLUSIONS

From a study of the data obtained in a survey of the Raritan River extending over a year the following general conclusions may be drawn:

1. The river is polluted. The pollution reaches a maximum just below New Brunswick.
2. Very few points along the river could be safely used for bathing.
3. The process of self-purification is evidenced by the following:
   (*a*) The reduction of the numbers of *B. coli* and pollutional forms of plankton by a dam.
   (*b*) The lowering of oxygen saturation (due to bacterial activities).
   (*c*) The zone of maximum pollution moves farther upstream in summer.
4. Dilution with sea water is a major factor in the improvement of the river below New Brunswick. The zone of maximum dilution and the zone of bacterial reduction coincide.
5. The maximum amount of chlorides present is below the toxic limit for *B. coli*, and therefore probably is not a factor in the bacterial reduction at the point of maximum dilution.
6. The average numbers of total bacteria and *B. coli* parallel each other closely. The numbers of both were higher in summer than in winter.
7. The pollutional forms of the plankton increased at a point farther upstream than did the *B. coli* or the total numbers of bacteria.
8. The numbers of nonpollutional forms of plankton are not affected by moderate amounts of pollution. With higher pollution,

their numbers are reduced. Farther downstream salt-water types replace the fresh-water forms found upstream.

9. There is a direct relationship between the numbers of bacteria, biochemical oxygen demand, and the ammonia nitrogen.

10. As long as the river is not overloaded nitrification is not impaired. But a heavy pollution, causing a large depletion of oxygen, causes a decrease in the nitrates.

11. Of the tests employed in the survey the following gave an accurate picture of pollution with domestic sewage:

(1) Bacteria—*B. coli* and total numbers.
(2) Biochemical oxygen demand.
(3) Ammonia nitrogen.
(4) Nitrate and nitrite nitrogen.

ACKNOWLEDGMENT

The chemical and zoological data were put at the author's disposal by the courtesy of Dr. W. Rudolfs.

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COURT DECISIONS RELATING TO PUBLIC HEALTH

Approval of school sites in third-class school districts by county health officer.—(Montana Supreme Court; State ex rel. Wildin *v.* Eickoff et al., 276 P. 954; decided April 25, 1929.) Section 1173, Revised Codes 1921, relating to third-class school districts, provided in part as follows:

Whenever, in the judgment of the board of trustees of any school district of the third class, it is desirable to select * * * a schoolhouse site, or

whenever petitioned so to do by one-third of the voters of such district, the district board shall without delay call a meeting at some convenient time and place fixed by the board to vote upon such question of selection * * * of schoolhouse site. Such election shall be conducted and votes canvassed in the same manner as at the annual election of school officers. * * * If a majority of the electors of the district voting at such meeting or election shall be in favor of selecting * * * the schoolhouse site, the board shall carry out the will of the voters thus expressed: *Provided*, That all sites so chosen must be approved by the county superintendent of schools and the county health officer; * * *.

In construing the requirement in this section concerning the approval of the site by the county superintendent of schools and the county health officer, the supreme court held that the approval was to be after the voters had determined upon a site. The court's interpretation is shown by the following extract from the opinion:

While it is true that the site for a schoolhouse "must be approved by the county superintendent of schools and the county health officer," yet it is plain that they have nothing whatsoever to do with the selection of a suitable site in the first instance. Upon the voters of the district the statute confers the exclusive power of "selecting, purchasing, exchanging, or selling the schoolhouse site." And such determination must be made at a meeting of the voters of the district held pursuant to required notice, at a convenient time and place, whereat an election shall be "conducted and the votes canvassed in the same manner as at the annual election of school officers." * * * School sites "*so chosen* must be approved by the county superintendent of schools and the county health officer"; that is, after the voters have determined upon a site for a schoolhouse, before a school building is moved thereto or a new one constructed, the site must have the approval of the two officers named. The language employed will admit of no other construction. It is the site "so chosen" which must be approved. This has reference to an accomplished event, indicative of intention that these officials are given no voice in the selection of the site in the first instance. It is not contemplated that these officials shall act until the qualified voters at an election have chosen a site, after which fact the site "so chosen" must be approved by them. * * *

However, in the interest of economy and the proper administration of the law, it would seem advisable to obtain the approval of these officers of the proposed site or sites in advance of the election. Otherwise, the voters might select a site which could not be utilized because of the refusal of the county superintendent and health officer to approve the same. In such event much unnecessary delay and needless expense would be entailed.

Sexual sterilization act held constitutional.—(Utah Supreme Court; Davis, Warden, *v.* Walton, 276 P. 921; decided April 9, 1929.) An inmate of the Utah State prison was ordered asexualized by the State board of corrections acting under the State sterilization law (Laws 1925, ch. 82). The validity of this statute was questioned by the inmate on the grounds that (1) it violated the provision of the State constitution prohibiting cruel and unusual punishments

and (2) it violated the fourteenth amendment to the Federal Constitution in that it denied him equal protection of the law. Both of these contentions were overruled by the supreme court, which stated its findings concerning the validity of the law as follows:

* * * The act is in no sense a penal statute. The operation provided for is not a punishment for a crime. Its purposes are eugenic and therapeutic. Therefore cases dealing with laws that provide for asexualization as a punishment for crime are not applicable to the law here under consideration. * * * It is urged that the act is class legislation; that to require the asexualization of those confined in public institutions without requiring similar treatment of persons of the same class who are not so confined offends against the equal protection of the law guaranteed by the fourteenth amendment of the Constitution of the United States. By the act here under review it will be observed that it is made a felony for any person to perform, encourage, assist in, or otherwise promote, the performance of any operation for the purpose of destroying the power to procreate the human species, except as in the act authorized, unless the same is a medical necessity. It is in effect urged that, to require the asexualization of a specified class of persons who are inmates of a public institution, and hence may be segregated and prevented from procreation, and at the same time make it a felony to asexualize persons of the same class who are at liberty to procreate is an unreasonable and unwarranted exercise of the police power. A similar attack was made upon the law of Virginia without avail in the case of Buck *v.* Bell, supra. * * * It is, of course, elementary that the Supreme Court of the United States is the arbiter to determine whether or not a law offends against the Constitution of the United States. We are of the opinion that the rule announced by that court in the case of Buck *v.* Bell, supra, is a complete answer to the claim here made by the appellant that the law under which this proceeding is had offends against the fourteenth amendment of the Constitution of the United States.

* * * The procedure provided for in the law under review is well calculated to prevent abuse. The inmate upon whom it is proposed to perform the operation is given ample opportunity to be heard before the operation may be performed. The appellant must fail in his claim that Laws Utah, 1925, ch. 82, is unconstitutional.

DEATHS DURING WEEK ENDED JUNE 15, 1929

Summary of information received by telegraph from industrial insurance companies for the week ended June 15, 1929, and corresponding week of 1928. (From the Weekly Health Index, June 19, 1929, issued by the Bureau of the Census, Department of Commerce)

	Week ended June 15, 1929	Corresponding week, 1928
Policies in force	68, 313, 021	71, 375, 215
Number of death claims	12, 740	13, 457
Death claims per 1,000 policies in force, annual rate	9. 7	9. 9

Deaths from all causes in certain large cities of the United States during the week ended June 15, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, June 19, 1929, issued by the Bureau of the Census, Department of Commerce)

City	Week ended June 15, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended June 15, 1929 [2]
	Total deaths	Death rate [1]		Week ended June 15, 1929	Corresponding week, 1928	
Total (62 cities)	6,697	12.0	12.2	597	699	[3] 51
Akron	48			4	9	41
Albany [4]	30	13.0	16.1	4	4	79
Atlanta	76	15.6	16.0	13	11	135
White	43			7	6	
Colored	33	([5])	([5])	6	5	
Baltimore [4]	189	11.9	11.6	18	10	58
White	143			13	6	52
Colored	46	([5])	([5])	5	4	79
Birmingham	54	12.7	17.6	7	10	63
White	26			3	4	45
Colored	28	([5])	([5])	4	6	92
Boston	207	13.5	13.0	28	25	77
Bridgeport	28			1	2	17
Buffalo	130	12.2	13.0	12	17	52
Cambridge	22	9.1	9.6	2	2	36
Camden	19	7.3	11.2	2	3	35
Canton	17	7.6	9.8	1	4	24
Chicago [4]	666	11.0	12.6	63	69	56
Cincinnati	141			11	9	64
Cleveland	207	10.7	9.3	19	17	56
Columbus	79	13.8	15.2	7	6	66
Dallas	53	12.7	10.1	7	5	
White	42			5	5	
Colored	11	([5])	([5])	2	0	
Dayton	33	9.4	9.4	3	6	48
Denver	72	12.8	13.9	4	8	39
Des Moines	26	8.9	9.6	2	4	36
Detroit	303	11.5	12.5	50	44	80
Duluth	17	7.6	7.6	0	1	0
El Paso	36	16.0	12.0	11	8	
Erie	23			0	1	0
Fall River [4]	24	9.3	9.7	5	1	94
Flint	36	12.6	8.8	5	4	61
Fort Worth	39	12.0	12.3	3	4	
White	28			2	3	
Colored	11	([5])	([5])	1	1	
Grand Rapids	33	10.5	6.7	1	2	15
Houston	64			5	13	
White	49			4	9	
Colored	15	([5])	([5])	1	4	
Indianapolis	78	10.7	14.1	5	8	40
White	64			5	7	46
Colored	14	([5])	([5])	0	1	0
Jersey City	69	11.1	10.1	5	8	39
Kansas City, Kans	35	15.5	8.4	2	0	44
White	27			2	0	50
Colored	8	([5])	([5])	0	0	[0]
Kansas City, Mo	84	11.2	15.9	5	16	42
Knoxville	25	12.4	6.4	5	1	100
White	19			5	1	122
Colored	6	([5])	([5])	0	0	0
Los Angeles	229			21	24	62
Louisville	93	14.8	12.9	4	6	32
White	64			2	1	19
Colored	29	([5])	([5])	2	5	126
Lowell	18			2	2	45
Lynn	28	13.9	13.4	2	3	55
Memphis	54	14.8	18.1	4	8	47
White	31			4	3	76
Colored	23	([5])	([5])	0	5	0

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

Deaths from all causes in certain large cities of the United States during the week ended June 15, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928—Continued

City	Week ended June 15, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended June 15, 1929
	Total deaths	Death rate		Week ended June 15, 1929	Corresponding week, 1928	
Milwaukee	132	12.7	10.6	6	18	26
Minneapolis	86	9.9	8.0	3	8	19
Nashville	55	20.6	22.5	4	9	65
White	37			3	9	65
Colored	18	(5)	(5)	1	0	63
New Bedford	25			0	5	0
New Haven	29	8.1	10.6	4	5	61
New Orleans	157	19.1	14.9	16	10	79
White	90			7	1	49
Colored	67	(5)	(5)	9	9	151
New York	1,400	12.2	12.3	111	144	45
Bronx Borough	173	9.5	10.1	9	9	27
Brooklyn Borough	448	10.1	10.5	31	54	31
Manhattan Borough	603	18.0	18.3	60	69	73
Queens Borough	138	8.4	7.3	10	11	41
Richmond Borough	38	13.2	13.5	1	1	18
Newark, N. J	113	12.5	12.0	7	8	37
Oakland	65	12.4	9.9	4	2	44
Oklahoma City	43			4	3	80
Omaha	50	11.7	12.0	5	5	58
Paterson	32	11.5	14.4	0	3	0
Philadelphia	441	11.2	11.5	34	48	48
Pittsburgh	148	11.5	12.9	15	16	52
Portland, Oreg	65			2	4	23
Providence	55	10.0	14.2	7	11	62
Richmond	49	13.2	14.3	5	9	70
White	14			2	3	42
Colored	35	(5)	(5)	3	6	123
Rochester	80	12.7	11.9	6	6	51
St. Louis	226	13.9	11.8	14	8	47
St. Paul	54			1	4	10
Salt Lake City [4]	33	13.5	14.0	4	4	62
San Antonio	84	20.1	15.6	13	15	
San Diego	44	19.2	21.8	1	4	19
San Francisco	154	13.8	13.9	7	7	45
Schenectady	16	9.0	7.8	2	4	64
Somerville	13	6.6	8.7	1	2	36
Springfield, Mass	38	13.3	8.7	5	1	83
Syracuse	52	13.6	13.9	2	6	24
Toledo	59	9.8	8.3	4	4	37
Trenton	38	14.3	14.7	3	4	54
Washington, D. C	110	10.4	11.0	9	10	53
White	67			4	4	34
Colored	43	(5)	(5)	5	6	95
Waterbury	11			2	3	51
Wilmington, Del	20	8.1	6.9	0	2	0
Worcester	35	9.3	10.8	1	6	13
Yonkers	22	9.5	9.5	2	3	47
Youngstown	27	8.1	7.8	3	2	43

[4] Deaths for week ended Friday.

