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## EFFECT OF RADIANT ENERGY ON THE SKIN TEMPERATURES OF A GROUP OF STEEL WORKERS

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As a part of a study of respiratory illness, primarily pneumonia, among steel workers, it was found desirable to compare the skin temperatures of workers exposed to radiant energy with the skin temperatures of workers not so exposed. Although the correlation of the measurements made and the sickness records will form a part of a monograph to be published later, it has been thought worth while to describe at this time the instruments devised to measure the radiant energy and the skin temperatures, and to give a general idea as to the results obtained.

The study was undertaken because it had been found that the greatest percentage of time lost in industry on account of sickness was caused by respiratory disease (1) and that pneumonia occurred at almost twice the frequency among iron and steel workers as among the employees of a group of miscellaneous industries. The investigation was possible through the courtesy of the management of one of the largest steel companies, which permitted the United States Public Health Service to establish a unit in a representative steel mill to observe the occurrence of sickness over a period of several years.

Preliminary analysis of the cases occurring over a 4-year period had indicated that the incidence rate of pneumonia was high among workers exposed to inclement weather and among those subjected to wide variations in temperature, especially to extreme heat followed by exposure to much lower temperatures. This fact, together with other investigations, such as the study of the Industrial Fatigue Research Board (2), made it desirable to supplement the clinical and other aspects of the study with observations as to the industrial environment, including exposure to gases, dusts, radiant energy, and general atmospheric conditions, and also with some information as to the physiological responses of workers exposed to extreme heat variations. Investigations by the Research Laboratory of the Ameri-

can Society of Heating and Ventilating Engineers (3) had shown that there was a close correlation between atmospheric conditions (as measured by effective temperature) and body temperature, blood pressure, pulse rate, and skin temperature.

It was concluded, after consideration of the problem, that the simplest physiological response to heat that could be measured on industrial workers, without interfering with their activities, was that of skin temperature. Such a response had the decided advantage of being directly affected by external atmospheric conditions, and of being one of the most important factors affecting heat loss.

On the basis of a detailed occupational analysis in the steel plant under study, including the coke plant, the blast-furnace department, and the open-hearth steel-making and finishing, it was possible to select for observation those workers exposed to radiant energy, as well as a certain number of workers not so exposed. In the exposed group, observations were made on 15 persons. In some cases several readings were made on a person, so that in all 40 readings for a skin temperature of a particular part of the body were obtained. In the nonexposed group there were 18 subjects, and 31 readings for a particular part of the body were obtained. This latter group consisted (a) of employees doing light and moderate work, and (b) of employees doing hard work of such a strenuous character that even under low-temperature conditions their bodies were covered with visible perspiration.

The temperature of the forehead, the two cheeks, the back of the neck, and the chest (at a point on the sternum just above the xiphoid cartilage) were recorded. The reason for selecting these particular sites is that they are directly exposed to the environmental conditions (with the exception of the chest, which was covered) and are easily accessible, a point to be considered when studying persons whose work can not be interrupted for any length of time. The five readings on a single person could be made in less than a minute's time, and may be regarded as being practically simultaneous.

All observations were made during the months of November and December, and are therefore not given as representative of the conditions throughout the year. However, they were taken at a time of the year when respiratory conditions are prevalent and when the outdoor temperature contrasted sharply with the skin temperature produced by the radiant energy.

Before and after each set of skin temperature and radiation readings, dry and wet bulb temperature observations of the air were made with a sling psychrometer, which at all times was shielded from any source of radiant energy, and the air velocity was computed from observations of the cooling power of the air, made with Hill's kata-thermometer (4). Knowing the dry and wet bulb temperatures and the rate

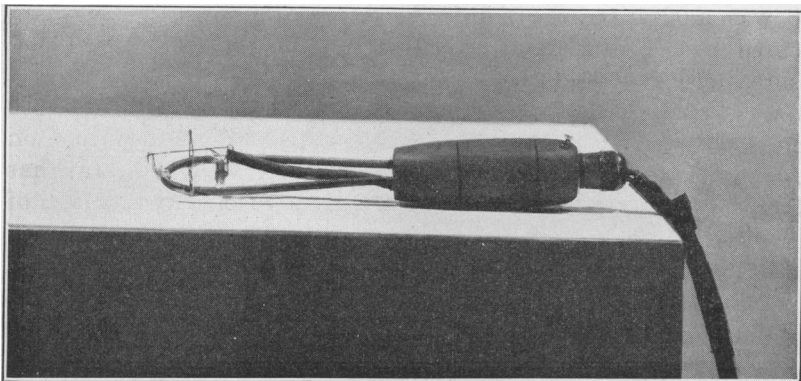


FIGURE 1.—THERMO-ELECTRIC JUNCTION USED IN MEASURING SKIN TEMPERATURES. NOTE THE FOUR ARMS OF SPRING BRASS WIRE WHICH SUPPORT THE SILK THREADS HOLDING THE THERMOCOUPLE IN POSITION. NOTE ALSO THE WOODEN HANDLE WITH SOCKET, PLUG, AND CABLE

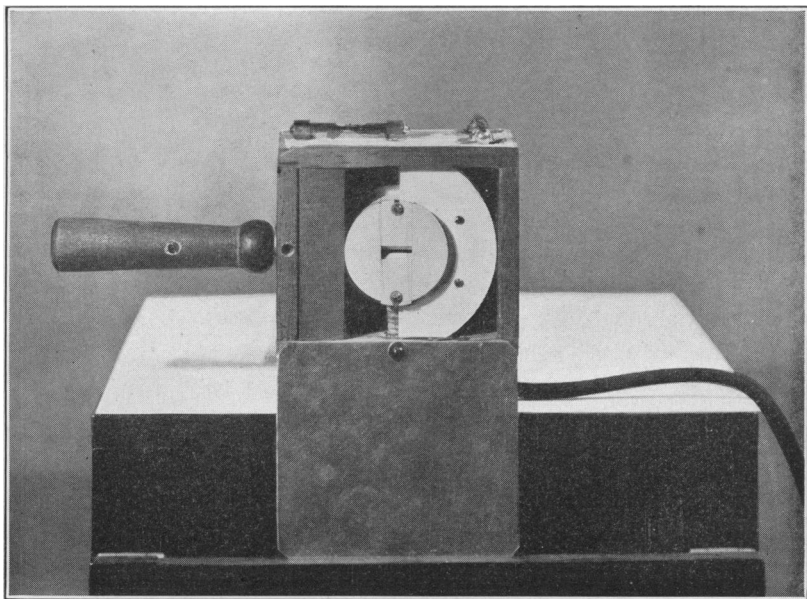


FIGURE 2.—THERMOPILE USED IN MEASURING THE RADIATION FROM FURNACES, ETC. NOTE THE ALUMINUM SHUTTER, THE WOODEN HANDLE, THE CABLE, AND THE TWO SPIRIT LEVELS ON THE TOP OF THE WOODEN HOUSING

of air motion, it was possible to compute effective temperatures for the individual workers (3). However, in this study the effective temperature is of no great value in the case of workers exposed to radiant energy, since it is not possible to express in its terms the atmospheric conditions for workers so exposed.

