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CURRENT PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES¹

April 26–May 23, 1931

The prevalence of certain important communicable diseases, as indicated by weekly telegraphic reports from State health departments to the Public Health Service, is summarized in this report. The underlying statistical data are published weekly in the Public Health Reports under the section entitled "Prevalence of Disease."

Meningococcus meningitis.—A decrease in the incidence of meningococcus meningitis was apparent in all geographic regions during the 4-week period ended May 23. The number of cases reported (573) was 71 per cent of the number reported in 1930, and only about 50 per cent of the number in 1929 for the corresponding period.

A possible exception to the favorable picture is seen in the South Atlantic States, where the number of cases for the current period is 33 per cent in excess of the number for the corresponding period of last year. This unfavorable comparison with last year is the result of a building-up process which has covered a period of several months, as is shown by the last line in the following table:

Cases of meningococcus meningitis reported from South Atlantic States

	4-week period ended—				
	Jan. 31	Feb. 28	Mar. 28	Apr. 23	May 23
Cases during period in:					
1931.....	46	75	68	64	60
1930.....	69	106	81	62	45
Ratio of 1931 cases to 1930 cases.....	0.67	0.71	0.84	1.03	1.33

The numbers involved are small, and meningitis is somewhat erratic in its movements, hence no forecast would be warranted at this time. Nevertheless the situation merits watching, not because of the immediate prospect, but because of possible developments next autumn and winter.

Poliomyelitis.—During recent months the poliomyelitis situation has been decidedly more favorable in relation to the preceding year than was the case last autumn. During the 4-week period ended May 23 the reported number of cases (87) was below the figure for the preceding year (93) for the first time in a year. In other words,

¹ From the Office of Statistical Investigations, U. S. Public Health Service. The number of States included for the various diseases are as follows: Typhoid fever, 47; poliomyelitis, 48; meningococcus meningitis, 48; smallpox, 48; measles, 45; diphtheria, 47; scarlet fever, 47; influenza, 39 States and New York City. The District of Columbia is counted as a State in these reports.

the epidemic wave appears to be on the wane, although a normal seasonal rise during the coming warm months is to be expected.

The West North Central group of States are a possible exception to the general favorable picture, 19 cases having been reported in this section during the last eight weeks as compared with 2 for the period last year. It is difficult to interpret these figures, however, as that region reported a very abnormal incidence in 1930, the number of cases actually having dropped to zero in the period ended April 21, 1930, six months before the crest of a heavy epidemic.

Scarlet fever.—The reported number of cases of scarlet fever (21,399) was about 35 per cent in excess of that for last year. In New England and in the Great Lakes region the excess approximated 40 per cent. This appears to have been a scarlet fever winter in all regions except the Mountain and Pacific.

Smallpox.—The current reported incidence of smallpox (3,423 cases) is about 62 per cent of last year's number. All regions share in this favorable comparison except the South Central States, which are about on a par with last year.

The reported attack rates show wide differences. Whereas the rate for the reporting area as a whole was 28 per million population, the individual regions rank as follows:

Reported cases per million population

West North Central.....	75.8
East and West South Central.....	41.3
East North Central.....	40.8
Mountain and Pacific.....	29.5
South Atlantic.....	3.0
New England and Middle Atlantic.....	1.1

Within the individual regions, there are wide variations also.

Typhoid fever.—The reported incidence of typhoid fever (717 cases) was less than in the corresponding period of either of the last two years.

Influenza.—The influenza outbreak of last winter and spring has largely abated in most regions, although the current reports (3,983 cases) are still 24 per cent in excess of last year's experience. New England has declined to 0.6 of last year's level, but the remaining regions, particularly the West North Central group, still show signs of an excess.

Diphtheria.—For the country as a whole, the present year continues to maintain record breaking lows in diphtheria incidence. The number of reported cases (3,475) is about 86 per cent of last year's figure. The South Central and far Western groups, however, show excesses over last year of 18 per cent and 31 per cent, respectively.

Mortality, all causes.—The mortality in large cities reporting to the Census Bureau averaged 11.9 per thousand population, annual basis, as compared with 12.5 for the corresponding period last year.

ROCKY MOUNTAIN SPOTTED FEVER (EASTERN TYPE)

TRANSMISSION BY THE AMERICAN DOG TICK (*Dermacentor variabilis*)

By R. E. DYER, *Surgeon*, L. F. BADGER and A. RUMREICH, *Passed Assistant Surgeons, United States Public Health Service*

A disease occurring in certain sections of the Eastern States has recently been described by the authors. The clinical similarity of this disease to Rocky Mountain spotted fever and its differentiation from endemic typhus, both clinically and epidemiologically, were pointed out (1). Immunologically, in animals, this disease is indistinguishable from Rocky Mountain spotted fever and distinct from both European and endemic typhus (Brill's disease). However, certain variations have been noted in animals inoculated with the virus of the disease recently described for the Eastern States when compared with animals inoculated with a strain of Rocky Mountain spotted fever obtained from Montana. In general, these differences apparently indicate that the eastern type virus is somewhat less virulent than the western type virus with which it has been compared (2). With these differences in mind, it seems necessary at the present time to refer to the disease as noted in the East as the *eastern* type of Rocky Mountain spotted fever in contrast to the *western* type of the disease.

In 1902 Wilson and Chowning (3) (4) suggested that the spotted fever of Montana might be transmitted by the wood tick. In 1906 Ricketts (5) began the studies which definitely established the part played by the tick in the transmission of spotted fever. King (6), independently, transmitted the disease to guinea pigs by the bite of ticks. In 1908 McCalla (7) published the results of an experiment performed by Doctor Brereton and himself in Boise, Idaho, in 1905. He removed a tick from a spotted-fever patient and produced the disease in two volunteers by permitting the tick to feed upon them.

In 1907 Ricketts (8) allowed ticks (*Dermacentor andersoni*) in the nymphal stage to feed on guinea pigs infected with spotted fever. After moulting to the adult had taken place, these ticks were fed on noninfected guinea pigs, which developed spotted fever. In a subsequent publication Ricketts (9) showed that the tick *D. andersoni* may receive its infection in the larval stage and remain infective through the nymphal stage, and that the virus may also be transmitted by an infected female to her larvæ through the egg.

Ricketts's observations were of especial importance, since in nature it is probably very unusual for this tick to feed on more than one host in each stage of its existence. To be of importance in the transmission of spotted fever from animal to animal in nature, or from animal to man, the tick must receive its infection in one stage and transmit it in some subsequent stage or stages.

In 1909, Ricketts (10) reported the successful transmission of spotted fever by *Dermacentor modestus* and, in 1911, Maver (11) reported the transmission of the disease by the American dog tick, *Dermacentor variabilis*. In Maver's experiments the ticks were infected in the larval stage and transmitted the disease in the nymphal stage and later in the adult stage. She also showed that *Dermacentor marginatus* and *Amblyomma americanum* could be infected in the larval stage and later transmit the infection in the nymphal stage.

As a part of the studies on the spotted fever type of infection reported by the authors (1) (2) as occurring in the eastern part of the United States, attempts have been made to transmit this type of the disease by the American dog tick (*Dermacentor variabilis*). This tick has a wide distribution in the eastern part of the United States and is the common tick in the areas where the eastern type of spotted fever has been found.

Larvæ from one female tick (*Dermacentor variabilis*) were fed on a guinea pig (H-70) which had been inoculated with virus from the H strain isolated from a human case of the eastern type of spotted fever (2). The original female tick from which these larvæ were derived was secured, already engorged, from a section of northern Virginia where spotted fever (eastern type) was known to be present. Since all of the larvæ from this tick were fed on the infected guinea pig it can not be stated definitely that this tick was not already infected when found. Guinea pig H-70 developed a febrile reaction on the day the larvæ were applied and died eight days later. The engorged larvæ recovered from guinea pig H-70 were stored to await moulting. Approximately one month after moulting from larvæ the nymphs were placed for feeding on a fresh guinea pig. This guinea pig developed a febrile reaction three days after the nymphs were attached and died eight days later. Four engorged nymphs were taken after dropping from this guinea pig, emulsified in 4 cubic centimeters of normal saline, and 2 cubic centimeters of the emulsion injected into each of two fresh guinea pigs. One of these guinea pigs developed a fever in 24 hours and died four days after inoculation. The second guinea pig developed a febrile reaction 48 hours after receiving the inoculation of nymph emulsion. On the third day of fever this animal was killed and heart's blood and brain emulsion were used to inoculate fresh guinea pigs. The strain of virus thus established has been continued in guinea pigs and is at present in its nineteenth "generation."

The reaction of guinea pigs to this tick-passage virus is apparently identical with the reaction noted in guinea pigs after inoculation with the original eastern type virus isolated from human blood and maintained in guinea pigs and monkeys.

This original virus will be referred to as *guinea pig-passage virus*. Brains from 13 "tick-passage" strain guinea pigs have been examined

microscopically. Two showed no lesions; in five, a few lesions of rather indefinite character were present; while in the remaining six, definite lesions were demonstrated which were described by Passed Asst. Surg. R. D. Lillie as follows:

Guinea pig 1490

Brain: Dense lymphocyte infiltration in sheaths of many vessels in pons, cerebellum, medulla, midbrain, cerebrum including basal ganglia and hippocampus, and thalamus. Many small compact foci of cellular gliosis, often paravascular, in pons, cerebellum, medulla, midbrain, thalamus, basal ganglia, and cerebral cortex. Vessels with adventitial infiltration are often partly occluded by endothelial swelling.

Lesions are most numerous in pons and cerebellum, least in the parietal cortex, and hippocampus and thalamus.

Guinea pig 1513

Brain: Pericapillary adventitial lymphocyte infiltration and fibroblast proliferation and foci of cellular gliosis are numerous in pons and cerebellum, somewhat less frequent in other parts of the brain. Moderate meningeal round cell infiltration and considerable diffuse cellular degeneration are seen.

Guinea pig 1689

Brain: Cerebellum and pons show slight lymphocyte infiltration in sheaths of several small vessels, more marked infiltration about vessels in pia and three small compact focal cellular glioses are seen. Other areas show no intracerebral lesions.

Guinea pig 1817

Brain: Numerous typical small and medium sized focal glioses and many capillaries with adventitial proliferation or lymphocyte infiltration in cerebellum and pons, few in medulla, thalamus, cerebral cortex, and midbrain, none in basal ganglia. Scanty lymphocytes in pia.

Guinea pig 1841

Brain: Two capillaries in basal part of frontal cortex show a layer of lymphocytes in their sheaths, one with a small paravascular gliotic focus; two capillaries in the thalamus show one to two layers of lymphocytes in their sheaths; one similarly mantled capillary and one focal gliosis in the midbrain.

Guinea pig 1842

Brain: A typical small focal cellular gliosis is seen in the pons, a capillary with endothelial proliferation and marked narrowing of the lumen, adventitial fibroblast proliferation and slight lymphocyte infiltration and a paravascular cellular gliotic focus in the molecular layer of the cerebellar cortex. Adventitial lymphocyte infiltration in the sheath of a capillary in the medulla, a small focal gliosis in the white substance of the upper cervical cord, a few lymphocytes in the sheath of a midbrain capillary, a small focal gliosis in the temporal cortex, lymphocyte infiltration in the sheaths of a small vessel in the parietal cortex, of two in the corpora striata and of two in the frontal cortex, and slight patchy lymphocyte infiltration and pericapillary fibroblast proliferation in the pia, most marked over the sides of the cerebellum, scanty elsewhere.

Monkeys (*Macacus rhesus*) inoculated with tick-passage virus have developed the disease, and the virus has been recovered from two of these monkeys and reestablished in guinea pigs. The febrile reactions of four monkeys following inoculation with tick-passage virus are shown in Charts 5, 6, and 7 (monkeys 384, 389, 382, and 426). The development of agglutinins for *B. proteus* X₁₉ (type 0) by these mon-

keys is shown in Table 1. Two of the monkeys developed rashes, limited to the face in both instances. In one, the rash was macular, while in the second the rash was petechial, being especially prominent on the eyelids. Histological examination, by Passed Assistant Surgeon Lillie, of sections of the skin showing the petechial rash revealed the following:

Monkey 389:

Skin: Numerous capillaries show adventitial lymphocyte infiltration and fibroblast proliferation. Thrombosis, endothelial necrosis and pericapillary hemorrhage are absent. Spindle-shaped finely granular mast cells are often seen in the zones of adventitial proliferation and elsewhere.

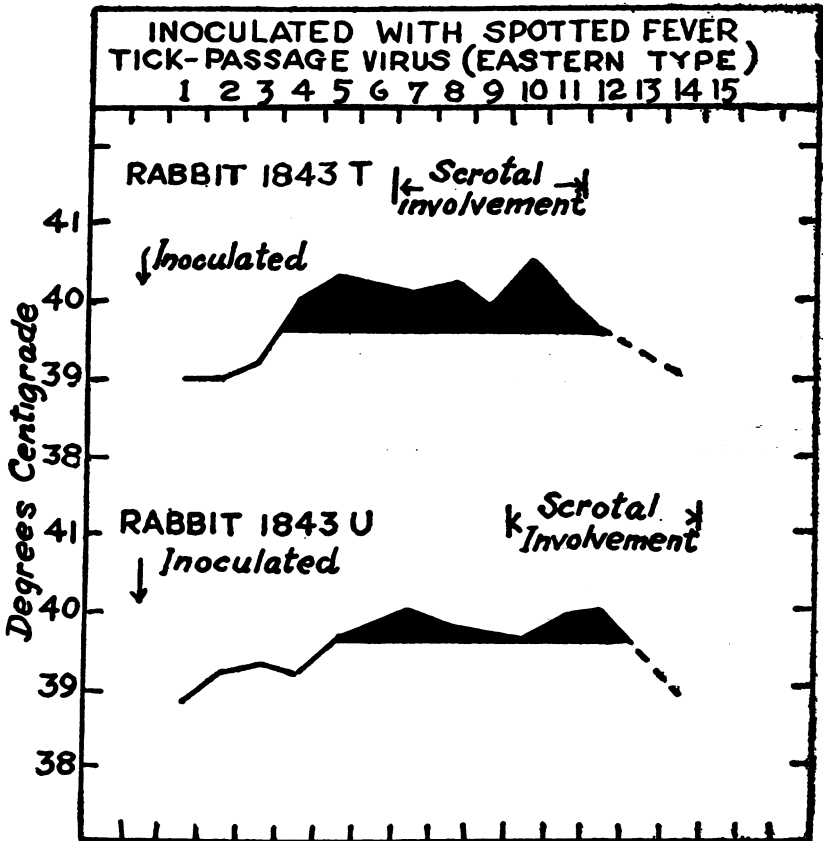


CHART 1.—Daily temperature records

Two rabbits inoculated with the tick-passaged virus developed febrile reactions shown in Chart 1. Both of these rabbits showed involvement of the scrotum to the extent of redness and swelling. The process in the scrotum did not proceed to ulceration and sloughing as noted in rabbits following inoculation with the guinea pig-passage virus (2).

The agglutinin response for *proteus* X₁₀ (type 0) of the sera of these rabbits is shown in Table 1.