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

PREVALENCE OF DISEASE

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

UNITED STATES

CURRENT WEEKLY STATE REPORTS

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

Reports for Weeks Ended June 15, 1929, and June 16, 1928

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 15, 1929, and June 16, 1928

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928
New England States:								
Maine		5		6	101	63	0	0
New Hampshire	3	2			72	8	0	0
Vermont						45	0	0
Massachusetts	68	71	3	16	614	687	4	1
Rhode Island	8	2			28	210	0	0
Connecticut	15	14	2	1	154	289	2	0
Middle Atlantic States:								
New York	218	399	[1] 2	[1] 19	689	3,062	27	41
New Jersey	105	152	2	38	211	1,314	6	4
Pennsylvania	128	162			1,277	2,494	9	9
East North Central States:								
Ohio	50	85	13	268	1,118	1,099	12	1
Indiana	13	17		2	237	345	2	0
Illinois	173	126	23	28	1,340	216	13	7
Michigan	100	64	4	6	650	1,004	75	6
Wisconsin	15	14	9	107	1,334	48	3	0
West North Central States:								
Minnesota	18	32	2	1	233	63	0	2
Iowa	6	5			46	11	0	1
Missouri	31	18	3	1	73	275	13	3
North Dakota	8	1		2	56	4	3	0
South Dakota		1			32	5	0	1
Nebraska	6	7		16	202	18	0	0
Kansas	4	5	2	1	681	101	2	1
South Atlantic States:								
Delaware	1				12	16	0	0
Maryland [2]	21	27	8	7	53	241	1	0
District of Columbia	9	10			22	124	0	0
Virginia								1
West Virginia	8	6	8	62	150	68	1	1
North Carolina	11	12			7	360	4	0
South Carolina	8	10	221	297		99	0	0
Georgia	5	3	26	27	17	50	1	0
Florida	5	6	4	27	19	118	0	0
East South Central States:								
Kentucky	5	7			7	138	0	0
Tennessee	4	3	9	75	23	95	2	0
Alabama	8	9	13	87	22	151	0	1
Mississippi	5	3					1	
West South Central States:								
Arkansas	5	1	2	85	2	102	0	0
Louisiana	10	13	10	20	56	64	1	1
Oklahoma [3]	18	10	15	24	48	62	0	2
Texas	27	9	5	30	126	51	2	0

[1] New York City only.
[2] Week ended Friday.
[3] Figures for 1929 are exclusive of Oklahoma City and Tulsa, and for 1928 are exclusive of Tulsa only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 15, 1929, and June 16, 1928—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928
Mountain States:								
Montana	1	1			30	5	2	1
Idaho			4		47	1	1	1
Wyoming		5			22	9	0	0
Colorado	8	3		1	21	35	0	1
New Mexico	3	4			7	28	0	0
Arizona	1	4			4	205	0	1
Utah [2]	1	2	2	3	2		3	0
Pacific States:								
Washington	7	14			127	37	3	5
Oregon	7	6	9	6	130	35	0	1
California	39	79	18	22	111	49	9	3

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928
New England States:								
Maine	1	0	17	23	0	0	3	1
New Hampshire	0	0	22	13	0	0	0	0
Vermont	0	0	1	6	0	0	0	0
Massachusetts	1	1	181	209	4	0	8	4
Rhode Island	0	0	4	12	0	0	2	0
Connecticut	0	1	40	27	0	0	0	0
Middle Atlantic States:								
New York	5	6	297	335	0	0	10	10
New Jersey	1	0	107	135	0	1	4	4
Pennsylvania	1	1	242	325	0	0	14	1
East North Central States:								
Ohio	2	1	117	113	30		5	9
Indiana	0	0	93	39	70	59	2	2
Illinois	0	0	302	219	108	17	10	9
Michigan	0	0	290	261	94	29	4	6
Wisconsin	0	1	132	126	15	12	2	6
West North Central States:								
Minnesota	1	1	57	100	1	2	3	1
Iowa	1	0	59	46	30	44	1	0
Missouri	0	1	45	47	17	26	9	4
North Dakota	1	0	17	5	6	0	0	0
South Dakota	0	0	8	13	25	1	0	0
Nebraska	1	0	35	38	37	16	1	5
Kansas	1	0	53	54	67	47	5	1
South Atlantic States:								
Delaware	0	0	4	7	0	1	0	1
Maryland [2]	0	0	89	33	0	0	10	4
District of Columbia	1	0	9	27	0	0	1	1
Virginia		1						
West Virginia	1	0	16	7	13	9	90	4
North Carolina	3	0	13	23	5	46	24	12
South Carolina	0	3	5	6	6	3	65	43
Georgia	0	0	12	7	0	0	30	11
Florida	0	1	0	5	0	2	6	13
East South Central States:								
Kentucky	0	0	81	34	20	23	0	3
Tennessee	1	0	17	13	2	35	10	20
Alabama	2	0	8	3	0	11	26	13
Mississippi	0	1	7	4	0	0	21	15
West South Central States:								
Arkansas	0	0	7	4	2	3	12	4
Louisiana	0	1	27	5	2	20	18	27
Oklahoma [3]	1	2	23	21	74	69	15	9
Texas	0	1	54	20	67	34	17	2
Mountain States:								
Montana	1	0	10	2	2	4	1	0
Idaho	0	0	1	2	8	1	3	2
Wyoming	0	0	4	17	15	2	0	6
Colorado	0	1	16	21	13	0	1	1
New Mexico	0	0	1	6	7	0	3	2
Arizona	0	0	0	3	1	1	5	4
Utah [2]	0	0	5	5	5	5	0	0

[2] Week ended Friday.
[3] Figures for 1929 are exclusive of Oklahoma City and Tulsa, and for 1928 are exclusive of Tulsa only.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 15, 1929, and June 16, 1928—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928	Week ended June 15, 1929	Week ended June 16, 1928
Pacific States:								
Washington	0	0	11	32	42	11	7	5
Oregon	0	1	10	6	16	29	3	4
California	4	4	326	128	45	18	7	12

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
May, 1929										
Florida	1	29	7	104	389	6	6	26	4	16
Louisiana	13	69	63	63	238	73	0	167	44	57
Maine	1	10	20	----	427	1	0	111	1	12
New Jersey	34	560	18	----	1,277	----	0	628	0	19
Ohio	64	205	71	3	7,357	1	3	967	311	38
Vermont	----	2	----	----	48	----	0	63	26	4

May, 1929

	Cases
Anthrax:	
New Jersey	1
Chicken pox:	
Florida	68
Louisiana	34
Maine	122
New Jersey	1,291
Ohio	1,286
Vermont	74
Conjunctivitis:	
Maine	1
Dysentery:	
Florida	13
New Jersey	2
Ohio	2
German measles:	
Maine	203
New Jersey	141
Ohio	29
Hookworm disease:	
Louisiana	5
Lead poisoning:	
New Jersey	3
Ohio	10
Lethargic encephalitis:	
Florida	3
Louisiana	7
Ohio	8
Mumps:	
Florida	12
Louisiana	3
Maine	155
Ohio	394
Vermont	95
Ophthalmia neonatorum:	
New Jersey	7
Ohio	98

May, 1929—Continued

	Cases
Paratyphoid fever:	
Maine	2
Ohio	1
Puerperal fever:	
Ohio	11
Septic sore throat:	
Maine	2
Ohio	77
Tetanus:	
Louisiana	6
Ohio	4
Trachoma:	
New Jersey	1
Ohio	3
Trichinosis:	
Ohio	8
Tularaemia:	
Florida	1
Louisiana	1
Typhus fever:	
Florida	3
Undulant fever:	
Louisiana	1
Ohio	11
Vincent's angina:	
Maine	4
Whooping cough:	
Florida	244
Louisiana	18
Maine	93
New Jersey	837
Ohio	1,698
Vermont	81

Number of Cases of Certain Communicable Diseases Reported for the Month of April, 1929, by State Health Officers

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Maine	99	22	811	122	123	13	20	14	118
New Hampshire		12			46				
Vermont	37	9	54	152	56	31	[1] 12	0	143
Massachusetts	822	360	1,922	447	1,198	7	570	18	710
Rhode Island	56	49	448	8	91	0	54	1	17
Connecticut	229	96	2,434	389	258	6	139	3	142
New York	2,491	1,430	4,872	2,126	2,405	5	1,831	63	1,460
New Jersey	1,065	478	1,389		755	0	491	4	913
Pennsylvania	2,040	629	7,757	1,572	1,689	0	719	67	1,872
Ohio	1,126	252	8,393	321	1,175	234	752	38	2,119
Indiana	225	50	1,929	33	819	205	159	27	319
Illinois	1,168	659	8,025	528	1,857	355	1,168	28	697
Michigan	765	348	3,671	752	2,200	277	500	28	1,261
Wisconsin	865	58	5,030	323	612	22	253	7	989
Minnesota	378	87	3,070		533	13	255	27	653
Iowa	107	27	201	445	583	180	54	22	111
Missouri	279	149	1,408	207	395	164	226	54	389
North Dakota	60	28	444	20	154	55	40	3	51
South Dakota	46	20	145	41	82	179	4	1	17
Nebraska	86	56	390	206	482		[1] 13	9	63
Kansas	386	42	2,088	640	603	240	218	12	300
Delaware [2]									
Maryland	264	96	183	883	230	0	338	20	631
Dist. of Columbia	132	36	84		65	0	123	3	129
Virginia	578	79	877		108	30	[1] 175	28	711
West Virginia	103	41	1,860		68	54	46	39	256
North Carolina	579	89	179		120	85		16	1,418
South Carolina	422	85	59	166	38	22	210	30	936
Georgia	100	26	98	93	53	20	78	32	147
Florida	72	40	241	18	17	6	63	23	235
Kentucky [3]									
Tennessee	120	26	173	120	161	25	286	30	112
Alabama	185	49	636	49	61	24	364	33	177
Mississippi	918		2,524	486	41	5	323	49	1,706
Arkansas	104	13	256	167	43	17	[1] 28	27	54
Louisiana	53	76	306	4	204	23	[1] 189	49	58
Oklahoma [4]	62	41	229	69	142	351	48	31	120
Texas [3]									
Montana	108	21	703	30	92	89	[5] 15	5	34
Idaho	32	2	29	76	60	145	[1] 2	0	5
Wyoming	56	5	114	116	67	44		1	9
Colorado	581	34	121	249	194	74	34	6	82
New Mexico [3]									
Arizona	39	13	10	4	37	53	50	2	11
Utah [3]									
Nevada [6]									
Washington	527	33	760	294	179	219	198	28	537
Oregon	209	24	965	127	114	132	53	4	37
California	2,906	203	333	2,198	1,947	321	922	23	1,217