*Instruments used to measure skin temperature and radiation.*—A thermoelement made of No. 32 copper and constantan wires, 0.00795 inches in diameter, was used to measure the temperature of the skin. The form of the junction was that described by L. B. Aldrich in "A study of body radiation" (6) and shown by him in Figure 2 of his paper. In this device the junction is held in position by silk threads which are supported by four arms of spring brass wire attached to a rigid frame of brass. The frame terminates in a wooden handle. No cover was used over the junction. The instrument, as it was used, is shown in Figure 1.

An Eppley bismuth-silver thermopile was used to measure the radiant energy from the furnaces, etc. This thermopile is of the form designed by W. W. Coblentz, and shown in Figure 3 of his paper (7). The thermopile as originally constructed had 12 junctions, but only 10 were used. The thermopile was mounted in a brass case having an adjustable slit in front of the central line of junctions. The width of the slit was set at 2 millimeters. At this width the effect of air currents upon the thermopile was negligible. As used to measure the radiation from furnaces, etc., the brass case was housed in a square wooden box with a wooden handle, as shown in Figure 2. An aluminum shutter was attached to the front of the box to cut off the radiant energy when desired, and two small spirit levels were placed on the top of the box at right angles to each other so that the plane of the slit could be maintained in a vertical position while a measurement of the radiation was being made.

A Leeds and Northrup portable galvanometer, with telescope and scale, having a resistance of 25 ohms and a sensitivity of 0.2 millimeter per microvolt, was used to measure the current either from the thermoelement or from the thermopile. A short-circuiting switch was connected to the terminals of the galvanometer so that its zero reading could be readily obtained. In order to obtain a convenient deflection on the galvanometer a variable resistance of from 0 to 10,000 ohms was connected in series with it. For the measurements of skin temperature the constant temperature junction of copper and constantan, sealed in a glass tube, was immersed in water in a thermos bottle, the temperature of the water being determined by a thermometer immersed in it. The galvanometer, variable resistance, thermos bottle, and a double-throw switch were mounted on a board which could be placed on a chair, stool, or table, near the point where the measurements were to be made.

By means of interchangeable plugs and sockets, the double-throw switch, and a cable 18 feet long containing 3 wires, 1 of constantan and 2 of copper, insulated from each other, the galvanometer could be connected at will either with the thermoelement or with the thermopile. When the cable was connected with the thermoelement, the thermoelectric current passed through the thermoelement, the constant temperature junction, the resistance box, and the galvanometer, the two thermocouples being connected to each other, on one side by by constantan wires, and on the other side by copper wires. When connected with the radiation thermopile, the skin temperature thermoelement was cut out of the circuit and the current passed through the thermopile, the resistance box, and the galvanometer; the wires connecting the thermopile to the resistance box and the galvanometer

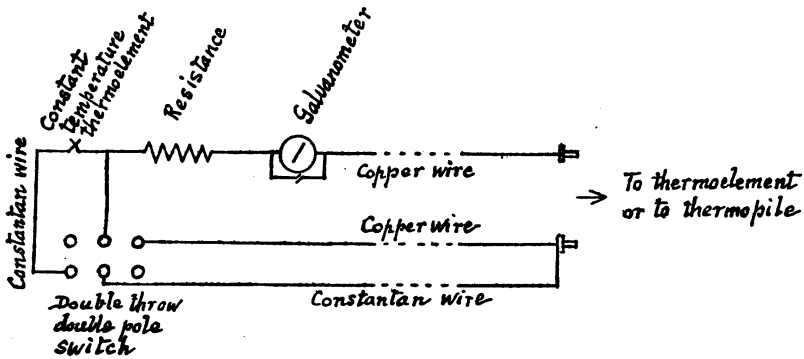


FIGURE 3.—Diagram of the electric circuits used with the skin temperature thermoelement and the radiation thermopile

were of copper on both sides. A diagram of the connection is shown in Figure 3.

When using the thermoelement the resistance was set at 100 ohms. This gave about 2° centigrade to one division on the galvanometer scale. Since each division on the galvanometer scale was subdivided into 10 parts, it was possible to determine the skin temperature to a tenth of a degree. The thermoelement was calibrated by immersing it in kerosene at varying temperatures, and the formula used to calculate the skin temperature was

$$t_s = t_c + 2.01 G + 0.7$$

where

$t_s$  = skin temperature.

$t_c$  = temperature of the constant temperature junction.

$G$  = galvanometer reading.

When using the thermopile the resistance was set at various values from 1,000 to 9,000 according to the intensity of the radiation to be

measured. Calibration by comparison with a standard lamp supplied to the Public Health Service by the Bureau of Standards, and with a 200-watt Mazda C lamp standardized by the Smithsonian Institution gave values for the radiation, for different values of the resistance in the resistance box, for a deflection of one division on the scale of the galvanometer, shown in Table 1.

TABLE 1.—Gram calories per square centimeter per minute for one division on the galvanometer scale for different values of resistance in the resistance box

Resistance in box, in ohms	Gram calories per square centimeter per minute per galvanometer scale division	Resistance in box, in ohms	Gram calories per square centimeter per minute per galvanometer scale division
0.....	0.00386	5,000.....	0.555
10.....	.00496	6,000.....	.665
100.....	.0149	7,000.....	.775
1,000.....	.114	8,000.....	.885
2,000.....	.224	9,000.....	.995
3,000.....	.334	10,000.....	1.105
4,000.....	.445		

Since the calibration constant of the thermopile was known to 1 per cent and the galvanometer scale could be read to two-tenths of one of its smallest divisions, the values obtained for the incident radiation are probably accurate to about 1 per cent.

On account of the small heat capacity of the thermoelement, its response was very rapid, the galvanometer reading assuming a steady value within a few seconds. The response of the thermopile to radiation was immediate.

*General picture of the results.*—Rather than to give an exhaustive analysis of the skin temperature readings obtained at this time, the data are presented more or less as samples selected to bring out the important relations.