TABLE 1.—*Agglutination of proteus X₁₉ (type O) by sera from monkeys and rabbits which had been inoculated with spotted fever, eastern type, tick-passaage virus*

Animal	Day after inoculation	Serum dilutions ¹							
		10	20	40	80	160	320	640	1280
Monkey 382.....	0.....	3	3	2	1	0	0	0	0
	Sixth.....	0	2	3	3	1	0	0	0
	Thirteenth.....	0	0	3	4	4	2	0	0
	Twentieth.....	0	1	4	4	4	3	2	0
	Twenty-seventh.....	2	3	4	4	4	2	0	0
	Thirty-fourth.....	3	4	4	3	2	0	0	0
Monkey 384.....	0.....	2	0	0	0	0	0	0	0
	Sixth.....	0	0	0	0	0	0	0	0
	Eleventh.....	3	4	3	2	0	0	0	0
	Seventeenth.....	4	4	4	4	2	1	0	0
	Twenty-third.....	3	4	4	2	1	0	0	0
	Thirtieth.....	2	2	2	1	0	0	0	0
	Forty-fourth.....	3	2	2	0	0	0	0	0
	0.....	3	3	2	0	0	0	0	0
Monkey 389.....	Seventh.....	3	3	2	1	0	0	0	0
	Seventeenth.....	4	4	4	4	4	4	4	2
	Twenty-ninth.....	3	4	4	4	4	3	2	0
	Forty-first.....	4	4	4	3	0	0	0	0
	Sixty-ninth.....	2	2	2	0	0	0	0	0
	0.....	3	3	3	2	1	0	0	0
Monkey 426.....	Sixth.....	3	3	2	2	1	1	0	0
	Thirteenth.....	4	4	4	2	0	0	0	0
	Twentieth.....	3	4	4	4	4	1	0	0
	Twenty-seventh.....	3	4	4	4	4	1	0	0
	Thirty-fourth.....	2	2	1	0	0	0	0	0
	0.....	0	0	0	0	0	0	0	0
Rabbit 1843-T.....	Seventh.....	0	0	0	0	0	0	0	0
	Fourteenth.....	4	4	3	0	0	0	0	0
	Twenty-first.....	4	4	2	0	0	0	0	0
	Twenty-eighth.....	4	3	2	0	0	0	0	0
	0.....	2	0	0	0	0	0	0	0
Rabbit 1843-U.....	Seventh.....	0	0	0	0	0	0	0	0
	Fourteenth.....	0	0	0	0	0	0	0	0
	Twenty-first.....	0	0	0	0	0	0	0	0
	Twenty-eighth.....	1	0	0	0	0	0	0	0
	0.....	1	0	0	0	0	0	0	0

¹4=complete agglutination; 3=incomplete; 2=partial; 1=trace.

CROSS IMMUNITY TESTS

Guinea pigs which had developed febrile reactions following inoculation with tick-passaage virus were subsequently found to be immune to the spotted fever (eastern type) guinea pig-passaage virus. Similar guinea pigs were found to be immune to a strain of the western type of spotted fever obtained from Montana. Two guinea pigs inoculated with vaccine prepared in Montana, from western spotted fever virus (12), and subsequently found immune to spotted fever (eastern type) guinea pig-passaage virus, were later found to be immune when inoculated with the tick-passaage virus. In each immunity test fresh animals were used as controls. Results of these tests are shown in Charts 2, 3, and 4.

Two of the four monkeys inoculated with spotted fever tick-passaage virus (eastern type) have been tested for immunity to the western type of spotted fever. One of these monkeys (389) was inoculated with tick-passaage virus from a guinea pig in the eighth generation from the tick, while a guinea pig in the ninth generation was used as a source of virus for the second monkey (384). Both of these monkeys were tested separately for immunity to the western type of

spotted fever. Their immunity is shown in Charts 5 and 6. Control monkeys are shown in both charts. At the time monkey 384 was tested for immunity to the western type virus a second monkey (387) was also tested and found immune. Monkey 387 had previously reacted to an injection of spotted fever (eastern type) guinea pig-passage virus. The temperature record for this monkey is also shown in Chart 6.

Two monkeys (347 and 348) and two guinea pigs (T-72 and T-81) inoculated with the eastern type guinea pig-passage virus were subsequently tested for immunity to the eastern type tick-passage virus.

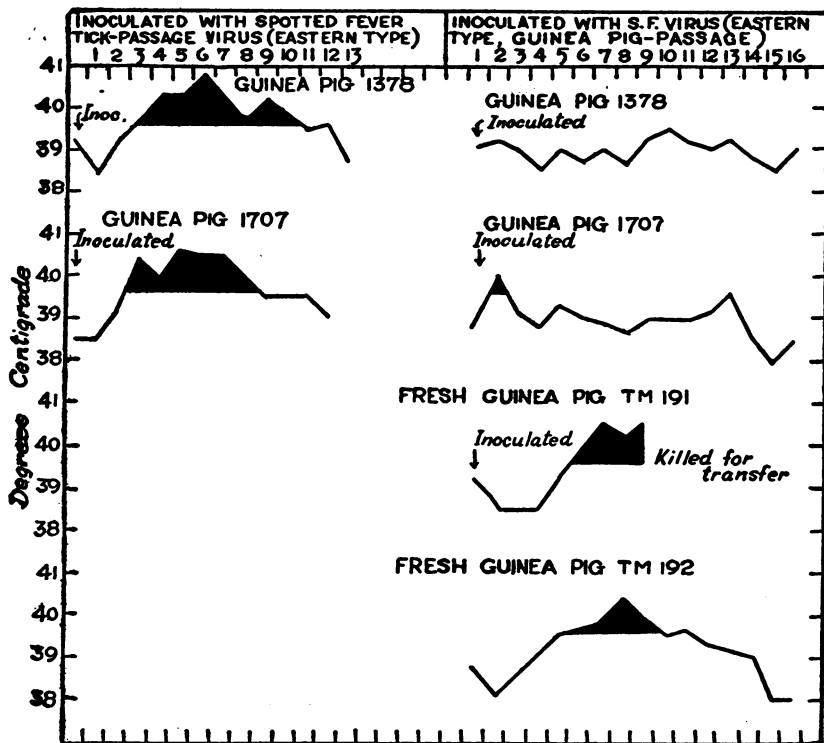


CHART 2.—Cross immunity test. Daily temperature records

The monkeys had been found immune to western type virus subsequent to their reaction following inoculation with eastern type guinea pig-passage virus and prior to being tested with the tick-passage virus. Two fresh monkeys (382 and 426) and four fresh guinea pigs (1841, 1842, 1843, and 1844) were used as controls in the final immunity test. Blood virus from one guinea pig in the fifteenth generation from the tick was injected into all animals. Control guinea pigs 1841 and 1842 were killed at the close of the febrile reaction and histological examination of the brains was made. This examination showed a few lesions in each brain. (See preceding histological reports.)

Temperature reactions following the inoculation of animals in this test are shown in Chart 7. Notations of the agglutinin response of each monkey appear on this chart.

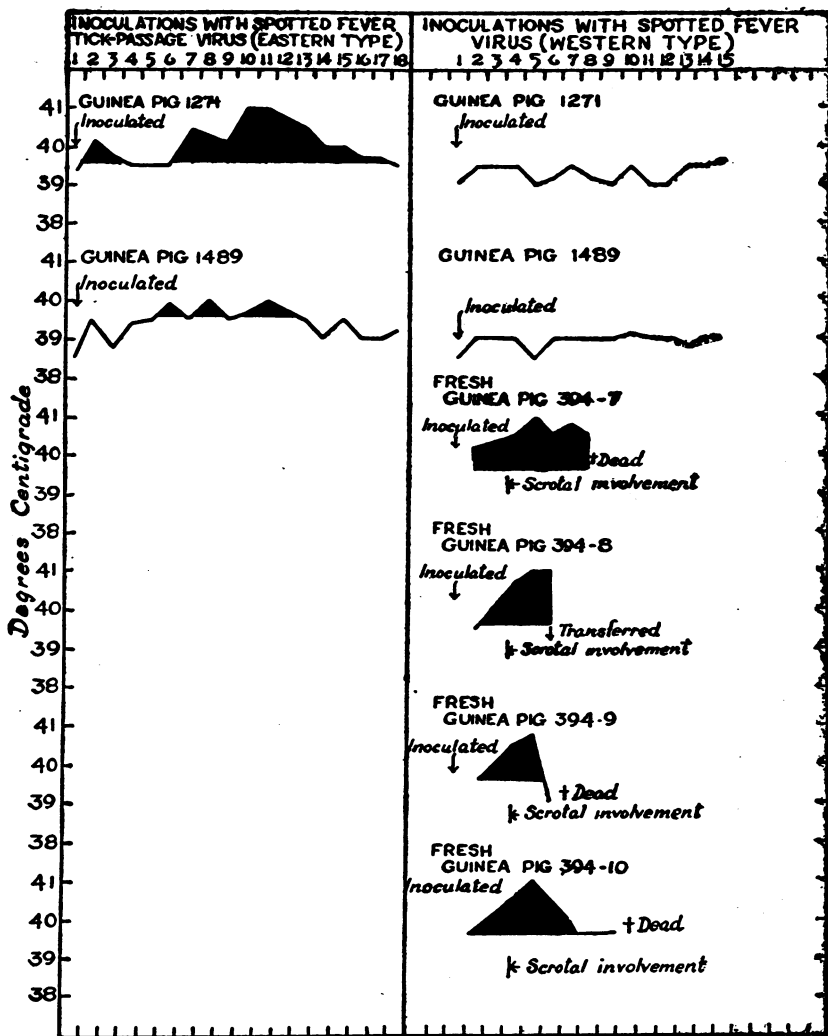


CHART 3.—Cross immunity test. Daily temperature records

SUMMARY

(1) A female tick (*Dermacentor variabilis*) was obtained from a district where human cases of the eastern type of spotted fever were occurring.

(2) Larvæ from this female were fed on a guinea pig infected with the eastern type of spotted fever. After engorgement on the infected guinea pig these larvæ were allowed to moult to nymphs. The nymphs were fed to engorgement on a noninfected guinea pig

and were then ground up and injected into fresh guinea pigs. This resulted in establishing a strain of virus in guinea pigs.

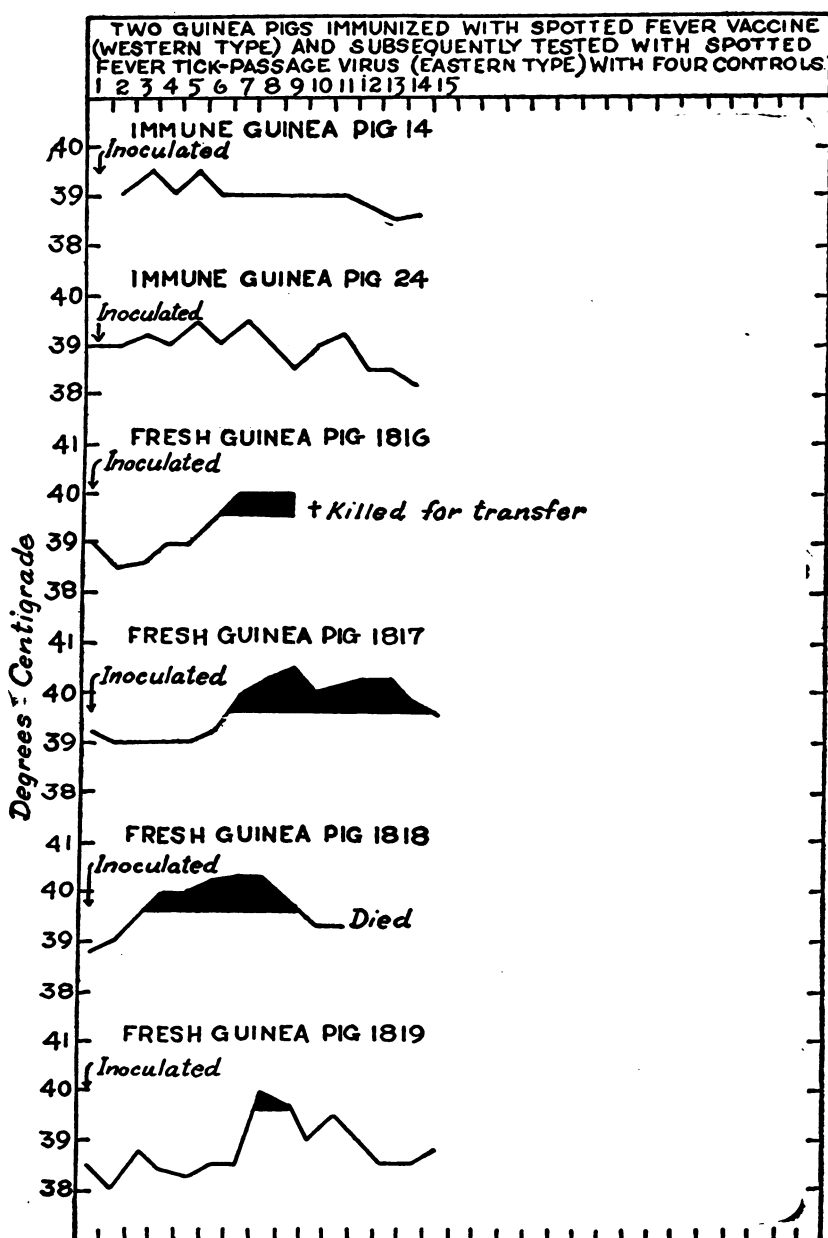


CHART 4.—Cross immunity test. Daily temperature records

(3) Reports of histological studies of the brains of guinea pigs inoculated with spotted fever, eastern type, tick-passage virus are given.

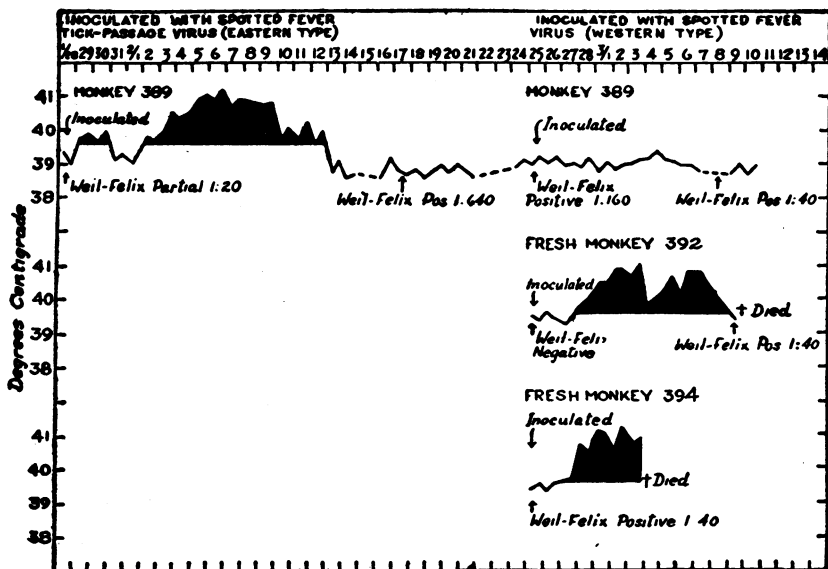


CHART 5.—Cross immunity test. Daily temperature records

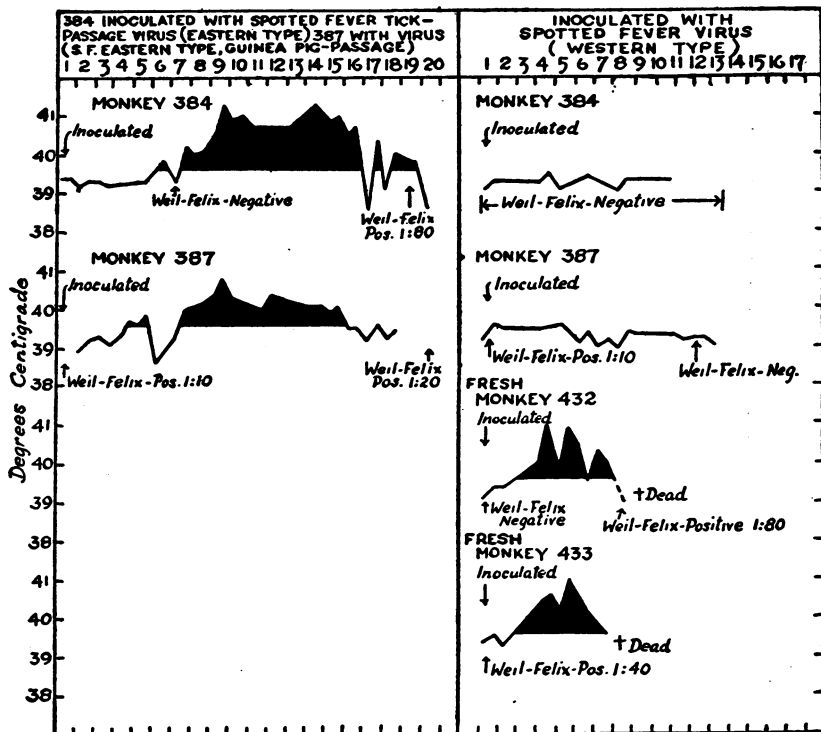


CHART 6.—Cross immunity test. Daily temperature records

(4) The production of agglutinins for *B. proteus* X₁₀ in monkeys inoculated with spotted fever, eastern type, tick-passed virus is shown.