[1] Pulmonary.
[2] Report not received at time of going to press.
[3] Reports received weekly.
[4] Exclusive of Oklahoma City and Tulsa.
[5] Includes 11 cases from sanitoria.
[6] Reports received annually

Case Rates per 1,000 Population (Annual Basis) for the Month of April, 1929

State	Chickenpox	Diphtheria	Measles	Mumps	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Maine	1.51	0.34	12.38	1.86	1.88	0.20	0.31	0.21	1.80
New Hampshire [1]		.32			1.22				
Vermont	1.28	.31	1.86	5.25	1.93	1.07	[1] .41	.00	4.94
Massachusetts	2.31	1.01	5.39	1.25	3.36	.02	1.60	.05	1.99
Rhode Island	.94	.82	7.49	.13	1.52	.00	.90	.02	.28
Connecticut	1.64	.69	17.44	2.79	1.85	.04	1.00	.02	1.02
New York	2.60	1.49	5.08	2.22	2.51	.01	1.91	.07	1.52
New Jersey	3.33	1.49	4.34		2.36	.00	1.53	.01	2.85
Pennsylvania	2.49	.77	9.46	1.92	2.06	.00	.88	.08	2.28
Ohio	1.97	.44	14.71	.56	2.06	.41	1.32	.07	3.71
Indiana	.86	.19	7.33	.13	3.11	.78	.60	.10	1.21
Illinois	1.90	1.07	13.02	.86	3.01	.58	1.90	.05	1.13
Michigan	1.98	.90	9.52	1.95	5.70	.72	1.30	.07	3.27
Wisconsin	3.52	.24	20.48	1.32	2.49	.09	1.03	.03	4.03
Minnesota	1.67	.38	13.54		2.35	.06	1.12	.12	2.88
Iowa	.54	.14	1.01	2.23	2.92	.90	.27	.11	.56
Missouri	.96	.51	4.84	.71	1.36	.56	.78	.19	1.34
North Dakota	1.14	.53	8.42	.38	2.92	1.04	.76	.06	.97
South Dakota	.79	.34	2.48	.70	1.40	3.06	.07	.02	.29
Nebraska	.74	.48	3.34	1.77	4.13	.00	[1] .11	.08	.54
Kansas	2.55	.28	13.79	4.23	3.98	1.59	1.44	.08	1.98
Delaware [2]									
Maryland	1.96	.71	1.36	6.57	1.71	.00	2.52	.15	4.70
District of Columbia	2.85	.78	1.81		1.40	.00	2.65	.06	2.78
Virginia	2.70	.37	4.10		.50	.14	[1] .82	.13	3.32
West Virginia	.72	.28	12.92		.47	.37	.32	.27	1.78
North Carolina	2.36	.36	.73		.49	.35		.07	5.79
South Carolina	2.73	.55	.38	1.07	.25	.14	1.36	.19	6.05
Georgia	.38	.10	.37	.35	.20	.08	.29	.12	.55
Florida	.60	.33	2.01	.15	.14	.05	.53	.19	1.96
Kentucky [3]									
Tennessee	.58	.13	.84	.58	.78	.12	1.38	.14	.54
Alabama	.87	.23	2.98	.23	.29	.11	1.71	.15	.83
Mississippi	6.24		17.15	3.30	.28	.03	2.19	.33	11.59
Arkansas	.64	.08	1.59	1.03	.27	.11	[1] .17	.17	.33
Louisiana	.33	.47	1.89	.02	1.26	.14	[1] 1.17	.30	.36
Oklahoma [4]	.35	.23	1.28	.39	.80	1.97	.27	.17	.67
Texas [3]									
Montana	2.39	.47	15.58	.66	2.04	1.97	[5] .33	.11	.75
Idaho	.70	.04	.63	1.66	1.31	3.16	[1] .04	.00	.11
Wyoming	2.69	.24	5.48	5.58	3.22	2.12		.05	.43
Colorado	6.39	.37	1.33	2.74	2.13	.81	.37	.07	.90
New Mexico [3]									
Arizona	.97	.32	.25	.10	.92	1.32	1.24	.05	.27
Utah [3]									
Nevada [6]									
Washington	3.98	.25	5.74	2.22	1.35	1.65	1.49	.21	4.05
Oregon	2.78	.32	12.85	1.69	1.52	1.76	.71	.05	.49
California	7.56	.53	.87	5.71	5.06	.83	2.40	.06	3.16

[1] Pulmonary.
[2] Report not received at time of going to press.
[3] Reports received weekly.
[4] Exclusive of Oklahoma City and Tulsa.
[5] Includes 11 cases from sanitoria.
[6] Reports received annually.

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of May, 1929, by departments of health of certain States to other State health departments

Disease	California	Illinois	Kansas	Minnesota	New Jersey	New York
Actinomycosis				1		
Cerebrospinal meningitis				1		
Diphtheria				2		
Dysentery (amebic)				2		
Gonorrhea				5		
Measles						4
Scarlet fever						2
Smallpox		3				5
Syphilis			12	5		
Trachoma				3		
Tuberculosis	1			41		
Typhoid fever	1	1			1	2
Whooping cough						1

PATIENTS IN INSTITUTIONS FOR THE FEEBLE-MINDED, JULY TO SEPTEMBER, 1928

Reports for the third quarter of the year 1928 have been received by the Public Health Service from 24 institutions for the care of the feeble-minded, located in 21 States, including one institution for females only with more than 1,200 patients. The total number of patients in these institutions on September 30, 1928, including those on temporary leave or otherwise absent but still on the books, was 30,866.

The first admissions were as follows:

	Male	Female	Total
July	166	121	287
August	168	124	292
September	178	152	330
Total	512	397	909

Of the first admissions during the three months, 56.3 per cent were males and 43.7 per cent were females, the ratio being 129 males per 100 females.

On September 30, 1928, there were 15,551 male patients and 15,315 female patients, giving a ratio of 102 males per 100 females.

During the three months 242 patients were discharged, 127 males and 115 females. One hundred and nineteen male patients and 74 female patients died.

The annual death rates, based on the estimated population of the institutions the middle of August were: 30.8 males per 1,000; females, 19.4 per 1,000; persons, 25.1 per 1,000.

Data showing the number of patients on temporary leave are available for 24 instututions for the third quarter of the year 1928. During the second quarter of the year 1928, there was a marked increase in the percentage of the patients who were on temporary leave. The "peak" appeared to be reached about the end of July, but there was very little difference in the number on parole at the beginning and end of the third quarter.

The following table shows the numbers of patients in the institutions and on temporary leave on July 1 and at the end of each month of the third quarter of 1928, and the percentage of the total patients who were on leave.

	July 1, 1928	July 31, 1928	Aug. 31, 1928	Sept. 30, 1928
Patients in institutions:				
Male	12,940	12,766	12,946	13,206
Female	13,207	13,090	13,245	13,440
Total	26,147	25,856	26,191	26,646
Patients on temporary leave:				
Male	2,287	2,564	2,497	2,345
Female	1,857	2,033	1,952	1,875
Total	4,144	4,597	4,449	4,220
Total patients on books:				
Male	15,227	15,330	15,443	15,551
Female	15,064	15,123	15,197	15,315
Total	30,291	30,453	30,640	30,866
Per cent of total patients on temporary leave:				
Male	15.0	16.7	16.2	15.1
Female	12.3	13.4	12.8	12.2
Total	13.7	15.1	14.5	13.7

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,565,000. The estimated population of the 91 cities reporting deaths is more than 29,995,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended June 8, 1929, and June 9, 1928

	1929	1928	Estimated expectancy		1929	1928	Estimated expectancy
Cases reported				*Cases reported*—Contd.			
Diphtheria:				Smallpox:			
46 States	1,151	1,398	----	46 States	948	713	----
98 cities	667	810	779	98 cities	50	65	72
Measles:				Typhoid fever:			
45 States	12,467	14,763	----	46 States	431	320	----
98 cities	4,462	6,091	----	98 cities	47	55	59
Meningococcus meningitis:				*Deaths reported*			
46 States	229	119	----				
98 cities	107	65	----	Influenza and pneumonia:			
Poliomyelitis:				91 cities	562	834	----
46 States	29	31	----	Smallpox:			
Scarlet fever:				91 cities	0	0	----
46 States	3,287	2,903	----				
98 cities	1,268	1,148	946				

City reports for week ended June 8, 1929

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

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

Division, State, and city	Population July 1, 1928, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	78,600	2	1	0		0	22	1	1
New Hampshire:									
Concord	(1)	0	0	0		0	32	0	0
Manchester	85,700	0	0	1		0	7	0	0
Nashua	(1)	0	0	0		0	0	0	0
Vermont:									
Barre	(1)	0	0	0		0	0	0	0
Massachusetts:									
Boston	799,200	57	39	14		0	55	57	17
Fall River	134,300	7	3	0		0	0	0	0
Springfield	149,800	10	2	3		0	1	1	1
Worcester	197,600	20	3	1		0	48	2	1
Rhode Island:									
Pawtucket	73,100	3	0	2		0	2	0	1
Providence	286,300	1	5	8		1	61	0	4
Connecticut:									
Bridgeport	(1)	1	5	2		0	11	1	2
Hartford	172,300	6	4	2		0	8	7	2
New Haven	187,900	20	1	0		0	28	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo	555,800	33	11	4		0	72	2	21
New York	6,017,500	286	247	224	12	4	94	308	127
Rochester	328,200	10	9	0		0	11	14	4
Syracuse	199,300	51	5	0		0	4	22	1
New Jersey:									
Camden	135,400	2	6	5		0	9	1	2
Newark	473,600	75	11	33	4	0	4	70	9
Trenton	139,000	0	3	0		0	26	0	1
Pennsylvania:									
Philadelphia	2,064,200	150	58	27	5	3	58	24	35
Pittsburgh	673,800	78	16	12	3	3	68	13	18
Reading	115,400	14	2	2		0	5	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	413,700	11	6	5		1	2	0	8
Cleveland	1,010,300	150	23	23	1	1	418	12	20
Columbus	299,000	7	3	0	1	2	56	0	0
Toledo	313,200	26	4	0		0	65	11	6
Indiana:									
Fort Wayne	105,300	11	2	1		0	12	0	2
Indianapolis	382,100	23	3	1		0	243	5	11
South Bend	86,100	0	1	0		0	5	0	0
Terre Haute	73,500	0	0	0		0	8	2	0
Illinois:									
Chicago	3,157,400	112	67	112	8	2	1,090	18	53
Springfield	67,200	3	1	0		0	27	0	0
Michigan:									
Detroit	1,378,900	152	41	44	4	1	236	87	38
Flint	148,800	44	2	0		0	18	1	4
Grand Rapids	164,200	7	1	1		0	26	1	1

[1] No estimate of population made.