The marked rise in skin temperatures, especially those of the forehead and cheeks, for workers exposed to radiant energy is shown in Table 2, which gives the readings for two men working in the blast-furnace cast house. A graph of these skin temperatures is shown in Figure 4. While casting was in progress the radiant energy for both men, averaged for six readings, was 2.57 gram calories per square centimeter per minute, an intensity severe enough to cause profuse sweating in a few minutes even under intermittent exposure and under the low existing temperature conditions. An idea of the meaning of the magnitude of 2.57 gram calories per square centimeter per minute may be obtained when this value is compared to the strength of the radiation from the sun, which, outside the earth's atmosphere, is equal to 1.93 gram calories per square centimeter per minute. The

atmospheric conditions, apart from the radiant energy, were very cold, the dry bulb reading being 33° F., the relative humidity 51 per cent, and the air velocity 113 feet per minute. Skin temperature

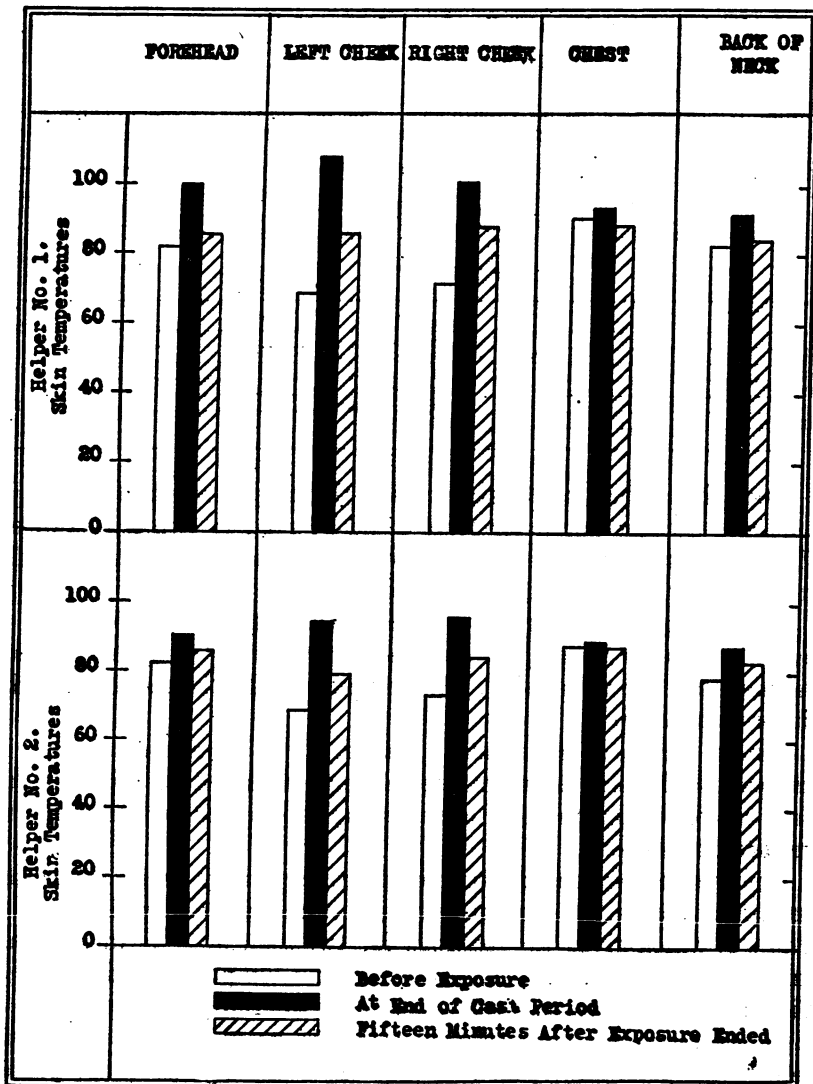


FIGURE 4.—Skin temperatures in degrees Fahrenheit of two workers in blast furnace cast house before and after exposure to radiant energy from molten iron during casting

readings were taken prior to casting, at the end of the cast period, when cooling had already commenced, and 15 minutes later. The table gives all of these readings, and also the rise of skin temperature due to the effect of casting.

TABLE 2.—*Skin temperatures in degrees Fahrenheit of two workers in blast-furnace cast house before and after exposure to radiant energy of 2.57 gram calories per square centimeter per minute, from molten iron during casting—Exposure intermittent and of 20 minutes' duration*

Worker	Forehead	Left cheek	Right cheek	Chest	Back of neck
Temperatures before casting					
First helper.....	81.5	68.2	70.7	90.7	83.3
Second helper.....	81.9	68.5	72.1	86.7	78.3
Temperatures immediately after casting					
First helper.....	99.7	107.6	100.0	92.8	92.1
Second helper.....	89.6	93.6	94.3	88.2	87.8
Temperatures 15 minutes later					
First helper.....	85.1	85.5	87.4	88.7	85.1
Second helper.....	85.6	78.6	83.3	86.7	82.9
Rise in temperature					
First helper.....	18.2	39.4	29.3	2.1	8.8
Second helper.....	7.7	25.1	22.2	1.5	9.5
Average rise in temperature					
	12.9	32.3	25.7	1.8	9.1

One would expect that individual workers would react quite differently to radiant energy, because of variation in the amount of work done, the kind of clothing, position with reference to the source of radiant energy, location while cooling off, as well as individual physiological idiosyncrasies. Furthermore, there would be different results, in the case of other processes, such as those carried out at the coke ovens, or the open-hearth furnaces. Therefore, no attempt has been made to indicate the precise degree of change in skin temperatures as a result of exposure to radiant energy. The figures given in this table and graph are not meant to be typical, but simply are presented as an indication that marked changes do occur.

It will be seen that the cheeks show the greatest rise in temperature, but there is also a definitely marked increase for the forehead and even for the back of the neck. The only reading not showing a consistent rise was that of the chest. The chest, however, was covered when the readings were made, and was thus protected from the radiant energy. There was a fall in skin temperature during the 15-minute period following the casting, although in general the temperatures had not returned to the old levels when these final readings were made.



Data have not been given for open-hearth furnace workers, but it may be stated that they were exposed to intense radiation, on an average of 6.47 gram calories per square centimeter per minute, for brief and intermittent intervals, and high skin temperatures were encountered.

The highest skin temperatures recorded in the course of the study were for a heater at the coke ovens, exposed to about 0.30 gram calories per square centimeter per minute of radiant energy at intermittent periods. The readings for this person (see Table 3) were: Forehead, 105.8°; left cheek, 110.8°; right cheek, 106.2°; chest, 102.4°, and back of neck, 103.5°. This man was working in a very hot atmosphere, dry bulb 94° (shielded), relative humidity 24 per cent, and air velocity 250 feet per minute, which without a source of radiant energy would have produced an effective temperature of 79°. It will be noted that the environmental conditions were very different from those for the blast-furnace cast house. Other skin temperature readings of 100° or more were obtained for workers exposed to radiant energy, although for workers not exposed to radiant energy no readings as high as 100° were found.

One of the things shown by these results is the great difference in the skin temperature of different parts of the body for the same individual, although these temperatures were taken almost simultaneously. Whether this fact has a bearing on the high incidence of pneumonia among these workers remains to be determined by further analysis; but it seems well to indicate the extent of these differences in the present paper. For this purpose cases have been chosen where it was known that the worker was facing a source of radiant energy and where the readings were made immediately after the source had been removed. The skin temperatures of five individuals are shown in Table 3, together with the maximum temperature difference and the difference between the temperature of the forehead and the back of the neck. The atmospheric conditions corresponding to these temperatures are also given. The three sets of readings given for the coke oven heater and the two sets of readings for the coke oven luterman are in each case readings for the same individual. The time of exposure to the source of radiant energy was brief in all cases, being intermittent and lasting only two or three minutes at any one time.