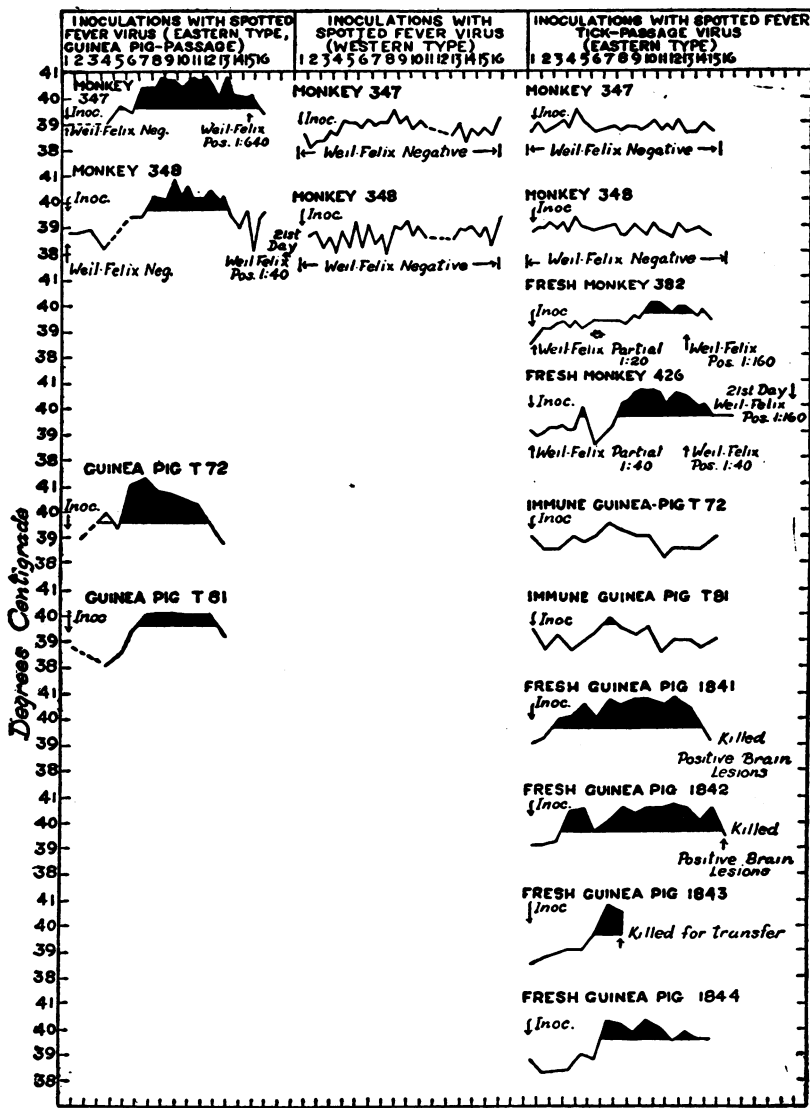


CHART 7.—Cross immunity test. Daily temperature records

(5) Results of cross immunity tests between both the western and eastern types of spotted fever and the virus recovered from the nymphs are shown.

CONCLUSION

The virus of the eastern type of Rocky Mountain spotted fever is preserved in the body of the American dog tick (*Dermacentor variabilis*) through at least one moult.

REFERENCES

- (1) Rumreich, A., Dyer, R. E., and Badger, L. F.: Pub. Health Rep., 46, 470 (1931).
- (2) Badger, L. F., Dyer, R. E., and Rumreich, A.: Pub. Health Rep., 46, 463 (1931).
- (3) Wilson and Chowning: J. Am. Med. A., 39, 131 (1902).
- (4) Wilson and Chowning: J. Inf. Dis., 1, 31 (1904).
- (5) Ricketts, H. T.: J. Am. Med. A., 47, 358 (1906).
- (6) King, W. W.: Pub. Health Rep., 21, 863 (1906).
- (7) McCalla, L. P.: Med. Sentinel, 16, 87 (1908).
- (8) Ricketts, H. T.: J. Am. Med. A., 49, 24 (1907).
- (9) Ricketts, H. T.: J. Am. Med. A., 49, 1278 (1907).
- (10) Ricketts, H. T.: Med. Record, 76, 842 (1909).
- (11) Maver, M. B.: J. Inf. Dis., 8, 327 (1911).
- (12) Spencer, R. R., and Parker, R. R.: Pub. Health Rep., 40, 2159 (1925).

RESULTS OF THE OPERATION OF THE STANDARD MILK ORDINANCE IN MISSOURI

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HISTORICAL REVIEW

Early efforts toward a milk sanitation program.—The first activities of the State Board of Health of Missouri directed toward the improvement of municipal milk sanitation were inaugurated in 1923 under the direction of the division of sanitary engineering with the aid of a scientific assistant detailed from the United States Public Health Service. Endeavors in this direction were deemed warranted principally for the following reasons:

1. A high infant mortality rate.
2. Requests from several unofficial civic organizations, such as commercial clubs and parent-teacher associations, for information regarding the quality of their respective city milk supplies.
3. Requests from city officials for assistance and advice relative to certain problems in milk sanitation.
4. Information from various sources indicating unsatisfactory or no city milk ordinances in many instances and ineffective enforcement of existing ordinances in practically every city investigated.

The program which the State board of health developed to improve city milk sanitation was fundamentally a plan for advisory assistance to the cities in controlling the sanitary quality of their milk supplies. To this end, the assistance of the State board of health was made available only to those cities that requested it. Following such a

request a complete sanitary survey of the milk supply was made. This survey included an inspection of the dairies and milk plants serving a given city, and bacteriological analyses of samples of milk. The latter work was accomplished by means of a portable field laboratory. In conjunction with this survey, meetings with the dairymen and other interested organizations were held for the purpose of discussing milk sanitation. Following the survey, a report setting out in detail conditions found and making recommendations for their improvement was submitted to the city officials.

A "model milk ordinance" was developed, and the passage and enforcement of this ordinance was recommended to all cities surveyed. This model milk ordinance provided that the milk be graded on the basis of the bacterial count only. Farm and plant items of sanitation were mandatory for all milk sold and did not enter into the grading procedure. The only penalty provided for violation was revocation of the permit or court prosecution.

The program did not include regular follow-up inspections by the State board of health, and no particular effort was made to maintain uniformity of the "model ordinance" by all the cities passing it. A city milk inspector and laboratory facilities were obviously deemed necessary, and provision was made for them by each of these cities.

During approximately 12 months fairly satisfactory results were secured, although the time involved in making the surveys and securing laboratory data was rather excessive. Surveys were made in six cities during this period and the passage of the ordinance secured in four. In these four cities the work was started under particularly propitious circumstances as regards personnel and laboratory facilities. Owing to the loss of the United States Public Health Service representative, only occasional and superficial contacts were made with these four cities after the ordinance was passed, and no further milk work in new cities was undertaken in the State until 1925. The inspectors in the four cities were interviewed relative to the progress made from time to time. However, no additional check surveys were made of the dairies or plants, and no positive efforts were made to determine the effectiveness of the ordinance.

In general, these early efforts emphasized to the State board of health the following well-defined requirements of a satisfactory State milk sanitation program:

1. Frequent advisory assistance to the cities.
2. An ordinance so designed that the sanitary quality of a city milk supply may be gradually improved without placing undue burdens on the individual dairyman, and so that it appeals to the average councilman as being fair to all concerned.
3. An ordinance that may be adequately enforced with minimum recourse to the courts.

4. Adequate State personnel to advise and assist the local milk inspectors.

Adoption of Standard Milk Ordinance and its development.—In 1925 the United States Public Health Service Standard Milk Ordinance was adopted by the State board of health for the following reasons:

1. The fact that the milk sanitation problem had not been adequately solved by the previous program.
2. Milk-borne typhoid fever epidemics were being brought to the attention of the State board of health with increasing frequency.
3. The Standard Milk Ordinance and its program of enforcement constituted a remedy for most of the difficulties encountered in the previous state-wide program, and was the most effective method of milk sanitation control available.

(For a thorough discussion of the Standard Milk Ordinance and the unification control program, reference is made to United States Public Health Service Reprint No. 1098.)

During the next two years the Standard Milk Ordinance was passed in five cities and has continued in force in these cities with increasing effectiveness each year.

The Standard Milk Ordinance proved easy to pass and to enforce, and was effective in securing a reasonably rapid improvement in quality, as well as a marked increase in the per capita consumption of milk. Probably most important is the fact that the plan of State and Federal assistance and ratings promotes adequate local enforcement.

STATE ORGANIZATION AND METHODS FOR ENFORCING THE STANDARD MILK ORDINANCE PROGRAM

The plan of procedure beginning September 1, 1928, did not vary from the former work under the Standard Milk Ordinance except that the program was expanded and more careful supervision was possible, owing to the fact that two men (one from the Public Health Service) were assigned to the work.

In August, 1928, letters were sent to a selected group of cities, with the information that the services of two milk specialists would be available to aid them in case they desired assistance. With the exception of two cities, where milk-borne typhoid epidemics occurred, no cities have been approached other than those voluntarily requesting aid.

About one-third of the State program was devoted to interesting additional cities in the passage of the ordinance. A third of the time of the personnel was allotted to the training of city milk inspectors in the enforcement of the Standard Milk Ordinance. The remaining time was devoted to routine surveys of the work of the

Standard Milk Ordinance cities, and to special problems. It was not found possible to survey the cities oftener than once each three months.

Interest in milk sanitation in several cities was aroused through the cooperation and assistance of local nonofficial organizations, such as chambers of commerce, parent-teacher associations, etc. It is believed that the support of these nonofficial organizations can be very valuable, particularly after the milk ordinance has been passed.

It is of first importance, once a milk ordinance is passed, that it receive satisfactory and continuous support from city officials and from as many citizens as possible. The nonofficial organizations serve to secure this support if properly approached.

In two instances the local full-time county health unit enforces the Standard Milk Ordinance in the smaller municipalities within the county. The problem of the cost of enforcement in small municipalities is frequently a controlling factor in the passage of a milk ordinance. Where it is possible to group the enforcement in several small municipalities under one inspector, this objection is eliminated. The sanitary inspector of the county health unit has proved by training and position to be the logical individual to enforce the milk program in the small municipalities within the county.

GENERAL DISCUSSION OF STANDARD MILK ORDINANCE CITIES

Prior to March 1, 1930, 19 Missouri cities had adopted the Standard Milk Ordinance. The 1930 population of these cities and the date of passage of the standard ordinance are given in Table 1.

TABLE 1.—*Population of cities and date the Standard Milk Ordinance was passed*

City	Population (1930 census)	Date standard ordinance passed	City	Population (1930 census)	Date standard ordinance passed
Ash Grove.....	1, 116	Nov. 8, 1928	Marshall.....	8, 080	June 17, 1929
Brookfield.....	6, 365	Oct. 16, 1928	Moberly.....	13, 647	May 6, 1929
Cape Girardeau.....	16, 148	Apr. 1, 1929	Monett.....	4, 099	June 7, 1929
Carrollton.....	4, 054	May 21, 1929	Neosho.....	4, 485	Oct. 1, 1929
Carthage.....	9, 686	June 24, 1929	Republic.....	841	Aug. 5, 1929
Chillicothe.....	8, 174	Apr. 15, 1929	St. Joseph.....	80, 941	Dec. 24, 1928
Hamilton.....	1, 571	May 28, 1929	Sedalia.....	20, 806	Mar. 27, 1927
Hannibal.....	22, 760	May 24, 1926	Springfield.....	57, 527	Mar. 29, 1929
Independence.....	15, 261	June 15, 1926	Trenton.....	6, 980	May 8, 1929
Joplin.....	32, 586	Aug. 3, 1926			

Five cities had adopted the Standard Milk Ordinance prior to September, 1928. Three additional cities adopted it in the fall of 1928. The majority of the remaining 11 cities passed the ordinance in the months of April, May, and June, 1929. In some of the smaller cities there was considerable delay in the appointment of an inspector, thus postponing active enforcement until the late summer and fall of 1929. Owing to a change of administration, two of the cities have not to date appointed an inspector.

Table 2 indicates the number of cities having full-time milk inspectors, and the number having various other arrangements:

TABLE 2.—*Type of milk inspection*

Cities with full-time dairy inspectors.....	4
Cities with full-time health department employees, part-time on milk.....	4
Cities with full-time city employees, part-time on milk.....	3
Cities with part-time inspectors (practicing physicians).....	1
Cities with part-time inspectors (practicing veterinarians).....	3
Cities with part-time inspectors (others).....	2
Cities with no inspectors.....	2

It will be noted that in only 11 of the 19 cities is the milk-inspection work done by personnel whose entire time is paid for by the city or county. In six cities there are part-time employees, and two of the cities have no inspectors.

In seven of the above-listed cities the milk-inspection work is part of the duties of a full-time city or county health unit. The remaining 12 cities have only part-time health officers.

The inspectors in only 4 of the 19 cities had had previous experience in the fundamentals of milk sanitation.

It is realized that the success of a local milk sanitation program is directly proportionate to the qualifications of the local inspector, and to the support and direction he receives from his superiors or from the State health department. However, the acceptance of partially trained inspectors was unavoidable in most of the cities, and it was decided that this at least provided an opening wedge which would probably lead to the development of better milk-control work in the future.

The Missouri experience has shown that far better results are possible with the available untrained personnel, through the system of State health department assistance, than could be obtained with the same type of personnel without such assistance. It has also shown that efficient local enforcement personnel do better work under State health department guidance. This may be due to the resultant moral support, to the aid given in especially difficult problems, or to the fact that it is natural to do better work when one knows his work will be checked.

IMPROVEMENT IN RETAIL RAW MILK

The improvement effected on the average in the retail raw milk of the Standard Ordinance cities, from the time of the first survey to the time of the last survey, is shown graphically in Figure 1. The various bars represent the percentages of the retail raw milk of the cities as a group which complied with the respective items of sanitation specified in the Standard Ordinance for grade A raw milk.