City reports for week ended June 8, 1929—Continued

Division, State, and city	Population July 1, 1928, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL—continued									
Wisconsin:									
Kenosha	56,500	15	1	0	----	0	80	3	1
Milwaukee	544,200	131	12	6	2	2	621	16	10
Racine	74,400	22	1	0	----	0	5	0	2
Superior	(1)	4	0	0	----	0	16	0	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth	116,800	20	0	6	----	0	22	23	1
Minneapolis	455,900	58	14	2	----	0	114	46	4
St. Paul	(1)	10	7	0	----	1	96	37	9
Iowa:									
Davenport	(1)	17	1	4	----	----	4	0	----
Des Moines	151,900	1	1	0	----	----	4	0	----
Sioux City	80,000	13	0	0	----	----	4	0	----
Waterloo	37,100	6	0	0	----	----	1	8	----
Missouri:									
Kansas City	391,000	10	4	0	----	0	16	0	10
St. Joseph	78,500	1	0	1	----	0	23	0	1
St. Louis	848,100	29	33	39	----	----	22	7	----
North Dakota:									
Fargo	(1)	8	0	0	----	0	22	0	0
Grand Forks	(1)	2	0	0	----	----	6	0	----
South Dakota:									
Aberdeen	(1)	1	0	0	----	----	1	8	----
Sioux Falls	(1)	0	0	0	----	----	0	0	----
Nebraska:									
Lincoln	71,100	1	1	1	----	0	6	0	0
Omaha	222,800	7	2	0	----	0	115	0	0
Kansas:									
Topeka	62,800	21	1	2	----	0	14	1	0
Wichita	99,300	10	1	0	----	0	102	5	2
SOUTH ATLANTIC									
Delaware:									
Wilmington	128,500	0	1	0	----	0	6	0	2
Maryland:									
Baltimore	830,400	58	19	13	4	1	4	140	19
Cumberland	(1)	0	0	0	----	0	2	0	0
Frederick	(1)	0	0	0	----	0	0	0	0
District of Columbia:									
Washington	552,000	12	8	12	----	0	27	0	5
Virginia:									
Lynchburg	38,600	8	0	1	----	0	0	69	0
Norfolk	184,200	8	0	1	----	0	7	34	3
Richmond	194,400	4	1	0	----	0	37	9	2
Roanoke	64,600	4	0	0	----	0	4	0	0
West Virginia:									
Charleston	55,200	6	0	1	----	1	7	0	0
Wheeling	(1)	18	0	0	----	0	29	0	3
North Carolina:									
Raleigh	(1)	0	0	0	----	0	0	0	0
Wilmington	39,100	8	0	1	----	0	0	0	0
Winston-Salem	80,000	2	0	0	----	0	0	0	2
South Carolina:									
Charleston	75,900	0	0	0	24	0	0	0	1
Columbia	50,600	5	0	0	----	0	0	3	1
Greenville	(1)	0	0	0	----	0	0	1	1
Georgia:									
Atlanta	255,100	1	1	1	5	1	8	1	1
Brunswick	(1)	0	0	0	----	0	0	0	0
Savannah	99,900	0	0	0	----	0	0	0	0
Florida:									
Miami	156,700	1	3	1	----	0	42	2	2
St. Petersburg	53,300	----	0	----	----	0	----	----	0
Tampa	113,400	0	0	3	1	0	3	1	0

[1] No estimate of population made.

City reports for week ended June 8, 1929—Continued

Division, State, and city	Population July 1, 1928, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	59,000	0	0	1	----	0	0	0	1
Tennessee:									
Memphis	190,200	6	1	1	----	0	0	0	1
Nashville	139,600	3	0	0	----	0	3	0	1
Alabama:									
Birmingham	222,400	2	1	1	7	3	1	1	4
Mobile	69,600	0	1	0	1	0	0	0	1
Montgomery	63,100	0	0	0	----	----	2	0	----
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	(1)	0	0	0	----	----	0	4	----
Little Rock	79,200	3	0	0	----	0	2	2	0
Louisiana:									
New Orleans	429,400	0	5	7	2	1	4	0	8
Shreveport	81,300	2	0	1	----	0	1	0	2
Oklahoma:									
Oklahoma City	(1)	10	0	0	----	0	3	0	5
Texas:									
Dallas	217,800	3	3	5	1	1	96	0	3
Fort Worth	170,600	0	1	1	----	0	3	8	1
Galveston	50,600	0	0	0	----	0	0	0	3
Houston	(1)	4	2	4	----	2	2	1	3
San Antonio	216,100	1	1	6	----	0	0	0	4
MOUNTAIN									
Montana:									
Billings	(1)	1	0	0	----	0	4	1	0
Great Falls	(1)	5	1	0	----	0	4	2	0
Helena	(1)	0	0	1	----	0	0	0	0
Missoula	(1)	0	0	0	----	0	1	0	1
Idaho:									
Boise	(1)	0	1	0	----	0	3	0	1
Colorado:									
Denver	294,200	29	8	2	----	4	4	19	3
Pueblo	44,200	27	1	0	----	0	0	0	1
New Mexico:									
Albuquerque	(1)	8	0	0	1	0	0	0	0
Utah:									
Salt Lake City	138,000	13	4	4	----	0	5	110	1
Nevada:									
Reno	(1)	0	0	0	----	0	1	0	0
PACIFIC									
Washington:									
Seattle	383,200	50	4	1	----	----	6	26	----
Spokane	109,100	2	2	3	----	----	113	0	----
Tacoma	110,500	9	1	2	----	0	7	1	1
California:									
Los Angeles	(1)	104	38	13	9	2	29	32	13
Sacramento	75,700	9	3	0	----	0	9	3	1
San Francisco	585,300	21	15	4	5	3	5	38	7

[1] No estimate of population made.

City reports for week ended June 8, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	1	9	0	0	0	1	0	0	0	2	19
New Hampshire:											
Concord	0	3	0	0	0	0	0	0	0	0	11
Manchester	1	5	0	0	0	0	0	0	0	0	15
Nashua	1	0	----	0	0	1	0	0	0	0	8
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	5	2
Massachusetts:											
Boston	53	37	0	0	0	14	2	1	0	40	213
Fall River	3	1	0	0	0	2	1	0	0	3	26
Springfield	5	8	0	0	0	1	0	0	0	0	33
Worcester	7	7	0	0	0	2	1	1	0	36	44
Rhode Island:											
Pawtucket	2	2	0	0	0	1	0	0	0	1	22
Providence	8	6	0	0	0	2	0	1	0	13	67
Connecticut:											
Bridgeport	8	8	0	0	0	2	0	0	0	0	29
Hartford	3	2	0	0	0	2	1	0	0	4	28
New Haven	4	2	0	0	0	1	0	0	0	5	35
MIDDLE ATLANTIC											
New York:											
Buffalo	20	26	0	0	0	14	1	0	0	28	146
New York	196	143	0	0	0	116	10	9	0	56	1,407
Rochester	11	4	0	0	0	1	1	0	0	9	61
Syracuse	7	5	0	0	0	1	0	0	0	23	59
New Jersey:											
Camden	5	6	0	0	0	1	0	0	0	3	33
Newark	21	16	0	0	0	10	0	0	0	38	80
Trenton	2	4	0	0	0	4	0	0	0	9	41
Pennsylvania:											
Philadelphia	76	41	0	0	0	23	3	1	0	47	474
Pittsburgh	27	29	0	0	0	12	1	0	0	39	184
Reading	2	5	0	0	0	0	0	0	0	4	24
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	11	29	2	4	0	10	1	1	0	6	107
Cleveland	27	38	1	0	0	21	1	0	0	77	223
Columbus	6	5	1	0	0	6	0	2	0	22	62
Toledo	9	5	1	1	0	3	0	0	0	32	78
Indiana:											
Fort Wayne	2	1	2	6	0	2	0	0	0	1	31
Indianapolis	9	30	10	0	0	7	1	0	0	21	93
South Bend	2	1	1	1	0	0	0	0	0	1	11
Terre Haute	2	0	0	0	0	0	0	0	0	0	22
Illinois:											
Chicago	93	161	2	1	0	61	3	1	0	64	758
Springfield	2	5	0	4	0	0	0	1	0	1	13
Michigan:											
Detroit	73	168	1	2	0	29	2	0	0	71	335
Flint	6	21	1	8	0	2	0	0	0	2	28
Grand Rapids	5	2	0	1	0	4	0	0	0	15	36
Wisconsin:											
Kenosha	1	0	0	0	0	1	0	0	0	8	5
Milwaukee	20	34	2	0	0	11	0	0	0	113	106
Racine	4	7	0	0	0	0	0	0	0	2	14
Superior	2	1	2	0	0	0	0	0	0	1	
WEST NORTH CENTRAL											
Minnesota:											
Duluth	6	8	1	0	0	0	0	0	0	3	13
Minneapolis	27	19	2	0	0	2	1	0	0	27	81
St. Paul	18	11	0	0	0	3	0	0	0	25	62

City reports for week ended June 8, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL—contd.											
Iowa:											
Davenport	0	0	1	6	----	----	0	0	----	1	----
Des Moines	4	14	3	2	----	----	0	0	----	0	36
Sioux City	1	0	1	0	----	----	0	0	----	8	----
Waterloo	2	9	0	0	----	----	0	0	----	5	----
Missouri:											
Kansas City	7	5	0	1	0	7	0	1	1	23	90
St. Joseph	1	1	1	0	0	1	0	0	0	3	23
St. Louis	21	11	2	1	0	17	2	3	0	63	190
North Dakota:											
Fargo	1	0	0	0	0	1	0	0	0	0	6
Grand Forks	1	0	0	2	----	----	0	0	----	1	----
South Dakota:											
Aberdeen	1	1	0	0	----	----	0	0	----	0	----
Sioux Falls	1	0	0	8	----	----	0	0	----	0	8
Nebraska:											
Lincoln	1	7	1	1	0	0	0	0	0	4	----
Omaha	3	9	4	4	0	1	0	0	0	5	36
Kansas:											
Topeka	1	3	0	0	0	0	0	0	0	6	7
Wichita	2	10	0	0	0	2	1	0	0	6	42
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	2	0	0	0	1	0	0	0	2	18
Maryland:											
Baltimore	22	125	0	0	0	16	2	1	1	105	176
Cumberland	0	3	0	0	0	1	0	0	0	1	5
Frederick	1	0	0	0	0	0	0	0	0	1	3
District of Columbia:											
Washington	17	14	1	0	0	7	1	0	0	19	115
Virginia:											
Lynchburg	0	0	0	0	0	0	0	1	0	15	5
Norfolk	1	1	0	0	0	4	0	0	0	10	----
Richmond	2	12	0	0	0	4	1	2	0	4	45
Roanoke	0	1	0	0	0	0	0	0	0	1	10
West Virginia:											
Charleston	0	1	0	1	0	1	0	1	1	1	26
Wheeling	2	0	0	0	0	0	1	0	0	2	17
North Carolina:											
Raleigh	0	1	1	0	0	0	0	0	0	2	13
Wilmington	0	0	1	0	0	1	0	0	0	0	17
Winston-Salem	1	0	0	0	0	2	0	0	0	34	12
South Carolina:											
Charleston	0	0	1	0	0	2	0	0	0	0	20
Columbia	0	0	0	0	0	1	2	2	0	19	16
Greenville	0	0	0	0	0	1	0	0	0	2	3
Georgia:											
Atlanta	3	1	3	0	0	3	0	0	0	39	77
Brunswick	0	0	0	0	0	0	0	2	0	0	5
Savannah	0	0	0	0	0	3	2	0	0	2	32
Florida:											
Miami	0	1	0	0	0	0	1	0	0	11	19
St. Petersburg	0	1	0	----	0	0	0	----	0	----	----
Tampa	0	0	0	0	0	2	1	0	0	11	18
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	4	0	2	0	1	0	0	0	0	16
Tennessee:											
Memphis	3	7	1	0	0	5	1	0	2	7	59
Nashville	1	3	1	0	0	4	1	2	0	10	39
Alabama:											
Birmingham	1	0	5	0	0	5	2	0	1	2	75
Mobile	0	0	1	0	0	0	1	0	0	0	24
Montgomery	0	0	1	0	----	----	0	2	----	2	----