TABLE 3.—*Skin temperatures at various sites for certain workers facing sources of radiant energy, together with the corresponding atmospheric conditions. Radiation given in gram calories per square centimeter per minute; temperature, in degrees Fahrenheit; and velocity of the air in feet per minute.*

Occupation	Skin temperatures							Atmospheric conditions				
	Fore-head	Left cheek	Right cheek	Chest	Back of neck	Differences		Radiation	Temperature of the air, °F.	Relative humidity, per cent	Velocity of the air, feet per minute	Effective temperature without radiation <sup>1</sup>
						Maximum	Fore-head and back of neck					
Coke oven heater.....	105.8	110.8	106.2	102.4	103.5	8.4	2.3	0.30	94	24	250	79
	84.8	75.5	79.2	86.6	78.5	11.1	8.3	0.31	56	90	98	51
	85.4	84.0	86.0	91.0	75.0	16.0	10.4	0.30	56	20	48	52
Coke oven luterman..	91.9	103.6	86.4	100.4	84.4	19.2	7.5	0.34	51	62	56	48
	91.9	94.3	91.9	96.1	82.3	13.8	9.6	0.34	51	62	56	48
Blast-furnace cast house workers:												
Keeper.....	93.6	92.8	94.6	93.2	90.3	4.3	3.3	2.57	33	51	113	27
First helper.....	99.7	107.6	100.0	92.8	92.1	15.5	7.6	2.57	33	51	113	27
Second helper....	89.6	93.6	94.3	88.2	87.8	6.5	1.8	2.57	33	51	113	27

<sup>1</sup> Effective temperature which would have been produced if no source of radiant energy had been present.

As would be expected, there is no great consistency in the differences between the skin temperatures of different parts of the body; they evidently depend on the mode and duration of exposure of the worker to radiant energy, on other atmospheric conditions such as the temperature, relative humidity, and velocity of the air, and on factors peculiar to the individual. It will be noted that there was as much as 10.4° difference between the temperature of the forehead and that of the back of the neck for one worker, and a difference of 19.2° between the temperature of the left cheek and the back of the neck for another worker. These workers faced the source of radiant energy, their backs being exposed to the wind.

One of the striking points brought out by the data collected in this study is the fact that there occurred high skin temperatures for the workers, even when the atmospheric conditions were very cold. This is shown by the data given in Table 3 for workers in the blast-furnace cast house, where skin temperatures as high as 107.6° were observed when the temperature of the air was as low as 33°. The radiation in this case had a high value, 2.57 gram calories per square centimeter per minute. On the other hand very high skin temperatures (108.5° for the cheeks) were obtained with a radiation of only 0.30 gram calories. In this case, however, the temperature of the air was very high, being 94°, and the atmospheric conditions without the radiation would have produced an effective temperature of 79°. The work of McConnell and Yagloglou (5b) has shown that for an effective temperature of this amount the skin temperature was 100°, even when no source of radiant energy was present. It is to be expected that the rise in skin temperature produced by the radiant

energy will depend not only on the intensity of the radiation but also upon the temperature, relative humidity, and velocity of the surrounding air.

Although this paper deals primarily with persons exposed to radiant energy, using the other workers as a "control" group, the writers feel that there is sufficient general interest in the subject of skin temperatures to justify a comparison of skin temperatures for different atmospheric conditions for steel workers who were not exposed to radiant energy. The data are very limited in extent; also, some of the employees were doing hard work, others, moderate work, and in a few cases readings were taken on persons before they started to work. Generally speaking, the group doing light or moderate work were exposed to much higher temperatures than those doing hard work, which makes any comparison between these two groups impossible. It is possible, however, to show that workers in *both* of these groups showed *higher skin temperatures* when in the *hotter* atmosphere. These results are in line with those obtained by the Research Laboratory of the American Society of Heating and Ventilating Engineers (3).

It would be desirable to present curves depicting the rise in skin temperature with a rise in atmospheric temperature, measured, perhaps, by the effective temperature scale. The data, however, seem insufficient to do this, because in only a few cases were there different effective temperature conditions, and in these cases the men were not engaged in the same sort of work. All that has been attempted, therefore, is to contrast the skin temperatures observed under two atmospheric conditions, first, for a group of workers doing hard work; and then for a group doing light or moderate work. This has been done in Table 4. As in previous cases, the material is presented as an indication of the relationship existing, rather than as a complete picture of it.

TABLE 4.—Average skin temperatures and atmospheric conditions for workers not exposed to radiant energy. Temperatures measured in degrees Fahrenheit and velocity of the air in feet per minute

Work group	Occupation	Skin temperatures						Atmospheric conditions			
		Fore-head	Left cheek	Right cheek	Chest	Back of neck	Number of observations	Temperature of the air, ° F.	Relative humidity, per cent	Velocity of the air, feet per minute	Effective temperature
Hard work...	Workers at ammonium sulphate saturators.....	89.7	91.3	89.6	93.8	86.8	4	59	67	166	53
	Outdoor laborers.....	83.0	74.5	78.7	93.9	82.4	2	45	51	90	41
	Difference.....	6.7	16.8	10.9	-.1	4.4					
Moderate work.	Office.....	97.3	97.0	96.5	97.5	95.9	3	76	28	10	69
	Engine house.....	90.3	86.4	85.8	92.9	86.9	8	58	41	62	54
	Difference.....	7.0	10.6	10.7	4.6	9.0					

It will be noted that in the hard-work group the marked difference between the atmospheric conditions for the workers at the ammonium sulphate saturators and for the outdoor laborers is reflected in the values for the skin temperatures, the skin temperatures being higher for the higher effective temperatures. The left cheek shows an average increase of 16.8°, the right cheek 10.9°, the forehead 6.7°, and the back of the neck 4.4°, when the effective temperature is increased from 41° to 53°.

In the moderate-work group similar increases in the skin temperatures are shown when the effective temperature is increased from 54° to 69°. The atmospheric conditions in this latter group, however, are not on the same levels as those that prevailed for the employees doing hard work. In fact, the temperature in the engine house, in this case the lower temperature, is very nearly the same as that at the ammonium sulphate saturators, which for the hard-work group had the higher temperature. This is the reason why no effort has been made to compare directly the skin temperatures of the workers doing hard work with the skin temperatures of those doing moderate work.

The results, as far as they go, are consistent with those reported by McConnell and Yagloglou (5b).

The averages of all readings (31 sets of observations) for all workers not exposed to radiant energy gave the following values for skin temperatures: Forehead, 90.4°; left cheek, 88.3°; right cheek, 87.9°; chest, 91.8°; back of neck, 87.6°. It will be noted that the frontal temperature is higher than the dorsal. This fact has been observed by others (5).