STATUS OF MILK SANITATION

SEVENTEEN MISSOURI CITIES

OPERATING UNDER THE STANDARD MILK ORDINANCE

COOPERATING WITH
MISSOURI STATE BOARD OF HEALTH
AND
UNITED STATES PUBLIC HEALTH SERVICE

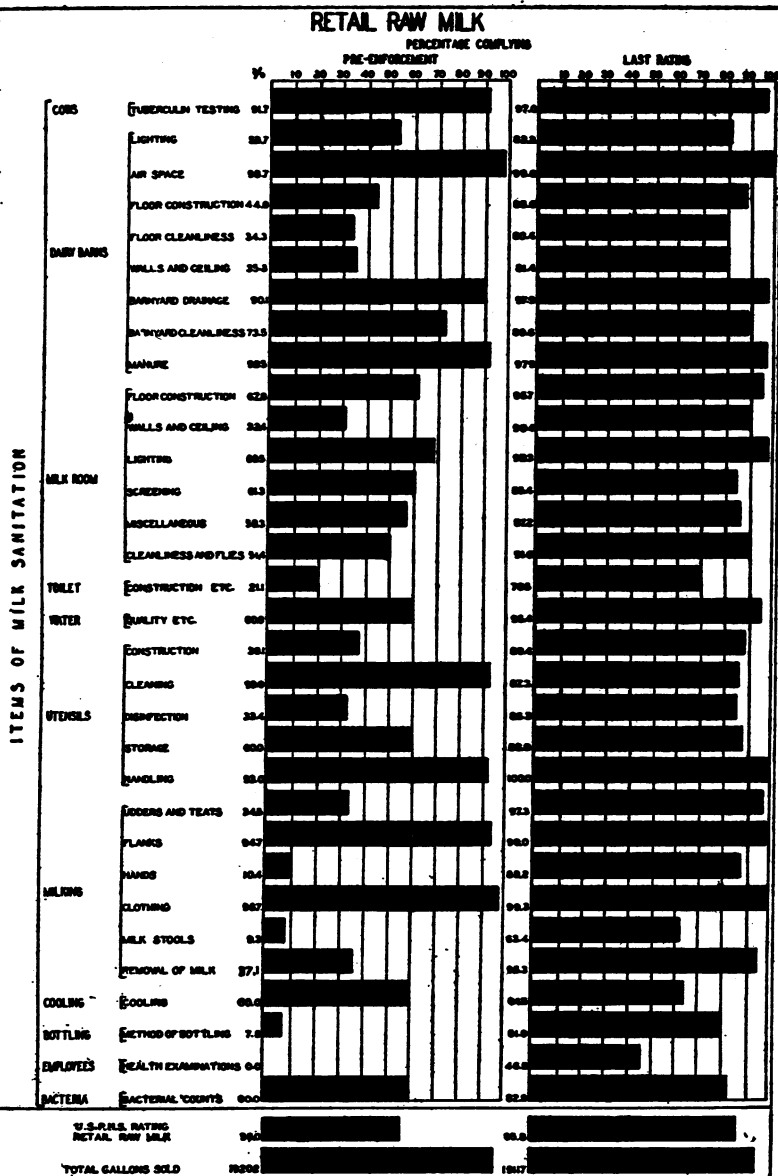


FIGURE 1

It will be noted that there are two horizontal sets of bars. The left-hand set gives the percentages for 13 of the cities for which preenforcement surveys were available, and the right-hand set gives the percentages for the 17 cities which were surveyed late in 1929 or early in 1930. Two of the 19 Standard Ordinance cities are omitted from this chart because neither of them had begun enforcement work at the time of the last survey.

It will be observed that there was quite a general improvement in the individual percentages of compliance. For example, the percentage of the retail raw milk which came from barns with properly constructed floors increased from 44.6 per cent to 88.6 per cent between the two sets of surveys. The screening of milk rooms increased from 61.3 per cent to 85.4 per cent compliance. The disinfection of milk utensils and containers improved from 33.4 per cent to 86.3 per cent compliance.

At the bottom of the chart are shown the weighted average percentages of compliance for the two sets of surveys. It will be noted that the retail raw milk of these cities as a group improved from an average of 56 per cent at the time when the work was begun, to an average rating of 85.8 per cent at the time of the last survey.

All of the preenforcement surveys, with the exception of one city surveyed by the State inspector, were made by representatives of the United States Public Health Service.

The United States Public Health Service preenforcement and last retail raw milk ratings for the individual cities are shown in Table 3. It will be noted that marked improvement has been secured in all cities which have had as much as six months' work under the Standard Milk Ordinance.

TABLE 3.—United States Public Health Service rating for retail raw milk

City	Preenforcement rating	Last rating	Percentage improvement	City	Preenforcement rating	Last rating	Percentage improvement
Ash Grove.....	38	181	113	Monett.....	59	178	32
Brookfield.....	29	178	169	Neosho.....	57	60	5
Cape Girardeau.....	56	178	39	Republic.....	36	36	-----
Carrollton.....	44	190	105	St. Joseph.....	61	185	39
Carthage.....	-----	192	-----	Sedalia.....	-----	196	-----
Hamilton.....	41	66	61	Springfield.....	63	190	43
Hannibal.....	53	195	79	Trenton.....	64	72	13
Independence.....	-----	188	-----				
Joplin.....	-----	193	-----				
Marshall.....	49	49	-----	Weighted average rating.....	56	86	54

¹ Cities in which as much as 6 months' time had elapsed between the passage of the ordinance and the time at which the last rating was made.

IMPROVEMENT IN RAW MILK TO PLANTS

Figure 2 shows the improvement in raw milk delivered to pasteurization plants.

The improvement in this fraction of the milk supplies of the 17 cities is even more marked than in the case of the retail raw milk

STATUS OF MILK SANITATION

SEVENTEEN MISSOURI CITIES

OPERATING UNDER THE STANDARD MILK ORDINANCE

COOPERATING WITH
MISSOURI STATE BOARD OF HEALTH
AND
UNITED STATES PUBLIC HEALTH SERVICE

RAW MILK TO PLANTS

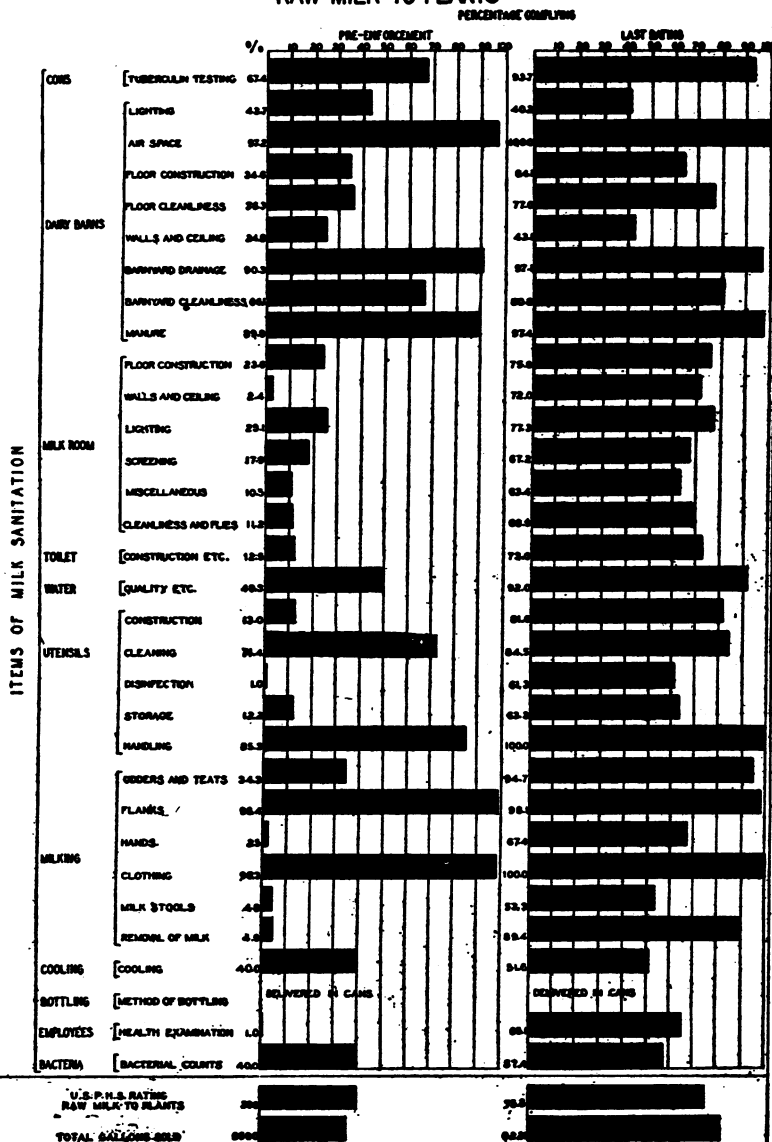


FIGURE 2

supplies. This is no doubt due to the fact that while a number of the larger cities had supervised their retail raw milk supplies prior to the passage of the Standard Milk Ordinance, not a single city had practiced routine inspections of the dairies supplying the pasteurization plants. This is reflected in the low average preenforcement rating of 39.9 per cent as compared with the last rating of 75.8 per cent.

The United States Public Health Service ratings for raw milk to pasteurization plants have been computed for the individual cities and are included in Table 4.

TABLE 4.—United States Public Health Service ratings for raw milk to pasteurization plants

City	Preenforcement rating	Last rating	Percentage improvement	City	Preenforcement rating	Last rating	Percentage improvement
Brookfield		1 80		St. Joseph	49	1 70	43
Cape Girardeau	29	1 41	41	Sedalia		1 72	
Hamilton	45			Springfield	35	1 79	126
Hannibal	44	1 87	58	Trenton	44	44	
Independence		1 68					
Joplin		1 84		Weighted average rating	40	76	90
Neosho	44	66	50				

¹ Cities in which as much as 6 months' time had elapsed between the passage of the ordinance and the time at which the last rating was made.

IMPROVEMENT IN PASTEURIZATION PLANT SANITATION

Figure 3 shows the improvement in pasteurization plants in those of the 17 cities selling pasteurized milk. The number of cities in which pasteurization plants were in operation has increased from 10 to 11. The number of pasteurization plants in these cities has increased from 13 to 18.

The low percentages of compliance shown for two of the six items relating to the pasteurization process are in large part due to existent old equipment which is difficult to fit with flush-type outlet valves and other modern improvements, or which is poorly insulated and therefore unsatisfactorily operated.

Considerable improvement is also needed in the item of health examinations.

Table 5 shows the United States Public Health Service ratings of the pasteurization plants in each of the cities in which a pasteurization plant is operated. The weighted average preenforcement rating for the group was 52, while the weighted average of the last rating is 83. This represents an improvement of 60 per cent.

STATUS OF MILK SANITATION

SEVENTEEN MISSOURI CITIES

OPERATING UNDER THE STANDARD MILK ORDINANCE

COOPERATING WITH
MISSOURI STATE BOARD OF HEALTH
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UNITED STATES PUBLIC HEALTH SERVICE

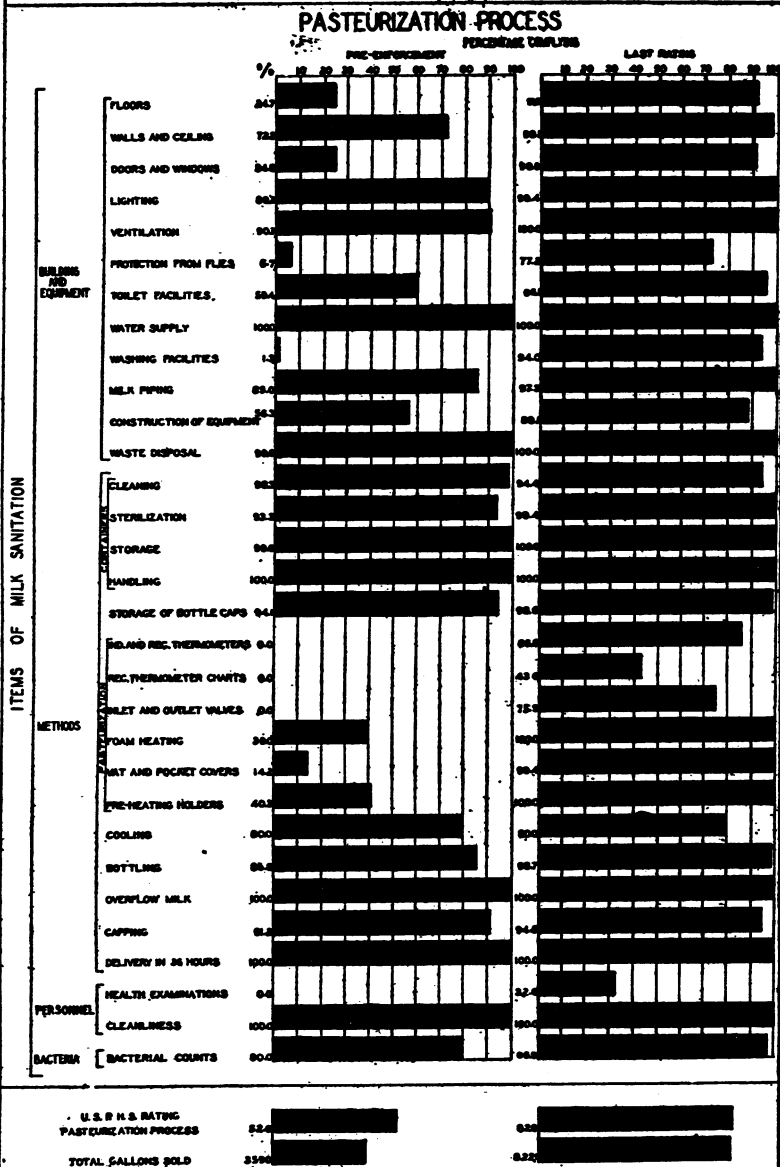


FIGURE 3

TABLE 5.—United States Public Health Service ratings of pasteurization plants

City	Preenforcement rating	Last rating	Percentage improvement	City	Preenforcement rating	Last rating	Percentage improvement
Brookfield.....		185		St. Joseph.....	51	181	59
Cape Girardeau.....	57	189	56	Sedalia.....		167	
Hamilton.....	40			Springfield.....	55	184	53
Hannibal.....	51	196	88	Trenton.....	50	45	—10
Independence.....		169		Weighted average rating.....			
Joplin.....		182			52	83	60
Neosho.....	49	45	—8				

¹ Cities in which as much as 6 months' time had elapsed between the passage of the ordinance and the time at which the last rating was made.

PERCENTAGE OF MILK PASTEURIZED

Table 6 shows the percentage of milk pasteurized in each of the cities at the first and last surveys:

TABLE 6.—Percentage of milk pasteurized

City	Per cent at first rating	Per cent at last rating	City	Per cent at first rating	Per cent at last rating
Ash Grove.....	0	0	Monett.....	0	0
Brookfield.....	0	22	Neosho.....	12	17
Cape Girardeau.....	45	46	Republic.....	0	0
Carrollton.....	0	0	St. Joseph.....	17	24
Carthage.....	1	0	Sedalia.....	0	11
Hamilton.....	16	0	Springfield.....	24	55
Hannibal.....	35	55	Trenton.....	29	21
Independence.....	0	9	Group.....	17	30
Joplin.....	14	40			
Marshall.....	0	0			

It will be noted that there has been an increase in the percentage of milk pasteurized for the group as a whole. In two of the cities more than 50 per cent of the total milk supply is now pasteurized, while in two others this part of the total supply is 40 per cent or over.

CONSUMPTION OF MARKET MILK

Improvement in quality of milk is only one of the two main objectives of the Standard Milk Ordinance program. The other, also of great public-health importance, is to increase the consumption of milk. The first ratings available for 17 of the 19 Standard Milk Ordinance cities (no accurate sales figures being available for Chilli-cothe and Moberly) show total sales of 23,152 gallons daily. This includes the four older cities on which the first rating available was not a preenforcement rating. It is believed that the total sales would be somewhat lower if we had preenforcement figures for these cities. The last rating on these same 17 cities shows total daily sales of 27,338 gallons, or an increase of 18 per cent. The per capita consumption of milk for these 17 cities is 0.74 pint per day.

To secure an accurate comparison of the increase in milk sales, the ratings should be made during the same season of the year. The preenforcement ratings, however, were made during high production months, whereas practically all of the sales figures shown under "Last rating" were secured during the fall and winter months, which are months of low production. If these two figures could have been secured during the same seasons, it is believed that a more marked increase would be shown.

While total sales have increased only 18 per cent, the total number of gallons of pasteurized milk sold daily has increased from 3,950 to 8,221, or 108 per cent.

