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THE PSITTACOSIS OUTBREAK IN MARYLAND, DECEMBER, 1929, AND JANUARY, 1930

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THE OUTBREAK

On January 6, 1930, Dr. Willis P. Martin, of Annapolis, observed three cases of illness in an Annapolis family in which a parrot had died. He suggested psittacosis, the disease having come to his attention through a newspaper article which appeared at the time. The parrot had been purchased from a pet shop in Baltimore on December 14, 1929.

An investigation was immediately begun in order to ascertain whether other cases of illness existed in families purchasing parrots from Baltimore pet shops. Through pet shop records, 38 homes were located and visited. Inasmuch as Baltimore pet shops sold parrots not only to residents of Baltimore but to others outside the city, the investigation was conducted jointly by the city health department and the State health department. Dr. D. S. Hatfield conducted the investigation in Baltimore City until the onset of his own illness on January 19. On account of the marked prevalence of illness associated with parrots as revealed by these investigations, on January 10 all pet shops were ordered to stop the sale of and to isolate all parrots. These restrictions remained in effect until February 21.

Number and occurrence of cases.—Altogether 36 cases were discovered, 24 in Baltimore City and 12 in the counties of Maryland outside of Baltimore. All cases had a history of exposure to recently purchased parrots.[1] These cases include not only those definitely diagnosed by attending physicians, but also those considered by the investigators as probably psittacosis as judged from symptoms and exposure. All were among white persons with ages varying from 4 to 77 years.

[1] The 36 cases do not include the following suspected cases:

(a) A four-month old child who was slightly ill following the purchase of a parrot from Pet Shop A. The parrot later died.

(b) A health officer of the city health department (see section health department employees).

(c) An employee of Pet Shop A, said to have an influenza-like illness Jan. 1 to Jan. 5. He left the city before investigation was made.

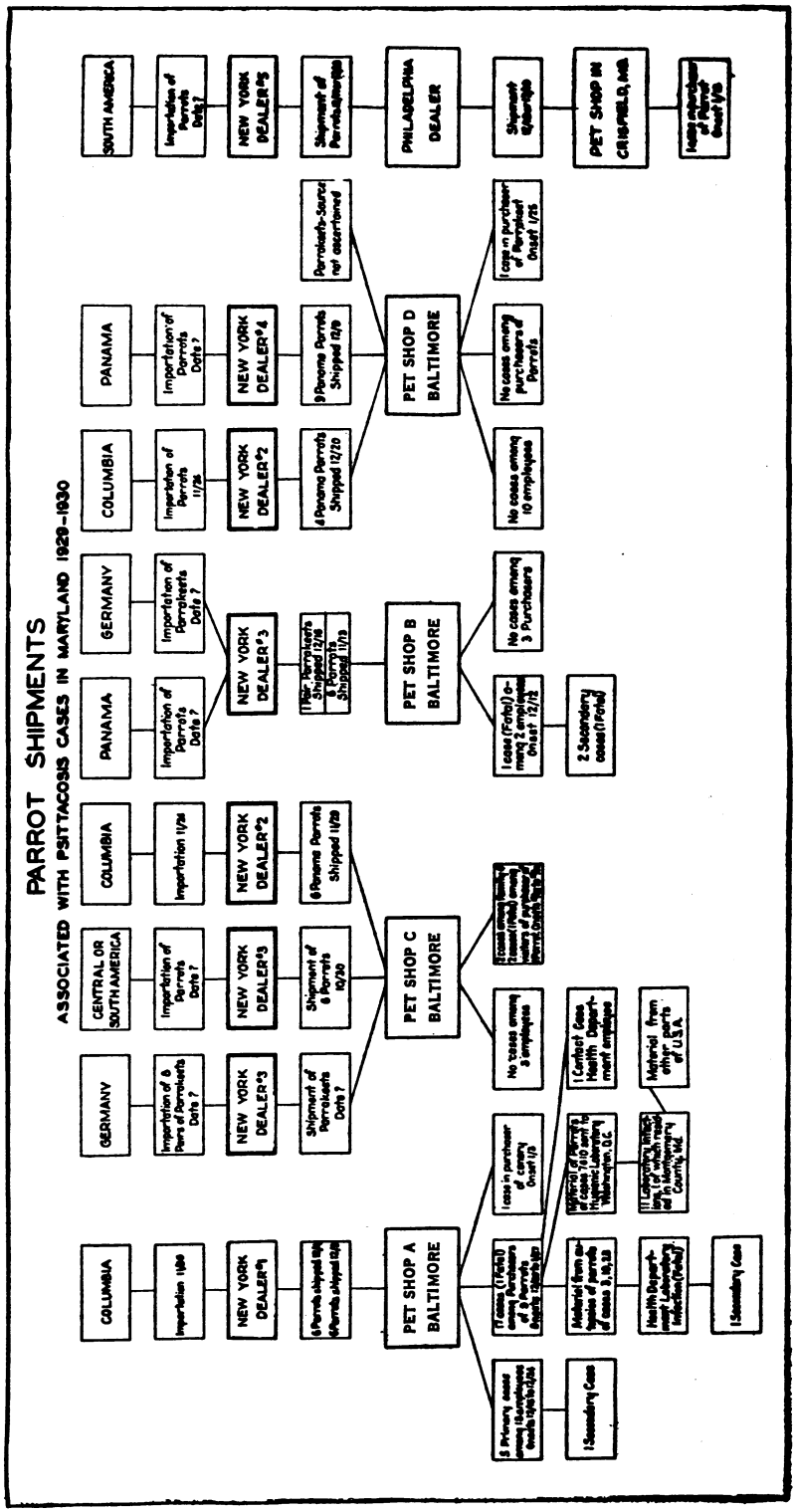

FIGURE 1.—Relation of cases to parrot shipments

TABLE 1.—*Age and sex distribution*

Age group	Males	Females	Total
Under 20 years	3	2	5
20 to 39 years	6	10	16
40 to 59 years	4	9	13
60 years and over	1	1	2
Total	14	22	36

Fatality.—Five of the 36 cases were fatal.

Source of infected birds.—Seven pet shops in Baltimore were found to be engaged in the sale of pet birds. Four of these shops were found to be concerned directly or indirectly in the causation of cases. In

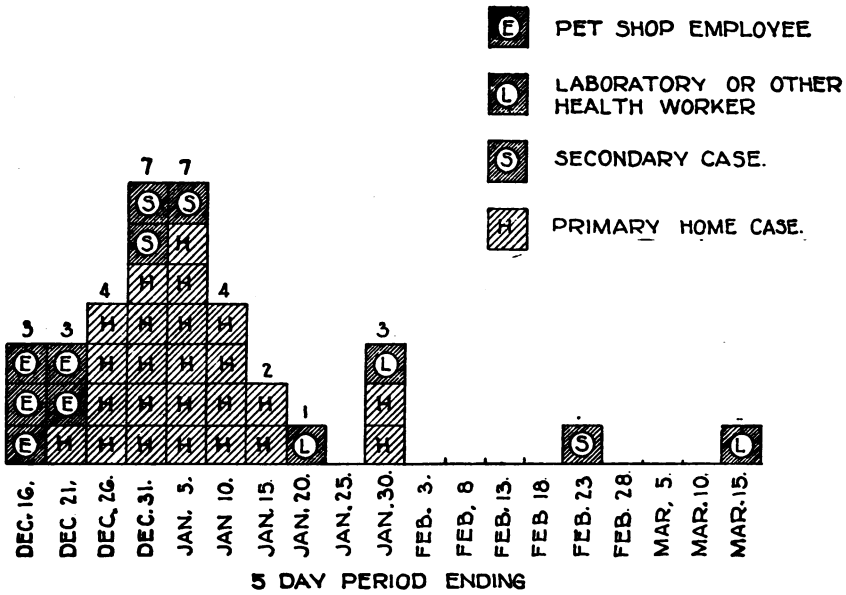

FIGURE 2.—Distribution of cases by type of exposure and date of onset

addition a pet shop in Crisfield, Md., which received parrots from a Philadelphia dealer was concerned in the causation of a case in Crisfield, Md. The 36 cases were traced to various shipments of birds, as shown on the accompanying chart.

ATTACK RATES

Pet shop employees.—Five cases of psittacosis developed among 33 employees of the four pet shops known to have had infected birds. Four of these were among 18 employees in Pet Shop A, which shop was shown to have sold at least 11 infectious birds (10 parrots and 1 canary) to 11 households.

In addition to the pet shops known to have handled infectious birds, 3 others, employing altogether about 9 persons, handled pet birds but had no cases among employees or purchasers.

Homes.—Twenty-two cases developed among a total of 49 members of the 13 households which received infectious parrots, as judged by the occurrence of human cases. The distribution of these 22 cases according to households is shown as follows:

TABLE 2.—*Distribution of cases by households*

Number of cases per household	Total number of cases	Households
1	8	8
2	4	2
3	6	2
4	4	1
Total "home" cases	22	13

In one family in which two cases occurred, two additional cases occurred among visitors known to have been exposed to the same bird.

In order to study the influence of the type of exposure, the members of the households were divided into two groups, viz, a "heavy exposure" group, as judged by the fact that the persons frequently handled the birds or cleaned the cages, and an "occasional exposure" group in which the members probably only occasionally touched the birds. Table 3 includes also the exposures in four families which purchased parrots but in which families no human illness occurred, though the parrots bought either died or showed some signs of illness. It does not include the family in which the suspected 4-month old case occurred.

TABLE 3.—*Attack rate in persons exposed to birds*

Exposure	Number of persons exposed	Number attacked	Attack Rate
			Per cent
Heavy exposure	31	20	65
Occasional exposure	36	2	6
All exposures	67	22	33

In regard to the "heavy exposure" group, it is of interest to note that the attack rate in the city homes was 48 per cent (10 cases out of 21 exposures) and that the attack rate in the county homes was 100 per cent (10 cases out of 10 exposures).

Secondary attack rate.—Ten patients spent their period of illness wholly or in part separate from infected parrots, so that these cases

may be taken as sources of infection for computing the secondary attack rate (infection from person to person). Twenty-one persons (not exposed to birds nor to infectious material) were exposed to these 10 cases. Sixteen of them took precautions against infection, and of these 16, one was attacked. This case was in one of the nurses who attended Doctor Stokes, a fatal case with cough and sputum. Of the five exposed persons who did not take precautions, three were attacked, two of which were in one family and were in contact with a fatal case with cough and sputum. The third case was in the wife of a pet shop employee who had psittacosis, a very light attack without cough. Of the four cases listed as secondary, two should be considered as probably secondary cases and two as definitely secondary cases. Of the two probable cases, one, the wife of a pet shop employee might have been infected by a possible visit to the pet shop; the other, a man of 77 years of age, one of the two contacts of the fatal case referred to above, was taken sick with a fatal pneumonia eight days after the primary case. It is barely possible that he died of other than psittacosis infection. The two definitely secondary cases have already been described by Dr. Charles Armstrong.[2]

TABLE 4.—*Attack rate in persons exposed to human cases*

	Number of persons exposed	Number attacked	Attack rate
			Per cent
Precautions taken	16	1	6
Precautions not taken	5	3	60
All exposures	21	4	19

In the families in which the patient was treated in the same house with the infected bird, it is, of course, not possible to estimate the secondary attack rate, because no distinction can be made between infection from the bird and infection from the human cases. It is interesting to note, however, that there were five such families in which the patient had a cough and sputum and in which the chief attendant did not contract the disease. Moreover, in four of these families, the chief attendant did not take precautions.

Health department employees.—Two cases occurred among health department employees, these being Dr. W. R. Stokes, director of the bacteriological laboratory, who died with the disease on February 10, and Dr. Daniel S. Hatfield, director of the Bureau of Communicable Diseases, who recovered. Doctor Stokes was presumably infected during autopsies of parrots. He performed three parrot autopsies, using rubber gloves and first soaking the birds in disinfectant. After being taken sick, he remarked that he did not know

[2] Public Health Reports, Aug. 29, 1930, p. 2019, second and third paragraphs.

how he could have been infected unless it was the result of not wearing a mask. Doctor Hatfield thinks that he was infected from the cough of a patient, Case No. 7, while making a physical examination. He was also exposed to places which had recently harbored infected birds, and also possibly to the birds themselves.

One of the district health officers of the city health department died of pneumonia on March 27. The postmortem report suggested psittacosis. He was, however, probably not exposed to the disease after January. His illness was not included in the list of 36 cases.

INTERVAL BETWEEN EXPOSURE AND ONSET

Fairly definite periods.—In Case No. 1, a "home" case, it appeared that the time interval between first exposure and date of onset was 12 days. This exposure occurred during a visit to the home of cases 16 and 17, when the patient was said to have "fooled with" the sick parrot (which died four days later). This patient had several other possible exposures, as follows: Through visits to pet shops about 18 days before onset; from a recently purchased, apparently well, parrot of her own; and probably from other exposures to the above mentioned sick parrot.

In case No. 16, the laboratory infection of Doctor Stokes, infection probably occurred during one of three parrot autopsies performed 9, 11, and 15 days, respectively, before the onset of his illness. Doctor Stokes was probably also exposed to infectious material in his laboratory. All three parrots had been associated with human cases and had later taken sick and died.

Case No. 12 became ill 9 days after the purchase of a canary, which died two days later. This patient was also possibly exposed to infection by visiting pet shops; also to another canary in the home which was sick two and three days before the patient's onset of illness, and to the cage of the dead canary.

Short periods.—Case No. 3, a "home" case, became ill 5 days after the parrot had been brought home. The patient had not visited any pet shops, the parrot having been brought home by the patient's brother.

Case No. 20, a pet shop employee, began working in the pet shop only six days before the onset of his illness. He denied any earlier exposure.

Long period.—Case No. 22, a "home" case, became ill 33 days following the death of a parrakeet purchased but two days prior to its death. Other sources of infection were, however, possible in this case, namely, from material in the parrakeet's cage, from other apparently well parrakeets in the house, or from later visits to the pet shop which sold the infected bird.

Interval from purchase to onset.—The interval between the purchase of the parrot and the onset of human cases in the various homes is summarized as follows:

TABLE 5.—*Interval between purchase of bird and onset of disease*

Interval between purchase of parrot and onset of human cases	Number of human cases
Under 5 days	0
5 to 9 days	4
10 to 14 days	8
15 to 19 days	5
20 or more days	6
Total	23

MODE OF INFECTION

In the primary cases the most frequent exposure appeared to be connected with cleaning the cages, fondling the parrots, hand-to-mouth feeding, and, in at least three cases, direct mouth-to-mouth feeding.

A history of a parrot bite was not elicited in any case, but one, case No. 22, was pecked by a parrakeet. The skin was not broken.

THE DISEASE IN PARROTS

Symptoms.—As described by members of the family, the following symptoms were noted in infected parrots: Diarrhea was observed in about one-half of the sick parrots. Bad odor was noticed in several instances. Other symptoms were ruffled feathers, droopiness, and sneezing. Among the 11 parrots associated with cases in the homes, 2 recovered after very slight illness, 6 died, 2 were killed while sick, and 1 was killed while apparently well. The canary associated with case No. 12 and the parrakeet associated with case No. 22 both died. In 9 families the question was asked as to whether the parrot exhibited any signs of vermin. In all instances, this question was answered in the negative.