City reports for week ended June 8, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0	-------	-------	0	0	-------	0	-------
Little Rock	1	1	0	0	0	0	1	0	0	6	-------
Louisiana:											
New Orleans	3	13	0	0	0	9	2	4	0	1	118
Shreveport	0	0	0	0	0	2	1	0	0	0	25
Oklahoma:											
Oklahoma City	1	4	2	3	0	3	1	0	0	6	42
Texas:											
Dallas	2	0	2	1	0	3	1	2	1	20	49
Fort Worth	0	6	2	2	0	1	0	0	0	8	30
Galveston	0	1	0	0	0	0	0	0	0	0	15
Houston	1	4	1	1	0	5	1	1	1	0	82
San Antonio	1	1	0	0	0	7	2	0	0	0	61
MOUNTAIN											
Montana:											
Billings	0	0	0	0	0	0	0	0	0	0	7
Great Falls	1	2	0	0	0	0	0	0	0	0	6
Helena	0	0	0	0	0	2	0	0	0	0	6
Missoula	0	0	0	2	0	0	0	0	0	0	5
Idaho:											
Boise	0	1	0	0	0	1	0	0	0	5	7
Colorado:											
Denver	8	4	0	1	0	6	0	0	0	14	61
Pueblo	1	0	0	0	0	2	0	0	0	0	11
New Mexico:											
Albuquerque	0	1	0	0	0	3	0	0	0	1	14
Utah:											
Salt Lake City	2	2	1	3	0	2	0	0	0	13	41
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	8	3	1	0	-------	-------	1	0	-------	42	-------
Spokane	4	2	4	1	-------	-------	0	0	-------	10	-------
Tacoma	2	3	3	4	0	0	0	1	0	2	29
California:											
Los Angeles	22	42	6	1	0	28	2	1	0	32	256
Sacramento	1	14	1	0	0	1	1	0	0	7	23
San Francisco	15	48	1	0	0	10	1	3	0	22	149

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	12	9	1	3	0	0	1	1	0
New Jersey:									
Newark	1	1	0	0	0	0	0	1	0
Pennsylvania:									
Philadelphia	4	4	1	0	0	0	0	0	0
Pittsburgh	3	5	0	0	0	0	0	0	0

City reports for week ended June 8, 1929—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	1	0	0	0	0	0	0	0
Cleveland	5	2	1	0	0	0	0	2	0
Toledo	2	1	0	0	0	0	0	0	0
Illinois:									
Chicago	13	9	0	2	0	0	0	0	0
Michigan:									
Detroit	33	10	0	0	0	0	0	0	0
Flint	7	1	0	0	0	0	0	0	0
Grand Rapids	0	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee	2	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Missouri:									
Kansas City	6	4	0	0	0	0	0	0	0
St. Louis	6	1	0	0	0	0	0	0	0
North Dakota:									
Fargo	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	1	0	0	0	0	0	1	0	0
District of Columbia:									
Washington	0	0	0	0	0	0	0	1	1
Virginia:									
Richmond	2	0	0	0	0	2	0	0	0
North Carolina:									
Raleigh	0	0	0	0	0	2	0	0	0
Winston-Salem	0	0	0	0	1	1	0	0	0
South Carolina:									
Charleston	0	0	0	0	2	1	0	0	0
Columbia	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta	1	0	0	0	0	0	0	0	0
Savannah	0	0	0	0	1	1	0	0	0
Florida:									
Miami	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Alabama:									
Birmingham	0	0	0	0	0	0	0	1	0
Mobile	0	0	0	0	0	1	0	0	0
Montgomery	0	0	0	0	3	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	1	1	0	0	2	0	0	0	0
Oklahoma:									
Oklahoma City	0	0	0	0	0	1	0	0	0
Texas:									
Fort Worth	0	0	0	0	1	0	0	0	0
Houston	0	0	0	0	0	0	0	1	0
MOUNTAIN									
Montana:									
Great Falls	1	0	0	0	0	0	0	0	0
Colorado:									
Denver	1	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	2	0	0	0	0	0	0	0	0
Tacoma	1	0	0	0	0	0	0	0	0
California:									
Los Angeles	1	0	0	0	0	0	1	1	0
Sacramento	2	1	0	0	0	0	1	0	0
San Francisco	1	1	1	0	0	0	0	0	0

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended June 8, 1929, compared with those for a like period ended June 9, 1928. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have estimated aggregate populations of more than 31,000,000. The 91 cities reporting deaths have nearly 30,000,000 estimated population. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, May 5 to June 8, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928 [1]

DIPHTHERIA CASE RATE

	Week ended—									
	May 11, 1929	May 12, 1928	May 18, 1929	May 19, 1928	May 25, 1929	May 26, 1928	June 1, 1929	June 2, 1928	June 8, 1929	June 9, 1928
98 cities	139	123	[2] 124	139	136	131	[3] 125	124	110	136
New England	118	113	95	110	109	64	[4] 91	99	72	97
Middle Atlantic	206	178	159	205	188	213	168	178	148	221
East North Central	145	109	143	114	165	102	155	105	123	108
West North Central	104	55	[2] 124	96	100	72	110	84	96	53
South Atlantic	64	90	62	111	49	117	41	101	54	107
East South Central	27	42	27	21	14	42	7	63	20	28
West South Central	91	93	115	65	47	28	59	57	91	61
Mountain	52	71	26	97	61	71	[5] 38	71	61	35
Pacific	40	102	57	120	62	92	60	107	57	115

MEASLES CASE RATES

98 cities	897	1,379	[2] 889	1,351	906	1,309	[3] 663	1,218	737	1,026
New England	484	1,120	434	1,159	556	1,290	[4] 369	1,129	606	952
Middle Atlantic	186	2,261	196	2,281	194	2,192	183	2,170	169	1,771
East North Central	2,191	787	2,135	680	2,283	772	1,595	660	1,825	687
West North Central	1,548	941	[2] 1,714	1,121	1,440	943	1,032	755	1,059	597
South Atlantic	521	1,781	474	1,536	242	1,320	298	1,112	238	892
East South Central	41	814	68	968	27	743	54	596	41	435
West South Central	379	340	244	272	447	263	245	178	415	61
Mountain	296	1,143	183	1,152	313	833	[5] 254	992	192	735
Pacific	436	328	439	264	546	304	412	217	422	174

SCARLET FEVER CASE RATES

98 cities	291	254	[2] 291	253	269	233	[3] 271	209	209	193
New England	262	347	249	292	283	306	[4] 276	248	192	290
Middle Atlantic	209	285	219	279	196	263	196	201	135	191
East North Central	453	265	472	272	448	254	446	227	321	237
West North Central	277	243	[2] 284	280	208	207	179	233	165	164
South Atlantic	244	172	210	207	159	176	274	191	300	157
East South Central	129	126	102	77	136	84	122	365	95	49
West South Central	320	186	186	219	122	207	166	146	79	93
Mountain	52	115	104	133	113	18	[5] 103	71	78	106
Pacific	292	205	307	143	347	130	254	148	279	156

[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, 1929 and 1928, respectively.
[2] Fargo, N. Dak., not included.
[3] Pawtucket, R. I., and Pueblo, Colo., not included.
[4] Pawtucket, R. I., not included.
[5] Pueblo, Colo., not included.

Summary of weekly reports from cities, May 5 to June 8, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928—Continued

SMALLPOX CASE RATES

	Week ended—									
	May 11, 1929	May 12, 1928	May 18, 1929	May 19, 1928	May 25, 1929	May 26, 1928	June 1, 1929	June 2, 1928	June 8, 1929	June 9, 1928
98 cities	11	18	[3] 11	24	14	17	[3] 9	12	8	11
New England	2	0	0	0	7	9	[4] 0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	17	20	14	22	20	16	15	10	17	9
West North Central	27	43	[3] 16	65	15	27	15	29	12	22
South Atlantic	0	17	2	33	4	29	0	10	2	31
East South Central	27	63	14	42	27	63	7	56	14	35
West South Central	8	8	51	61	16	24	20	24	8	24
Mountain	26	159	148	159	35	133	[5] 56	53	52	71
Pacific	40	36	15	54	77	38	27	49	15	13

TYPHOID FEVER CASE RATES

98 cities	11	8	[3] 9	6	8	8	[3] 7	12	8	9
New England	11	5	9	7	7	11	[4] 2	57	7	2
Middle Atlantic	3	2	6	4	5	6	3	1	5	10
East North Central	6	3	3	2	3	5	3	3	3	7
West North Central	31	8	[3] 6	2	8	4	17	4	8	4
South Atlantic	15	21	17	6	15	6	19	17	17	11
East South Central	27	28	0	28	75	14	34	91	27	14
West South Central	55	16	67	4	12	12	20	32	28	32
Mountain	0	18	0	0	17	0	[5] 0	0	0	9
Pacific	7	31	7	23	10	36	2	18	12	10

INFLUENZA DEATH RATES

91 cities	10	34	[3] 8	30	10	26	[3] 7	21	7	18
New England	2	16	2	41	7	18	[4] 7	16	2	14
Middle Atlantic	8	31	8	28	8	21	4	24	5	19
East North Central	7	42	7	36	8	33	9	21	6	17
West North Central	3	64	[3] 0	28	15	18	3	21	3	21
South Atlantic	17	10	7	17	6	11	6	10	7	10
East South Central	37	107	30	84	44	130	0	38	22	77
West South Central	38	37	4	17	28	33	12	25	16	33
Mountain	26	27	17	27	9	53	[5] 19	44	35	0
Pacific	13	17	23	10	7	7	16	7	16	7

PNEUMONIA DEATH RATES

91 cities	110	219	[3] 106	196	116	181	[3] 106	147	91	130
New England	90	258	88	207	122	253	[4] 108	172	66	168
Middle Atlantic	123	268	114	219	129	212	113	183	105	148
East North Central	101	232	115	222	118	174	101	129	96	115
West North Central	105	181	[3] 73	132	123	126	120	89	81	95
South Atlantic	109	86	120	155	94	119	112	136	67	132
East South Central	148	245	89	261	104	253	111	153	59	161
West South Central	97	166	114	125	69	146	69	129	93	108
Mountain	87	133	113	97	139	124	[5] 122	106	61	89
Pacific	98	98	49	104	85	91	66	71	72	81

[3] Fargo, N. Dak., not included.
[4] Pawtucket, R. I., and Pueblo, Colo., not included.
[4] Pawtucket, R. I., not included.
[5] Pueblo, Colo., not included.