SUMMARY

The results of the operation of the Standard Milk Ordinance in Missouri at the close of 1930 may be summarized as follows:

1. There are 19 cities, having a population of 315,127, operating under the Standard Milk Ordinance.
2. The sanitary quality of the retail raw milk has improved 54 per cent.
3. The sanitary quality of the raw milk delivered to pasteurization plants has improved 90 per cent.
4. The improvement in pasteurization plants is 60 per cent.
5. There has been a material increase in the consumption of pasteurized milk. Two cities now have over 50 per cent of their supply pasteurized and two others between 40 and 50 per cent. Pasteurized milk sales have increased 108 per cent.
6. The consumption of market milk has increased 18 per cent.
7. The per capita consumption of milk in 17 cities is 0.74 pint per day.

COURT DECISION RELATING TO PUBLIC HEALTH

Acts of inspector of United States Bureau of Animal Industry held, under facts of case, not to have been done in performance of Federal duty.—(United States Circuit Court of Appeals, 6th Circuit; Whipp et al. v. United States, 47 F. (2d) 496; decided Mar. 6, 1931.) The statutes of Ohio provided for the tuberculin testing of cattle, and appellants, who were defendants in the trial court, sought by injunction proceedings in the State courts of Ohio to restrain the State veterinarian from the threatened compulsory testing of their cattle. A temporary injunction was issued. Pending the hearing of the cause and while such temporary injunction was in full force, the State officers, to avoid the effect of such injunction, procured an inspector of the Federal Bureau of Animal Industry to accompany them and demand, as if on behalf of the Federal Government, the right to make the tuberculin test. Because of the resistance to this demand, the proposed

tests were abandoned and those resisting were indicted upon a charge of conspiracy to violate section 62 of the Federal criminal code, which section provided that "whoever shall forcibly assault, resist, oppose, prevent, impede, or interfere with any officer or employee of the Bureau of Animal Industry of the Department of Agriculture in the execution of his duties" should be punished as therein provided. Various acts of Congress contained provisions looking to the prevention of the interstate spread of animal diseases and authorizing cooperation with the several States. Cooperation by Ohio with the Federal Animal Industry Bureau had been approved and authorized by the legislature of that State.

The defendants were convicted, and they appealed to the circuit court of appeals. The appellate court reversed the judgment of the trial court and remanded the cause for error in refusing to direct verdicts of not guilty, the view being taken that the acts of the Federal inspector were not done in the performance of a Federal duty. The appellate court, in closing its opinion, concisely stated its finding as follows:

Briefly stated, our conclusion is that investigation by the making of tests solely to determine the existence or nonexistence of communicable diseases in cattle which are not shown to have entered, or to be about to enter, the stream of interstate commerce, lies exclusively within the domain of the police power of the State, and the rendition of a service by a Federal officer, solely in aid of the administration of a State law authorizing such compulsory tests, is not the performance of a Federal duty; nor does such act take Federal color by necessary implication from any of the other duties imposed upon or authority lawfully granted to the Secretary of Agriculture. * * *

DEATHS DURING WEEK ENDED MAY 23, 1931

Summary of information received by telegraph from industrial insurance companies for the week ended May 23, 1931, and corresponding week of 1930. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce.)

	Week ended May 23, 1931	Corresponding week, 1930
Policies in force.....	75, 141, 735	75, 792, 860
Number of death claims.....	13, 527	14, 742
Death claims per 1,000 policies in force, annual rate..	9. 4	10. 1

Deaths¹ from all causes in certain large cities of the United States during the week ended May 23, 1931, infant mortality, annual death rate, and comparison with corresponding week of 1930. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

[The rates published in this summary are based upon mid-year population estimates derived from the 1930 census]

City	Week ended May 23, 1931				Corresponding week, 1930		Death rate ² for the first 21 weeks	
	Total deaths	Death rate ²	Deaths under 1 year	Infant mortality rate ³	Death rate ²	Deaths under 1 year	1931	1930
Total (81 cities).....	7,990	11.7	633	448	11.9	736	13.4	13.1
Akron.....	40	8.1	2	20	8.4	6	8.4	8.5
Albany ⁴	39	15.7	2	40	14.7	2	15.1	16.6
Atlanta.....	87	16.3	8	82	12.1	8	16.2	16.7
White.....	46		4	63		3		
Colored.....	41	(⁶)	4	115	(⁶)	5	(⁶)	(⁶)
Baltimore ⁵	233	14.9	20	68	12.2	13	16.5	15.5
White.....	174		12	52		7		
Colored.....	59	(⁶)	8	125	(⁶)	6	(⁶)	(⁶)
Birmingham.....	53	10.3	4	40	11.0	8	15.0	14.3
White.....	23		0	0		4		
Colored.....	30	(⁶)	4	97	(⁶)	4	(⁶)	(⁶)
Boston.....	225	14.9	25	71	15.2	27	16.1	16.2
Bridgeport.....	33	11.7	6	100	9.9	3	12.4	13.2
Buffalo.....	133	11.9	14	57	15.0	12	14.7	14.5
Cambridge.....	31	14.2	1	20	11.0	2	14.1	13.8
Camden.....	27	11.8	3	52	11.4	5	16.9	14.9
Canton.....	19	9.3	2	46	11.9	0	11.3	11.4
Chicago ⁶	715	10.8	63	56	10.8	68	11.6	11.5
Cincinnati.....	112	12.8	5	30	11.6	8	17.3	16.9
Cleveland.....	167	9.6	14	41	11.4	17	12.3	12.4
Columbus.....	88	15.5	7	68	14.0	10	15.1	18.0
Dallas.....	59	11.3	6		9.3	7	12.4	12.2
White.....	47		6			4		
Colored.....	12	(⁶)	0		(⁶)	3	(⁶)	(⁶)
Dayton.....	56	14.1	2	28	9.0	3	13.0	10.4
Denver.....	74	13.2	6	58	16.8	6	15.3	15.4
Des Moines.....	26	9.4	3	53	12.8	2	11.9	12.6
Detroit.....	253	8.0	32	51	10.6	34	9.4	10.5
Duluth.....	19	9.7	1	25	10.8	4	11.5	11.4
El Paso.....	31	15.4	3		17.2	8	17.6	18.6
Erie.....	27	12.0	1	19	15.7	4	11.7	11.5
Fall River ⁷	33	14.9	4	91	11.3	3	13.4	14.0
Flint.....	25	7.9	6	77	11.2	6	8.1	10.2
Fort Worth.....	32	10.0	3		9.2	2	12.4	11.6
White.....	24		3			1		
Colored.....	8	(⁶)	0		(⁶)	1	(⁶)	(⁶)
Grand Rapids.....	26	7.9	2	30	13.3	7	9.6	11.5
Houston.....	54	9.1	5		13.9	11	11.6	12.8
White.....	36		5			8		
Colored.....	18	(⁶)	0		(⁶)	3	(⁶)	(⁶)
Indianapolis.....	98	13.8	5	41	17.6	6	14.9	(⁶)
White.....	82		5	47		3		
Colored.....	16	(⁶)	0	0	(⁶)	3	(⁶)	(⁶)
Jersey City.....	74	12.1	6	53	11.0	7	13.1	13.0
Kansas City, Kans.....	35	14.8	5	103	8.5	3	14.5	12.2
White.....	28		4	98		2		
Colored.....	7	(⁶)	1	127	(⁶)	1	(⁶)	(⁶)
Kansas City, Mo.....	102	13.0	9	68	11.4	7	14.8	14.0
Knoxville.....	28	13.4	1	21	12.7	1	14.0	15.2
White.....	25		1	24		1		
Colored.....	3	(⁶)	0	0	(⁶)	0	(⁶)	(⁶)
Long Beach.....	33	11.3	0	0	7.6	1	10.6	10.4
Los Angeles.....	261	10.3	15	44	11.9	18	11.5	11.7
Louisville.....	58	9.8	5	43	10.5	3	15.9	14.5
White.....	40		3	30		2		
Colored.....	18	(⁶)	2	133	(⁶)	1	(⁶)	(⁶)
Lowell ⁷	19	9.8	3	76	10.4	4	13.7	14.8
Lynn.....	13	6.6	0	0	13.7	3	11.5	12.2
Memphis.....	87	17.5	7	74	16.4	4	17.7	18.2
White.....	39		3	50		0		
Colored.....	48	(⁶)	4	116	(⁶)	4	(⁶)	(⁶)
Miami.....	24	11.1	0	0	10.3	8	13.9	12.5
White.....	13		0	0		2		
Colored.....	11	(⁶)	0	0	(⁶)	6	(⁶)	(⁶)

See footnotes at end of table.

Deaths¹ from all causes in certain large cities of the United States during the week ended May 23, 1931, infant mortality, annual death rate, and comparison with corresponding week of 1930—Continued

City	Week ended May 23, 1931				Corresponding week, 1930		Death rate ² for the first 21 weeks	
	Total deaths	Death rate ¹	Deaths under 1 year	Infant mortality rate ³	Death rate ²	Deaths under 1 year	1931	1930
Milwaukee.....	107	9.5	9	39	9.4	9	10.3	10.7
Minneapolis.....	97	10.7	4	26	8.7	5	12.0	11.3
Nashville.....	49	16.4	1	15	11.2	4	17.7	16.8
White.....	33	(⁴)	0	0		3		
Colored.....	16	(⁴)	1	59	(⁴)	1	(⁴)	(⁴)
New Bedford ⁵	38	17.6	7	186	12.5	3	13.8	12.0
New Haven.....	35	11.2	0	0	13.1	1	13.2	14.8
New Orleans.....	137	15.3	12	66	15.7	14	18.5	19.0
White.....	79		3	25		5		
Colored.....	58	(⁴)	9	147	(⁴)	9	(⁴)	(⁴)
New York.....	1,509	11.1	108	45	11.3	170	12.9	12.1
Bronx Borough.....	222	8.7	11	25	8.2	20	9.3	8.6
Brooklyn Borough.....	502	10.0	46	49	10.8	64	11.9	11.2
Manhattan Borough.....	583	16.7	39	68	16.9	70	19.7	18.1
Queens Borough.....	159	7.2	10	27	6.5	14	8.2	7.9
Richmond Borough.....	43	13.7	2	36	12.1	2	14.2	15.2
Newark, N. J.....	107	12.5	8	42	14.9	6	13.3	14.0
Oakland.....	59	10.5	4	51	12.4	5	11.5	11.7
Oklahoma City.....	58	15.4	5	69	8.3	5	12.4	10.2
Omaha.....	47	11.8	5	56	11.9	3	14.6	14.0
Paterson.....	32	12.0	5	86	11.3	2	15.3	13.8
Philadelphia.....	505	13.4	37	54	11.3	34	15.4	13.9
Pittsburgh.....	165	12.7	10	35	13.6	14	17.1	15.5
Portland, Oreg.....	73	12.4	3	36	10.5	0	12.6	13.2
Providence.....	75	15.3	8	74	14.2	7	14.8	15.2
Richmond.....	46	13.0	2	29	15.1	1	17.3	16.2
White.....	27		1	22		0		
Colored.....	19	(⁴)	1	43	(⁴)	1	(⁴)	(⁴)
Rochester.....	68	10.7	9	82	11.4	6	13.5	12.8
St. Louis.....	200	12.6	15	50	13.6	11	17.1	14.8
St. Paul.....	61	11.5	6	62	10.7	2	11.6	11.0
Balt Lake City ⁶	34	12.4	3	45	10.7	4	13.2	13.8
San Antonio.....	87	18.9	24		15.0	13	16.0	18.2
San Diego.....	36	12.0	0	0	15.7	6	14.9	15.1
San Francisco.....	141	11.3	4	27	13.7	5	14.1	13.8
Schenectady.....	24	13.0	0	0	12.5	3	11.6	12.6
Seattle.....	66	9.3	2	19	10.2	2	12.6	11.7
Somerville.....	18	8.9	1	37	9.0	1	11.0	11.9
South Bend.....	19	9.2	0	0	9.9	3	9.0	9.7
Spokane.....	21	9.4	0	0	10.4	2	12.9	13.5
Springfield, Mass.....	39	13.3	3	46	11.4	4	13.9	13.9
Syracuse.....	41	10.0	4	47	13.2	6	12.7	13.0
Tacoma.....	19	9.2	1	26	12.2	4	14.1	13.3
Toledo.....	65	11.5	5	46	9.7	3	13.0	14.0
Trenton.....	42	17.7	2	35	13.1	1	19.2	17.7
Utica.....	21	10.7	0	0	14.8	3	15.9	17.2
Washington, D. O.....	157	16.6	10	55	14.1	11	17.6	16.2
White.....	96		3	25		5		
Colored.....	61	(⁴)	7	120	(⁴)	6	(⁴)	(⁴)
Waterbury.....	18	9.3	1	30	7.8	0	11.0	10.6
Wilmington, Del. ⁷	36	17.6	3	65	11.3	3	16.2	15.6
Worcester.....	35	9.3	3	41	13.3	1	14.5	15.0
Yonkers.....	21	7.9	2	52	9.2	3	9.7	9.1
Youngstown.....	33	10.0	1	14	10.7	5	11.3	11.2

¹ Deaths of nonresidents are included. Stillbirths are excluded.

² These rates represent annual rates per 1,000 population, as estimated for 1931 and 1930 by the arithmetical method.

³ Deaths under 1 year of age per 1,000 live births. Cities left blank are not in the registration area for births.

⁴ Data for 76 cities.

⁵ Deaths for week ended Friday.

⁶ For the cities for which deaths are shown by color, the percentage of colored population in 1920 was as follows: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 33; Miami, 31; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

⁷ Population Apr. 1, 1930; decreased 1920 to 1930, no estimate made.

PREVALENCE OF DISEASE

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

UNITED STATES

CURRENT WEEKLY STATE REPORTS

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

Reports for Weeks Ended May 30, 1931, and May 31, 1930

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 30, 1931, and May 31, 1930

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 30, 1931	Week ended May 31, 1930	Week ended May 30, 1931	Week ended May 30, 1930	Week ended May 30, 1931	Week ended May 31, 1930	Week ended May 30, 1931	Week ended May 31, 1930
New England States:								
Maine.....	4	-----	6	9	17	98	1	1
New Hampshire.....	1	-----	-----	2	85	18	0	0
Vermont.....	1	1	-----	-----	42	80	0	0
Massachusetts.....	37	57	6	1	463	1,124	0	9
Rhode Island.....	4	3	-----	-----	123	15	0	0
Connecticut.....	3	10	2	2	435	26	0	2
Middle Atlantic States:								
New York.....	110	104	19	17	2,714	1,927	7	6
New Jersey.....	29	68	2	-----	763	846	3	2
Pennsylvania.....	46	105	-----	-----	3,708	1,327	13	13
East North Central States:								
Ohio.....	38	70	25	7	1,396	629	5	7
Indiana.....	21	10	21	-----	760	140	3	3
Illinois.....	175	112	9	4	2,317	351	19	8
Michigan.....	41	43	2	4	66	913	5	26
Wisconsin.....	5	16	22	12	781	798	3	4
West North Central States:								
Minnesota.....	10	23	-----	1	167	196	1	1
Iowa.....	4	6	-----	-----	-----	167	0	2
Missouri.....	29	30	3	1	212	56	5	4
North Dakota.....	6	6	-----	-----	31	16	3	0
South Dakota.....	11	7	-----	-----	33	-----	0	0
Nebraska.....	4	12	3	-----	1	224	2	1
Kansas.....	4	13	2	1	100	365	0	2
South Atlantic States:								
Delaware.....	2	3	-----	-----	91	2	0	0
Maryland.....	8	24	11	7	828	69	3	4
District of Columbia.....	10	9	-----	-----	202	68	2	0
Virginia.....	-----	-----	-----	-----	-----	-----	2	-----
West Virginia.....	8	7	32	2	160	103	0	2
North Carolina.....	6	20	2	4	683	55	4	3
South Carolina.....	17	4	289	216	115	-----	5	0
Georgia.....	2	1	37	24	145	140	2	1
Florida.....	3	5	2	2	191	120	0	0
East South Central States:								
Kentucky.....	-----	-----	-----	-----	93	-----	3	3
Tennessee.....	4	4	10	17	116	180	0	3
Alabama.....	8	7	17	33	159	71	1	2
Mississippi.....	8	11	-----	-----	-----	-----	0	1

¹ New York City only.