Second cases among birds.—In some of the families visited there was more than one pet bird in the house. The fatality rate among these birds presumably exposed in the house was found to be as follows:

TABLE 6.—*Houses with more than one pet bird*

	New birds bought at time of outbreak		Old birds in household before outbreak		All exposed birds	
	Total	Number died	Total	Number died	Total	Number died [1]
Parrot	2	2	0	0	2	2
Parrakeet	2	0	0	0	2	0
Canary	2	2	6	2	8	4
All birds	6	4	6	2	12	6

[1] All sick birds died.

In considering the secondary cases among new birds, it must be borne in mind that infection may have taken place in pet shop before purchase.

No instance was found in which it can be definitely stated that a bird contracted the disease from a human case. There was, however, one instance in which this seemed to be the most likely mode of infection.

Interval between notice of symptoms in bird and human illness.—The interval between recognition of illness in birds and onset in exposed persons was as follows:

Number of birds showing symptoms prior to onset of human illness

Parrot cases	8
Canary case	1
Parrakeet case	1

Number of birds showing symptoms subsequent to onset of human illness

Parrot cases	3

Two of the parrots whose illness was followed by human cases were only slightly ill and later apparently entirely recovered. In one of these the parrot had a bad odor for one or two days shortly after purchase and sneezed occasionally, and in the other case the only abnormality noted was a drop of water in one nostril seen on the day on which the parrot was purchased.

Of the 3 parrots listed as having become ill following the onset of human cases, 2 showed no signs of illness until 7 and 9 days, respectively, after onsets of the first human cases and died after illnesses of 7 and 6 days, respectively. The third parrot was killed between the second and sixth day following the onset of the human case. It showed no illness at the time.

Interval between purchase and onset of illness.—The interval from purchase to onset of illness in twelve birds was as follows:

Onset 1 to 4 days after purchase (5 were ill on day purchased)	8
Onset 5 to 9 days after purchase	1
Onset 10 to 14 days after purchase	[3]1
Onset 15 to 19 days after purchase	1
Onset 20 to 24 days after purchase	2
Total	13

PREVENTION AND CONTROL

Psittacosis is a disease associated with recently imported parrots and other pet birds; and the fact that this outbreak rapidly subsided after stopping importation, isolating the parrots in pet shops, and stopping sales indicates that its control is a matter of preventing contact with infectious birds by measures of this kind.

[3] Parrot, supposedly well, killed between twelfth to sixteenth day following purchase.

INFLUENCE ON EPILEPSY OF A DIET LOW IN THE PELLAGRA-PREVENTIVE FACTOR

By N. P. Walker, *Clinical Director, Milledgeville State Hospital, Milledgeville, Ga.*, and G. A. Wheeler, *Surgeon, United States Public Health Service*

In 1927 one of us (N. P. W.) had occasion to observe a number of white female epileptics under treatment with a high-fat or ketogenic diet. The diet used consisted of toast, butter, bacon, egg yolk, cream, chocolate, lettuce, mayonnaise, and small allowances of roast beef and tomatoes, the approximate chemical composition being protein 51.1 grams, fat 412.1 grams, carbohydrate 52.6 grams.

One of three patients who continued on the above diet for any considerable period developed symptoms of pellagra during the third month. There was a pronounced stomatitis but little or no skin manifestations or diarrhea. The condition cleared up promptly and completely with a change in diet and the administration of yeast. But along with the appearance of pellagra there was a rapid and marked decrease in the number of convulsions. Within a short time she was entirely free from convulsive seizures of any sort and remained so for a period of two months and four days. This patient was not considered an idiopathic epileptic, because of the presence of well-marked neurology. The neurological symptoms were also greatly improved. Following this period of intermission, during which convalescence from pellagra had been completed, the convulsive seizures reappeared but on a somewhat reduced scale as compared with her previous record. This rate has since been maintained (now more than two years) without pronounced variation.

In explanation of this striking remission in the midst of a long and fairly uniform record of convulsions, it, at first, appeared that it may possibly have been due to the effects of the ketogenic diet or, since this patient was not believed to be an idiopathic epileptic, purely a coincidence. That the ketogenic diet, *per se*, was responsible for this result receives little support from the record of the other members of the group on this diet in whom no remission of any considerable consequence was observed, though they did not continue on it quite so long. The fact that in nearly four years' continuous observation of this particular patient she has shown no pronounced remission, other than the one associated with the attack of pellagra, renders the possibility of a mere coincidence somewhat less likely.

In view of the above, it occurred to us that this favorable result may have been influenced in some way, either by the shortage of the pellagra-preventive factor in the ketogenic diet, or by some other factor associated with a diet low in this accessory, or possibly by the effects of the pellagra itself.

Since pellagra can be readily produced by simply restricting the antipellagric vitamin in the diet for a few months and, when once established, can be readily cured, at least in the early stage, by the administration of yeast or by a change in diet, it was decided to check this result by placing a suitable number of epileptics on a diet low in this factor but otherwise well balanced.

Considering the extremely poor prognosis offered by institutional epileptics and the possibility that it might eventually lead to something that would help to alleviate their wretched condition, this step seemed to us to be warranted. Accordingly, a group of 10 white females, all of whom had been diagnosed and classified as idiopathic epileptics, were selected for study and segregated in a section of one of the general wards where they were under the direct observation of a nurse both day and night.

All were more or less in a state of mental deterioration, the majority markedly so. The ages varied from 22 to 56, with an average of 36 years; institution residence from 3 to 17 years, with an average of 8 years; duration of epilepsy from 14 to 46 years, with an average of 27 years. Aside from the epilepsy involvement and its attendant traumatism, all appeared to be in fair to good physical health.

No evidence of pellagra had been observed in any of this group during their residence in the institution and no mention was made of it in their commitment histories.

The diet used is a replica of the basic diet used by Goldberger and Wheeler in the study of the pellagra-preventive value of various foodstuffs and is believed to be complete in all known respects, except for a deficiency in the pellagra-preventive factor. It is not totally deficient in this essential, since the cowpeas, tomato juice, and yeast bread supply it in small but appreciable quantity. Somewhat further restriction is therefore practicable without serious impairment of the supply of the other known factors, but this was not considered necessary nor, under the circumstances, advisable.

The following is the daily menu used:

Breakfast	Amount per patient, ounces
Mixture:	
Corn meal	2.5
California blackeyed peas	.5
Lard	.25
Salt (seasoning) (*q. s.*).	
Brown gravy:	
Flour	.25
Lard	.25
Salt and pepper (*q. s.*).	
Cane sirup	2.0
Loaf bread	1.5
Coffee without sugar or cream.	

Dinner

	Amount per patient, ounces
Mixture:	
Corn meal	2.5
California blackeyed peas	.5
Lard	.25
Salt (seasoning) (*q. s.*).	
Brown gravy:	
Flour	.25
Lard	.25
Salt and pepper (*q. s.*).	
Cane sirup	2.0
Corn meal (corn meal as corn bread)	2.0

Supper

Mixture:	
Corn meal	2.5
California blackeyed peas	.5
Lard	.25
Salt (seasoning) (*q. s.*).	
Brown gravy:	
Flour	.25
Lard	.25
Salt and pepper (*q. s.*).	
Cane sirup	2.0
Loaf bread	1.5
Coffee without sugar or cream.	

The cereal-legume mixture was cooked for one and one-half hours, the cowpeas first being ground to a coarse meal. The corn bread was taken from the regular institution supply, buttermilk, lard, and soda being used in its preparation. Coffee was served with the morning and evening meals in accordance with the established custom of the institution. Drinking water was available at all times.

In addition to the items listed above, each patient received a daily supplement consisting of ½ ounce of cod-liver oil; 4½ ounces of canned tomato juice; 90 drops of dilute hydrochloric acid; 3 grams of calcium carbonate; and 2 drops of sirup iodid of iron. With the exception of the iodid of iron, which was given at supper only, these supplements were given one-third with each meal. The cod-liver oil, hydrochloric acid, and iodid of iron were given in the tomato juice, and the calcium carbonate was mixed with the basic cereal-legume mixture.

The approximate chemical composition of the above diet is as follows: Protein, 48.6 grams; fat, 63.8 grams; carbohydrate, 407.8 grams; total calories, 2,412.

The special diet was preceded by a period of preliminary observation on the regular institution diet, varying from 17 days for some to a year or more for others. During this period it was the custom to regulate the bowels by the use of castor oil or Epsom salts, usually the latter; and in cases where the convulsions were severe or appeared in rapid succession, a mixture containing chloral hydrate, sodium bromide, and tincture belladonna was prescribed by the ward physi-

cian and used as indicated. The number of convulsions recorded during the period of preliminary observation may, therefore, be smaller than would have been the case had the laxatives and the sedative mixture not been used. Since no drugs of any sort, not even laxatives, were employed after the special diet had been begun, the contrast between the frequency of convulsions on the two diets is, in all probability, greater than the actual figures indicate. Aside from this the findings for the two periods are believed to be comparable in all respects.

The salient features of the record of each patient are given below.

Case 1.—Age, 37; hospital residence, 3 years; duration of epilepsy, 14 years; average monthly number of convulsions for 12 months preceding the special diet, 17; lowest, 8, highest, 25. Special diet begun December 17, 1929. The month of December showed 20 convulsions, January 18; February 17. Positive evidence of pellagra was noted on February 26. Though the mouth and skin changes were relatively mild, there were many subjective complaints and the pulse was fast. For safety's sake, two days later she was given a suitable diet with yeast. Within four weeks all evidence of pellagra had disappeared. There were 6 convulsions in March and 11 in April. She was again placed on the special diet on May 1. During May and June the convulsions numbered 17 and 17, respectively. Symptoms of pellagra reappeared July 26, 1930. During that month there were 12 convulsions and in August there were 11. The number rose to 21 in September.

Case 2.—Age, 34; hospital residence, 3 years; duration of epilepsy, 22 years. Average number of convulsions per month for 12 months preceding change in diet, 23. Highest, 33; lowest, 13. Placed on the special diet December 17, 1929. Beginning with December the number of convulsions following change of diet was December, 27; January, 33; February, 32; March, 14; April, 25. Stomatitis was first noted April 12 and dermatitis June 30. During May, June, and July the number of convulsions was 17, 21, and 9, respectively. Yeast treatment was begun July 31, and within about three weeks all evidence of pellagra had disappeared. The number of convulsions was 23 in August and 20 in September.

Case 3.—Age, 44; hospital residence, 12 years; duration of epilepsy, 33 years. Marked mental deterioration. Placed on special diet December 17, 1929, with preliminary observation from December 1 only. The monthly convulsions following change of diet, beginning with the month of December, were as follows: December, 42; January, 35; February, 36; March, 30; April, 26; May, 30. Dermatitis was present May 31. Yeast was begun July 2 and, since this patient had become quite feeble, a daily allowance of 40 ounces of sweet milk was added to the diet beginning July 5, following which all evidence of pellagra disappeared and patient soon regained her strength. During June there were 23 convulsions; July, 2; August, 22; September, 26.

Case 4.—Age, 35; hospital residence, 9 years; duration of epilepsy, 30 years. Mental deterioration pronounced. Average number of convulsions per month for 12 months preceding dietary change, 21; highest 25, lowest 17. Placed on special diet December 17, 1929. There were 23 convulsions in December, 26 in January, 17 in February, 17 in March, and 13 in April. Stomatitis was first noted May 17, and dermatitis May 24. Yeast treatment was begun July 16, and all evidence of pellagra had disappeared by the last of August. There were 17 convulsions in May, 19 in June, 17 in July, 17 in August, and 21 in September.

Case 5.—Age, 22; hospital residence, 10 years; duration of epilepsy, 20 years. Placed on special diet December 17, 1929. Beginning with December the monthly number of convulsions was as follows: December, 27; January, 15; February, 11; March, 12; April, 15. Stomatitis was first noted April 5, dermatitis May 31. Both the mouth and skin symptoms were very mild throughout. Yeast treatment was begun July 31, and the mouth and skin were clear within three weeks. During May there were 10 convulsions; June, 9; July, 7; August, 9; September, 14.

Case 6.—Age, 29; hospital residence, 11 years; duration of epilepsy, 29 years. Marked mental deterioration. Preliminary observation begun November 1, 1929, during which month 11 convulsions were recorded. Placed on special diet December 17, 1929. During December there were 8 convulsions; January, 9; February, 11; March, 13. Dermatitis was present on April 19. Yeast was begun June 5, and convalescence was apparently complete by July 15. The number of convulsions for April, May, June, July, August, and September were 15, 14, 8, 15, 24, and 10, respectively. This patient showed a 4 plus Wassermann in 1918. No further mention was made of this until 1923 when it was noted that the blood was negative after treatment.

Case 7.—Age, 31; hospital residence, 17 years; duration of epilepsy, 29 years. Marked mental deterioration. With preliminary observation beginning December 1 subject was placed on special diet December 17, 1929. For December, January, and February, the convulsions were 11, 12, and 13, respectively. Stomatitis was first noted March 29 and dermatitis May 31. Yeast was begun June 27, and, as the symptoms had become quite advanced, she was returned to general diet with yeast and milk on June 28. During March the number of convulsions dropped to 6, but rose to 20 in April and to 35 in May, and dropped to 11 in June. During July, August, and September there were 14, 13, and 10 convulsions, respectively.

Case 8.—Age, 24; hospital residence, 6 months; duration of epilepsy, 10 years. Marked mental deterioration. Preliminary observation began December 1, 1929, and patient was placed on special diet December 17, 1929. The number of convulsions was as follows: December, 35; January, 35; February, 37; March, 24; April, 8.

Stomatitis was first noted April 4, 1930. This patient later developed an abscess of a salivary gland and was removed to the infirmary for surgical treatment. Observation as to the number of convulsions was terminated with her removal from the group.

Case 9.—Age, 56; hospital residence, 3 years; duration of epilepsy, 46 years. This is the oldest member of the group, in whom the duration of epilepsy is longest and the number of convulsions the highest. Although there is some mental deterioration, it is less marked than in any other member. Most of the convulsions are relatively light in type. For the twelve months preceding December, 1929, the average number per month was 160. Highest 180, lowest 142. During this period she received the sedative mixture previously referred to fairly regularly at night, as most of her convulsions occurred during the night. She was placed on the special diet December 17, 1929, and during that month 180 convulsions were recorded. In January there were 130; February, 150; March, 107. On April 5 stomatitis was noted, and on April 19 dermatitis was present. Yeast treatment was started May 27, and convalescence from pellagra was apparently complete by July 10. There were 73 convulsions in April, 76 in May, 78 in June, 106 in July, 145 in August, and 272 in September.

Case 10.—Age, 37; hospital residence, 18 years; duration of epilepsy, 27 years. Extremely deteriorated mentally, but in fairly good condition physically. Placed on special diet December 17, 1929. Beginning with the month of December the record of convulsions is as follows: December, 15; January, 11; February, 13; March, 10; April, 10; May, 5. Dermatitis was first noted on May 3. The pellagrous symptoms were at first rather slow in their evolution, but later assumed a fulminating character, becoming so severe as to require patient's removal from the group for special infirmary care. Observation as to the number of convulsions was terminated with her removal from the group.