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

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

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended June 8, 1929.—The Department of Pensions and National Health reports cases of certain communicable diseases from eight Provinces of Canada for the week ended June 8, 1929, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Alberta	British Columbia	Total
Cerebrospinal fever		2			3			2	7
Dysentery	1								1
Influenza				3	4				7
Lethargic encephalitis						1			1
Poliomyelitis								1	1
Smallpox				5	15	6	8	2	36
Typhoid fever			1	12	22		2		37

Quebec Province—Communicable diseases—Week ended June 8, 1929.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the week ended June 8, 1929, as follows:

Disease	Cases	Disease	Cases
Chicken pox	70	Mumps	58
Diphtheria	37	Scarlet fever	128
German measles	22	Smallpox	5
Influenza	3	Tuberculosis	56
Lethargic encephalitis	1	Typhoid fever	12
Measles	112	Whooping cough	18

Quebec Province—Vital statistics—March, 1929.—Births, deaths, and marriages for the month of March, 1929, with deaths from certain diseases for the same month, are shown in the following table:

March, 1929	
Estimated population	2,891,000
Births	6,912
Birth rate per 1,000 population	30.2
Deaths	3,173
Death rate per 1,000 population	13.9
Infant mortality rate	124.4
Marriages	379
Deaths from—	
Cancer	145
Cerebrospinal meningitis	7
Diabetes	25
Diarrhea	106
Diphtheria	29
Heart disease	348

March, 1929—Continued	
Deaths from—Continued.	
Influenza	234
Lethargic encephalitis	2
Measles	10
Pneumonia	359
Poliomyelitis	1
Scarlet fever	19
Smallpox	0
Syphilis	10
Tuberculosis (pulmonary)	227
Tuberculosis (all other forms)	72
Typhoid fever	26
Violence	61
Whooping cough	11

Quebec Province—Vital statistics—Years 1926, 1927, and 1928.—The numbers of births, stillbirths, marriages, deaths, and maternal deaths, with rates, in the Province of Quebec, Canada, for the years 1926, 1927, and 1928, are given in the following table; also the deaths and death rates per 100,000 population for certain causes of death:

	1926		1927		1928	
	Total	Rate	Total	Rate	Total	Rate
Births	82,165	32.1	83,064	31.9	83,582	31.6
Still births [1]	1,914	2.3	2,114	2.5	2,321	2.8
Marriages	17,827	7.0	18,551	7.1	19,125	7.2
Deaths (total)	37,251	14.5	36,175	13.9	36,664	13.9
Deaths under 1 year [1]	11,666	142.0	10,739	129.3	10,216	122.2
Deaths (maternal) [1]	427	5.2	403	4.9	410	4.9
Deaths from—						
Cancer	1,840	71.8	1,909	73.3	2,005	75.7
Heart disease	2,879	112.4	2,873	110.3	3,050	115.2
Tuberculosis (all forms)	3,227	127.9	3,145	120.8	3,197	120.8
Violence	1,403	54.8	1,497	57.5	1,506	57.0

[1] The infant mortality rate and the maternal death rate are per 1,000 births, and the still birth rate is per 100 births. The birth and total death rates are per 1,000 population.

CANARY ISLANDS

Las Palmas—Vital statistics—March, 1929.—During the month of March, 1929, 195 births, 163 deaths, and 9 stillbirths were reported at Las Palmas, Canary Islands. Deaths from certain diseases during the month were as follows:

March, 1929

Disease	Deaths	Disease	Deaths
Cancer	1	Measles	13
Cirrhosis of the liver	3	Meningitis, simple	9
Diarrhea and enteritis	28	Pneumonia	20
Diarrhea under 2 years	2	Syphilis	7
Diphtheria and croup	3	Tuberculosis, pulmonary	13
Heart diseases	16	Tuberculosis, other forms	2

CHINA

Meningitis.—During the week ended June 8, 1929, 12 cases of meningitis and 10 deaths were reported at Canton, China. At Shanghai, during the week ended June 15, there were 4 admissions to the hospital and 7 deaths from meningitis.

ENGLAND AND WALES

Smallpox.—The following table shows the number of cases of smallpox reported in England and Wales by four-week periods for 1929, and for the corresponding periods of the years 1927 and 1928. During the four weeks ended January 26, 1929, the prevalence of smallpox was considerably lower than in the corresponding periods of the two

preceding years, but the number of cases reported increased with each four-week period until, during the four weeks ended May 18, 1929, the number of cases was but slightly lower than the number reported for the corresponding period of 1928, and higher than that reported for the corresponding period of 1927.

Cases of smallpox reported in England and Wales by 4-week periods

Four weeks ended—	1929	1928	1927
Jan. 26, 1929; Jan. 28, 1928; Jan. 29, 1927	811	1,448	2,177
Feb. 23, 1929; Feb. 25, 1928; Feb. 26, 1927	986	1,516	1,807
Mar. 23, 1929; Mar. 24, 1928; Mar. 26, 1927	1,151	1,413	1,775
Apr. 20, 1929; Apr. 21, 1928; Apr. 23, 1927	1,309	1,287	1,483
May 18, 1929; May 19, 1928; May 21, 1927	1,349	1,352	1,192
Total, 20 weeks	5,606	7,016	8,434

The following table shows the number of cases of smallpox reported in England and Wales during the years 1924–1928:

Cases of smallpox reported

Year	Cases	Year	Cases
1924	3,765	1927	14,767
1925	5,365	1928	12,433
1926	10,146		

JAMAICA

Communicable diseases—Four weeks ended May 25, 1929.—During the four weeks ended May 25, 1929, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the Island of Jamaica outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Chicken pox	5	39	Puerperal fever	----	2
Dysentery	2	4	Smallpox	----	1
Erysipelas	----	1	Tuberculosis (pulmonary)	48	48
Leprosy	----	1	Typhoid fever	31	100

PHILIPPINE ISLANDS

Meningitis.—During the week ended June 17, 1929, 1 case of meningitis occurred in a Province near Manila. The case was brought to the Manila hospital.

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

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

CHOLERA

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

Place		Nov. 18–Dec. 15, 1928	Dec. 16, 1928–Jan. 12, 1929	Jan. 13–Feb. 9, 1929	Feb. 10–Mar. 9, 1929	Week ended— March, 1929 16	23	30	April, 1929 6	13	20	27	May, 1929 4	11	18	25	June 1, 1929
Ceylon	C		7		4									2	1		
	D		4		4									2	1		
Colombo	C		3	2									1				
	D		1											1			
China: Canton	C		3			1	1	1		1		1	1	1			1
	D		1							1		1	1	1			
India	C	23,528	17,038	12,566	7,627	1,905	2,130	2,036	2,975	3,110	4,231						
	D	14,950	10,507	7,912	4,425	993	1,165	1,135	1,704	1,886	2,362						
Bassein	D	1		6	6	1	3	12	29	26	47	23	22	23	13		
Bombay	C	4		1		1		4	1		2	1					
	D	4			1			1	1					1			
Calcutta	C	247	103	129	261	108	155	154	135	154	184	172	278				
	D	155	61	85	144	56	83	79	89	96	97	109	159	175	156	171	
Madras	C	102	16	4	9									1			
	D	42	17	5	4												
Madras Presidency	C	1															
	D	1															
Moulmein	D	1			1	4	1	1	1		4	1	1		6	11	
Negapatam	C	1	6	18	3												
	D	1															
Rangoon	C	5	6	15	13	3	6	5	1	5	1	2					
	D	3	5	9	6	2	6	28	1	4	2	2	2	2	3	1	
Tuticorin	C	2	115	85	6												
	D		61	52	4												
India (French):																	
Chandernagor	C	25	4			1	1	1		1		2		1		1	
	D	10	4			1	1	1		1				1		1	
Karikal	C	7	54	150	88	14	6			3							
	D	4	41	128	71	12	3			3							
Pondicherry Province	C	37	92	139	86	30	12	4							1		1
	D	30	55	104	74	24	10	4							1		1
Indo-China (see also table below):																	
Pnompenh	C	1	6	2	42		2	3	1	3	8	3	1	5	3		6
	D	1	1	1	36		1	3	1	1	5	2	1	5	1		4

Saigon	C		6	6		2	5	5		3	3	3	4	17	15	20	19
	D		4	3			1		1	2	1	3	2	15	9	9	4
Kwangchow-Wan (see table below).																	
Siam	C	104	224	195	165	50	74	117	156	175	85	114	245	310	196		113
	D	68	150	138	117	33	59	73	104	119	61	83	138	193	136		107
Anthoang	C		4	1	3												
	D		1	1	2												
Ayudhaya	C	2	16	4	4			1		2		3	24	2			
	D	2	14	4	4			1		2	1	3	13				
Bangkok	C	18	22	50	61	10	14	3	11	15	16	41	39	66	36	20	9
	D	12	6	43	36	7	9	1	4	10	13	31	20	34	22	17	4
Charoengsao	C			9	1										1		
	D			9	1										1		
Dhannapuri	C	6	16	3	3					2			15				
	D	5	10	2	1					1			6				
Lobpuri	C		74		3					1							
	D		61		1					1							
Nagara Pathom	C				2								36		13		
	D				2								20		10		
Nondpuri	C	1	4														
	D	1	2														
Pradhumdham	C			1													
	D			1													
Singhapuri	C		17	6	1												
	D		12	7	1												
Smud Prakar	C	37	30	10	1												
	D	28	10	8													
Smud Sagara	C	34															
	D	16															
On vessel:																	
S. S. Ekma, at Penang from Singapore	C				P												
S. S. Erinpura, at Madras	C														2		
S.S. Media, at Colombo from Calcutta	C													1			
S. S. Saka Maru, at Calcutta	C													6			
S.S. Tilawa, at Penang from Singapore	C					P											
S. S. Elephanta, at Penang from Calcutta	C						P										

Place		November, 1928	December, 1928	January, 1929	February, 1929			March, 1929			April, 1929			May, 1929	
					1-10	11-20	21-28	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20
Indo-China (French) (see also table above):															
Annam	C	5							3	3		13	7	15	5
Cambodia	C	21	25	79	29	40			26	3		40	44	27	188
Cochin-China	C	156	697	660	107	115			13	170		51	37	81	42
Kwangchow-Wan	C	1													

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

PLAGUE

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

Place		Nov. 18–Dec. 15, 1928	Dec. 16, 1928–Jan. 12, 1929	Jan. 13–Feb. 9, 1929	Feb. 10–Mar. 9, 1929	Week ended— March, 1929 16	23	30	April, 1929 6	13	20	27	May, 1929 4	11	18	25	June, 1929 1	8
Argentina: [1]																		
Buenos Aires [2]	C							1	1				1					
	D							1	1									
Catamarca Province—Recreo	C	9																
Cordoba Province—Laborde	C		1															
Jujuy Province—Perico	C		1	3														
Rosario	C		2	1			[3] 20	11			3		2					
Tucuman Province—El Mollar	C	5																
Azores: St. Michaels Island	C		2	1			1											
Belgian Congo:																		
Djugu	C			1	4													
	D			1	1													
Lenza	C	1	1															
Brazil:																		
Para	C			1														
Porto Alegre	C											1						
Santos	C	2																
British East Africa (see also table below):																		
Uganda	C	124	155	152	112	18	20	34	58	59								
	D	121	152	149	108	17	19	31	57	57								
Canary Islands:																		
Teneriffe	C	1																
Laguna	C			1														
Ceylon:																		
Colombo	C	4	8	6	4		2	2		2	2	1		2	1	2		
	D	4	8	5	3				1	1	2	1		2	1	1		
Plague-infected rats		5		2	2	2				1								
China:																		
Hainan	C			P	1													
Suyuan Province	C			P	1													
Dutch East Indies:																		
Celebes—Makassar	D		1															
Plague-infected rats				1														

Java—																		
Batavia and West Java	C	43	54	74	70	21	17	13	13	14	20	14				5		
	D	42	53	73	69	21	16	14	14	14	20	14						
Plague-infected rats		1			4		2		3	5	3							
East Java and Madura	C					1	1		1									
	D					1	1		1									
Surabaya	C	1		6														
	D			6														
Kediri Residency	C			P														
Ecuador (see table below).																		
Egypt:																		
Alexandria	C			3										1				
	D			1														
Beni-Suef	C	4	9	3	4	2				1	5		1					3
	D	1	2	3	1	1	1				1		1					1
Daqahliya	C														3	4	2	1
Girga	C	1																
Kena Province	C	4																
Port Said	C											1	1	1		1	1	
Suez	C				1		1	1					1	1		1		1
Greece (see also table below):																		
Corfu	C	1																
India	C	7,767	7,841	12,600	16,570	4,259	3,682	3,833	4,237	2,434	2,069							
	D	4,863	5,234	9,815	12,064	3,021	3,247	2,835	3,489	1,915	1,646							
Bassein	D		1	4	3	1	2	2	1		2		1		2			
Bombay	C	4		2	4	1	3	2	2	3	2							
	D	6		4	4	1	3	1	1	3	1		1			1		
Plague-infected rats		32	35	38	38	9	17	18	13	18	20	26	17		23	9		
Cochin	D		10															
Madras Presidency	C	686	500	434	333	50	43	32	7	13	8	5						
	D	307	231	235	189	32	27	18	3	3	2	3						
Rangoon	C	1	1	4	4		3	5	4	5	4	2						
	D	1	2	5	4		3	3	3	6	4	2	3					
Plague-infected rats				5	11	2	2	6	5	3	1	2	4		2	2		
Indo-China (see also table below):																		
Pnompenh	C	4	8	10	5	3	2	4	1		3	5		1	4			
	D	4	6	9	3	3	2	4	1		3	5		1	2			
Saigon	C				1													
Tourane	C				5													
Iraq:																		
Baghdad	C	10	9	6	10	4	5	2		1	1	2	4	5	4	1	4	2
	D	5	8	3	3		2	1		1	1	2	3	2	3			
Plague-infected rats				6	22	3	2	2	7	2								
Diyalah Liwa	C									5	2							P
	D									4	3							
Naudham	C			2														1
	D			1														
Plague-infected rats				1														

[1] During the period from Nov. 10 to Dec. 11, 1928, 13 cases of plague were reported at El Mollar, Tucuman Province, Argentina. During the same period 1 case of plague was reported at Chipion and 1 at Ucacha, both in Cordoba Province, Argentina.