In connection with the data already presented, it may be of interest to give the skin temperature readings made on two other workers. These men followed the occupation of chipper, an unskilled operation of removing surface defects from billets and blooms of steel by means of a pneumatic chisel. This work is carried on in an open, shed-like building, called "chipper yard," through which a considerable draft of air is always blowing. The air is very damp, owing to the saturated condition of the compressed air, which escapes from the port side of the pneumatic hammer. At the time when the observations were made in this "chipper yard," the dry-bulb temperature was 34° F., the wet bulb 31°, and the air velocity 900 feet per minute. The effective temperature for these conditions has never been determined, nor is it possible to obtain a value from the effective temperature chart by extrapolation; but, it is quite low, perhaps in the neighborhood of 20°. The men were heavily clothed, especially about the chest, wore hats and scarfs or kerchiefs about their necks. The average readings were as follows: Forehead, 61.2°; cheeks, 52.5°; chest, 76.8°; and back of neck, 66.4°. It will be noted that the cheeks,

which were unprotected by clothing, showed the lowest temperature, and the chest, which was well covered, the highest.

#### SUMMARY

The main purpose of this paper has been to describe the instruments employed in the field to determine radiant energy and skin temperature. Incidentally, however, a general picture of the results obtained, has been given as an indication or sample of the relationship between skin temperature, radiant energy, and the atmospheric conditions among steel workers. The final comparisons have been left to a later monograph, which will show what correlations may appear between conditions found and the sickness rates, primarily pneumonia. The following points have come out rather clearly in this preliminary analysis:

1. Intense sources of radiant energy had a pronounced effect on the skin temperatures of workers exposed to them; the forehead and cheeks showed the greatest increase.
2. Great differences in the skin temperatures of different parts of the body, for a single individual, were found in workers exposed to radiant energy.
3. Even under relatively cold atmospheric conditions, not far above the freezing point, high skin temperatures were encountered in workers exposed to radiant energy.
4. For workers not exposed to radiant energy there was a definite relation between atmospheric conditions and skin temperatures, both for arduous and for moderate work; the skin temperatures increasing with increase of effective temperature.

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### STUDIES ON ROCKY MOUNTAIN SPOTTED FEVER

For convenience and ready reference, the results of experimental studies on Rocky Mountain spotted fever conducted by Public Health Service investigators over a period of six years, 1922-1928, have been collected and bound in one volume. This has recently come from the press as Hygienic Laboratory Bulletin No. 154.

This bulletin comprises seven papers previously published in the PUBLIC HEALTH REPORTS and four additional papers which have not heretofore appeared.

In their earlier work the authors have shown that the virus of Rocky Mountain spotted fever becomes noninfectious in hibernating ticks and can subsequently be revived to a highly infectious stage by subjecting the ticks to a warm temperature (37° C.), or preferably by permitting them to ingest mammalian blood. After such feeding the virus content of the infected ticks increases enormously, and there is usually, but not invariably, an increase in the number of demonstrable rickettsiae in the tick tissues. From ticks at this stage the authors later prepared a preventive vaccine (having failed to grow the causative organism on artificial media) which has protected experimental animals from multiple infectious doses of the virus and has been used experimentally over a period of four years in the vaccination of people whose occupation exposes them to tick bites. The results so far indicate that the vaccine has a definite field of usefulness in the prevention of Rocky Mountain spotted fever.

This bulletin is of a technical nature and is not suitable for general distribution. Public health workers, however, and persons par-

ticularly interested in this general field of research may secure copies without charge by addressing the Surgeon General, United States Public Health Service, Washington, D. C.

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## MORTALITY IN CERTAIN STATES DURING 1929, WITH COMPARATIVE FIGURES FOR RECENT YEARS<sup>1</sup>

For about two years the United States Public Health Service has secured from State health departments current mortality data and has each month published death rates from certain important causes from as many States as could furnish the information to the service. The data so collected for monthly publication are, of course, available for an annual summary also, and the tables here presented have been compiled to give a preliminary summary of mortality during 1929.

The rates are computed from current and generally preliminary reports furnished by State departments of health. Because of (a) some lack of uniformity in the method of classifying deaths according to cause, (b) some delayed death certificates, and (c) various other reasons, these preliminary rates can not be expected to agree in all instances with final rates published by the Bureau of the Census; the final figures are based on a complete review and retabulation of the individual death certificates from each state. The preliminary rates given in the following tables are intended to serve as a current index of mortality until final figures are issued by the Bureau of the Census. Because 1929 is so far from the 1920 census and so near the taking of the new census, the Bureau of the Census has not made population estimates for that year. For this reason, the rates for 1929 in these tables are based on the population as estimated by the Bureau of the Census for July 1, 1928.

For purposes of comparison, the mortality records for a few preceding years are given. These comparative rates for preceding years are taken from the same source as are the current reports. Although final figures are often available for these earlier years, the preliminary figures are retained as being more nearly comparable with current preliminary rates.

In Table 1 the death rates from all causes and from certain specific causes for groups of States have been brought together. The number of States included varies with the cause; but for a given cause the same States are included for every one of the years from 1923 to 1929. Tables 2, 3, and 4 show the States that are included in the group whose records are summarized in Table 1 for each cause of death, and also the death rates from that cause in each of the States for each year. The death rates for the groups are repeated in those tables, but it

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<sup>1</sup> From the Office of Statistical Investigations, U. S. Public Health Service.

seemed worth while to bring together in Table 1 the rates for the different causes and years in as large a group of States as possible. In every case all States for which data were available for the whole period 1923-1929 were used in making the summary. In addition, the detailed tables (Tables 2, 3, and 4) show rates for 1929 and such other years as could be secured for States for which data were not available for the whole period.

The rates for the majority of the diseases included in Table 1 are based on reports from 13 States, with an aggregate population of more than 41,000,000, or about one-third of the total population of the United States. Other causes in this table are based on fewer States, but the smallest population considered is more than 19,000,000. While the rates in these States may not be the same as those for the total registration area, it is highly probable that the trend in these rates will be quite comparable with the trend in the rates in the total registration area.

The death rate per 1,000 from all causes in the group of 12 States was 12.4 in 1929, as against 12.3 in 1928. Such a small difference may not appear to be significant, but an examination of the rates for individual States suggests that the rate in 1929 was slightly more than that in 1928. Of the 18 States with data for both years, 11 had a slightly higher rate in 1929 than in 1928. The rate for 1927 was less than any of the rates from 1923 to 1926, inclusive. No doubt the slightly higher rates in 1929 and 1928 were due to the influenza epidemic, which had its peak at a very early date in January of 1929, so that the excess mortality was almost equally divided between the two calendar years. This influenza epidemic was a minor one as compared with the 1918 pandemic, but it was the most severe epidemic that has occurred since 1920.