The clinical manifestations of pellagra were typical in all respects. In seven, stomatitis preceded the appearance of the skin manifestations; and in one, stomatitis was the only pellagrous manifestation observed. Usually the first evidence of beginning stomatitis was an increased redness of the vermilion border of the lower lip, which was followed shortly afterwards by a similar change involving the tongue, floor of the mouth, and, in some, the mucosa of the cheeks. In several instances the stomatitis was repeatedly observed to disappear after a variable period, to recur after a short interval. In some, the mouth became very sore and foul; and in two, superficial necrosis was in evidence when treatment was begun.

Bilaterally symmetrical skin lesions were present in 9 of the 10 patients. The initial eruption first appeared as a mild erythema

which gradually increased in intensity, accompanied by some degree of thickening. After a variable period (usually a week or 10 days) the areas involved showed more or less drying and pigmentation, which were followed by desquamation. The backs of the hands were the most frequent site of the initial lesion, though the wrists, forearms, and, less frequently, the upper arms were, in most cases, involved, either initially or by extension. Three showed lesions about the neck, two on the face, and one about the external genitalia. In four cases, where treatment was withheld for several weeks, successive waves of dermatitis were observed.

In some cases looseness of the bowels (two to four stools daily) appeared at intervals; others showed a tendency toward constipation; and some looseness of the bowels alternating with constipation. There was severe and prolonged diarrhea in one case.

As a rule, the weight was fairly well maintained. Some showed a loss of appetite, with reduced food intake, at about the time, or shortly before, the appearance of pellagra and presented a gradual decline in weight during the period of active involvement.

There was no fixed time for beginning treatment. It was our desire to withhold treatment as long as it seemed safe in order that any influence on the convulsions could be exerted. In general, the nature and trend of the symptoms and the behavior of the appetite determined the course pursued in each case. In some, a period of several weeks were allowed to elapse, while in others treatment was begun soon after the condition had become established.

The observations regarding the number of convulsions and their relationship to the appearance of pellagra are summarized in the accompanying table:

Monthly record of convulsions and their relation to pellagra in 10 white female epileptics on a pellagra-producing diet

Case No.	Record for preceding 12 months	Date special diet was begun	Convulsion record while on special diet									
			Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	Highest, 25; lowest, 8; average, 17.	Dec. 17, 1929	20	18	[1,2] 17	[3] 6	11	17	17	[2] 12	11	21
2	Highest, 33; lowest, 13; average, 23.	do	27	33	32	14	[1] 25	17	[2] 21	[3] 9	23	20
3	Observed from Dec. 1, 1929, only.	do	42	35	36	30	26	[2] 30	23	[3] 2	22	26
4	Highest, 25; lowest, 17; average, 21.	do	23	26	17	17	13	[1,2] 17	19	[3] 17	17	21
5	Observed from Dec. 1, 1929, only.	do	27	15	11	12	[1] 15	[2] 10	9	[3] 7	9	14
6	Observed from Nov. 1, 1929; 11 convulsions during November.	do	8	9	11	13	[2] 15	[3] 14	8	15	24	10
7	Observed from Dec. 1, 1929, only.	do	11	12	13	[1] 6	20	[2] 35	[3] 11	14	13	10
8	do	do	35	35	37	24	[1] 8	(4)	(4)	(4)	(4)	(4)
9	Highest, 180; lowest, 142; average, 160.	do	180	130	150	107	[1,2] 73	[3] 76	78	106	145	272
10	Observed from Dec. 1, 1929, only.	do	15	11	13	10	10	[2] 5	(4)	(4)	(4)	(4)
	Total		388	324	337	239	216	221	186	182	264	394

[1] Stomatitis first observed.
[2] Dermatitis first observed.
[3] Yeast or yeast combined with change of diet begun.
[4] Removed from group for infirmary treatment. Record of convulsions discontinued.

In interpreting these results it should be borne in mind that these patients had suffered from epilepsy for many years and, in the majority of them mental deterioration had progressed to a marked degree. The test may, therefore, be regarded as a very rigid one.

It will be observed that all but two (cases 4 and 6), showed a temporary reduction of around 50 per cent or more in the number of convulsions at about the time pellagra appeared or during its progress. Case 1 was permitted a second attack, developing late in July following her return to the special diet May 1. This repeated attack was accompanied by a reduction in the number of convulsions by about 30 per cent as compared with the intervening months.

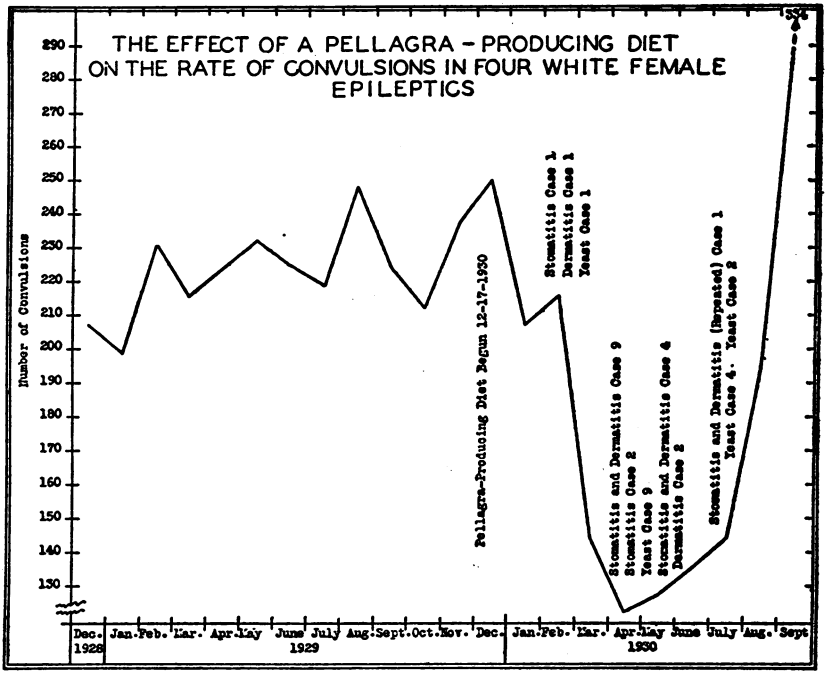

FIGURE 1—Rate of convulsions in four patients who had been under special observation for 12 months prior to beginning of pellagra-producing diet

Of this group of 10 patients, 4 (cases 1, 2, 4, and 9) had been under special observation for 12 months prior to the beginning of the diet and, therefore, afford a more extended basis for comparison. Their record is graphically illustrated by the accompanying chart.

A second group consisting of eight white female epileptics was placed on this diet on June 23, 1930. Seven of these had developed pellagra by November 30, on which date the special diet was discontinued. They showed the same favorable trend in the frequency of convulsions as was observed in the earlier group.

It will be noted from the table and chart that there is a tendency for the number of convulsions to rise soon after treatment for pellagra

is begun. In some instances the previous record is equaled, and in one (case 9) it is far surpassed. The sharp upward swing above the previous level during the month of September, as shown by the chart, is due largely to the behavior of this patient. She was continued under observation, without change of diet, during the month of October, during which period 130 convulsions were recorded, as against 272 for September. The possibility that this marked transient increase over her previous level was purely accidental must be considered, though continuous observation for more than two years had shown no striking departure from month to month. Assuming that the deficiency of the antipellagric vitamin was concerned in bringing about the favorable influence on the rate of convulsions, it would not be unreasonable to expect a rise to appear after this fault had been corrected. On this assumption it is possible that the yeast used in treating the pellagra may have resulted in an overaction, though its use, in her case, was discontinued on August 27. She is one of five (cases 2, 4, 5, 6, and 9) who were treated for pellagra with yeast alone, but the only one to show this tendency to a conspicuous degree. Fleischmann's dry powdered yeast was used, and each patient received 30 grams daily. While this quantity proved to be ample for the prompt relief of all symptoms of pellagra in these five patients, it was not belived to be very much in excess of requirements, considering the restricted nature of the diet.

The observations presented in this report are given at their face value. As to how a diet of this character brings about a favorable influence on epilepsy, we have no explanations to offer. The high-fat, or ketogenic, diet introduced by Wilder [1] and used rather extensively by Peterman [2] in the treatment of epilepsy in children is thought by these authors to owe its beneficial effects to the anæsthetic action of ketone bodies. Geyelin [3] and Guelpa and Marie [4] had shown that fasting produced a favorable influence and, since the high-fat diet was believed by Wilder and Peterman to act similarly to fasting, it was suggested as a substitute for it. McQuarrie [5] believes that the dehydrating effect is the primary factor in both, while others are of the opinion that their therapeutic value is to be found in the controlling influence on alkalosis.

Greer [6] and Guthrie [7] report the development of pellagra-like symptoms in patients under treatment with a ketogenic diet which, with our own experience with such a diet, leads us to the opinion

[1] Wilder, R. M : Bull. Mayo Clinic, 2: 307 (1921).
[2] Peterman, M. G.: Am. J. Dis. Child., 28: 28 (1924).
[3] Geyelin, H. R.: M. Rec., 99: 1037 (1921).
[4] Guelpa, G., and Marie, A.: Bull. gen. de therap., 160: 616 (1910).
[5] McQuarrie, Irvine: J. Nutrition, 2: 31 (1929).
[6] Greer, Alvis E.: J. A. M. A., 95: 863 (1930).
[7] Guthrie, Riley H.: J. A. M. A., 95: 1912 (1930).

that the high-fat diets commonly used may also be low in the pellagra-preventive factor. It is noted that these authors are inclined to attribute the development of pellagra to the low protein in their diets, which is not necessarily the case. While many of the animal foods are good sources of both protein and the pellagra-preventive factor, the former exerts very little, if any, protective influence when used in purified form.[8] Furthermore, pellagra can be cured or prevented at will by the addition of a nitrogen-free watery extract of yeast[9] to an otherwise pellagra-producing diet. On the other hand, it has been demonstrated experimentally that both vegetable and animal fats, including butter, are notoriously deficient in the pellagra-preventive vitamin.

It is important to keep in mind the possible influence of physical enfeeblement on the frequency of epileptic seizures, whether it be brought about by acidosis, dehydration, pellagra, or some other cause. That the beneficial influence is more likely due to some associated metabolic change rather than the incidental physical debility is, however, indicated by the well-known fact that epilepsy itself often leads to extreme physical deterioration without the appearance of a favorable trend in the convulsions.

Whether a deficiency in the antipellagric vitamin is itself a direct factor, or whether, as seems more probable, pellagra, acidosis, and dehydration are merely common surface indications of a more specific and profound metabolic change is a question that can not be answered from the information at hand.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for January, 1931

The accompanying table, taken from the Statistical Bulletin for February, 1931, issued by the Metropolitan Life Insurance Co., presents the mortality record of the industrial insurance department of the company for January, 1931, as compared with that for the preceding month and for the corresponding month of last year. It also gives a comparison of the rates for the years 1929 and 1930. The rates are based on a strength of approximately 19,000,000 insured persons in the United States and Canada.

With regard to health conditions in this group of persons during January, 1931, the Bulletin states:

Despite the widespread prevalence of influenza in January of this year, the health record for the month is by no means a bad one. The mortality rate, in fact, was only 5.3 per cent in excess of that for the previous January, which was

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[8] Goldberger, Wheeler, Rogers, and Sebrell: Pub. Health Rep., 45: 273 (1930).
[9] Goldberger, Wheeler, Lillie, and Rogers: Pub. Health Rep., 41: 297 (1926).

the lowest ever registered for this group for the first month of the year. Among the Canadian policyholders, the mortality was actually 12.3 per cent lower than in January, 1930. Throughout the United States, however, the rate this year was somewhat higher. Five Januarys during the last 12-year period have recorded higher death rates than was registered this year, namely, in 1929, 1926, 1924, 1923, and 1920.

As invariably happens when there is widespread prevalence of even the milder type of influenza, there was observed this year a marked rise in the death rate from the more important chronic diseases, especially heart disease, cerebral hemorrhage, and cancer.

There are a number of distinctly encouraging items in the January mortality report. The death rate for diphtheria was at the very low figure of 6.8 per 100,000. This has never been even closely approached in any previous January. Prior to 1931 the minimum was 10.9 per 100,000—in 1930. Even with above-average prevalence of influenza, which would lead us to expect an increase in tuberculosis mortality, the tuberculosis death rate was more than 2 per cent lower than the previous minimum for the month (79.7 per 100,000 in 1930). The improvement has been limited, however, to policyholders in Canada and to those in the United States who live west of the Rocky Mountains. The death rate for puerperal diseases was only 11.1 per 100,000, as compared with 12.0 in January, 1930. There was a considerable drop in the suicide mortality and there were smaller declines for homicides and accidents.

The year has started inauspiciously with respect to automobile fatalities. The January death rate is higher than has been registered during this month in any previous year.

Death rates (annual basis) per 100,000 for principal causes of death

[Industrial insurance department, Metropolitan Life Insurance Co.]

Cause of death	Rate per 100,000 lives exposed [1]				
	January, 1931	December, 1930	January, 1930	Year	
				1930	1929
Total, all causes	989.5	844.6	940.1	870.2	934.2
Typhoid fever	1.4	2.8	1.1	2.4	2.4
Measles	2.6	1.1	2.1	2.8	3.0
Scarlet fever	3.3	1.9	3.8	2.5	2.7
Whooping cough	4.0	2.8	4.5	4.3	5.7
Diphtheria	6.8	6.7	10.9	5.9	8.8
Influenza	30.3	13.2	26.2	14.7	41.9
Tuberculosis (all forms)	78.0	69.5	79.7	80.5	86.9
Tuberculosis of respiratory system	69.9	61.7	69.8	70.1	76.7
Cancer	81.6	79.1	74.4	77.9	77.6
Diabetes mellitus	23.5	17.8	22.3	18.3	18.3
Cerebral hemorrhage	75.1	63.9	59.3	60.2	[2] 58.0
Organic diseases of heart	175.6	146.9	161.3	144.3	146.8
Pneumonia (all forms)	122.9	75.8	108.8	75.4	88.6
Other respiratory diseases	13.8	11.6	13.2	10.9	11.7
Diarrhea and enteritis	11.1	10.6	11.6	20.3	20.8
Bright's disease (chronic nephritis)	74.6	68.4	73.7	67.8	69.4
Puerperal state	11.1	9.8	12.0	12.1	13.6
Suicides	7.7	9.4	8.6	9.7	8.5
Homicides	6.8	7.1	7.0	6.7	6.6
Other external causes (excluding suicides and homicides)	58.2	59.5	61.3	62.2	65.2
Traumatism by automobiles	21.7	21.4	20.2	20.7	21.0
All other causes	200.9	186.7	198.4	191.3	197.7

[1] All figures in this table include insured infants under one year of age. The rates for 1930 and 1931 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.
[2] Rate not comparable with that for later years.