[2] 18 plague-infected rats were reported at Buenos Aires, Argentina, from July 1 to Dec. 31, 1928.

[3] Unofficial report.

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

PLAGUE—Continued

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

Place		Nov. 18–Dec. 15, 1928	Dec. 16, 1928–Jan. 12, 1929	Jan. 13–Feb. 9, 1929	Feb. 10–Mar. 9, 1929	Week ended— March, 1929			April, 1929				May, 1929				June, 1929	
						16	23	30	6	13	20	27	4	11	18	25	1	8
Japan: Osaka—Plague-infected rats															2			
Madagascar (see also table below):																		
Tamatave	C		2	1					1		1						P	
	D	1			2													
Morocco	C						22	59	25		19		12	4	6	29		
	D						14	43	16		12		4	1	3			
Nigeria:																		
Lagos	C	43	12	14	11	1	1	1	1	4	1	1	2		2			
	D	41	11	12	11	1	1	1	1	4	1	1	2		2			
Plague-infected rats		30	28	48	50	13		3	2			1						
Peru (see table below).																		
Senegal (see table below).																		
Siam	C	9	4	45	9		2	4	3	5	2	1	2		1			
	D	8	3	17	9		2	4	2	3	3	1	1					
Bangkok	C		4	1	1									1				
	D		1	2	1									1				
Nagara Pathom	C				3			4		1		1		3				
	D				2			4		1		1		2				
Panknampo	C	8																
Straits Settlements: Singapore	C				1							1						
	D				1							1						
Union of Socialist Soviet Republics:																		
Ural—Kirghiz	C																	P
Union of South Africa:																		
Cape Province	C	1	4					1		1			1					
Orange Free State	C		1	6	2	P	1	2		3	1							
	D			1				2			1							
Transvaal	C		3				5	3										
	D						5	3										
Uruguay:																		
Montevideo	C							4										
Rivera	C		1															

On vessel:																			
S. S. Bangkok, at Rotterdam, from Buenos Aires via Dakar (press report)	C															1			
S. S. Chenonceaux, at Singapore, from Colombo	C						1												
	D						1												
S. S. Ganzanmaru, at Osaka, from Haipong	C													1					
S. S. Halydan, at Bangkok, from Singapore	C		1																
S. S. Seiyomaru, at Osaka, from Bombay—Plague-infected rats														1					
S. S. Soudades, at Hamburg, from Rosario, Argentina—Plague-infected rats										2				1					
S. S. Sjomand, at Alexandria, from Batoum	C			1															
S. S. Sumatra, at Osaka, from Bombay	C										1			1					

Place		December, 1928	January, 1929	February, 1929	March 1929	April, 1929	May, 1929
British East Africa (see also table above):							
Kenya	C	15	7	4	10	1	
Uganda	C				121		
	D				113		
Ecuador: Guayaquil	C	20	25	54	20	19	
	D	7	12	22	4	5	
Plague-infected rats		75	29	27	14	13	
Greece (see also table above)	C	2	3	1		1	
	D	1	1				
Indo-China (see also table above)	C		11		3	13	
Madagascar (see also table above)	C	282	233	348	196		
	D	263	224	335	194		
Ambositra Province	C	79	169	164			
	D	74	159	164			
Antisirabe Province	C	4	15	21			
	D	4	15	21			
Itasy Province	C	11	3	10			
	D	11	3	10			
Moramanga Province	C	28	22	7			
	D	27	21	4			

Place		December, 1928	January, 1929	February, 1929	March, 1929	April, 1929	May, 1929
Madagascar—Continued.							
Tamatava	C	2	4				
	D	2	4				
Tananarive Province	C	158	208	146			
	D	144	192	136			
Peru	C	26	37		35		
	D	6	9		13		
Senegal:							
Baol [1]	C	4			6	1	21
	D	2			3	1	6
Cayor [1]	C	14					
	D	10					
Dakar [1]	C					6	17
	D					4	11
Thies [1]	C			8	4	20	6
	D			7	3	20	3
Tivaouane [1]	C			12			22
	D			2			10

[1] Reports incomplete.

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

SMALLPOX

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

Place		Dec. 16, 1928–Jan. 12, 1929	Jan. 13–Feb. 9, 1929	Feb. 10–Mar. 9, 1929	Week ended— March, 1929			April, 1929				May, 1929				June, 1929		
					16	23	30	6	13	20	27	4	11	18	25	1	8	15
Algeria:																		
Algiers	C							3		4		1	4			1		
Cherchell	C			21	11	19	12		1									
Oran	C			1		1			1	1				5				
Arabia: Aden	C	1	2		1	11	9	9	28	17	19	5	3	10	20	7		
	D					1	4	3	6	4	6	4	3	1	9	7		
Brazil (see also table below): Rio de Janeiro	C													1				
British East Africa (see also table below), Kenya—Mombasa	C	3																
British South Africa:																		
Northern Rhodesia	C	173																
	D	23																
Southern Rhodesia	C		1	17		68	1			13								
Tanganyika	C		13	3							1							
Canada:																		
Alberta	C	3	3	5			7			5		3						
Calgary	C			1								2						
Edmonton	C	14	2	2	2			10		4		1						
British Columbia—Vancouver	C	51	66	70	22	17	18	7	12	19	8	7		6	7	2		
Manitoba	C	23	21	15			3				1	1		2		4	6	
Winnipeg and vicinity	C	2																2
New Brunswick	C						3											
Nova Scotia	C	5	2						1									
Ontario	C	36	83	83	12	21	14	10	15	37	21	40		30	7	3		
Niagara Falls	C					1										3		
North Bay	C			4							2	1	1		7			
Ottawa	C			1														
Toronto	C		1			1		1	1									1
Windsor	C										3		3				1	
Prince Edward Island	C		2	2														
Quebec	C	37	24	28	4	3	2	5	11	8	11	4	3	3	3	3		
Montreal	C	8	10	16	3		1				3	1			1			
Quebec	C	4	8			1		2	1					1			2	
Riviere du Loup	C								1									

Saskatchewan	C	14	35	70		13				9	3	1		7		7		
Moose Jaw	C					1												
Regina	C	1	6															
Saskatoon	C		4			1												
China:																		
Amoy	C	5	P	5	1	1	1				2	2	1					
Canton	C	18	87	86	22	42	38	33	29	21	19	16	25		13	8	5	
	D	2	2	15	3	4	4	4	2	3	5	2	2		1	1	1	
Chefoo	C									P								
Foochow	C	P	P	P	P	P		P				P						
Hong Kong	C	319	307	189	26	31	22	13	21	16	11	5	8	10	5	6	2	
	D	152	286	246	51	47	29	10	39	36	15	7	6	8	4	7	2	
Manchuria—																		
Changshun	C		3	2					1									
Fushun	C		5															
Harbin	C	2	5					1	1	2	1							
Kwantung—Dairen	C		2	9				1	6	2	2		8	4	4	5		
	D		2	3					3		1			1	3	4		
Mukden	C	1	3					1										
	D		1															
Shanghai—																		
Foreigners only	C	23	23	11	1	1	1	1	1				2	2		2		2
Including natives	D	64	60	41	3	8	5	9	7	2	5	2	8	6	2			
Swatow	C			9	12	7	6	8	22	32	20	19	23	14	13			
Tientsin	C	6	3	2	2		2	4	2	1	2	1						
Tsingtao	C			P	P		P	P	P	P	P	P	P					
Yunnanfu	C				P	P	P	P	P									
Colombia: Cartagena	D			7														
Curacao (alastrim)	C									1								
Dominican Republic	C		1															
Dutch East Indies:																		
Balikpapan	C			1	1	4					3			1	2			
Belawan Deli	C	7	26	9	2	2	2	1	1		3							
	D	3	6	6		1	1											
Borneo	C		30	26														
Samarinda	C	11	4	47	1			1		1								
	D	3		4		3												
Celebes—Makassar	C						4	2	6	9	10	14	16	11	9	7		
	D							2	5	4	7	9	9	10	8	6		
Sumatra—																		
Baros	C	96	106	36		9		7										
	D	30	26	5				2										
Medan	C	9	11	9	2	2	2	1	1			1	1					
	D	5	5	6	1	1	1						1					
Palembang	C			9														
	D			2														
Ecuador (see table below).																		
Egypt:																		
Gharbieh	C			1														
Port Said	C		1							1								
Suez	C									1	4							
France (see table below).																		

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

SMALLPOX—Continued

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

Place		Dec. 16, 1928–Jan. 12, 1929	Jan. 13–Feb. 9, 1929	Feb. 10–Mar. 9, 1929	Week ended— March, 1929			April, 1929				May, 1929				June, 1929		
					16	23	30	6	13	20	27	4	11	18	25	1	8	15
Great Britain:																		
England and Wales	C	733	890	1,083	272	288	323	273	339	374	354	356	277	362	298	242		
Birmingham	C									1					1			
Bradford	C		1	2		3				1				2	2			
Bristol	C		1															
Cardiff	C		4					1	1							4		
Castleford	C	16	48	85	13	17	17	9	5	14	5	7		5	5	2		
Hull	C		2															
Leeds	C	1	3	6	1	3	3	1	1	1	1							
Liverpool	C		1					1										
London	C	36	40	54	11	13	19	15	29	49	56	67	50	52	53	38		
London and Great Towns	C		433	425	123	131	193	151	206	250	203	229	159	196	171	128		
	D	1			2			1	1	2	2	1	1	1	1			
Newcastle-on-Tyne	C		6	6	2			14	1			2	1	10	14			
Nottingham	C	3	1		2													
Stoke-on-Trent	C	4	14	18	4	28	20	20	42	30	27	34	12	41	18			
Scotland—																		
Aberdeen	C									1	1							
Glasgow	C							1	12	6	1		1					
Greece (see table below).																		
Hedjaz	C	48	153	108		24	30	30	23	22	13	9	23		7	10	23	
	D	15	56	40		10	21	21	16	14	10	12	13		4	7	11	
Honduras: Puerto Castilla	C													1				
India	C	7,877	12,531	14,890	4,205	4,310	5,174	5,431	5,694	5,169								
	D	2,143	3,045	3,285	873	990	955	1,165	1,291	1,106								
Bombay	C	34	158	397	142	119	94	86	104	57	85	69	54	70	34	50		
	D	21	78	188	58	52	51	45	46	30	48	51	30	46	22	33		
Calcutta	C	10	32	104	35	32	22	28	34	24	25	18	5	16		13		
	D	6	16	29	24	21	13	19	26	16	16	16	5	16		10		
Karachi	C	6	5	147	43	57	58	48	29	57	33	25	23	22	17	22		
	D		223	14	14	13	10	33	8	22	17	12	15	11	12	21		
Madras	C	94	35	260	88	96	104	104	107	87	70	63	60	53	37	24		
	D	25	6	61	11	23	23	26	20	26	22	16	14	23	11	13		
Moulmein	C	3	2	14	5	3	5	5		1	3	3		3	2			
	D	1		4	2		1	1		1	3	2		2	2			