In the 10 States for which infant mortality figures were available, the rate in 1929 was slightly less than in 1928. The decrease from the 1928 rate, although small, was participated in by 8 of the 14 States with data available for both years, and in 2 other States the rates in the two years were the same. Inasmuch as the death rate from malformations and diseases of early infancy changes very little from year to year, a line has been inserted in Table 1 to show the infant mortality from all causes except malformations and early infancy. Since 1923 the infant mortality rate from causes other than malformations and early infancy has decreased 19 per cent as against a decrease of 16 per cent in the total infant mortality rate. Nearly one-half of the present infant mortality is due to malformations and diseases of early infancy and this group of causes has decreased very little.



Typhoid fever continued during 1929 its almost uninterrupted decline. With the exception of 1925, each year has shown a decrease over the preceding year. Reference to Table 4 indicates that of the 21 States with data available for both 1928 and 1929, 13 participated in the decrease and another State was the same for the two years. The rates for the different States vary a great deal and those with a decline included a number of States with relatively high rates. A few of the States that increased have exceptionally low rates and in some cases the increase may be a matter of chance rather than an indication of a real increase in typhoid fever.

It is a well-known fact that the diseases of children such as measles, chickenpox, scarlet fever, and diphtheria tend to occur in cycles and, therefore, the death rate for any one year is a poor indicator of the average mortality from these diseases. The measles death rate for 1929 was less than in any of the seven years shown on this table. The death rate from whooping cough was slightly more than in 1928 and the same as in 1927, but each of these three rates was less than in any of the four preceding years. The same can be said of the death rate from scarlet fever, the rate for 1929 being slightly more than that for 1928, but each rate during the last three years being less than any rate from 1923 to 1926, inclusive. Diphtheria continued during 1929 its almost uninterrupted decline throughout these seven years. The rate for 1928 was the same as that for 1927, but each of the other years has shown a decline over the preceding year. Of the 21 States with data available for both 1928 and 1929, 15 showed a decrease in the diphtheria rate for 1929 as compared with that for 1928.

The death rate for poliomyelitis in 1929 was the lowest since 1923. Of 18 States with data for both of the last two years, 12 States showed a decrease in 1929 as compared with 1928, and 2 more had the same rate for the two years.

Meningitis, on the other hand, showed the highest rate that has occurred in any of the seven years; in fact, the rate was more than twice as high as that for 1928 and more than three times as high as in any of the other years. In every one of the 16 States for which data were available in 1928 and 1929 the rate was higher in the latter year. States with unusually high rates were Michigan, Arizona, and California. The rate was also very high in Hawaii. The number of cases of meningitis reported to State departments of health indicates that the high level of 1929 has continued into 1930.

The death rate from tuberculosis continued its decline from 99.1 in 1923 to 79.5 in 1929, every year in that period showing a decline as compared with the preceding year. Of the 21 States with data for both 1928 and 1929, 16 had smaller rates in the latter year.

Cancer, on the other hand, continued an uninterrupted increase from 95.1 in 1923 to 105.8 in 1929, each year throughout this period

showing an increase over the preceding year. Of the 19 States with data for the last two years, 13 showed an increase in 1929 over 1928, but there were 6 States that showed a decrease.

The rate for diseases of the heart, likewise, continued its increasing trend, 13 of the 16 States with data for the last two years showing an increase in 1929 over 1928 and only 2 showing a decrease, the other State remaining the same for the two years. The death rate from heart diseases in each year from 1923 to 1929, except 1927, has shown an increase over the preceding year.

The rate for nephritis was slightly lower in 1929 than in 1928, but was higher than in any of the other years except 1926. However, the increase from 1923 to 1929 has been neither large nor regular. Of the 15 States with data for the last two years, 11 showed a decrease in 1929 as compared with 1928.

The death rate from cerebral hemorrhage was slightly less in 1929 than in 1928 and less than in any of the other preceding years except 1927. Of the 12 States with data for both of the last two years, 7 showed a decrease and 5 an increase.

The death rate from diabetes was greater in 1929 than in any of the 7 years included in the table. However, of the 14 States with data for both of the last two years, only 8 showed an increase and 6 showed a decrease in 1929 as compared with 1928. The change since 1923 has been neither large nor regular, but the rates for 1928 and 1929 are both larger than those for any of the preceding years.

Diarrhea and enteritis under 2 years of age continued its almost uninterrupted decline, the rate for 1929 being hardly more than one-half the rate for 1923. In every year included in the table, except 1925, the rate is less than in the preceding year, and in most instances materially less. Of the 17 States with data for both 1928 and 1929, 10 showed a decrease in 1929 as compared with 1928.

The influenza death rate was somewhat higher in 1929 than in 1928, and in both of these years it was higher than in any preceding year included in the table. As already mentioned, an influenza epidemic which occurred at the very end of 1928 and the beginning of 1929 was almost equally divided between the two calendar years. The pneumonia death rate for 1929 was slightly higher than that for 1928, but was less than the rates for the years from 1923 to 1926, inclusive.

TABLE 1.—Summary of mortality from certain causes in a group of States, 1923-1929

Diseases (numbers in parentheses are from the International List of the Causes of Death, third revision, Paris, 1920)	1929	1928	1927	1926	1925	1924	1923	Number of States included <sup>1</sup>	Estimated population as of July 1, 1928
	Rate per 1,000 population								
All causes (1-205).....	12.4	12.3	11.8	12.7	12.6	12.5	13.0	12	38,556,000
	Deaths under 1 year per 1,000 live births								
Total infant mortality.....	70	71	68	76	78	76	83	10	32,013,000
All except malformations and early infancy.....	38	38	35	42	43	43	47	8	27,170,000
	Rate per 100,000 population								
Typhoid fever (1).....	2.8	3.1	3.7	4.7	6.4	5.3	5.4	13	41,509,000
Measles (7).....	2.5	3.9	3.3	7.7	2.7	6.3	11.1	13	41,509,000
Scarlet fever (8).....	2.0	1.8	2.0	2.3	2.7	3.4	3.9	13	41,509,000
Whooping cough (9).....	5.3	5.2	5.3	7.9	6.9	7.2	9.3	13	41,509,000
Diphtheria (10).....	5.7	6.7	6.7	6.8	7.8	9.7	12.5	13	41,509,000
Influenza (11).....	46.2	38.2	19.6	35.1	26.0	17.6	36.5	11	37,943,000
Acute anterior poliomyelitis (22).....	.7	1.2	1.8	.8	1.9	.9	.7	9	30,546,000
Meningococcus meningitis (24).....	3.6	1.4	1.0	1.0	.8	.7	1.0	7	23,001,000
Tuberculosis (all forms) (31-37).....	79.5	81.6	83.3	90.3	92.6	95.4	99.1	13	41,509,000
Cancer (43-49).....	105.8	103.6	101.7	101.0	100.0	97.5	95.1	13	41,509,000
Diabetes mellitus (57).....	21.2	20.7	19.7	18.9	17.8	17.4	18.1	5	19,048,000
Cerebral hemorrhage, apoplexy (74).....	94.5	94.9	90.9	96.4	99.4	101.3	97.5	7	15,936,000
Heart diseases (87-90).....	233.5	227.3	209.5	214.5	202.7	189.9	185.5	8	25,790,000
Pneumonia (all forms) (100, 101).....	96.9	96.5	76.9	99.7	98.5	101.2	112.2	12	39,893,000
Diarrhea and enteritis (under 2 years) (113).....	18.2	18.9	20.6	25.5	33.5	30.5	35.0	11	37,171,000
Nephritis (all forms) (128, 129).....	105.2	106.1	102.5	108.4	102.7	99.9	101.0	10	34,167,000

<sup>1</sup> See Tables 2, 3, and 4 for names of States included. The District of Columbia is counted as a State in this column.