COURT DECISION RELATING TO PUBLIC HEALTH

Regulations requiring vaccination before admission to school and prescribing method of vaccination upheld.—(Arkansas Supreme Court; Allen et al. *v.* Ingalls et al., 33 S. W. (2d) 1099; decided Dec. 22, 1930.) Acting under statutory authority to make all necessary and reasonable rules for the protection of the public health and the suppression and prevention of communicable diseases, the State board of health adopted rules making vaccination against smallpox a prerequisite to school attendance and defining vaccination as "the introduction, by scarification, of the bovine vaccine virus through the skin." To enforce such regulations the school board of Eureka Springs made a rule requiring the presentation of a physician's certificate relative to vaccination. Certain children presented the certificate of a regularly licensed homeopathic physician as to their vaccination by him, the homeopathic method having been used. The school board refused to admit these children to school, claiming that the certificate of vaccination did not meet the requirements of the rules of the State board of health. At the time smallpox was not present in the community nor was its appearance reasonably apprehended. In a mandamus proceeding to compel the school board to admit the said children to school, the supreme court upheld the rules of the State board of health making vaccination a prerequisite to school attendance and prescribing the method of vaccination. The court said:

Although it is undisputed that there was no smallpox in the city of Eureka Springs nor in the county at the time the appellant's children were denied the right to attend the public schools, which they were otherwise entitled to do, except for the failure to present a satisfactory certificate of vaccination to the board in accordance with the rules, and the testimony showed that there was no condition existing from which its appearance could be reasonably apprehended, the case is not distinguished from Brazil *v.* State, supra, where a like condition was shown to exist and the adoption and promulgation of a like rule was held to be neither unreasonable nor unnecessary. * * *

It is true that the State board of health in its regulation No. 84 defines vaccination for smallpox as "the introduction, by scarification, of the bovine vaccine virus through the skin," and that there is no definition of the term in the statute granting power to the board, although there is no doubt but that the legislature had the power to prescribe such method required to be used by the State board in protection of the public health, when the necessity arose therefor. The majority is of opinion * * * that the power to prescribe the method for vaccination against smallpox was necessarily impliedly granted, and the statute granting powers and prescribing the duties of the State board of health and that the regulations made by it prescribing the method of vaccination was not arbitrary, but only a reasonable exercise of such power. That the method for vaccination prescribed by the board was but an expression of the meaning of the term in accordance with the common knowledge of mankind, and as understood by the consensus of opinion of the medical profession and practiced by a great majority thereof; the term, itself, meaning the method as defined by the board as effectually as though it had been so defined in the statute. * * *

In upholding the action of the school board, the court stated as follows:

The majority is also of opinion that the school board did not abuse its discretion in requiring, as prerequisite to the entry of pupils in the public schools, which they were otherwise entitled to attend, the presentation of "a certificate from a licensed and competent physician of the State that the pupil has been successfully vaccinated" in accordance with rule No. 147, prescribed by the State board of health, and that such school board was not concluded by the certificate of vaccination presented by the pupils from a licensed physician that they had been vaccinated against smallpox, but could nevertheless inquire into the method used in performing the act of vaccination and deny the children the right to enter school, if it had not been done by the method prescribed by the State board of health. * * *

DEATHS DURING WEEK ENDED MARCH 21, 1931

Summary of information received by telegraph from industrial insurance companies for the week ended March 21, 1931, and corresponding week of 1930. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended March 21, 1931	Corresponding week, 1930
Policies in force	75, 080, 202	75, 593, 686
Number of death claims	15, 823	15, 822
Death claims per 1,000 policies in force, annual rate	11. 0	10. 9

Deaths [1] from all causes in certain large cities of the United States during the week ended March 21, 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 Mar. 21, 1931				Corresponding week. 1930		Death rate [2] for the first 12 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)	9, 249	13. 6	875	[4] 69	13. 3	785	14. 1	13. 3
Akron	47	9. 5	3	30	10. 8	3	8. 6	8. 9
Albany [5]	36	14. 5	1	20	18. 4	2	15. 1	16. 8
Atlanta	88	16. 5	6	61	16. 9	7	17. 1	17. 6
White	44		3	48		3		
Colored	44	(6)	3	86	(6)	4	(6)	(6)
Baltimore [5]	276	17. 7	37	125	17. 3	26	17. 7	15. 8
White	205		20	87		22		
Colored	71	(6)	17	266	(6)	4	(6)	(6)
Birmingham	96	18. 6	11	111	13. 1	6	15. 4	14. 4
White	47		5	86		1		
Colored	49	(6)	6	146	(6)	5	(6)	(6)
Boston	220	14. 6	15	43	17. 7	28	17. 0	16. 0
Bridgeport	39	13. 8	3	50	11. 7	2	13. 6	14. 1
Buffalo	183	16. 4	17	69	13. 9	16	15. 4	14. 4
Cambridge	29	13. 2	3	60	16. 0	5	14. 2	14. 2
Camden	42	18. 4	14	244	13. 2	4	18. 7	14. 8
Canton	29	14. 2	5	114	10. 4	3	11. 5	11. 8
Chicago [5]	729	11. 0	70	62	12. 0	68	12. 1	11. 8
Cincinnati	166	18. 9	10	60	16. 1	13	18. 0	17. 6
Cleveland	223	12. 8	17	49	12. 0	24	12. 5	12. 3
Columbus	72	12. 7	11	107	17. 2	7	14. 7	15. 2

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended March 21, 1931, infant mortality, annual death rate, and comparison with corresponding week of 1930—Continued

City	Week ended Mar. 21, 1931				Corresponding week, 1930		Death rate for the first 12 weeks	
	Total deaths	Death rate	Deaths under 1 year	Infant mortality rate	Death rate	Deaths under 1 year	1931	1930
Dallas	66	12.7	4		11.1	7	12.5	12.7
White	44		3			4		
Colored	22	(6)	1		(6)	3	(6)	(6)
Dayton	53	13.4	3	42	10.6	3	14.1	10.6
Denver	83	14.8	4	39	17.0	9	16.0	15.7
Des Moines	45	16.2	1	18	10.6	1	12.8	13.0
Detroit	296	9.3	42	67	10.3	46	9.7	10.5
Duluth	21	10.8	3	74	12.3	4	12.2	11.8
El Paso	27	13.4	6		17.7	2	18.8	18.7
Erie	22	9.7	3	56	13.4	3	11.1	11.5
Fall River [5] [7]	34	15.4	2	45	14.5	3	13.9	13.9
Flint	22	7.0	2	26	10.6	6	8.1	10.3
Fort Worth	46	14.3	7		13.3	2	11.9	12.6
White	36		6			0		
Colored	10	(6)	1		(6)	2	(6)	(6)
Grand Rapids	37	11.2	5	74	9.6	4	9.9	11.2
Houston	50	8.4	2		10.9	4	11.9	13.3
White	30		2			2		
Colored	20	(6)	0		(6)	2	(6)	(6)
Indianapolis	118	16.6	8	66	13.8	3	15.6	16.3
White	97		5	47		2		
Colored	21	(6)	3	201	(6)	1	(6)	(6)
Jersey City	66	10.8	12	107	10.7	11	13.8	12.6
Kansas City, Kans	30	12.7	3	62	9.8	2	16.4	12.6
White	23		3	74		2		
Colored	7	(6)	0	0	(6)	0	(6)	(6)
Kansas City, Mo	126	16.1	11	83	15.1	8	15.7	14.5
Knoxville	27	12.9	3	64	25.0	7	14.5	15.7
White	17		3	71		6		
Colored	10	(6)	0	0	(6)	1	(6)	(6)
Long Beach	40	13.7	1	24	11.2	0	10.9	10.6
Los Angeles	274	10.8	22	64	12.9	20	12.0	12.3
Louisville	61	10.3	6	51	18.1	9	18.1	14.7
White	46		4	39		8		
Colored	15	(6)	2	133	(6)	1	(6)	(6)
Lowell [7]	30	15.5	5	127	12.9	3	15.0	15.8
Lynn	29	14.7	1	26	10.7	2	13.0	12.7
Memphis	70	14.1	8	85	20.9	4	17.9	18.1
White	30		1	17		2		
Colored	40	(6)	7	203	(6)	2	(6)	(6)
Miami	28	13.0	4	101	16.4	4	14.7	13.7
White	22		3	106		2		
Colored	6	(6)	1	88	(6)	2	(6)	(6)
Milwaukee	114	10.1	15	65	11.1	20	10.7	10.9
Minneapolis	121	13.3	17	110	11.1	8	12.5	11.6
Nashville	53	17.8	3	45	17.6	6	18.4	17.0
White	38		3	60		4		
Colored	15	(6)	0	0	(6)	2	(6)	(6)
New Bedford [7]	30	13.9	6	159	9.7	2	13.4	12.3
New Haven	41	13.1	1	19	14.7	6	13.6	15.1
New Orleans	178	19.9	14	77	19.6	25	19.9	19.8
White	98		5	41		5		
Colored	80	(6)	9	147	(6)	20	(6)	(6)
New York	1,717	12.6	165	69	12.1	146	13.7	12.1
Bronx Borough	225	8.8	23	52	9.6	18	9.9	8.7
Brooklyn Borough	614	12.2	60	64	11.0	67	12.8	11.3
Manhattan Borough	664	19.1	65	111	17.7	43	20.8	17.9
Queens Borough	181	8.2	16	44	7.9	14	9.0	7.9
Richmond Borough	33	10.5	1	18	13.7	4	14.5	15.3
Newark, N. J	110	12.9	11	58	13.4	12	14.1	14.4
Oakland	77	13.7	3	38	12.4	0	12.4	12.5
Oklahoma City	49	13.0	8	110	11.7	5	11.8	10.6
Omaha	66	15.9	5	56	13.9	5	15.1	14.5
Paterson	42	15.8	1	17	15.1	5	16.0	13.6
Philadelphia	580	15.4	59	86	14.5	37	16.2	14.0
Pittsburgh	220	17.0	23	79	14.4	20	18.2	15.7
Portland, Oreg	91	15.5	4	49	15.7	6	13.2	14.2
Providence	75	15.3	6	55	14.0	6	15.7	15.5

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended March 21, 1931, infant mortality, annual death rate, and comparison with corresponding week of 1930—Continued

City	Week ended Mar. 21, 1931				Corresponding week, 1930		Death rate for the first 12 weeks	
	Total deaths	Death rate	Deaths under 1 year	Infant mortality rate	Death rate	Deaths under 1 year	1931	1930
Richmond	60	17.0	9	131	13.9	1	18.0	16.7
White	41	--------	6	131	--------	0	--------	--------
Colored	19	(6)	3	130	(6)	1	(6)	(6)
Rochester	87	13.7	9	82	12.2	5	14.1	12.9
St. Louis	272	17.1	11	37	16.4	12	18.4	15.3
St. Paul	88	16.6	7	72	11.3	2	11.7	11.4
Salt Lake City [5]	39	14.2	1	15	14.4	3	13.2	14.0
San Antonio	65	14.1	11	--------	13.2	11	15.3	18.9
San Diego	43	14.3	2	41	14.6	2	15.8	16.0
San Francisco	176	14.1	8	53	13.3	4	15.0	14.3
Schenectady	22	11.9	2	59	11.4	1	11.7	11.7
Seattle	106	14.9	4	38	13.4	2	13.2	12.2
Somerville	23	11.4	1	37	10.0	3	11.7	12.5
South Bend	25	12.1	2	50	7.9	0	9.3	9.9
Spokane	44	19.7	4	104	9.5	1	13.5	13.1
Springfield, Mass	32	11.0	2	31	13.2	5	14.4	14.8
Syracuse	61	14.9	8	95	10.4	5	13.2	13.2
Tacoma	33	16.0	1	26	18.0	1	15.8	13.5
Toledo	91	16.1	12	110	11.4	4	13.6	14.2
Trenton	35	14.7	1	17	16.9	5	19.6	18.5
Utica	32	16.3	1	26	14.8	5	16.5	15.6
Washington, D. C	178	18.8	21	116	15.7	13	18.6	16.1
White	109	--------	14	114	--------	4	--------	--------
Colored	69	(6)	7	120	(6)	9	(6)	(6)
Waterbury	20	10.3	7	211	12.5	1	11.4	11.4
Wilmington, Del. [7]	34	16.6	2	43	15.2	3	16.6	16.0
Worcester	64	16.9	6	82	13.3	0	15.3	15.5
Yonkers	36	13.5	4	105	10.4	1	10.8	9.2
Youngstown	43	13.0	7	98	10.7	5	11.9	11.0

[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, 38; 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 March 28, 1931, and March 29, 1930

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 28, 1931, and March 29, 1930

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930
New England States:								
Maine	3	5	12	18	50	77	1	0
New Hampshire		1	1	11	55	4	0	0
Vermont		2			5	60	0	0
Massachusetts	42	67	5	20	430	1,006	1	5
Rhode Island	3	7			32	7	0	0
Connecticut	6	14	36	12	870	13	1	1
Middle Atlantic States:								
New York	142	125	[1] 24	[1] 62	2,289	1,012	12	24
New Jersey	68	112	23	21	820	747	5	4
Pennsylvania	88	105			3,905	1,272	18	7
East North Central States:								
Ohio	25	77	177	38	721	709	5	11
Indiana	32	22	46		848	95	6	
Illinois	133	158		176	1,386	727	18	22
Michigan	38	81	47	2	127	1,221	6	38
Wisconsin	13	14	204	40	660	787	3	7
West North Central States:								
Minnesota	23	19	1	4	129	230	0	3
Iowa	5	13			13	603	5	4
Missouri	78	33	81	9	366	66	16	19
North Dakota	8	2			89	22	0	5
South Dakota	10	5	3	1	78	102	1	1
Nebraska	10	14	3		6	411	1	2
Kansas	14	13	12	14	18	731	1	8
South Atlantic States:								
Delaware	2	2	5		126	8	0	0
Maryland [2]	20	18	125	55	1,422	48	1	1
District of Columbia	13	15		2	280	10	2	0
Virginia							2	
West Virginia	9	5	205	28	106	79	1	0
North Carolina	23	31	75	14	814	29	5	2
South Carolina	11	22	1,857	832	100	30	3	0
Georgia [3]	5	5	549	137	114	196	1	7
Florida [3]	4	3	28	2	152	424	2	0

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever: 1931, 2 cases; 1 case in Georgia and 1 case in Florida.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended March 28, 1931, and March 29, 1930—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930
East South Central States:								
Kentucky					301		2	1
Tennessee	12	15	270	71	250	186	6	25
Alabama	19	22	761	76	467	265	19	4
Mississippi	7	13					0	21
West South Central States:								
Arkansas	3	15	279	105	33	25	4	9
Louisiana	13	23	47	9	9	154	4	6
Oklahoma [4]	11	17	158	70	14	338	0	2
Texas	29	31	86	129	99	134	1	1
Mountain States:								
Montana	1	1			7		0	2
Idaho		2	2		1	75	0	1
Wyoming	1	1		1	3	5	0	0
Colorado	13	9		2	207	487	1	2
New Mexico	5	17	18		55	144	0	4
Arizona	4	7	40	11	190	53	3	5
Utah [2]				2	3	276	2	10
Pacific States:								
Washington	5	8	72		46	282	2	7
Oregon	4	17	219	44	97	130	0	0
California	55	51	229	38	1,796	2,173	4	6