² Figures for 1931 are exclusive of Kansas City.

³ Week ended Friday.

⁴ Typhus fever; 1931, 2 cases; 1 case in Virginia and 1 case in Texas.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended May 30, 1931, and May 31, 1930—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended May 30, 1931	Week ended May 31, 1930	Week ended May 30, 1931	Week ended May 31, 1930	Week ended May 30, 1931	Week ended May 31, 1930	Week ended May 30, 1931	Week ended May 31, 1930
West South Central States:								
Arkansas.....		1	9	7	30	23	0	0
Louisiana.....	21	9	25	9	2	28	3	1
Oklahoma ¹	7	13	27	15	30	206	0	2
Texas ¹	16	17	20	12	72	217	0	1
Mountain States:								
Montana.....		1			6	10	2	0
Idaho.....					4	11	1	0
Wyoming.....		6	1		2	45	0	0
Colorado.....	6	9			137	686	0	1
New Mexico.....	5	7			58	65	0	1
Arizona.....	3	2	1	4	13	114	0	2
Utah ¹		1	1		2	264	2	4
Pacific States:								
Washington.....	1	6			281	602	1	3
Oregon.....	3	6	10	14	53	82	0	0
California.....	43	58	33	18	899	1,977	0	6

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 30, 1931	Week ended May 31, 1930	Week ended May 30, 1931	Week ended May 31, 1930	Week ended May 30, 1931	Week ended May 31, 1930	Week ended May 30, 1931	Week ended May 31, 1930
New England States:								
Maine.....	0	0	27	27	0	0	4	2
New Hampshire.....	0	0	1	5	0	0	0	0
Vermont.....	0	0	3	7	1	0	0	0
Massachusetts.....	1	0	240	205	0	0	3	7
Rhode Island.....	0	0	36	23	0	0	0	1
Connecticut.....	0	0	35	34	0	0	1	1
Middle Atlantic States:								
New York.....	4	2	585	296	9	3	21	8
New Jersey.....	0	0	231	121	0	0	2	2
Pennsylvania.....	0	0	679	350	0	1	7	9
East North Central States:								
Ohio.....	2	0	516	293	58	145	7	6
Indiana.....	0	0	131	56	98	8	1	1
Illinois.....	1	0	669	270	74	65	11	11
Michigan.....	0	1	449	171	11	33	1	0
Wisconsin.....	1	0	93	122	80	6	1	1
West North Central States:								
Minnesota.....	2	1	77	57	7	6	0	5
Iowa.....	0	0	38	36	69	71	1	0
Missouri ¹	1	0	139	96	32	38	3	4
North Dakota.....	0	1	17	15	0	3	1	1
South Dakota.....	0	0	9	10	9	19	1	0
Nebraska.....	0	0	18	29	46	51	1	0
Kansas.....	0	0	23	52	49	33	2	3
South Atlantic States:								
Delaware.....	0	0	12	8	0	0	2	0
Maryland ¹	0	1	65	51	0	0	9	6
District of Columbia.....	0	0	25	11	0	0	0	1
Virginia ¹		1						
West Virginia.....	0	0	23	23	3	0	1	9
North Carolina.....	1	2	30	16	4	16	5	5
South Carolina.....	0	3	5	4	0	5	19	51
Georgia.....	0	0	55	5	0	0	19	1
Florida.....	0	0	2	6	0	1	3	4
East South Central States:								
Kentucky.....	1	0	20	30	7	4	6	1
Tennessee.....	0	0	13	11	0	17	2	8
Alabama.....	0	1	23	4	2	4	13	9
Mississippi.....	3	1	9	5	34	5	10	11

¹ Figures for 1931 are exclusive of Kansas City.

² Week ended Friday.

³ Typhus fever: 1931, 2 cases; 1 case in Virginia and 1 case in Texas

⁴ Figures for 1931 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended May 30, 1931, and May 30, 1930—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended May 30, 1931	Week ended May 31, 1930	Week ended May 30, 1931	Week ended May 31, 1930	Week ended May 30, 1931	Week ended May 31, 1930	Week ended May 30, 1931	Week ended May 31, 1930
West South Central States:								
Arkansas.....	0	0	10	4	23	0	5	4
Louisiana.....	3	7	15	2	19	14	17	18
Oklahoma ¹	0	0	11	36	44	62	6	4
Texas ¹	0	2	28	26	27	35	6	3
Mountain States:								
Montana.....	0	0	14	15	2	2	1	2
Idaho.....	0	0	2	2	0	2	1	0
Wyoming.....	0	0	15	10	0	5	0	0
Colorado.....	0	0	28	13	0	3	1	5
New Mexico.....	0	0	3	13	1	3	1	5
Arizona.....	0	2	4	14	0	6	3	4
Utah ¹	0	0	3	1	0	1	0	0
Pacific States:								
Washington.....	0	1	20	17	16	29	3	0
Oregon.....	0	0	13	14	18	27	0	1
California.....	3	15	103	94	7	35	6	13

¹ Week ended Friday.

² Typhus fever: 1931, 2 cases; 1 case in Virginia and 1 case in Texas.

³ Figures for 1931 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Ma- lar- ia	Mea- sles	Pellag- ra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
<i>April, 1931</i>										
Arkansas.....	5	21	918	78	192	236	2	111	144	23
Kansas.....	6	43	36		223	1	1	251	466	10
Mississippi.....	11	25	2,843	2,093	372	1,446	3	80	308	29
South Dakota.....	4	34	31		476		2	129	104	1
Virginia.....	10	66	2,050	19	3,449	82	0	162	22	23

<i>April, 1931</i>		<i>April, 1931</i>	
Anthrax:	Cases	Impetigo contagiosa:	Cases
Kansas.....	1	Kansas.....	1
Botulism:		Lethargic encephalitis:	
Kansas.....	1	Kansas.....	2
Chicken pox:		Mumps:	
Arkansas.....	223	Arkansas.....	147
Kansas.....	398	Kansas.....	605
Mississippi.....	950	Mississippi.....	457
South Dakota.....	134	South Dakota.....	14
Virginia.....	711	Ophthalmia neonatorum:	
Dengue:		Arkansas.....	1
Mississippi.....	2	Kansas.....	1
Dysentery:		Mississippi.....	6
Mississippi (amebic).....	26	South Dakota.....	1
Dysentery and diarrhea:		Puerperal septicemia:	
Virginia.....	121	Mississippi.....	25
German measles:		Rabies in animals:	
Kansas.....	11	Mississippi.....	12
Hookworm disease:		Rabies in man:	
Arkansas.....	5	Mississippi.....	1
Mississippi.....	158	Septic sore throat:	
		Kansas.....	1
		South Dakota.....	1

Tetanus:	Cases	Undulant fever—Continued.	Cases
Kansas.....	1	Kansas.....	7
Trachoma:		Virginia.....	1
Kansas.....	6	Vincent's angina:	
Mississippi.....	5	Kansas.....	5
South Dakota.....	39	Whooping cough:	
Tularæmia:		Arkansas.....	106
Kansas.....	1	Kansas.....	233
Virginia.....	1	Mississippi.....	372
Undulant fever:		South Dakota.....	44
Arkansas.....	1	Virginia.....	344

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 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 33,385,000. The estimated population of the 89 cities reporting deaths is more than 31,840,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended May 23, 1931, and May 24, 1930

	1931	1930	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	791	937	
96 cities.....	399	499	747
Measles:			
46 States.....	20,080	17,243	
96 cities.....	8,803	7,311	
Meningococcus meningitis:			
46 States.....	122	126	
96 cities.....	70	63	
Poliomyelitis:			
46 States.....	19	25	
Scarlet fever:			
46 States.....	4,727	3,219	
96 cities.....	2,355	1,295	1,235
Smallpox:			
46 States.....	755	1,087	
96 cities.....	100	126	62
Typhoid fever:			
46 States.....	170	220	
96 cities.....	41	45	37
<i>Deaths reported</i>			
Influenza and pneumonia:			
89 cities.....	617	641	
Smallpox:			
89 cities.....	0	0	

City reports for week ended May 23, 1931

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 nonepidemic 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 1922 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	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland.....	9	0	0	-----	0	2	8	0
New Hampshire:								
Concord.....	0	0	0	-----	0	46	0	1
Manchester.....	0	0	0	-----	0	0	0	2
Vermont:								
Barre.....	0	0	0	-----	0	0	0	0
Burlington.....	2	0	0	-----	0	0	0	9
Massachusetts:								
Boston.....	69	32	11	2	1	89	8	13
Fall River.....	1	2	0	-----	0	17	2	3
Springfield.....	0	2	2	-----	0	13	10	0
Worcester.....	22	3	3	-----	0	10	13	2
Rhode Island:								
Pawtucket.....	-----	1	-----	-----	-----	-----	-----	-----
Providence.....	11	5	4	-----	0	123	12	4
Connecticut:								
Bridgeport.....	0	4	0	1	1	6	2	4
Hartford.....	6	5	0	-----	0	15	0	2
New Haven.....	32	1	0	-----	0	172	16	1
MIDDLE ATLANTIC								
New York:								
Buffalo.....	22	9	2	-----	0	346	49	17
New York.....	430	241	113	7	4	1,835	83	169
Rochester.....	13	5	0	-----	0	98	16	3
Syracuse.....	17	3	1	-----	0	28	1	0
New Jersey:								
Camden.....	3	6	1	-----	0	2	1	1
Newark.....	151	14	4	3	0	44	6	11
Trenton.....	4	2	0	-----	0	4	5	3
Pennsylvania:								
Philadelphia.....	92	55	9	11	5	818	40	47
Pittsburgh.....	45	16	9	2	3	121	81	19
Reading.....	6	1	1	-----	0	11	18	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati.....	6	5	1	-----	0	92	20	9
Cleveland.....	202	21	6	11	1	316	393	17
Columbus.....	29	3	3	2	0	8	5	2
Toledo.....	57	3	2	1	0	19	39	4
Indiana:								
Fort Wayne.....	3	1	1	-----	0	12	0	0
Indianapolis.....	30	3	0	-----	1	374	43	8
South Bend.....	4	0	0	-----	0	9	0	0
Terre Haute.....	0	0	0	-----	0	8	0	2
Illinois:								
Chicago.....	162	82	68	3	3	589	71	50
Springfield.....	12	0	0	-----	0	29	5	4
Michigan:								
Detroit.....	140	41	29	2	1	58	65	13
Flint.....	40	2	2	-----	0	0	6	1
Grand Rapids.....	1	1	0	-----	1	69	1	1
Wisconsin:								
Kenosha.....	0	0	0	-----	0	0	110	0
Madison.....	31	1	6	-----	-----	2	69	-----
Milwaukee.....	98	10	1	2	2	434	435	5
Racine.....	8	1	0	-----	0	3	16	0
Superior.....	6	0	0	-----	0	0	0	0

City reports for week ended May 23, 1931—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths reported
		Cases, estimated expect- ancy	Cases reported	Cases reported	Deaths reported			
WEST NORTH CEN- TRAL								
Minnesota:								
Duluth.....	23	0	0	-----	0	0	2	1
Minneapolis.....	147	12	3	-----	0	158	130	9
St. Paul.....	73	8	1	-----	0	61	11	3
Iowa:								
Des Moines.....	0	1	0	-----	-----	0	0	-----
Sioux City.....	28	0	0	-----	-----	6	11	-----
Waterloo.....	0	1	0	-----	-----	1	0	-----
Missouri:								
Kansas City.....	26	3	8	-----	0	316	6	6
St. Joseph.....	5	0	9	-----	0	11	0	0
St. Louis.....	7	30	13	-----	-----	12	20	6
North Dakota:								
Fargo.....	0	0	0	-----	0	3	16	0
Grand Forks.....	0	0	0	-----	-----	0	0	-----
South Dakota:								
Aberdeen.....	6	0	0	-----	-----	6	0	-----
Nebraska:								
Omaha.....	33	2	2	-----	0	0	23	6
Kansas:								
Topeka.....	6	1	2	-----	1	0	33	1
Wichita.....	8	1	1	-----	0	6	0	1
SOUTH ATLANTIC								
Delaware:								
Wilmington.....	2	1	0	-----	0	22	0	0
Maryland:								
Baltimore.....	71	20	7	2	0	719	54	24
Cumberland.....	0	0	0	1	0	2	0	0
Frederick.....	-----	0	-----	-----	-----	-----	-----	-----
District of Columbia:								
Washington.....	23	11	6	1	0	248	0	11
Virginia:								
Lynchburg.....	9	0	1	-----	0	5	0	0
Norfolk.....	5	0	1	-----	0	223	0	1
Richmond.....	0	1	2	-----	0	238	0	1
Roanoke.....	1	0	0	-----	0	11	1	1
West Virginia:								
Charleston.....	1	0	0	-----	0	2	0	1
Wheeling.....	15	0	0	-----	0	0	0	1
North Carolina:								
Raleigh.....	2	0	2	-----	0	39	0	1
Wilmington.....	0	0	0	-----	0	6	0	1
Winston-Salem.....	5	0	0	2	0	93	27	3
South Carolina:								
Charleston.....	0	0	0	17	1	0	0	3
Columbia.....	1	0	0	-----	0	0	8	0
Greenville.....	1	0	0	-----	0	0	0	0
Georgia:								
Atlanta.....	4	2	0	8	0	15	0	5
Brunswick.....	0	0	0	-----	9	0	5	0
Savannah.....	6	0	0	6	1	9	5	0
Florida:								
Miami.....	1	2	0	-----	0	85	0	2
Tampa.....	5	0	1	-----	0	29	0	2
EAST SOUTH CENTRAL								
Kentucky:								
Covington.....	0	0	0	-----	0	7	0	0
Tennessee:								
Memphis.....	9	1	1	-----	1	110	4	7
Nashville.....	1	1	0	-----	0	92	0	4
Alabama:								
Birmingham.....	2	1	1	5	2	3	2	7
Mobile.....	0	0	0	-----	0	0	0	1
Montgomery.....	1	0	0	-----	-----	0	0	-----

City reports for week ended May 23, 1931—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith.....	6	0	0			0	0	
Little Rock.....	0	0	1		3	14	1	7
Louisiana:								
New Orleans.....	7	8	18	1	1	1	0	5
Shreveport.....	3	0	1		0	4	4	4
Oklahoma:								
Muskogee.....	17	1	0			0	2	
Texas:								
Dallas.....	34	3	2		0	8	17	2
Fort Worth.....	3	1	3		2	0	0	1
Galveston.....	0	0	1		0	0	0	2
Houston.....	0	3	1		0	16	2	3
San Antonio.....	6	1	0		4	37	1	5
MOUNTAIN								
Montana:								
Billings.....	11	0	0		0	6	0	0
Great Falls.....	6	1	0		0	0	0	1
Helena.....	0	0	2		0	0	0	0
Missoula.....	6	0	0		0	0	0	0
Idaho:								
Boise.....	1	0	0		0	0	2	0
Colorado:								
Denver.....	39	7	4		2	46	42	6
Pueblo.....	0	1	0		0	17	0	0
New Mexico:								
Albuquerque.....	8	0	1		0	6	0	0
Arizona:								
Phoenix.....	0	0	0		0	2	0	0
Utah:								
Salt Lake City....	15	2	1		1	1	4	1
Nevada:								
Reno.....	0	0	0		0	1	0	0
PACIFIC								
Washington:								
Seattle.....	83	2	0			21	47	
Spokane.....	14	2	0			5	0	
Tacoma.....	5	1	1		0	1	5	2
Oregon:								
Portland.....	22	5	0		0	23	11	6
Salem.....	6	0	0		0	5	5	0
California:								
Los Angeles.....	47	29	30	19	0	116	36	11
Sacramento.....	3	2	0		0	34	3	3
San Francisco.....	14	13	6	1	0	56	5	7