TABLE 2.—Mortality from all causes in certain States and in a group of insured wage earners, 1923-1929

State	Death rate per 1,000 population (all causes, 1-205)						
	1929	1928	1927	1926	1925	1924	1923
States with complete data:							
Total (11 States and District of Columbia).....	12.4	12.3	11.8	12.7	12.6	12.5	13.0
Alabama (total).....	12.5	12.3	10.6	11.7	11.6	11.7	11.1
White.....	10.0	9.6	8.6	9.6	.....	.....	.....
Colored.....	17.3	16.8	14.1	15.9	.....	.....	.....
Arizona.....	14.2	13.5	12.6	12.7	13.3	13.4	12.7
California.....	14.3	14.5	14.5	14.2	14.1	14.5	14.3
Connecticut.....	10.8	10.7	10.6	11.8	11.6	11.3	12.0
District of Columbia.....	13.5	13.1	12.9	14.0	13.6	13.1	14.7
Indiana.....	12.3	12.2	11.5	13.2	12.7	12.3	13.2
Louisiana.....	12.5	12.8	12.2	12.6	13.2	13.3	12.0
Maryland.....	13.6	13.4	13.2	14.7	14.1	13.9	14.9
Minnesota.....	9.3	9.4	9.2	9.7	9.7	9.5	10.0
New Jersey.....	11.9	11.6	11.3	12.3	11.8	11.7	12.3
New York (exclusive of New York City).....	13.4	13.1	12.8	14.0	13.3	13.3	14.8
Pennsylvania.....	11.7	12.6	11.4	12.5	12.2	12.3	13.3
Other States:							
Georgia.....	10.7	.....	.....	.....	.....	.....	.....
Hawaii.....	12.6	11.8	.....	.....	.....	.....	.....
Iowa.....	10.5	10.5	.....	.....	.....	.....	.....
Kansas.....	10.6	11.4	10.2	( <sup>1</sup> )	10.3	.....	.....
Michigan.....	12.2	( <sup>1</sup> )	11.5	12.7	11.8	12.2	12.8
North Carolina.....	12.6	12.2	.....	.....	.....	.....	.....
South Dakota.....	8.4	8.7	.....	.....	.....	.....	.....
Tennessee.....	12.5	12.4	11.5	.....	.....	.....	.....
Virginia.....	11.2	( <sup>1</sup> )	11.3	12.2	11.8	11.9	12.7
Wisconsin.....	10.5	( <sup>1</sup> )	10.0	10.3	10.1	9.9	10.5
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	8.7	8.7	8.4	8.9	8.5	8.5	9.0

<sup>1</sup> Not available.

TABLE 3.—*Infant mortality in certain States, 1923-1929*

State	Deaths under 1 year per 1,000 live births						
	1923	1928	1927	1926	1925	1924	1923
	Total infant mortality						
<b>States with complete data:</b>							
Total (9 States and District of Columbia).....	70	71	68	76	78	76	83
Alabama (total).....	73	74	65	68	73	79	77
White.....	64	63	56	62			
Colored.....	91	98	84	89			
Arizona.....	128	144	127	116	133	140	128
California.....	63	62	63	63	69	67	72
Connecticut.....	68	62	59	72	73	69	76
District of Columbia.....	69	65	66	85	87	76	91
Indiana.....	66	64	59	72	68	66	71
Louisiana.....	76	81	77	74	89	94	82
Maryland.....	79	79	81	87	90	87	94
New York (exclusive of New York City).....	63	65	63	74	71	71	79
Pennsylvania.....	71	72	70	82	82	78	88
<b>Other States:</b>							
Hawaii.....	101						
Iowa.....	52	54					
Kansas.....	57	59					
Michigan.....	67						
Minnesota.....	48						
New Jersey.....	61						
South Dakota.....	56	59					
Tennessee.....	79						
Virginia.....	74						
Wisconsin.....	61	61					
<b>All except malformations and early infancy</b>							
<b>States with complete data:</b>							
Total (7 States and District of Columbia).....	38	38	35	42	43	43	47
Alabama.....	44	46	37	42	42	44	38
Arizona.....	93	105	94	81	97	102	94
California.....	32	33	31	31	35	35	39
District of Columbia.....	34	28	27	42	43	35	45
Louisiana.....	48	50	46	45	54	55	51
Maryland.....	46	42	43	49	48	46	54
New York (exclusive of New York City).....	27	27	26	33	33	32	38
Pennsylvania.....	38	38	35	47	46	47	53
<b>Other States:</b>							
Iowa.....	21	20					
Kansas.....	26	29					
Michigan.....	31						
Minnesota.....	18						
South Dakota.....	27	28					
Tennessee.....	53						