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930
New England States:								
Maine	0	0	22	32	0	0	0	6
New Hampshire	0	1	6	16	0	0	0	2
Vermont	0	0	7	7	0	4	0	0
Massachusetts	1	0	415	274	0	0	1	2
Rhode Island	0	0	67	23	0	0	0	0
Connecticut	0	0	85	115	0	0	0	2
Middle Atlantic States:								
New York	2	2	1,050	607	13	3	9	34
New Jersey	1	0	305	270	0	0	4	2
Pennsylvania	1	0	455	432	0	1	8	14
East North Central States:								
Ohio	4	0	432	564	80	186	4	9
Indiana	0	0	318	176	75	162	1	3
Illinois	0	0	584	516	37	122	2	8
Michigan	0	1	387	292	18	123	2	0
Wisconsin	0	0	191	118	9	38	1	1
West North Central States:								
Minnesota	0	0	97	146	14	4	1	3
Iowa	0	0	80	95	70	99	0	1
Missouri	0	0	368	105	51	51	14	4
North Dakota	0	0	54	21	8	18	0	3
South Dakota	0	0	19	8	14	70	3	0
Nebraska	0	0	69	56	49	39	0	0
Kansas	1	0	76	136	112	88	0	2
South Atlantic States:								
Delaware	0	0	21	11	0	0	0	1
Maryland [3]	0	0	87	116	0	0	6	3
District of Columbia	0	0	30	13	0	0	0	0
Virginia								
West Virginia	0	0	31	24	12	22	6	17
North Carolina	0	3	37	37	1	40	2	2
South Carolina	2	0	4	12	0	1	9	3
Georgia [3]	0	0	60	25	0	0	3	1
Florida [3]	0	0	3	11	3	1	4	2

[2] Week ended Friday.
[3] Typhus fever: 1931, 2 cases; 1 case in Georgia; and 1 case in Florida.
[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 March 28, 1931, and March 29, 1930—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930	Week ended Mar. 28, 1931	Week ended Mar. 29, 1930
East South Central States:								
Kentucky	0	0	49	75	10	19	2	3
Tennessee	0	1	51	78	33	9	7	6
Alabama	0	0	23	21	8	11	2	6
Mississippi	0	0	14	10	38	6	2	2
West South Central States:								
Arkansas	0	0	14	22	26	10	2	1
Louisiana	0	0	20	25	26	2	8	8
Oklahoma [4]	0	0	37	52	52	117	8	4
Texas	0	3	37	63	45	86	2	2
Mountain States:								
Montana	0	0	21	39	6	17	1	3
Idaho	0	0	6	5	1	12	0	1
Wyoming	0	0	16	5	4	2	1	0
Colorado	0	0	31	29	7	6	0	2
New Mexico	0	0	6	10	0	21	0	0
Arizona	0	0	8	16	0	28	2	4
Utah [2]	0	0	18	18	0	0	0	0
Pacific States:								
Washington	0	0	38	40	25	83	7	2
Oregon	0	0	20	37	16	23	5	0
California	2	2	162	180	46	120	5	1

[2] Week ended Friday.
[4] 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	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
February, 1931										
California	30	220	1,636	2	3,794	1	25	556	258	47
Delaware		3	114		65		0	105	0	0
Montana	3	8	44		10		1	196	13	6
Nevada	1	4	65		39		0	5	0	
North Carolina	20	114	1,534		1,446	72	2	274	8	8
Oklahoma [1]	14	95	997	49	109	29	1	141	369	17
Oregon		41	197		332		3	104	104	1
Pennsylvania	48	405		1	8,128	1	4	2,359	1	55
South Carolina		108	14,536	508	583	258	2	58	14	15
South Dakota	5	29	31		62		2	93	118	1
Texas	4	192	296	348		3	0	183		35
Virginia	11	147	12,167	13	2,795	32	2	344	8	28
Washington	1	67	153		198		3	242	125	7
Wisconsin	4	63	738		1,326		2	631	28	8

[1] Exclusive of Oklahoma City and Tulsa.

February, 1931

Actinomycosis:	Cases
California	1
Montana	1

Chicken pox:	Cases
California	2,710
Delaware	37
Montana	109
Nevada	13
North Carolina	813
Oklahoma [1]	100
Oregon	206
Pennsylvania	3,989
South Carolina	422
South Dakota	127
Virginia	833
Washington	455
Wisconsin	1,688

[1] Exclusive of Oklahoma City and Tulsa.

	Cases
Conjunctivitis:	
Montana	1
Oklahoma [1]	3
Dengue:	
South Carolina	32
Diarrhea:	
South Carolina	358
Diarrhea and dysentery:	
Virginia	197
Dysentery:	
California (amebic)	9
California (bacillary)	13
Montana	1
Oklahoma [1]	4
Pennsylvania	1
South Carolina (amebic)	1
Food poisoning:	
California	13
German measles:	
California	91
Montana	6
South Carolina	1,756
Pennsylvania	299
South Carolina	17
Washington	195
Hookworm disease:	
South Carolina	82
Impetigo contagiosa:	
Montana	1
Oregon	37
Washington	15
Jaundice:	
California	1
Lead poisoning:	
Pennsylvania	1
Leprosy:	
California	2
Lethargic encephalitis:	
California	3
Pennsylvania	6
Wisconsin	3
Mumps:	
California	1,217
Delaware	20
Montana	161
Nevada	50
Oklahoma [1]	20
Oregon	304
Pennsylvania	1,584
South Carolina	173
South Dakota	24
Washington	235
Wisconsin	2,351
Ophthalmia neonatorum:	
California	1
Montana	1
North Carolina	3
Pennsylvania	17
South Carolina	13
Washington	1
Paratyphoid fever:	
California	2
Puerperal fever:	
Pennsylvania	13
South Dakota	1
Rabies in animals:	
California	80
Delaware	3
Rocky Mountain spotted or tick fever:	
Oregon	1
Scabies:	
Oregon	20
Septic sore throat:	
Montana	4
North Carolina	10
Oklahoma [1]	52
Oregon	2
South Carolina	20
Tetanus:	
California	1
Pennsylvania	5
South Carolina	1
Trachoma:	
California	19
Montana	2
North Carolina	2
Oklahoma [1]	4
Pennsylvania	1
South Dakota	4
Trichinosis:	
California	5
Pennsylvania	11
Tularaemia:	
North Carolina	2
Pennsylvania	4
South Carolina	1
Virginia	2
Undulant fever:	
California	6
Montana	1
Pennsylvania	2
Washington	1
Wisconsin	1
Vincent's angina:	
Oklahoma [1]	1
Oregon	19
Washington	1
Whooping cough:	
California	744
Delaware	20
Montana	165
Nevada	2
North Carolina	386
Oklahoma [1]	26
Oregon	78
Pennsylvania	801
South Carolina	213
South Dakota	16
Virginia	384
Washington	226
Wisconsin	501

[1] Exclusive of Oklahoma City and Tulsa.

RECIPROCAL NOTIFICATIONS

Notifications regarding communicable diseases sent during the month of February, 1931, by departments of health of certain States to other State health departments

Disease	Illinois	Kansas	Minnesota	New York	Oregon
Gonorrhea			1		
Scarlet fever				1	
Smallpox	1				
Syphilis		10			
Tuberculosis	11		30		8

SEPTIC SORE THROAT AT OXFORD, OHIO

The Ohio Health News, published by the State Department of Health of Ohio, reports an outbreak of septic sore throat at Western College for Women at Oxford, Ohio. On March 13, 1931, 50 cases were found, mostly among students; 6 cases were reported on March 14, and 1 case on March 15.

The dairy plant operated by the college was found to be insanitary, with unsatisfactory methods of handling the product, and on March 14 it was closed by order of the State director of health.

The investigation developed the probability of a carrier among the five persons regularly employed at the plant.

The health authorities, State and local, and the State department of agriculture have cooperated, and the crisis is said to have passed.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 95 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 33,055,000. The estimated population of the 88 cities reporting deaths is more than 31,510,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended March 21, 1931, and March 22, 1930

	1931	1930	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	932	1,249	
95 cities	415	607	854
Measles:			
45 States	17,548	14,456	
95 cities	6,514	4,886	
Meningococcus meningitis:			
46 States	155	295	
95 cities	88	121	
Poliomyelitis:			
46 States	20	14	
Scarlet fever:			
46 States	5,918	5,093	
95 cities	2,438	1,957	1,597
Smallpox:			
46 States	985	1,417	
95 cities	133	152	66
Typhoid fever:			
46 States	115	202	
95 cities	27	38	22
Deaths reported			
Influenza and pneumonia:			
88 cities	1,304	1,036	
Smallpox:			
88 cities	0	0	

City reports for week ended March 21, 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 reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	19	1	0	----------	0	2	18	3
New Hampshire:								
Concord	0	0	0	----------	0	2	0	1
Vermont:								
Barre	2	0	0	----------	0	0	0	0
Massachusetts:								
Boston	75	32	17	3	1	180	16	21
Fall River	2	3	6	----------	0	0	14	6
Springfield	5	3	1	----------	0	1	4	0
Worcester	14	3	0	----------	0	4	9	7
Rhode Island:								
Pawtucket	7	1	0	----------	1	2	0	1
Providence	10	8	3	----------	1	0	5	13
Connecticut:								
Bridgeport	3	6	0	6	2	1	3	7
Hartford	1	5	1	4	2	45	0	11
New Haven	23	1	0	1	1	398	20	6
MIDDLE ATLANTIC								
New York:								
Buffalo	26	11	8	7	4	306	83	41
New York	388	231	102	47	22	1,124	63	241
Rochester	6	8	0	2	1	4	7	11
Syracuse	27	5	2	----------	1	30	2	8
New Jersey:								
Camden	6	5	1	----------	0	27	7	12
Newark	106	16	9	12	1	6	8	10
Trenton	10	3	0	6	0	5	1	3
Pennsylvania:								
Philadelphia	161	63	16	16	15	874	37	100
Pittsburgh	88	18	6	8	8	92	51	53
Reading	6	2	0	----------	0	122	27	5
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	6	9	1	----------	5	108	25	10
Cleveland	170	29	10	79	8	31	219	35
Columbus	29	3	2	4	5	5	2	14
Toledo	42	4	2	3	3	2	15	8
Indiana:								
Fort Wayne	2	2	11	----------	1	57	0	3
Indianapolis	56	5	1	----------	0	227	1	16
South Bend	----------	2	----------	----------	----------	----------	----------	----------
Terre Haute	1	0	1	----------	0	4	0	4
Illinois:								
Chicago	125	96	68	26	10	223	60	67
Springfield	16	1	1	1	0	207	6	2
Michigan:								
Detroit	126	44	19	10	10	5	32	41
Flint	11	3	0	30	3	1	1	6
Grand Rapids	7	1	0	2	2	2	0	4
Wisconsin:								
Kenosha	8	0	0	----------	0	0	74	0
Madison	31	0	1	----------	----------	0	43	----------
Milwaukee	159	14	4	2	2	45	415	12
Racine	13	1	0	----------	0	4	3	0
Superior	11	0	0	----------	0	1	0	1

City reports for week ended March 21, 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 NORTH CENTRAL								
Minnesota:								
Duluth	6	0	0	----------	0	0	0	0
Minneapolis	117	14	7	----------	2	75	141	13
St. Paul	66	7	1	9	9	22	1	12
Iowa:								
Davenport	0	1	0	----------	----------	1	0	----------
Des Moines	7	1	0	----------	----------	0	5	----------
Sioux City	19	0	0	----------	----------	8	19	----------
Waterloo	2	0	0	----------	----------	0	1	----------
Missouri:								
Kansas City	50	5	9	----------	3	60	1	27
St. Joseph	1	0	2	----------	0	0	0	5
St. Louis	20	38	14	10	1	90	17	----------
North Dakota:								
Fargo	5	0	0	----------	0	0	8	1
Grand Forks	0	0	0	----------	----------	0	2	----------
South Dakota:								
Aberdeen	18	0	0	----------	----------	1	0	----------
Sioux Falls	0	0	2	----------	----------	0	0	----------
Nebraska:								
Omaha	28	3	4	----------	0	0	7	10
Kansas:								
Topeka	13	1	1	3	0	0	22	1
Wichita	10	2	0	----------	1	2	1	4
SOUTH ATLANTIC								
Delaware:								
Wilmington	1	2	3	----------	0	26	5	3
Maryland:								
Baltimore	143	22	5	19	2	1,053	38	54
Cumberland	0	1	0	1	1	1	0	3
Frederick	0	0	0	----------	0	1	0	1
District of Columbia:								
Washington	51	11	9	5	3	223	0	31
Virginia:								
Lynchburg	24	1	1	----------	0	10	2	2
Norfolk	33	2	3	----------	0	74	2	10
Richmond	0	3	8	----------	1	222	0	2
Roanoke	11	1	0	----------	1	1	1	2
West Virginia:								
Charleston	2	0	1	6	1	0	8	2
Wheeling	27	0	0	1	3	0	0	3
North Carolina:								
Raleigh	1	0	1	----------	0	39	0	5
Wilmington	3	0	0	----------	0	1	0	0
Winston-Salem	7	0	2	1	0	20	6	1
South Carolina:								
Charleston	1	1	1	45	2	20	1	5
Columbia	3	0	0	----------	0	1	2	8
Greenville	0	0	1	----------	0	0	0	0
Georgia:								
Atlanta	13	3	1	92	10	32	0	9
Brunswick	0	0	0	----------	0	0	11	2
Savannah	2	1	0	7	0	0	10	2
Florida:								
Miami	16	3	2	5	1	4	0	3
Tampa	1	1	5	1	1	93	1	1
EAST SOUTH CENTRAL								
Kentucky:								
Covington	0	0	0	4	1	13	0	4
Tennessee:								
Memphis	----------	4	----------	----------	----------	----------	----------	----------
Nashville	0	1	1	----------	2	27	0	7
Alabama:								
Birmingham	6	2	0	48	8	88	0	11
Mobile	0	0	0	----------	3	1	0	2
Montgomery	15	0	0	3	----------	1	1	----------

City reports for week ended March 21, 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	2	0	0			2	0	
Little Rock	0	1	0	6	0	0	0	3
Louisiana:								
New Orleans	5	13	9	8	4	0	0	21
Shreveport	3	0	0		0	0	3	4
Oklahoma:								
Muskogee	3	0	0	16	0	0	0	0
Texas:								
Dallas	49	5	5	6	3	6	26	12
Fort Worth	15	3	3		1	0	1	7
Galveston	0	1	0		0	0	0	1
Houston	3	5	4		0	5	1	5
San Antonio	1	3	3		3	2	2	6
MOUNTAIN								
Montana:								
Billings	5	0	0		0	0	0	1
Great Falls	12	1	0		1	0	0	0
Helena	0	0	0		0	0	0	0
Missoula	0	0	0	16	1	0	0	1
Idaho:								
Boise	0	0	0		0	0	0	0
Colorado:								
Denver	86	8	1		1	23	38	10
Pueblo		0						
New Mexico:								
Albuquerque	19	0	0		1	1	2	1
Arizona:								
Phoenix	4	1	0		0	1	0	3
Utah:								
Salt Lake City	4	2	1		1	0	8	1
Nevada:								
Reno	0	0	0	3	0	0	0	0
PACIFIC								
Washington:								
Seattle	35	3	1			3	45	
Spokane	6	1	0			0	0	
Tacoma	14	2	1		3	1	1	8
Oregon:								
Portland	29	7	0	34	1	19	9	6
Salem	3	0	0	1	0	4	15	0
California:								
Los Angeles	91	40	18	99	4	178	19	17
Sacramento	9	1	2	28	1	3	6	7
San Francisco	88	15	4	113	6	16	15	10