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths reported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland	3	8	0	0	0	1	0	0	0	4	25
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	12
Manchester	1	0	0	0	0	2	0	0	0	0	18
Vermont:											
Barre	0	3	0	0	0	1	0	0	0	3	9
Burlington	0	0	0	0	0	0	0	0	0	6	11
Massachusetts:											
Boston	70	110	0	0	0	10	2	1	0	28	225
Fall River	4	6	0	0	0	2	0	0	0	0	33
Springfield	7	18	0	0	0	0	0	0	0	9	41
Worcester	7	37	0	0	0	3	0	0	0	9	35

City reports for week ended May 23, 1931—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths reported	Typhoid fever			Whoop- ing cough, cases reported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND— continued											
Rhode Island:											
Pawtucket.....	2		0				0				
Providence.....	11	25	0	0	0	0	0	0	0	6	75
Connecticut:											
Bridgeport.....	7	3	0	0	0	0	0	0	0	0	33
Hartford.....	4	6	0	0	0	1	0	0	0	1	37
New Haven.....	5	3	0	0	0	0	0	0	0	5	35
MIDDLE ATLANTIC											
New York:											
Buffalo.....	23	25	0	4	0	5	1	0	0	16	128
New York.....	268	544	0	0	0	110	8	7	0	177	1,509
Rochester.....	10	66	0	0	0	3	0	3	0	24	65
Syracuse.....	9	30	0	0	0	1	0	0	0	18	41
New Jersey:											
Camden.....	5	2	0	0	0	1	0	0	0	5	27
Newark.....	26	40	0	6	0	9	0	0	0	79	110
Trenton.....	3	11	0	0	0	2	0	0	0	2	42
Pennsylvania:											
Philadelphia.....	90	181	0	0	0	31	2	2	0	36	506
Pittsburgh.....	30	89	0	0	0	8	0	0	0	30	165
Reading.....	4	1	0	0	0	0	0	0	0	1	22
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	15	39	2	0	0	9	0	1	0	4	112
Cleveland.....	37	67	1	0	0	15	2	3	0	25	167
Columbus.....	8	9	1	1	0	3	0	1	0	1	88
Toledo.....	11	12	0	0	0	8	0	0	0	25	65
Indiana:											
Fort Wayne.....	3	6	2	0	0	0	0	0	0	1	23
Indianapolis.....	13	39	7	10	0	6	0	0	0	41	
South Bend.....	4	4	0	0	0	1	0	0	0	4	20
Terre Haute.....	2	3	0	0	0	0	0	0	0	4	13
Illinois:											
Chicago.....	111	297	2	6	0	52	3	2	0	92	715
Springfield.....	3	4	0	0	0	1	1	0	0	0	18
Michigan:											
Detroit.....	108	152	1	4	0	24	2	1	0	136	253
Flint.....	10	27	2	3	0	0	0	0	0	5	25
Grand Rapids.....	9	13	1	0	0	0	0	0	0	28	26
Wisconsin:											
Kenosha.....	2	0	0	0	0	0	0	0	0	0	2
Madison.....	1	0	0	0			0	0		1	
Milwaukee.....	28	12	0	0	0	6	0	0	0	28	107
Racine.....	4	4	0	0	0	0	0	0	0	16	14
Superior.....	2	3	0	0	0	0	0	0	0	2	5
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	7	0	0	0	0	0	0	0	0	0	19
Minneapolis.....	30	12	1	1	0	2	0	0	0	19	97
St. Paul.....	20	5	0	1	0	1	0	1	0	17	65
Iowa:											
Des Moines.....	7	3	2	7			0	0		0	26
Sioux City.....	2	11	0	0			0	0		5	
Waterloo.....	2	0	1	0			0	0		5	
Missouri:											
Kansas City.....	16	4	1	0	0	7	1	0	0	6	102
St. Joseph.....	3	2	0	0	0	3	1	0	0	0	32
St. Louis.....	29	135	2	4	0	10	0	4	0	34	200
North Dakota:											
Fargo.....	1	0	0	0	0	0	0	0	0	10	7
Grand Forks.....	1	0	0	0			0	0		0	
South Dakota:											
Aberdeen.....	0	0	0	0			0	0		0	
Nebraska:											
Omaha.....	3	8	3	6	0	4	0	0	0	2	47
Kansas:											
Topeka.....	3	0	0	2	0	0	0	0	0	0	11
Wichita.....	4	1	0	21	0	1	0	0	0	4	24

City reports for week ended May 23, 1931—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- cul- osis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	3	5	0	0	0	1	0	0	0	0	36
Maryland:											
Baltimore.....	34	42	0	0	0	20	1	1	0	45	233
Cumberland.....	0	2	0	0	0	1	0	1	0	0	13
Frederick.....	0										
District of Col.:											
Washington.....	21	13	1	0	0	10	0	2	0	8	157
Virginia:											
Lynchburg.....	0	0	0	0	0	1	1	0	0	0	8
Norfolk.....	1	2	0	0	0	2	0	0	0	8	
Richmond.....	3	9	0	0	0	3	0	0	0	2	39
Roanoke.....	0	3	0	0	0	1	0	1	0	2	9
West Virginia:											
Charleston.....	1	1	0	0	0	0	0	0	0	2	7
Wheeling.....	1	0	0	0	0	0	1	0	0	1	12
North Carolina:											
Raleigh.....	0	0	1	0	0	1	0	0	0	30	18
Wilmington.....	0	0	1	0	0	0	0	0	0	15	8
Winston-Salem.....	0	0	0	0	0	0	0	1	0	30	21
South Carolina:											
Charleston.....	0	0	0	0	0	1	0	0	0	0	19
Columbia.....	0	0	0	0	0	1	0	0	0	2	16
Greenville.....	0	0	0	0	0	0	0	0	0	0	
Georgia:											
Atlanta.....	4	46	2	3	0	8	0	0	0	3	87
Brunswick.....	0	0	0	0	0	0	0	0	0	0	1
Savannah.....	1	0	1	0	0	0	1	0	0	0	29
Florida:											
Miami.....	1	0	0	0	0	1	0	1	0	5	24
Tampa.....	0	1	0	0	0	3	1	0	0	1	15
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	1	9	0	0	0	0	0	0	0	0	10
Tennessee:											
Memphis.....	6	35	1	6	0	9	1	0	0	22	87
Nashville.....	1	11	1	0	0	2	0	1	0	5	49
Alabama:											
Birmingham.....	0	11	1	0	0	4	1	0	0	3	53
Mobile.....	0	1	0	1	0	0	0	1	0	0	25
Montgomery.....	0	0	0	0			0	1		0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	0	0	0			0	0		5	
Little Rock.....	0	1	0	0	0	3	1	0	0	0	15
Louisiana:											
New Orleans.....	8	10	1	10	0	14	2	1	0	2	127
Shreveport.....	0	0	1	0	0	3	0	0	0	4	37
Oklahoma:											
Muskogee.....	1	0	2	0			0	1		0	
Texas:											
Dallas.....	2	9	2	0	0	3	0	0	0	20	59
Fort Worth.....	2	7	2	7	0	2	0	0	0	0	32
Galveston.....	0	1	0	0	0	2	0	1	0	0	16
Houston.....	2	4	1	3	0	8	1	0	0	0	54
San Antonio.....	0	0	1	1	0	3	1	0	0	0	87
MOUNTAIN											
Montana:											
Billings.....	0	4	0	0	0	0	0	0	0	9	12
Great Falls.....	1	0	0	0	0	0	0	0	0	2	11
Helena.....	0	0	0	0	0	0	0	0	0	0	6
Missoula.....	1	0	1	0	0	0	0	0	0	0	3
Idaho:											
Boise.....	0	2	1	0	0	0	0	0	0	0	

City reports for week ended May 23, 1931—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
MOUNTAIN—con.											
Colorado:											
Denver.....	12	20	0	1	0	6	0	0	0	37	74
Pueblo.....	1	1	0	0	0	1	0	0	0	4	7
New Mexico:											
Albuquerque..	2	0	0	0	0	2	0	0	0	0	7
Arizona:											
Phoenix.....	1	0	0	0	0	1	0	1	0	0	-----
Utah:											
Salt Lake City	2	4	0	0	0	1	0	0	0	13	34
Nevada:											
Reno.....	0	0	1	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle.....	7	15	2	0	-----	-----	0	2	-----	99	-----
Spokane.....	4	2	6	2	-----	-----	0	0	-----	6	-----
Tacoma.....	3	0	3	0	0	1	0	0	0	6	19
Oregon:											
Portland.....	2	2	8	10	0	3	0	0	0	3	73
Salem.....	0	0	1	0	0	0	1	0	0	0	-----
California:											
Los Angeles...	29	23	5	4	0	20	1	1	0	44	261
Sacramento...	2	1	0	0	0	4	1	1	1	0	29
San Francisco..	20	4	1	0	0	15	1	0	0	16	149

Division, State, and city	Meningo- coccus meningitis		Lethargic en- cephalitis		Pellagra		Poliomyelitis (infan- tile paralysis)			
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti- mated expect- ancy	Cases	Deaths	
NEW ENGLAND										
Maine:										
Portland.....	1	1	0	0	0	0	0	0	0	0
Massachusetts:										
Boston.....	1	0	0	0	0	0	0	0	0	0
Springfield..	1	1	0	0	0	0	0	0	0	0
Worcester.....	0	0	0	0	0	0	0	0	1	0
Connecticut:										
Hartford.....	0	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC										
New York:										
Buffalo.....	0	1	0	0	0	0	0	0	0	0
New York.....	8	2	2	3	0	0	1	2	0	0
Rochester.....	2	0	0	0	0	0	0	0	0	0
New Jersey:										
Camden.....	1	1	0	0	0	0	0	0	0	0
Newark.....	1	1	0	0	0	0	0	0	1	0
Pennsylvania:										
Philadelphia...	1	2	0	0	0	0	0	0	0	0
Pittsburgh.....	5	0	3	1	0	0	0	0	0	0
Reading.....	1	1	0	0	0	0	0	0	0	0
EAST NORTH CENTRAL										
Indiana:										
Indianapolis...	3	2	0	0	0	0	0	0	0	0
Illinois:										
Chicago.....	16	8	1	0	0	0	0	1	1	1
Springfield..	1	0	0	0	0	0	0	0	0	0
Michigan:										
Detroit.....	4	3	1	0	0	0	0	0	0	0
Flint.....	1	0	0	0	0	0	0	0	0	0
Wisconsin:										
Racine.....	0	0	1	0	0	0	0	0	0	0

City reports for week ended May 23, 1931—Continued

Division, State, and city	Meningo- coccus meningitis		Lethargic en- cephalitis		Pellagra		Poliomyelitis (infan- tile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti- mated expect- ancy	Cases	Deaths
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	0	0	0	0	0	0	0	2	1
Missouri:									
Kanasas City.....	0	1	0	0	0	0	0	0	0
St. Joseph.....	0	1	0	0	0	0	0	0	0
St. Louis.....	3	2	0	0	0	0	0	0	0
North Dakota:									
Fargo.....	0	2	0	0	0	0	0	0	0
Nebraska:									
Omaha.....	3	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	1	0	0	0	0	0	0	0	0
Maryland:									
Baltimore.....	2	1	2	1	0	0	0	0	0
District of Columbia:									
Washington.....	3	2	0	0	0	0	0	0	0
Virginia:									
Norfolk.....	1	0	0	0	0	1	0	0	0
Roanoke.....	0	1	0	0	0	0	0	0	0
West Virginia:									
Wheeling.....	0	1	0	0	0	0	0	0	0
North Carolina:									
Raleigh.....	1	0	0	0	1	1	0	0	0
Winston-Salem.....	0	1	0	0	2	2	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	6	0	0	0	0
Columbia.....	1	2	0	0	0	2	0	0	0
Georgia:									
Atlanta.....	2	0	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	4	1	0	0	0
Florida:									
Miami.....	0	0	0	0	1	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	1	1	0	0	1	0	0	0	0
Nashville.....	0	1	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	4	2	0	0	1	1	0	0	0
Montgomery.....	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock.....	0	0	0	0	0	2	0	0	0
Louisiana:									
New Orleans.....	2	2	0	0	2	2	0	0	0
Texas:									
Dallas.....	0	0	0	0	2	0	0	0	0
Fort Worth ¹	0	0	0	0	0	1	0	0	0
Houston.....	0	0	0	0	0	1	0	0	0
PACIFIC									
California:									
Los Angeles.....	0	0	0	0	1	0	0	0	0

¹ Typhus fever, 1 case at Fort Worth, Tex.

The following tables give the rates per 100,000 population for 98 cities for the 5-week period ended May 23, 1931, compared with those for a like period ended May 24, 1930. The population figures used in computing the rates are estimated mid-year populations for 1930 and 1931, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 33,000,000. The 91 cities reporting deaths have more than 31,500,000 estimated population.

Summary of weekly reports from cities, April 19 to May 23, 1931—Annual rates per 100,000 population, compared with rates for the corresponding period of 1930¹

DIPHTHERIA CASE RATES

	Week ended—									
	Apr. 25, 1931	Apr. 26, 1930	May 2, 1931	May 3, 1930	May 9, 1931	May 10, 1930	May 16, 1931	May 17, 1930	May 23, 1931	May 24, 1930
98 cities	53	91	63	83	¹ 67	77	63	74	¹ 62	79
New England	58	85	36	82	¹ 35	65	38	106	¹ 50	68
Middle Atlantic	46	99	61	72	61	85	58	74	63	78
East North Central	58	113	84	130	82	103	72	91	67	115
West North Central	67	68	57	68	71	45	71	74	75	72
South Atlantic	51	64	69	50	63	62	55	54	¹ 38	54
East South Central	23	48	6	0	41	6	17	36	12	24
West South Central	71	101	68	94	108	73	81	66	81	52
Mountain	26	89	26	44	¹ 28	70	61	35	61	53
Pacific	63	49	53	61	61	49	74	43	72	59

MEASLES CASE RATES

98 cities	1,342	1,356	1,250	1,293	¹ 1,308	1,411	1,403	1,255	¹ 1,375	1,159
New England	1,286	1,710	964	1,042	¹ 1,103	2,303	1,166	1,843	¹ 1,230	1,877
Middle Atlantic	1,413	1,192	1,411	1,284	1,433	1,295	1,486	1,337	1,478	1,091
East North Central	1,075	999	897	1,005	1,102	927	1,313	814	1,458	685
West North Central	830	1,352	777	1,003	1,016	1,269	1,396	831	1,098	794
South Atlantic	4,049	1,306	3,871	1,188	3,553	1,298	3,365	1,228	¹ 2,844	957
East South Central	1,600	407	1,426	185	1,263	442	1,234	359	1,234	568
West South Central	139	592	156	731	152	711	166	735	271	547
Mountain	661	8,802	661	5,912	¹ 576	9,128	531	6,652	618	7,119
Pacific	517	2,067	505	1,773	501	1,992	554	1,670	456	2,180

SCARLET FEVER CASE RATES

98 cities	405	262	368	296	¹ 390	258	389	226	¹ 368	206
New England	575	348	582	268	¹ 631	310	666	261	¹ 546	314
Middle Atlantic	488	239	409	285	448	266	439	222	442	204
East North Central	432	360	402	394	439	318	454	308	412	227
West North Central	469	248	480	384	440	238	383	262	340	306
South Atlantic	304	248	273	294	276	242	243	172	¹ 242	164
East South Central	396	126	407	132	250	138	337	24	390	102
West South Central	98	59	132	115	105	94	108	73	85	49
Mountain	191	229	191	361	¹ 177	370	157	229	270	300
Pacific	86	176	94	109	106	130	123	128	88	97

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, 1931, and 1930, respectively.