Negapatam	C	8	26	5	4	3		2	1		3	3		1		1		
	D		6	4				1										
Rangoon	C	1	8	17	3	2	4	4	3	2	1	1						
	D		1	6	1	2		3	1		1	1		1				
Tuticorin	C		2	1							1							
Vizagapatam	C	2	8	52	8	3	15		9	4	11	4		1	1			
	D			9	1	2	2		1	4		3						
India (French):																		
Karikal	C				1			1			1	1	2					
	D				1			1			1	1	2					
Pondicherry Province	C	75	59	79	6	21	23	20	21	11	12	16	15	8				
	D	62	51	61	6	17	18	19	19	8	11	13	13	6				
Indo-China (see also table below):																		
Pnompenh	C	38	77	62	13	19	27	9	9	19	9	3	6	8	7	1		
	D	21	42	36	5	10	14	4	5	13	4	2	4	4	4			
Saigon	C	12	5	2		1		1	1			1		1				
	D	6	1											1				
Iraq:																		
Baghdad	C	20	17	7	2	3		1	2	1	1	2			1	2		1
	D	29	3	5		1												
Basra	C	11	18	7	2	1	1	5	2	1	3	2	2	1	3	2	8	
	D	7	10	5			1	1		1	3	2	1		4	3	1	
Diyalah Liwa	C												48					
	D												13					
Hillah Liwa	C	54	20															
	D	14	9															
Kirkuk Liwa	C	86		18														
	D	17		4														
Mossoul	C	55	30	28														
	D	39	17	4														
Sinjar	C	53	61															
	D	5	15															
Italy:																		
Palermo	C	3																
Rome and vicinity	C	1	2															
Turin	C			1														
Ivory Coast (see table below).																		
Jamaica (outside Kingston) (alastrim)	C	1								1			1					
Japan:																		
Kobe	C			1														
Nagasaki	C		3															
	D		2															
Osaka	C			1										1				
Shimane Province	C						16			3								
Tokyo	C												1					
Macao	D	9	24	75	6	3	14	9	9	6	3	2	2	2				
Mexico:																		
Acapulco	C											1		1				
	D											1		1				
Aguascalientes	D	1	3	3		2		5	1	6		2		2	1	3	5	
Chiapas Province	C						P											
Chihuahua	D		1															
Jalisco (State): Guadalajara	D	1	8	8		2	4	7	3	1	5	3	3	3	3	6	3	

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

SMALLPOX—Continued

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

Place		Dec. 16, 1928-Jan. 12, 1929	Jan. 13-Feb. 9, 1929	Feb. 10-Mar. 9, 1929	Week ended— March, 1929			April, 1929				May, 1929				June, 1929		
					16	23	30	6	13	20	27	4	11	18	25	1	8	15
Mexico—Continued.																		
Juarez	D	5	1	1	3													
Mexico City and surrounding territory	C	7	2	2	1													
Oaxaca—Zacatepec	C									P								
Palomas	C			1														
Tampico	C			1		2												
Vera Cruz	D					2												
Morocco (see table below).																		
Nicaragua: Managua	C								P									
Nigeria:																		
Lagos	C				1					1								
Southern Provinces	C		162															
	D		31															
Norway: Stavanger	C								2									
Palestine	C															1		
Panama Canal Zone	C						P											
Poland	C	1	41						2		4			1				
	D		3															
Portugal:																		
Lisbon	C	2	4		3				2		2					1		
Oporto	C						1			1		1						
Senegal (see table below).																		
Siam	C	19	2	4						1	7	47						
	D	2									2	6						
Somaliland, British: Boales	C																	5
Spain: Valencia	C			2		4	1											
Straits Settlements: Singapore	C	1	5	3			1											
Sudan (Anglo-Egyptian)	C	491	265	188	30	22	37	156	127	138	12	100	162	264	309	835	228	243
	D	57	34	54	6	2	6	15	17	3	3	3	5	48	28	51	40	60
Sudan (French) (see table below).																		
Syria (see table below).																		
Tunisia: Tunis	C	14		5						2								
Union of Socialist Soviet Republics:																		
Vladivostok	C															2		
Union of South Africa:																		
Cape Province	C									P	P	P						

Natal	C	1																
Transvaal	C							P	P	P	P	P						
Upper Volta	C		3	4			3	1	7		8		2					
On vessel:																		
S. S. Assyria, at Suez, from Bombay	C												1					
S. S. City of Venice, at Suez, from Calcutta	C													1				
S. S. Fern, at Port Said, from Abadan	C														P			
S. S. Le Panto, at Suez, Egypt	C											4						
S. S. Lopez-Lopez, at Suez	C								1									
S. S. Malwa, at Suez	C									1								
S. S. Mancar, at Suez, from Calcutta	C								1									
Tantalus (motor ship), at Amsterdam	C			3														
S. S. Tuscania, at Glasgow, from Bombay	C							P										

Place		November, 1928	December, 1928	January, 1929	February, 1929			March, 1929			April, 1929			May, 1929	
					1-10	11-20	21-28	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20
Indo-China (see also table above)	C	144	243	311	128	236			200	361	500	100	155	343	67
Ivory Coast	C									4					
Senegal	C				80			17	8	45	50	7			1
	D				8			1	3	7	15				
Sudan (French)	C		2						26		10	9	64	2	
	D								3						
Syria: Beirut	C	2	1	1	21	24	3		10	2	2	16		4	

Place		November, 1928	December, 1928	January, 1929	February, 1929	March, 1929	April, 1929
Angola	C			1			
Brazil: Porto Alegre	C	3					
British East Africa (see also table above):							
Kenya	C	37	31			23	1
Chosen: Chinampo	C				1		
Ecuador: Guayaquil	C	6	13	12	4	2	2
	D	1	1	1	1		

Place		November, 1928	December, 1928	January, 1929	February, 1929	March, 1929	April, 1929
France	C		18	9	3	5	
Greece	C	6	6	8	5	2	4
	D			1	1		
Morocco	C	2		7	11	8	12
Persia	D		119	68	23	8	
Turkey	C			16	7		1
	D			6			

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

TYPHUS FEVER

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

Place		Nov. 18–Dec. 15, 1928	Dec. 16, 1928–Jan. 12, 1929	Jan. 13–Feb. 9, 1929	Feb. 10–Mar. 9, 1929	Week ended— March, 1929 16	23	30	April, 1929 6	13	20	27	May, 1929 4	11	18	25	June 1, 1929
Algeria:																	
Algiers	C					3	1		2	4	2	3	2	1			
Constantine Department	C			2	13	P	2										2
Oran	C			5	2						2	1	5		12		2
Bulgaria	C	9	5	7	39	7	18	10	5	5	16	7		10	7		
	D				2	1	3		1	1	1			1			
Sofia	C			1													
Chile: Valparaiso	C	1															
China:																	
Canton	C			2													
	D			2													
Hong Kong	C			1													
Manchuria—																	
Harbin	C	2					1										
Kwantung	C				1												
Chosen (see table below).																	
Czechoslovakia (see table below).																	
Egypt:																	
Alexandria	C					1						1					
	D													1			
Assouan Province	C				2												
	D				2												
Beheira Province	C				13				67	50				23	84	52	
	D								9	9					18	6	
Daqahliya Province	C	15	11			34											
	D	1	2														
Gharbieh	C			1	2												
	D				1												
Menoufieh Province	C										35						
Port Said	C														1	1	
Greece (see table below).																	
Ireland (Irish Free State):																	
Cavan County—Carrickmacross	C													1			
Cork County	C				1												

Donegal County—Inishower	C												1				
Dublin	C			1													
	D			1													
Kerry County—																	
Dingle	C					2						1	1				
Killarney	C				1					2							
Lithuania (see table below).																	
Mexico (see also table below):																	
Aguascalientes	D	2				3		2									
Chihuahua	D		1														
Mexico City, including municipalities in Federal District	C	12	9	11	7	1	1	2		3			1			5	
	D	1	2	3	2					1						1	
San Luis Potosi	D		1														
Morocco	C	16	4	20	17	7		6	6		8	8	12		1		
	D												4				
Norway: Oslo	C													2			
Palestine	C	12	2	3				2		1					2		
Poland	C	117	203	222	202	91	55	69	80	67	79	88	80	85	80	56	
	D	11	16	15	18	5	3	7	5	2	3	7	13	7	8	3	
Portugal: Oporto	C	1															
Rumania	C	42	167	173	211	62	60	49	49		27	52	56				
	D	1	11	23	28	7	5	9	9		3	2	11				
Tunisia	C	6		2	3	9		9	2	7	2	8	2	1	1	1	19
Turkey (see table below).																	
Union of South Africa:																	
Cape Province	C	P	P	P	P	P	P	P	P	P	P	P	P				
Natal	C	P	2		2	P	P		P		P	P	P				
Orange Free State	C	P	P	P	P						P	P	P		P		
Transvaal	C		P	1					P	P	P						
Yugoslavia (see table below).																	

Place		December, 1928	January, 1929	February, 1929	March, 1929	April, 1929	May, 1929
Chosen: Seoul	C	3			3		
Czechoslovakia	C		6	7	41		
	D			1	1		
Greece: Athens	C	1	13	4	4		
	D		5				
Indo-China: Tonkin	C					2	
Latvia	C				1		
Lithuania	C	11	32	24	62	101	63
	D		3	3	1	7	5

Place		December, 1928	January, 1929	February, 1929	March, 1929	April, 1929	May, 1929
Mexico (see also table above):							
Sonora	D		1				
Turkey	C	19	1	3	11	3	
	D			1			
Yugoslavia	C	7	15	13	7		
	D			2			

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

YELLOW FEVER

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

Place		Dec. 16, 1928–Jan. 12, 1929	Jan. 13–Feb. 9, 1929	Feb. 10–Mar. 9, 1929	Week ended— March, 1929			April, 1929				May, 1929				June, 1929		
					16	23	30	6	13	20	27	4	11	18	25	1	8	15
Belgian Congo: Tumba	C										1							
Brazil:																		
Bahia	C	2					1											
	D	1					1											
Guaratingueta	C			[1] 1														
	D			[1] 1														
Para	D	2	1					5										
Pernambuco	C							4										
Porto Alegre	D																	
Rio de Janeiro [2]	C	2	16	92	66	59	61	66	57	51	39	33	[1] 1 24	22	17	7	8	2
	D	2	17	67	32	30	38	32	34	23	20	17	18	11	6	3	3	
Sao Paulo	C		1															
	D		1															
Liberia: Monrovia	C		3	7	1	3	3	3	2									
	D		2	4	1		2	1										
On vessel:																		
S. S. Skogland, at Porto Alegre, from Rio de Janeiro	C												1					
S. S. Victoria, at Manaos, from Para, Brazil	C	1																
	D	1																

[1] Imported.
[2] 29 cases of yellow fever with 14 deaths were reported at Rio de Janeiro during January, 1929, mostly suburban.