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases, reported	Cases, estimated expectancy	Cases, reported	Deaths, reported		Cases, estimated expectancy	Cases, reported	Deaths, reported		
NEW ENGLAND											
Maine:											
Portland	4	29	0	0	0	2	0	0	0	18	30
New Hampshire:											
Concord	0	1	0	0	0	2	0	0	0	0	12
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	10	2
Massachusetts:											
Boston	84	144	0	0	0	14	1	1	1	40	220
Fall River	5	7	0	0	0	2	0	0	0	1	34
Springfield	9	16	0	0	0	4	0	0	0	5	36
Worcester	10	21	0	0	0	4	0	0	0	16	64

City reports for week ended March 21, 1931—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases, reported	Cases, estimated expectancy	Cases, reported	Deaths, reported		Cases, estimated expectancy	Cases, reported	Deaths, reported		
NEW ENGLAND—continued											
Rhode Island:											
Pawtucket	2	12	0	0	0	0	0	0	0	5	24
Providence	13	22	0	0	0	7	0	0	0	1	75
Connecticut:											
Bridgeport	12	13	0	0	0	3	0	0	0	5	39
Hartford	7	15	0	0	0	1	0	0	0	2	45
New Haven	11	1	0	0	0	0	0	0	0	6	41
MIDDLE ATLANTIC											
New York:											
Buffalo	30	23	0	0	0	13	0	0	0	27	80
New York	353	494	0	0	0	102	8	2	0	163	1,717
Rochester	11	92	0	0	0	2	0	0	0	13	84
Syracuse	12	17	0	0	0	1	0	0	0	4	61
New Jersey:											
Camden	6	5	0	0	0	0	0	0	0	0	42
Newark	46	34	0	0	0	7	0	1	0	25	117
Trenton	5	16	0	0	0	3	0	1	0	3	35
Pennsylvania:											
Philadelphia	103	160	0	0	0	38	1	0	0	27	580
Pittsburgh	31	34	0	0	0	9	0	0	0	35	229
Reading	5	2	0	0	0	0	0	0	0	0	44
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	21	37	2	0	0	10	1	0	0	12	166
Cleveland	51	85	0	0	0	16	0	0	0	19	223
Columbus	11	12	2	0	0	5	0	0	0	1	72
Toledo	14	11	1	3	0	9	1	0	0	5	91
Indiana:											
Fort Wayne	6	6	1	0	0	2	0	0	0	1	33
Indianapolis	12	74	8	12	0	3	0	0	0	36	-------
South Bend	3	-------	0	-------	-------	-------	0	-------	-------	-------	-------
Terre Haute	3	1	1	0	0	0	0	0	0	3	23
Illinois:											
Chicago	138	235	2	1	0	43	1	1	0	56	729
Springfield	2	8	0	0	0	0	0	0	0	0	33
Michigan:											
Detroit	121	139	2	0	0	22	0	0	0	67	296
Flint	15	16	2	0	0	2	0	0	0	2	22
Grand Rapids	11	11	0	0	0	0	1	2	0	7	37
Wisconsin:											
Kenosha	3	2	0	0	0	0	0	0	0	0	6
Madison	5	8	0	0	-------	-------	-------	0	-------	2	-------
Milwaukee	31	19	0	0	0	7	0	0	0	23	114
Racine	4	4	0	0	0	2	0	0	0	9	15
Superior	4	2	0	0	0	0	0	0	0	0	7
WEST NORTH CENTRAL											
Minnesota:											
Duluth	10	2	0	0	0	1	0	0	0	0	21
Minneapolis	45	11	1	1	0	2	0	0	0	20	121
St. Paul	34	7	0	0	0	2	0	0	0	21	95
Iowa:											
Davenport	1	3	1	9	-------	-------	0	0	-------	0	-------
Des Moines	11	6	1	8	-------	-------	0	0	-------	2	45
Sioux City	2	9	0	0	-------	-------	0	0	-------	1	-------
Waterloo	3	4	0	0	-------	-------	0	0	-------	0	-------
Missouri:											
Kansas City	25	13	2	1	0	7	0	0	0	12	126
St. Joseph	2	3	1	2	0	0	0	0	0	0	26
St. Louis	35	242	2	4	0	7	1	3	0	15	272
North Dakota:											
Fargo	3	6	0	0	0	1	0	0	0	2	7
Grand Forks	0	0	0	0	-------	-------	0	0	-------	0	-------

City reports for week ended March 21, 1931—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases, reported	Cases, estimated expectancy	Cases, reported	Deaths, reported		Cases, estimated expectancy	Cases, reported	Deaths, reported		
WEST NORTH CENTRAL—con.											
South Dakota:											
Aberdeen	1	0	0	0	-------	-------	0	0	-------	0	-------
Sioux Falls	2	1	0	1	-------	-------	0	0	-------	0	6
Nebraska:											
Omaha	4	8	3	18	0	5	0	1	0	1	66
Kansas:											
Topeka	2	0	0	1	0	0	0	0	0	0	20
Wichita	3	3	1	41	0	1	0	0	0	5	27
SOUTH ATLANTIC											
Delaware:											
Wilmington	6	9	0	0	0	0	0	0	0	1	34
Maryland:											
Baltimore	38	42	0	0	0	17	1	0	0	19	276
Cumberland	1	0	0	0	0	1	0	0	0	0	11
Frederick	0	0	0	0	0	0	0	0	0	1	4
District of Columbia:											
Washington	27	32	1	0	0	14	0	1	1	5	178
Virginia:											
Lynchburg	0	0	0	0	0	0	0	0	0	0	12
Norfolk	2	0	0	0	0	2	0	0	0	10	-------
Richmond	4	4	0	0	0	6	0	0	0	7	57
Roanoke	1	0	0	0	0	1	0	0	0	5	17
West Virgina:											
Charleston	1	0	0	0	0	1	0	0	0	5	17
Wheeling	2	0	0	0	0	1	0	0	0	0	24
North Carolina:											
Raleigh	0	2	1	0	0	0	0	0	0	22	12
Wilmington	0	0	0	0	0	0	0	0	0	7	15
Winston-Salem	1	0	1	0	0	4	0	0	0	6	13
South Carolina:											
Charleston	0	0	0	0	0	1	0	0	0	0	26
Columbia	0	0	0	0	0	0	0	0	0	0	24
Greenville	0	0	0	0	0	0	0	0	0	0	-------
Georgia:											
Atlanta	6	83	2	0	0	7	0	5	0	0	80
Brunswick	0	0	0	0	0	1	0	0	0	0	6
Savannah	0	1	0	0	0	1	0	2	0	0	32
Florida:											
Miami	1	1	0	0	0	3	0	0	0	2	28
Tampa	0	0	0	0	0	3	1	0	0	3	23
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	8	0	0	0	1	0	0	0	0	19
Tennessee:											
Memphis	10	-------	1	-------	-------	-------	1	-------	-------	-------	-------
Nashville	3	9	0	0	0	3	0	0	0	8	53
Alabama:											
Birmingham	3	8	1	0	0	7	0	0	0	3	96
Mobile	0	2	0	1	0	1	0	0	0	0	34
Montgomery	0	1	1	0	-------	-------	0	0	-------	0	-------
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	0	0	0	-------	-------	0	0	-------	1	-------
Little Rock	2	3	1	0	0	1	0	0	0	0	-------
Louisiana:											
New Orleans	8	20	0	14	0	13	2	1	0	2	178
Shreveport	1	1	0	3	0	2	0	2	1	1	36
Oklahoma:											
Muskogee	0	0	2	1	0	0	0	0	0	0	-------
Texas:											
Dallas	5	0	4	2	0	4	0	0	0	13	66
Fort Worth	2	4	3	6	0	1	0	1	0	0	46
Galveston	0	0	0	0	0	2	0	0	0	0	14
Houston	3	3	2	9	0	6	0	0	0	2	50
San Antonio	2	3	0	0	0	6	1	0	0	0	65

City reports for week ended March 21, 1931—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases, reported	Cases, estimated expectancy	Cases, reported	Deaths, reported		Cases, estimated expectancy	Cases, reported	Deaths, reported		
MOUNTAIN											
Montana:											
Billings	1	1	0	0	0	0	0	0	0	0	10
Great Falls	3	1	1	0	0	1	0	0	0	15	14
Helena	0	2	0	0	0	0	0	0	0	0	8
Missoula	0	0	0	0	0	0	0	0	0	0	8
Idaho:											
Boise	1	0	0	0	0	0	0	0	0	2	14
Colorado:											
Denver	15	29	1	0	0	6	0	0	0	30	79
Pueblo	1		0				0				
New Mexico:											
Albuquerque	1	0	0	0	0	7	0	0	0	7	10
Arizona:											
Phoenix	0	3	1	0	0	4	0	0	0	4	14
Utah:											
Salt Lake City	4	1	1	1	0	2	0	0	0	38	39
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle	11	8	2	1			1	2		39	
Spokane	8	2	8	11			0	0		0	
Tacoma	3	5	4	2	0	1	0	0	0	0	33
Oregon:											
Portland	6	1	15	16	0	7	1	1	0	0	91
Salem	1	0	1	0	0	0	0	0	0	0	
California:											
Los Angeles	42	34	3	8	0	28	1	0	0	28	274
Sacramento	3	3	1	0	0	2	0	2	1	46	
San Francisco	28	4	1	0	0	9	1	0	0	52	165

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	16	6	2	2	0	0	1	0	0
Rochester	0	1	0	0	0	0	0	0	0
New Jersey:									
Newark	2	0	2	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	7	2	0	0	0	0	0	0	0
Pittsburgh	4	0	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland	2	0	0	1	0	0	0	0	0
Columbus	0	0	0	0	0	0	0	1	1
Indiana:									
Indianapolis	1	0	0	0	0	0	0	0	0
Terre Haute	0	1	0	0	0	0	0	0	0

City reports for week ended March 21, 1931—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL—continued									
Illinois:									
Chicago	8	4	0	0	0	0	0	1	0
Springfield	1	0	0	0	0	0	0	0	0
Michigan:									
Detroit	2	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee	1	1	0	0	0	0	0	0	1
Superior	1	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
St. Paul	1	0	0	0	0	0	0	0	0
Iowa:									
Waterloo	2	1	0	0	0	0	0	0	0
Missouri:									
Kansas City	2	2	0	0	0	0	0	0	0
St. Louis	8	3	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore	0	1	1	0	0	0	0	0	1
Cumberland	1	1	0	0	0	0	0	0	0
District of Columbia:									
Washington	5	2	0	0	0	0	0	0	0
North Carolina:									
Winston-Salem	0	0	0	0	1	0	0	0	0
South Carolina:									
Charleston	0	0	1	0	4	0	0	0	0
Columbia	1	1	0	0	0	0	0	0	0
Georgia:									
Atlanta	1	1	0	0	0	0	0	1	1
Savannah	0	0	0	0	2	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Nashville	1	0	0	0	0	0	0	0	0
Alabama:									
Birmingham	9	4	0	0	0	0	0	1	0
Mobile	1	0	1	1	0	1	0	0	0
Montgomery	0	0	0	0	2	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans	5	3	0	0	1	1	0	0	0
Texas:									
Dallas	1	1	0	0	0	2	0	0	0
Forth Worth	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Utah:									
Salt Lake City	1	2	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Tacoma	1	0	0	0	0	0	0	0	0
California:									
Los Angeles	1	2	0	0	0	0	0	0	0
Sacramento	1	2	0	0	0	0	0	0	0
San Francisco	0	0	1	0	0	0	0	0	0

The following tables give the rates per 100,000 population for 98 cities for the 5-week period ended March 21, 1931, compared with those for a like period ended March 22, 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 February 15 to March 21, 1931—Annual rates per 100,000 population, compared with rates for the corresponding period of 1930 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Feb. 21, 1931	Feb. 22, 1930	Feb. 28, 1931	Mar. 1, 1930	Mar. 7, 1931	Mar. 8, 1930	Mar. 14, 1931	Mar. 15, 1930	Mar. 21, 1931	Mar. 22, 1930
98 cities	68	91	70	104	73	88	[2] 66	101	[3] 65	97
New England	70	109	89	121	106	92	79	92	67	65
Middle Atlantic	64	83	56	103	61	85	67	94	64	97
East North Central	66	101	78	122	75	94	[4] 78	134	[5] 73	132
West North Central	59	95	55	120	71	118	63	110	73	74
South Atlantic	47	120	77	96	93	78	53	104	73	90
East South Central	58	96	58	54	29	36	35	24	[6] 8	36
West South Central	186	80	132	101	118	143	[7] 66	111	71	136
Mountain	35	70	87	35	61	88	[8] 29	26	[8] 19	88
Pacific	59	53	57	63	63	38	55	63	51	45

MEASLES CASE RATES

98 cities	668	446	703	538	769	620	[2] 913	646	[3] 1,027	776
New England	541	418	635	506	909	593	1,346	743	1,527	1,030
Middle Atlantic	652	254	645	346	874	417	1,026	396	1,158	539
East North Central	255	267	300	345	369	442	[4] 449	471	[5] 566	538
West North Central	1,086	775	874	939	643	938	595	781	432	994
South Atlantic	2,202	441	2,800	148	2,238	535	2,753	481	3,442	617
East South Central	1,123	604	1,042	753	1,036	717	1,146	634	[6] 1,073	1,291
West South Central	24	745	24	704	68	505	[7] 33	617	51	547
Mountain	1,567	767	1,209	1,507	1,332	2,106	[8] 333	2,449	[8] 212	2,890
Pacific	243	1,271	223	1,636	347	1,581	356	1,881	394	1,800

SCARLET FEVER CASE RATES

98 cities	346	294	373	357	345	321	[2] 376	337	[3] 385	316
New England	589	409	606	402	527	431	589	426	676	372
Middle Atlantic	342	242	381	308	359	283	389	327	392	294
East North Central	353	421	364	510	346	448	[4] 395	461	[5] 400	418
West North Central	497	327	509	341	492	345	518	308	589	335
South Atlantic	304	236	363	258	354	206	310	210	342	286
East South Central	529	149	553	173	401	173	477	96	[6] 231	179
West South Central	139	94	125	108	71	139	[7] 99	167	101	108
Mountain	296	308	305	388	305	300	[8] 428	379	[8] 323	352
Pacific	94	202	145	352	121	241	96	229	110	202

[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 estimates as of July 1, 1931, and 1930, respectively.
[2] Cleveland, Ohio, Springfield, Ill., Dallas, Tex., and Pueblo, Colo., not included.
[3] South Bend, Ind., Memphis, Tenn., and Pueblo, Colo., not included.
[4] Cleveland, Ohio, and Springfield, Ill., not included.
[5] South Bend, Ind., not included.
[6] Memphis, Tenn., not included.
[7] Dallas, Tex., not included.
[8] Pueblo, Colo., not included.

Summary of weekly reports from cities February 15 to March 21, 1931—Annual rates per 100,000 population, compared with rates for the corresponding period of 1930—Continued.