² Pawtucket, R. I., Billings, Mont., and Boise, Idaho, not included.

³ Pawtucket, R. I., and Frederick, Md., not included.

⁴ Pawtucket, R. I., not included.

⁵ Frederick, Md., not included.

⁶ Billings, Mont., and Boise, Idaho, nor included.

Summary of weekly reports from cities, April 19 to May 23, 1931—Annual rates per 100,000 population, compared with rates for the corresponding period of 1930—
Continued

SMALLPOX CASE RATES

	Week ended—									
	Apr. 25, 1931	Apr. 26, 1930	May 2, 1931	May 3, 1930	May 9, 1931	May 10, 1930	May 16, 1931	May 17, 1930	May 23, 1931	May 24, 1930
98 cities.....	21	30	27	27	15	24	17	22	16	20
New England.....	0	0	0	0	40	2	0	0	40	0
Middle Atlantic.....	1	0	1	1	3	0	1	0	4	0
East North Central.....	20	18	10	21	6	22	23	16	15	10
West North Central.....	71	145	125	132	78	101	75	126	67	110
South Atlantic.....	6	0	6	0	8	0	6	4	6	2
East South Central.....	35	42	58	36	41	6	12	72	41	30
West South Central.....	98	38	101	31	64	28	41	21	47	10
Mountain.....	17	97	0	150	0	79	17	62	9	70
Pacific.....	41	109	51	73	12	83	25	47	12	71

TYPHOID FEVER CASE RATES

98 cities.....	3	6	6	6	5	6	5	8	6	7
New England.....	2	5	7	2	5	0	5	10	2	19
Middle Atlantic.....	4	5	7	3	5	4	5	7	5	4
East North Central.....	2	6	4	6	2	2	2	2	5	5
West North Central.....	4	4	4	4	2	8	6	8	10	8
South Atlantic.....	2	12	14	6	8	16	12	14	12	12
East South Central.....	6	0	12	24	6	18	17	42	17	24
West South Central.....	0	24	0	21	7	3	7	35	7	10
Mountain.....	9	0	0	53	0	18	0	0	0	0
Pacific.....	4	4	6	6	8	20	0	2	8	6

INFLUENZA DEATH RATES

91 cities.....	13	12	11	9	12	9	8	8	7	6
New England.....	7	12	7	5	5	10	2	0	5	5
Middle Atlantic.....	12	9	12	9	11	10	7	7	5	7
East North Central.....	6	14	5	7	11	9	5	4	5	5
West North Central.....	18	9	12	9	6	3	9	3	3	0
South Atlantic.....	10	12	20	16	22	6	16	20	4	6
East South Central.....	44	39	19	19	50	13	50	39	19	19
West South Central.....	55	25	38	21	14	28	7	4	28	7
Mountain.....	17	18	26	0	28	0	9	9	26	9
Pacific.....	5	0	2	5	7	7	7	12	0	5

PNEUMONIA DEATH RATES

91 cities.....	137	140	121	135	117	133	102	102	94	101
New England.....	132	189	154	164	135	131	113	111	75	109
Middle Atlantic.....	165	160	141	163	144	176	121	124	121	180
East North Central.....	98	108	77	107	87	92	74	67	68	79
West North Central.....	230	81	180	114	121	126	103	108	97	84
South Atlantic.....	168	210	180	204	130	132	126	170	107	110
East South Central.....	126	227	120	123	120	142	126	84	120	78
West South Central.....	145	132	152	110	114	164	114	78	97	82
Mountain.....	104	150	61	62	102	123	78	79	70	123
Pacific.....	46	50	46	42	70	52	55	47	55	35

¹ Pawtucket, R. I., Billings, Mont., and Boise, Idaho, not included.

² Pawtucket, R. I., and Frederick, Md., not included.

³ Pawtucket, R. I., not included.

⁴ Frederick, Md., not included.

⁵ Billings, Mont., and Boise, Idaho, not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended May 16, 1931.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended May 16, 1931, as follows:

Province	Cerebro-spinal fever	Influenza	Polio-myelitis	Small-pox	Typhoid fever
Prince Edward Island ¹					
Nova Scotia.....	1	6			
New Brunswick.....					4
Quebec.....					9
Ontario.....	1	2		5	14
Manitoba.....			1		1
Saskatchewan.....				15	2
Alberta ¹					
British Columbia ¹					
Total.....	2	8	1	20	30

¹ No case of any disease included in the table was reported during the week.

Quebec Province—Communicable diseases—Week ended May 23, 1931.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended May 23, 1931, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	2	Ophthalmia neonatorum.....	4
Chicken pox.....	101	Polio-myelitis.....	1
Diphtheria.....	27	Fuerperal fever.....	1
Erysipelas.....	3	Scarlet fever.....	60
German measles.....	5	Tuberculosis.....	79
Measles.....	367	Typhoid fever.....	5
Mumps.....	19	Whooping cough.....	13

CUBA

Provinces—Communicable diseases—Four weeks ended May 9, 1931.—During the four weeks ended May 9, 1931, cases of certain communicable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer.....					2		2
Chicken pox.....	3	62	10	23	1	6	105
Diphtheria.....		19	3	6	1		29
Malaria.....		4			1	53	58
Measles.....	1	87		14			102
Paratyphoid fever.....		1			1		2
Scarlet fever.....	1	18				1	20
Typhoid fever.....	1	27	5	33	1	21	88

JAPAN

Nagasaki—Typhoid fever.—According to a report dated May 28, 1931, typhoid fever was epidemic in the port of Nagasaki, Japan.

MEXICO

Tampico—Communicable diseases—April, 1931.—During the month of April, 1931, certain communicable diseases were reported in Tampico, Mexico, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	6	—	Measles.....	10	2
Diphtheria.....	—	2	Tuberculosis.....	53	33
Enteritis (various).....	—	32	Typhoid fever.....	—	5
Influenza.....	70	5	Whooping cough.....	17	4
Malaria.....	193	3			

PANAMA CANAL ZONE

Communicable diseases—April, 1931.—During the month of April, 1931, certain communicable diseases, including imported cases, were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Chicken pox.....	6	—	Pneumonia.....	—	24
Diphtheria.....	6	—	Scarlet fever.....	2	—
Dysentery (amebic).....	3	—	Tuberculosis.....	—	25
Leprosy.....	—	1	Typhoid fever.....	3	1
Malaria.....	102	3	Typhus fever.....	1	—
Measles.....	37	—	Whooping cough.....	9	—
Mumps.....	1	—			

PORTO RICO

San Juan—Communicable diseases—Five weeks ended May 16, 1931.—During the five weeks ended May 16, 1931, cases of certain communicable diseases were reported in San Juan, Porto Rico, as follows:

Disease	Cases	Disease	Cases
Diphtheria.....	2	Pellagra.....	2
Influenza.....	7	Tetanus (infantile).....	1
Malaria.....	16	Whooping cough.....	73
Measles.....	1		

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

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

CHOLERA

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

Place	Nov. 18- Dec. 13, 1930	Dec. 14, 1930- Jan. 10, 1931	Jan. 11- Feb. 7, 1931	Feb. 8- Mar. 7, 1931	Week ended—											
					March, 1931			April, 1931				May, 1931				
					14	21	28	4	11	18	25	2	9	16	23	30
Ceylon: Colombo.....					1											
China: Canton.....																
India.....	11, 112	10, 687	15, 334	11, 544	2, 471	857	2, 551	2, 939	3, 161	1						1
	5, 933	5, 689	8, 123	6, 131	1, 252	473	1, 314	1, 511	1, 571	2						
Bombay.....	13	21	9													
	7															
Calcutta.....	22	28	121	170	80	102	129	125	95	82	71			89		
	16	20	86	112	49	68	69	70	55	51	44			44		
Karikal.....		1		9	2	1	7	2	10	8		10				
				8	2	1	7	2	5	8				5		
Madras.....		201	99	72	4	5	7	4	3	1	4	18	18	22		
		67	47	29	5	3	2		5	1	3	5	6	8		
Nagapatam.....			3	3												
Rangoon.....		1	1	1												
	5	1	1	1												
Tuticorin.....																
India (French):																
Chanderagor.....		1	1	5	2	2	2	1			1			3		
	1	2	1	5	2	3	1							3		
Pondicherry.....		3	1	2	3	1								3	8	3
	4	31	19	100	29	25	26	20	5	3						
	4	21	11	34	6	5	4	3	1	3						
		1			6											
India (Portuguese)																
Indo-China (see also table below):																
Pnompenh.....			4	9						1	1					
	2															
	2		2	5												
Saigon and Cholon.....			9	6	1	1	1	3	2	3	7	1	15	25	23	34
	3	8	9	6	3	2	1	1	1	3	6		13	20	18	25
	1	4	4	4	2	1										
Persia: Rasandjan.....																

Place	Nov., 1930	Dec., 1930	Jan., 1931	Feb., 1931	Mar., 1931	Apr., 1931
Morocco.....			19	13		
Nigeria: Lagos.....			8	4		
Plague-infected rats.....			0	1		
Peru (see table below).....			0	1		
Senegal (see table below).....			0			
Siam.....						
Bangkok.....			4	18		
2			2	14		
1			2	14		
Negara Rabina.....			3	8		
1			3	8		
Syria: Beirut.....			11	9		
Tripolitania.....			9	10		
1			1	1		
8			1	1		
Tunisia: Tunis.....			1	3		
P			13	1		
Union of Socialist Soviet Republics:						
Gouranduz.....				28		
Transcaucasia-Karabakh.....				6		
Union of South Africa:						
Cape Province.....			P	1		
Orange Free State.....			2	P		
2			2	1		
1			1	1		
On vessel: S. S. Maritonga de Thermiots at Avonmouth. O						

Place	Nov., 1930	Dec., 1930	Jan., 1931	Feb., 1931	Mar., 1931	Apr., 1931
British East Africa (see also table above):						
Kenya.....	62	50	69	7	12	
C	5	1		4	2	
Indo-China (see also table above):						
Madagascar (see also table above):						
Ambositra Province.....	44	95	100	92		
C	44	87	96	88		
Antsitrabe Province.....	18	27	66	84		
C	18	26	57	79		
Marinarivo Province.....	12	18	28	31		
C	12	18	26	29		
Moramanga Province.....	19	13	7	7		
C	19	11	5	7		
Tananarive Province.....	170	178	92	145		
C	164	172	89	139		
Peru.....						
C						
Senegal:						
Baol ¹	34	41	29	12		
D	14	13	8	6		
Dakar ¹	4					
C						
Louga ¹						
C						
Rufisque ¹	10					
C	3					
Thies ¹						
C	27	2		2		
C	23	1				
Tivaouane ¹	21	2				
C	25	1				
D						

¹ Reports incomplete.

SMALLPOX

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

Place	Nov. 16- Dec. 13, 1930	Dec. 14, 11- Feb. 7, 1931	Week ended—															
			February, 1931				March, 1931				April, 1931				May, 1931			
			14	21	28		7	14	21	28	4	11	18	25	2	9	16	23
Algeria:																		
Algiers.....		1		1														
Bone.....																		
Constantine.....																		
Oran.....	3									1						1		
Arabia: Aden.....		79	50	1														
Belgian Congo.....																		
Belgium.....																		
Brazil: Porto Alegre (alastrim).....	36		3	1	1	2		3	7	12	16	14	20	19				
British East Africa(see also table below): Tanganyika.....	385	84	70	35	42	13	1	1	6	2								
British East Africa(see also table below): Tanganyika.....	36	4	5		12	1		1	2									
British South Africa: Southern Rhodesia.....	18	18	13															
Canada:	3																	
Alberta.....	1	19	7	1														
British Columbia.....	1	3	2	1	2	5												
Manitoba.....						1												
Winnipeg.....		1				1									4			
Nova Scotia.....																		
Ontario.....	23	17	49	10	4	7	8	2	3	3	1		6	7	17	5		
Kingston.....					1													
North Bay.....		6	1	1														
Ottawa.....	12	2	3	1														
Sault Ste. Marie.....		1	30		1	2												
Toronto.....	4							1										
Quebec.....	2		2															
Saskatchewan.....	18		38	17	18	18	10	40	10	8			6	16	3	22	7	
Regina.....					1					2			5	16	3	22	7	
Canary Islands: Las Palmas.....										1							15	
China:																	18	
Amoy.....																2		
Canton.....																1		
Chungking.....	P	2		2			1	1	2	2		2	1	2	1			

[illegible]

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

TYPHUS FEVER

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

Place	Nov. 14- 16- Dec. 13, 1930	Dec. 14, 16- Jan. 10, 1931	Jan. 11- Feb. 7, 1931	Week ended—														
				February, 1931			March, 1931			April, 1931			May, 1931					
				14	21	28	7	14	21	28	4	11	18	25	2	9	16	23
Algeria:																		
Algiers.....	2			1	1					3						2	1	3
Constantine Department.....	2	6	31							1						6	1	8
Oran.....	6		3				1									1		
Australia, western.....		3																
Bulgaria.....	11	1	13		2		3									26	4	
Chile: Valparaiso.....																3		
China:										1								
Canton.....			2					1										
Manchuria—Harbin.....			3															
Shanghai.....	1		2							3								
Tientsin.....	1															1		
Chosen (see table below).																		
Czechoslovakia (see table below).																		
Egypt:																		
Alexandria.....	2															1		
Behlra Province.....																1		
Cairo.....		1														3		
Port Said.....		1														2		
Eritrea: Asmara.....			1															
Great Britain: Scotland.....			1															
Glasgow.....			1															
Greece (see table below).																		
Guatemala.....																		
Iraq: Baghdad.....				2	1	1	1	1										2
				1														1
Irish Free State:																		
Kerry County—Dingle.....																		1
Mayo County—Belmullet.....																		1

Place	Nov., 1930	Dec., 1930	Jan., 1931	Feb., 1931	Mar., 1931	Apr., 1931
Latvia (see table below).						
Lithuania (see table below).						
Mexico City, including municipalities in Federal District.						
San Luis Potosí.						
Morocco.						
Palestine.						
Panama Canal Zone—Balboa.						
Paraguay: Asunción.						
Poland.						
Portugal: Oporto.						
Rumania.						
Spain.						
Syria.						
Tunisia.						
Sbeitla, vicinity of.						
Sfax.						
Tunis.						
Turkey (see table below).						
Union of South Africa:						
Cape Province.						
Municipality of East London.						
Natal.						
Orange Free State.						
Transvaal.						
Yugoslavia (see table below).						

Place	Nov., 1930	Dec., 1930	Jan., 1931	Feb., 1931	Mar., 1931	Apr., 1931
Chosen: Seoul.	1	1	1			33
Czechoslovakia.	16	24	60	26	3	3
Greece.	4	10	10	17	1	
Latvia.			2	2	12	43

! On Feb. 27, 1931, the Director General of Public Health of Guatemala reports an unusual outbreak of typhus fever in a small village in Guatemala.

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

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

Place	Nov. 16- Dec. 13, 1930	Dec. 14, 1930- Jan. 10, 1931	Jan. 11- Feb. 7, 1931	Week ended—														
				February, 1931			March, 1931			April, 1931			May, 1931					
				14	21	28	7	14	21	28	4	11	18	25	2	9	16	23
Brazil:																		
Bahia State.....	O							1	1									
Ceara State.....	O		1					2								2	2	1
Minas Geraes State.....	O								2				1		2	2	1	1
Rio de Janeiro State.....	O							1	1	1					1	1	1	1
Cambucy.....	O		3	1			1	1	1									
Eriburgo (imported).....	O		3	1														
Padua.....	O		1															
British Cameroon: Mamfe.....	O		2	1													3	1

X