SMALLPOX CASE RATES

	Week ended—									
	Feb. 21, 1931	Feb. 22, 1930	Feb. 28, 1931	Mar. 1, 1930	Mar. 7, 1931	Mar. 8, 1930	Mar. 14, 1931	Mar. 15, 1930	Mar. 21, 1931	Mar. 22, 1930
98 cities	20	24	20	30	13	25	[2] 20	25	[3] 21	24
New England	0	0	0	0	0	2	0	0	0	0
Middle Atlantic	3	0	0	0	0	0	0	0	0	0
East North Central	13	20	11	40	15	24	[4] 10	30	[5] 8	20
West North Central	128	93	128	91	57	79	132	70	130	97
South Atlantic	2	2	0	2	0	2	0	4	0	2
East South Central	17	12	23	6	23	18	0	24	[6] 8	6
West South Central	51	52	64	111	47	63	[7] 74	24	95	49
Mountain	44	18	9	26	17	9	[8] 19	9	[8] 10	35
Pacific	22	101	39	87	12	105	41	115	43	103

TYPHOID FEVER CASE RATES

98 cities	4	5	7	8	4	8	[2] 3	6	[3] 4	8
New England	0	5	5	0	5	2	0	5	2	0
Middle Atlantic	3	6	6	4	3	4	2	5	2	6
East North Central	0	1	3	1	1	3	[4] 1	1	[5] 2	1
West North Central	4	2	11	6	11	8	0	4	8	10
South Atlantic	10	14	22	60	12	40	6	12	16	14
East South Central	0	6	6	30	17	12	17	24	[6] 0	84
West South Central	7	3	14	0	0	31	[7] 16	7	10	10
Mountain	9	9	0	0	0	0	[8] 0	53	[8] 0	18
Pacific	12	10	4	6	2	6	4	10	8	10

INFLUENZA DEATH RATES

91 cities	60	19	50	19	44	16	[2] 34	13	[3] 31	15
New England	43	17	24	12	19	19	36	2	19	2
Middle Atlantic	42	15	40	16	32	13	23	11	23	14
East North Central	61	16	61	16	48	12	[4] 27	9	[5] 28	9
West North Central	68	12	74	15	59	3	50	6	47	12
South Atlantic	122	22	79	28	73	36	57	18	49	28
East South Central	139	71	76	52	139	58	101	84	[6] 130	78
West South Central	97	68	45	64	52	32	[7] 55	43	35	25
Mountain	61	26	17	18	44	35	[8] 29	18	[8] 38	62
Pacific	26	2	41	10	34	2	36	2	34	7

PNEUMONIA DEATH RATES

91 cities	217	177	212	193	194	166	[2] 189	155	[3] 184	161
New England	276	242	236	232	185	220	147	169	183	218
Middle Atlantic	236	190	217	219	229	181	214	178	216	159
East North Central	187	151	193	179	160	141	[4] 130	127	[5] 132	148
West North Central	147	153	218	138	218	129	159	144	215	123
South Atlantic	340	222	312	236	265	222	332	196	269	222
East South Central	265	239	271	175	227	214	240	233	[6] 222	188
West South Central	228	174	221	185	148	160	[7] 211	142	180	199
Mountain	200	247	191	247	131	150	[8] 209	123	[8] 124	194
Pacific	70	67	91	62	101	75	125	65	101	77

[2] Cleveland, Ohio; Springfield, Ill.; Dallas, Tex.; and Pueblo, Colo., not included.
[3] South Bend, Ind.; Memphis, Tenn.; and Pueblo, Colo., not included.
[4] Cleveland, Ohio, and Springfield, Ill., not included.
[5] South Bend, Ind., not included.
[6] Memphis, Tenn., not included.
[7] Dallas, Tex., not included.
[8] Pueblo, Colo., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended March 21, 1931.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended March 21, 1931, as follows:

Province	Cerebrospinal fever	Dysentery	Influenza	Lethargic encephalitis	Poliomyelitis	Smallpox	Typhoid fever
Prince Edward Island [1]							
Nova Scotia	1		19		1		
New Brunswick				1			
Quebec	1		13				8
Ontario			5			3	7
Manitoba	1						
Saskatchewan					1	10	
Alberta [1]							
British Columbia		1					2
Total	3	1	37	1	2	13	17

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

Quebec Province—Communicable diseases—Week ended March 31, 1931.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended March 21,.1931, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Mumps	37
Chicken pox	85	Paratyphoid fever	1
Diphtheria	25	Scarlet fever	58
Erysipelas	3	Tuberculosis	78
German measles	4	Typhoid fever	7
Influenza	13	Whooping cough	24
Measles	166		

CZECHOSLOVAKIA

Communicable diseases—January, 1931.—During the month of January, 1931, certain communicable diseases were reported in the Republic of Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	4	1	Puerperal fever	54	23
Cerebrospinal meningits	14	5	Scarlet fever	1,312	34
Diphtheria	2,005	123	Trachoma	152	
Dysentery	10	2	Typhoid fever	443	43
Malaria	2		Typhus fever	60	2
Paratyphoid fever	10				

GREAT BRITAIN

England and Wales—Vital statistics—Year 1930.—Births, deaths, and marriages registered in England and Wales during the year 1930 are given in the following table. The figures are provisional.

	Number	Rate [1]
Births	649,430	16.3
Stillbirths	27,507	.69
Deaths	455,397	11.4
Deaths under 1 year	38,790	60
Marriages	314,698	----------

[1] Rates are per 1,000 total population except for deaths under 1 year of age, which are per 1,000 live births.

The following table gives the death rates from certain causes in England and Wales for the year 1930:

Cause	Death rate per 1,000 population	Cause	Death rate per 1,000 population
Diarrhea and enteritis (under 2 years)	[1] 6.0	Scarlet fever	0.02
Diphtheria	.09	Whooping cough	.05
Influenza	.12	Violence	.55
Measles	.10		

[1] The death rate for diarrhea and enteritis is computed per 1,000 live births.

Scotland—Vital statistics—Year 1930.—Births, deaths, and marriages were registered in Scotland during the year 1930 as follows:

	Number	Rate per 1,000 population
Births	94,538	19.3
Deaths	64,283	13.2
Deaths under 1 year	7,851	[1] 83
Marriages	33,323	----------

[1] The death rate of infants under 1 year of age is computed per 1,000 births.

Deaths from certain diseases were reported in Scotland for the year 1930 as follows:

Disease	Number of deaths	Disease	Number of deaths
Apoplexy	6,483	Nephritis	1,954
Appendicitis	476	Pneumonia (all forms)	5,681
Bronchitis	3,777	Puerperal sepsis	221
Cerebrospinal meningitis	216	Scarlet fever	127
Diarrhea and enteritis (under 2 years)	604	Smallpox	2
Diphtheria	460	Tuberculosis, respiratory	3,024
Heart disease	8,934	Tuberculosis, other forms	1,261
Influenza	696	Typhoid fever	24
Lethargic encephalitis	122	Typhus fever	1
Malignant tumors	7,120	Whooping cough	628
Measles	792		

TRIPOLITANIA

Plague.—According to information dated March 7, 1931, two mild cases of bubonic plague were discovered among natives in the locality of Retset Dermani, Tripoli, on January 31, 1931. Later a third case occurred. These cases, it was said, originated at Stebu Gherbo, Tunisia, a barley station halfway between Pisidia and El Hassa. Contacts had been isolated, antiplague vaccinations made, and prophylactic measures instituted. No further cases had been reported.

YUGOSLAVIA

Communicable diseases—February, 1931.—During the month of February, 1931, certain communicable diseases were reported in Yugoslavia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	35	6	Poliomyelitis	2	1
Cerebrospinal meningitis	11	6	Puerperal septicemia	3	1
Diphtheria and croup	633	96	Rabies	1	1
Dysentery	23	2	Scarlet fever	533	80
Erysipelas	151	6	Tetanus	5	10
Lethargic encephalitis	4	1	Typhoid fever	134	20
Measles	936	21	Typhus fever	12	--------

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 indicates cases; D, deaths; P, present]

Place		Sept. 21–Oct. 18, 1930	Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Dec. 14, 1930–Jan. 10, 1931	Week ended— January, 1931			February, 1931				March, 1931			
						17	24	31	7	14	21	28	7	14	21	28
Ceylon: Colombo	C													1		
China:																
Canton	C	1	1													
Shanghai	C	38	2													
	D	4														
India	C	36,529	18,944	11,112	10,687	3,504	4,022									
	D	17,635	9,782	5,933	5,689	1,770	2,165									
Bombay	C	16	19	13		20	1									
	D	11	17	7		6	3									
Calcutta	C	24	33	22	28	36	29	24	32	27	33	45	65	80		
	D	15	16	16	20	25	19	19	23	22	25	26	39	49		
Karikal	C				1					4		1	4			
	D									4			4			
Madras	C	2	1		201	47	36	16		18	20	19	6			
	D	2			67	21	11	7	8	5	4	14		5		
Negapatam	D							1	2	1		2				
Rangoon	C	1			1											
	D	1			1	1										
Tuticorin	C	1	1	5	1	1					1					
	D	1	1													
India (French):																
Chandernagor	C	3	1	1	2			1			1					
	D	1			3			1			1					
Pondicherry	C	1	1	4	31	9	4	3	3	10	20	31	39	29		
	D	1		4	21	3	3	3	2	10	9	6	9	6		
India (Portuguese)	C		14		1											
	D		9													
Indo-China (see also table below):																
Pnompenh	C	2	1	2			1	2	1		3	3	3			
	D			2				2			1	2	2			
Saigon and Cholon	C	2	1	3	9	4	1		1			3	1	1		
	D			1	4	2	1					3	1	2		

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

CHOLERA—Continued

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

Place		Sept. 21–Oct. 18, 1930	Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Dec. 14, 1930–Jan. 10, 1931	Week ended— January, 1931			February, 1931				March, 1931			
						17	24	31	7	14	21	28	7	14	21	28
Philippine Islands:[1]																
Ports—																
Iloilo	C	1		1	1			2								
	D	4		3	1			2								
Manila	C	5														
	D	1														
Provinces—																
Antique	C	40														
	D	18														
Bulacan	C	2														
	D	1														
Capiz	C							3	56	69	54	28	35	29	11	4
	D							2	45	55	39	23	29	24	10	4
Iloilo	C	50	30	45	28	11	41	36	57	27	42	10	16	2	5	
	D	40	23	27	22	9	27	25	49	21	22	11	11	2	2	
Masbate	C													21		
	D													9		
Negros, Occidental	C	28	56	163	120	19	32	33	6	1	1	2				
	D	20	41	123	97	15	17	19	5	1	1	2				
Negros, Oriental	C								1							
	D								1							
Samar	C	7	16	8	17											
	D	7	12	8	9											
Sorsogon	C		5													
	D		4													
Surigao	C	(2)														
Siam	C	4	4	6	6	2		1			1					
	D	1	4	6	6	1										
Bangkok	C	3	3	4	6	2		1		1			1			
	D	2	2	4	5	1							1			

Place		August, 1930	September, 1930	October, 1930	November, 1930			December, 1930			January, 1931			February, 1931	
					1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20
Indo-China (French) (see also table above):															
Annam [3]	C	3													
Cambodia [3]	C	59	38	22	8	1	17	28				19	36		35
Cochin-China [3]	C	27	33	28	5	5	3	8				4	13		5

PLAGUE

Place		Sept. 21-Oct. 18, 1930	Oct. 19-Nov. 15, 1930	Nov. 16-Dec. 13, 1930	Week ended— December, 1930		January, 1931					February, 1931				March, 1931			
					20	27	3	10	17	24	31	7	14	21	28	7	14	21	28
Algeria:																			
Algiers	C	6	11	2	1				1		1		1						
	D		3																
Bone	C										1								
Constantine, vicinity of	C		1			3	1	46			1		1						
	D										1								
Oran	C	10	2																
	D	3	1																
Plague-infected rats		6	1																
Philippeville	C	3	2					1											
	D	1						1											
Argentina:																			
Cordoba Province	C									1				2					
Entre Rios Province—Diamante	C														2				
Jujuy Province—Palpala	C										1			1					
Santa Fe	C													2					
Belgian Congo	C		1	1															
	D		1	1															

[1] Figures for cholera in the Philippine Islands are subject to correction.
[2] During the period from Aug. 24 to Sept. 26, 1930, 26 cases of cholera with 17 deaths were reported in Manitum, Surigao Province, P. I.
[3] Reports incomplete.

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

PLAGUE—Continued

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

Place		Sept. 21–Oct. 18, 1930	Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Week ended— December, 1930		January, 1931					February, 1931				March, 1931			
					20	27	3	10	17	24	31	7	14	21	28	7	14	21	28
British East Africa (see also table below):																			
Tanganyika	C			3	2										15	7			
	D			3	2										4				
Uganda	C	165	171	111	18	17	14	18	7	8	2	8	6						
	D	164	168	112	18	17	14	18	6	8	2	8	6						
Ceylon: Colombo	C	3	1	9	4		4	1	1	1	1	5	6	2	1	2	1		
	D	3	1	8	4		4	1		1	1	4	7	2	1	3	1		
Plague-infected rats			1	2							1	1	1	1	1				
China:																			
Manchuria—Tungliau and Nungan	C	1																	
Shensi	C		1																
Dutch East Indies:																			
Batavia and West Java	C	107	143	208	54	56	66	63	56	57	37	30							
	D	103	146	206	54	57	66	61	54	53	37	24							
Java and Madura	D	335	501	557	159	143	173	140	142	102	98	85	89	100					
Egypt:																			
Alexandria	C	9	7	4	1	1		1				1				1			
	D	6	7	1															
Plague-infected rats				3	1					1				1					
Assiout	C		3	9	5	1		1	2	19	2	3	9		17	15	6	10	1
	D		1	1				1	2	2	2		4		3	4		4	1
Aswan	C			3															
Beni-Suef	C								1										
Deirout	C									19	2								
	D									2	2								
Gharbieh	C										1								
	D										1								
Girga	C				3	1	3					1						14	37
	D					1	1					1						2	5
Kena	C																		5
	D																		2
Manfalut	C							23	5	21	4		11		2	2	3	5	9
	D							5	2	3	1		4		1			2	1
Minieh	C			1						1	1							2	1
	D										1							1	1
Port Said	C		2																

France: Marseille	C	4	4																
Greece (see also table below): Pyrgos	C	2																	
India	C	2,371	2,721	3,259	987	794	841	1,118	1,169	1,279									
	D	1,068	1,497	1,856	548	476	582	620	837	737									
Bassein	C		1					2	1		1	2				1			
	D							1	1			2	1						
Bombay	C	2	1							1			1				1		
	D	2	1							1			1						
Plague-infected rats		64	30	32	10	9	6	13	10	6	9	9	14		8	10	17		
Madras Presidency	C	196	185	148	30	94	96		73	99	75	65							
	D	110	124	78	14	71	69		47	53	39	43							
Rangoon	C	2	2			1	1			2									
	D	2	1			1				1									
Plague-infected rats		1	1	4	1	1			2	1	1			8					
India (Portuguese)	C		3																
	D		3																
Indo-China (see also table below):																			
Pnompenh	C	2		6	1				1	3	2	1				1			
	D	3	1	6	1				1	3	2	1		1	2	1		2	
Saigon and Cholon	C	1																	
Iraq: Baghdad	C	1	P	4						2	3				1	2	1	3	3
	D	1		2						2	2					2		3	1
Madagascar (see also table below): Tamatave	C	1	5	4		2													
	D	1	3	3															
Morocco	C		5		9		10		13										
	D				4		4		4										
Nigeria: Lagos	C	5	38	9	2	1	1	1				1							
	D	5	5	9	2	1	1	1				1							
Plague-infected rats		11	13	5	4		1												
Peru (see table below).																			
Senegal (see table below).																			
Siam	C	1	6									4	5			1			
	D		5									2	4						
Bangkok	C		1	1		1	2			4	4			2	3		29		
	D		1	1		1	2			4	3	1		1	4		6		
Nagara Rajsima	C	1	1	11	4	3	4	6	3	2	1	3	7						
	D	1	1	9	3	3	1	3	2	3	1	4	6						
Syria: Beirut	C		6					1				1		1					
Tripolitania	C		1	13					2	2	1	3		1			1		
	D			1					2			1							
Tunisia: Tunis	C		1	P	12			1	1					9	2	3			
	D													7					
Union of Socialist Soviet Republics:																			
Gouranduz	D										28								
Transcaucasia—Karabakh	C									6									
Union of South Africa:																			
Cape Province	C		1	P															
Orange Free State	C						2					P	P						
	D						2												
On vessel: S. S. Marionga de Thermiotis at Avonmouth	C					1													

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

PLAGUE—Continued

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

Place		Aug., 1930	Sept., 1930	Oct., 1930	Nov., 1930	Dec., 1930	Jan., 1931
British East Africa (see also table above):							
Kenya	C	87	53	58	62	50	69
Greece (see also table above)	C			2			
Indo-China (see also table above)	C	2	5	2	5	1	
Madagascar (see also table above):							
Ambositra Province	C			4	44	95	
	D			4	44	87	
Antisirabe Province	C	11	21	3	18	27	
	D	11	21	3	18	26	
Miarinarivo Province	C	2	7	18	12	18	
	D	2	7	18	12	18	
Moramanga Province	C	27	18	20	19	13	
	D	27	17	20	19	11	
Tananarive Province	C	39	79	125	170	178	
	D	38	79	116	164	172	
Peru	C	21	10	42	34	8	
	D	8	2	20	14		
Senegal:							
Baol [1]	C	79	48	53			
	D	20	23	35	4		
Dakar [1]	C	108	3				
	D	90	8				
Louga [1]	C	75	61	37	10		
	D	33	30	25	3		
Thies [1]	C	34	12	24	27	2	
	D	20	4	15	23	1	
Tivaouane [1]	C	110	20	53	31	2	
	D	54	14	31	25	1	

SMALLPOX

Place		Sept. 21–Oct. 18, 1930	Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Week ended— December, 1930		January, 1931					February, 1931				March, 1931		
					20	27	3	10	17	24	31	7	14	21	28	7	14	21
Algeria:																		
Algiers	C				1							1		1				
Bone	C										1							
Constantine	C		1															
Oran	C			3														
Arabia: Aden	C											1	1					
Belgium	C												1					
Brazil:																		
Porto Alegre (alastrim)	C	26	28	36						3								
Rio de Janeiro	C		2															

British East Africa (see also table below): Tanganyika	C	95	17	385	23	1	57	3	21	25	18	6		42				
	D	6	1	36	1		3		1	1	2	1		12				
British South Africa: Southern Rhodesia	C	153	95	18				18	2	1								
	D			3														
Canada:																		
Alberta	C	22		1			19			7			1					
British Columbia—Vancouver	C	2	3	1			1	2				2	1	2	5			
Manitoba	C										1				1			
Winnipeg	C							1							1			
Nova Scotia	C										1							
Ontario	C	19	59	23	1		8	8	10	3	32	4	10	4	7	8		
Kingston	C					2	4		1					1				
North Bay	C					1		1					1					
Ottawa	C		37	12			2		1	1	1			1				
Sault Ste. Marie	C							1	11	8	5	6			2			
Toronto	C			4													1	
Quebec	C			2						2								
Saskatchewan	C	3	2	18					7	6	5	20	17	18	18	10		
China:																		
Canton	C												2			1	1	
Chungking	C	P	P	P	2													
Foochow	C	P	P	P				P		P		P		P				
Hong Kong	C					1				1			2	5		2		
	D												1	1	1			
Manchuria—																		
Harbin	C		1								1							
Kwantung—Dairen	C			4		1												
	D			1														
Nanking	C	P	P	P	P	P	P	P	P		P	P	P	P	P			
Shanghai—																		
Foreigners only	C	1	2	8	4	2	6	2	1	1	6	4	4	7	2			
Including natives	D		1	4	5	1	1	4	2	4	4	3	5	2	4	3	5	
Swatow	D	4	3	3		2	1	2	1	1	3	2		3	3	7		
Tientsin	C	1	1	2					1									
Chosen (see table below).																		
Colombia: Cali	D	2		1														
Dutch East Indies:																		
Java—Batavia and West Java	C	14	26	6	2		2			28		1					1	
	D	4	4	2		1	1			1		1						
Sanggi Islands	C		29															
	D		3															
France (see table below).																		
Great Britain:																		
England and Wales	C	325	372	508	138	135	164	228	187	272	286	213	221	250	247	227	171	
Bradford	C	1	1	1			1			1		3		1				
Cardiff	C	1																
Leeds	C	1	2				2											
London	C	29	172	184	27	38	48	48	45	47	33	24	23	16	23	36	26	
London and Great Towns	C	52	296	433	105	131	162	162	154	198	194	147	150	186	189	158	117	
	D		1	1										1				
Sheffield	C									1	1	1		16	6	10	2	
Stoke-on-Trent	C		1							1						1		

[1] Reports incomplete.

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

SMALLPOX—Continued

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

Place		Sept. 21–Oct. 18, 1930	Oct. 19–Nov. 15, 1930	Nov. 16–Dec. 13, 1930	Week ended— December, 1930		January, 1931					February, 1931				March, 1931		
					20	27	3	10	17	24	31	7	14	21	28	7	14	21
Greece (see table below).																		
Honduras:																		
Amapala	C															1		
Ocotopeque and Gracias districts	C															P		
Puerto Castilla	C							4	7	1		3	3					
India	C	2,322	2,412	3,627	942	1,169	1,278	2,234	2,068	2,396								
	D	572	605	874	262	231	327	510	497	426								
Bombay	C	1		1			1	1	2	2	2	1			3		4	
	D			1			1	1			1				1			
Calcutta	C	12	9	18	10	19	15	15	28	28	40	47	35	51	83	53		
	D	11	7	11	7	13	10	10	16	22	29	33	26	41	66	36		
Cochin	C	12	25	22	6	7		2	5	6	8	10	19		16	24	15	
	D	1	3	4				1					1		1	1		
Karachi	C			3							2	1			4			
	D			1							1	1						
Madras	C	19	9	20		1		3	4	7	3	2	4	1	3	1	6	
	D	8	2	3											1			
Moulmein	C									2								
Negapatam	C	14	9	6														
Rangoon	C	2	1	1									2		1		1	
	D		1														1	
Tuticorin	C	1																
Vizagapatam	C	1										1			8		1	
	D														2			
India (French):																		
Chandernagor	C	3	3			5			3	2	1	3	2		6			
	D	1	1			2	1		1						1			
Karikal	C	1					1	2	1	2		2	2					
	D	1						2		2		2	2					
Pondicherry Province	C	38	11	19	8	8	7	11	16	8	13	8	1	1	10			
	D	36	11	17	7	8	7	10	16	8	13	8	1	1	10			
India (Portuguese)	C				3			1	1									

Indo-China (see also table below):																		
Pnompenh	C	2		1		2						1					1	
	D			1								1						
Saigon and Cholon	C		2	2					3	1		2		2	2		1	
	D		2	2					2			2			1		3	
Iraq:																		
Baghdad	C	2													3	6		
Mosul Liwa	C	69	6	13				1		2		1		5		5		
	D	27		2										1				
Ivory Coast (see table below).																		
Japan:																		
Kobe	C														1	1		
Taiwan	C											1						
Mexico (see also table below):																		
Jalisco (State)—Guadalajara	D	3	3	3						1								
Juarez	D	1	1															
Mexico City and surrounding territory	C	13	9	6	1	5	4						7	5		11	13	
	D	3	2	6	2	1	3					1	1	3	2	2	5	
Vera Cruz	C		1										1		1	1		1
Morocco (see table below).																		
Nicaragua: Porto Cabezas	C				2													
Panama Canal Zone	C										2							
Poland	C		8	3			23	2						1				
Portugal: Lisbon	C	16	20	37	21	17		34	27	31	15	30		12	19	9	16	
Siam	C	1						1	1		1	1	1	1				
Somaliland, British: Boales	C	1	1	1														
	D	1						1										
Spain	C		51	67	19	31	18				10	8	10	4	10	46		
Straits Settlements	C	5	10	17	3		2	1	3	1	2	1			2			
	D	1	2	7	2		1				1				1			
Sudan (Anglo-Egyptian)	C	82	5	50		47		17	1	7		3	1	1	44	51	3	1
	D	7	1	5		5		1		7					6	4		1
Sudan (French) (see table below).																		
Switzerland: Berne Canton	C	1																
Syria (see table below).																		
Tunisia: Tunis	C	2					13	4	6	1	1							
Turkey (see table below).																		
Union of South Africa:																		
Cape Province	C	P	P	P	P	P	P	P				P						
Orange Free State	C		2	P								P						
Transvaal	C	P	P	P	P	P	P		P	P	P	P	P					
Upper Volta	C			6				4						8	10			
	D							2										
On vessel:																		
S. S. Clan Mactoggart at Suez	C												2					
S. S. Muncaster Castle at Manila from Hong Kong	C					1												
S. S. Matheran at Suez from Calcutta	C									1								
S. S. Clan Buchanan at Suez	C														2			

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

SMALLPOX—Continued

[Cindicates cases; D, deaths; P, present]

Place		August, 1930	September, 1930	October, 1930	November, 1930			December, 1930			January, 1931			February, 1931	
					1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20
Indo-China (see also table above)	C	93	192	258		86		38	9	14		48	46		46
Ivory Coast	C			4		2		9							
Sudan (French)	C	39	P	17				43		96					
	D	3		2				16		4					
Syria: Beirut	C	1										1			

Place		July, 1930	Aug., 1930	Sept., 1930	Oct., 1930	Nov., 1930	Dec., 1930
British East Africa (see also table above):							
Kenya	C	186		424		653	
Chosen	C	65	35	3	22		
	D	21	15	5	6		
France	C	1					

Place		July, 1930	Aug., 1930	Sept., 1930	Oct., 1930	Nov., 1930	Dec., 1930
Greece	C	1	6				4
Mexico (see also table above)	D	659	718	822	893		1
Morocco	C	3	8	4	4	20	
Turkey	C	51	21	19	74		
	D	13	4	2	1		

TYPHUS FEVER

Place		Sept. 21-Oct. 18, 1930	Oct. 19-Nov. 15, 1930	Nov. 16-Dec. 13, 1930	Week ended— December, 1930		January, 1931					February, 1931				March, 1931		
					20	27	3	10	17	24	31	7	14	21	28	7	14	21
Algeria:																		
Algiers	C		1	2									1	1				
Constantine Department	C	2	1	2			3	3		6	6	19			4			
Oran	C	3		5						1	2					1		
Bulgaria	C	6	3	11	3				9	2	1	1		2		3		
	D				1													

China:																		
Canton	C									2								
Manchuria—Harbin (see also table below)	C	1		1						3								
Shanghai	C									2								
Tientsin	C			1														
Chosen (see table below).																		
Czechoslovakia (see table below).																		
Egypt:																		
Alexandria	C	1	2	2														
	D		2															
Beheira Province	C				1													
	D				1													
Cairo	C			1	1							1						
Port Said	C	1	2							1								
Eritrea: Asmara	C																1	
Great Britain: Scotland	C											1						
Glasgow	C										2							
	D										1							
Guatemala.[1]																		
Iraq: Baghdad	C												2	1	1	1	1	
	D												1					
Latvia (see table below).																		
Lithuania (see table below).																		
Mexico (see also table below):																		
Durango	D	2									1							
Mexico City, including municipalities in Federal District	C	8	11	14	5	2	4	1	13	12	6	8	13	13	9		46	
	D	2	4	7	4	1	3	2	8	9	9	8	4	7	5		20	
San Luis Potosi	D			2									2	2		1	1	1
Morocco	C		3	1	8					5	6	2	7	8	5	8	2	
	D	1								2				1				
Palestine	C	3	3	7	1	1		2	1	1			3				2	1
Paraguay: Asuncion	D									2	2							
Poland	C	22	37	42	18	6	28	11	19	21	16	50	49	41	43	56	62	
	D	2		7	3				2	1	4	1	3	3	4	9	4	
Portugal: Oporto	C	2	4	6						1								
Rumania	C	14	41	34	20	34		59	54	43	51	45	49	53				
	D		2	3	1	2		2	1	7	6	2	5	11				
Spain	C	2	4	1														
	D	2		1														
Tunisia	C	12		28						7	4	5			6	12	5	
Turkey (see table below).																		
Union of South Africa:																		
Cape Province	C	P	P	P	P	P	P	P	P	P	P	P	P					
Municipality of East London	C	1	1	1	P		2	1		1	1	1						
Natal	C	2	P					P	P	P	P	P	P					
Orange Free State	C		P		P	P		P	P	P	P	P	P					
Transvaal	C	P	P	P	P	P	P	P	P	P	P	P	P					
Yugoslavia (see table below).																		

[1] 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

TYPHUS FEVER—Continued

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

Place		Aug., 1930	Sept., 1930	Oct., 1930	Nov., 1930	Dec., 1930	Jan., 1931
China: Harbin (see also table above)	C	5		3			
Chosen: Seoul	C	2	1	7	1	1	1
Czechoslovakia	C	1			16	16	60
Greece: Athens	C	6	4	4	4	10	10
Latvia	C	1	2				
Lithuania	C	7	24	1	5	6	26
	D	1	2		1	3	3
Mexico (see also table above)	D	26	47	47			
Turkey	C	11		28	3	2	
Yugoslavia	C	2		2	2		20
	D	1		1			2

YELLOW FEVER

	Cases	Deaths
Brazil:		
Bahia State—Mar. 14, 1931	1	
Ceara State—Mar. 14, 1931	2	
Barbalha, Feb. 7, 1931	1	1
Minas Geraes State, Mar. 20, 1931	2	
Rio de Janeiro State—		
Mar. 7, 1931	1	1
Mar. 21, 1931	1	1
Cambucy—		
Jan. 1-25, 1931	3	3
Feb. 1-7, 1931	1	1
Brazil—Continued.		
Rio de Janeiro State—Continued.		
Friburgo (imported), Jan. 25-30, 1931	1	
Padua—		
Jan. 18-24, 1931	1	1
Feb. 1-7, 1931	1	1
Gold Coast:		
July 10, 1930	1	
Albosso, Aug. 4, 1930		1

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