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
<b>TYPHOID FEVER (1)</b>							
<b>States with complete data:</b>							
Total (12 States and District of Columbia).....	2.8	3.1	3.7	4.7	6.4	5.3	5.4
Alabama.....	7.5	9.5	12.5	15.1	16.8	14.4	14.9
Arizona.....	12.7	7.4	9.2	5.4	11.0	8.0	8.2
California.....	2.1	2.4	2.4	2.7	2.8	5.7	3.9
Connecticut.....	.9	.6	1.1	1.8	2.5	2.5	2.6
District of Columbia.....	2.2	2.7	1.9	2.3	4.9	3.8	5.6
Indiana.....	3.5	4.4	4.8	6.7	8.1	7.1	7.0
Louisiana.....	11.2	12.9	14.6	17.3	34.0	21.9	14.3
Maryland.....	4.3	5.2	5.9	7.6	7.4	6.4	6.5
Minnesota.....	.8	.5	1.0	1.0	1.8	1.4	2.4
New Jersey.....	1.4	1.7	1.4	2.6	3.1	2.7	3.1
New York (exclusive of New York City).....	1.6	2.1	2.1	3.4	3.4	3.5	3.6
Pennsylvania.....	2.0	1.9	2.7	3.7	4.8	3.9	4.9
Wisconsin.....	1.4	.8	1.4	1.4	2.0	1.0	2.2
<b>Other States:</b>							
Georgia.....	10.5						
Hawaii.....	4.0	6.3					
Illinois.....	1.4	2.2	2.4	3.2	4.6		
Iowa.....	2.3	2.3					
Kansas.....	2.9	2.5					
Michigan.....	1.8						
North Carolina.....	5.9	6.3					
South Carolina.....	13.3	18.1	22.3	26.3	24.8		
South Dakota.....	3.1	2.8					
Tennessee.....	12.2	13.4					
Virginia.....	4.1	(1)	6.9	10.6	12.1	8.3	10.5
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	2.3	2.7	4.7	4.2	4.6	4.4	5.2
<b>MEASLES (7)</b>							
<b>States with complete data:</b>							
Total (12 States and District of Columbia).....	2.5	3.9	3.3	7.7	2.7	6.3	11.1
Alabama.....	2.4	8.7	4.5	5.0	.8	16.3	12.5
Arizona.....	(2)	4.4	5.9	1.1	3.3	7.5	4.6
California.....	.4	.6	7.0	2.3	.7	7.7	7.7
Connecticut.....	2.9	3.7	1.3	12.5	2.5	3.1	10.8
District of Columbia.....	(2)	3.1	(2)	6.4	.8	.6	7.0
Indiana.....	3.8	2.0	1.7	12.4	1.9	5.8	8.8
Louisiana.....	2.7	9.0	13.0	.4	.4	23.8	6.3
Maryland.....	1.4	6.5	1.3	13.9	1.5	3.2	9.7
Minnesota.....	3.0	.4	2.2	6.7	.6	5.4	11.2
New Jersey.....	.9	6.3	.6	11.1	3.3	5.3	10.3
New York (exclusive of New York City).....	2.7	3.5	2.6	4.6	3.0	4.5	8.5
Pennsylvania.....	3.6	4.8	2.5	11.0	5.3	3.2	17.8
Wisconsin.....	2.6	.4	3.3	5.0	2.2	2.6	7.1
<b>Other States:</b>							
Georgia.....	.9						
Hawaii.....	5.2	2.3					
Illinois.....	3.7	1.1	4.0	4.8	3.1		
Iowa.....	1.4	.5					
Kansas.....	2.5	.9					
Michigan.....	3.2						
North Carolina.....	.6	17.4					
South Carolina.....	.05	14.8	3.6	.3	.1		
South Dakota.....	2.1	1.6					
Tennessee.....	1.0	8.0					
Virginia.....	1.5	(1)	4.4	4.0	3.1	8.8	22.2
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	2.4	4.2	3.4	8.0	2.5	5.7	8.4

1 Not available.

2 No deaths.

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
<b>SCARLET FEVER (8)</b>							
<b>States with complete data:</b>							
Total (12 States and District of Columbia).....	2.0	1.8	2.0	2.3	2.7	3.4	3.9
Alabama.....	1.4	.4	.9	.6	.8	.6	.8
Arizona.....	2.3	2.1	1.3	1.6	1.2	2.9	3.1
California.....	2.1	1.2	1.4	1.1	1.5	2.5	3.0
Connecticut.....	.9	1.3	1.4	2.2	2.9	3.9	3.6
District of Columbia.....	2.0	1.3	1.5	1.3	1.0	1.6	2.3
Indiana.....	3.2	1.8	2.8	3.2	3.4	2.3	2.9
Louisiana.....	.6	.5	.6	.6	.5	.4	.3
Maryland.....	2.1	.8	1.1	1.3	1.1	2.7	3.3
Minnesota.....	2.4	2.3	3.4	5.8	6.0	8.1	9.3
New Jersey.....	1.1	1.6	2.5	2.2	1.8	1.8	2.7
New York (exclusive of New York City).....	2.0	2.1	1.9	2.1	2.1	3.3	3.4
Pennsylvania.....	2.4	2.5	2.6	2.8	3.6	3.8	4.4
Wisconsin.....	2.5	2.4	2.1	2.6	3.7	7.3	8.7
<b>Other States:</b>							
Georgia.....	1.2	-----	-----	-----	-----	-----	-----
Hawaii.....	( <sup>2</sup> )	1.1	-----	-----	-----	-----	-----
Illinois.....	4.0	2.1	2.3	3.2	3.8	-----	-----
Iowa.....	2.3	2.3	-----	-----	-----	-----	-----
Kansas.....	3.3	2.7	-----	-----	-----	-----	-----
Michigan.....	3.2	-----	-----	-----	-----	-----	-----
North Carolina.....	1.8	1.3	-----	-----	-----	-----	-----
South Carolina.....	.8	.5	.2	.2	.3	-----	-----
South Dakota.....	2.6	2.7	-----	-----	-----	-----	-----
Tennessee.....	2.4	1.6	-----	-----	-----	-----	-----
Virginia.....	1.4	( <sup>1</sup> )	1.2	1.3	1.6	1.3	1.9
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	2.6	2.6	3.0	3.4	3.4	4.3	4.4
<b>WHOPPING COUGH (9)</b>							
<b>States with complete data:</b>							
Total (12 States and District of Columbia).....	5.3	5.2	5.3	7.9	6.9	7.2	9.3
Alabama.....	9.8	7.8	13.6	11.8	9.0	16.1	13.4
Arizona.....	7.4	8.6	5.7	3.6	8.2	10.2	14.1
California.....	6.1	7.4	4.4	3.8	11.2	4.1	8.3
Connecticut.....	2.5	6.3	2.5	6.1	7.5	5.2	9.0
District of Columbia.....	4.3	4.0	3.1	7.4	4.1	2.6	7.0
Indiana.....	5.4	4.3	5.6	12.8	5.6	9.8	8.9
Louisiana.....	5.7	9.2	11.0	9.3	10.7	7.3	14.6
Maryland.....	8.0	7.3	12.0	11.6	11.2	9.1	17.1
Minnesota.....	4.2	2.8	2.8	6.6	3.7	5.2	6.1
New Jersey.....	4.8	4.8	4.7	4.6	6.8	7.3	6.5
New York (exclusive of New York City).....	3.8	3.9	3.7	7.2	3.4	5.7	6.4
Pennsylvania.....	5.6	5.3	4.5	9.6	6.8	7.4	10.8
Wisconsin.....	3.8	2.2	2.5	5.5	4.0	4.6	5.9
<b>Other States:</b>							
Georgia.....	8.6	-----	-----	-----	-----	-----	-----
Hawaii.....	28.7	4.3	-----	-----	-----	-----	-----
Illinois.....	3.4	3.7	4.2	5.1	4.4	-----	-----
Iowa.....	4.2	3.2	-----	-----	-----	-----	-----
Kansas.....	4.0	5.1	-----	-----	-----	-----	-----
Michigan.....	5.6	-----	-----	-----	-----	-----	-----
North Carolina.....	3.9	5.5	-----	-----	-----	-----	-----
South Carolina.....	11.7	9.7	12.8	4.9	7.3	-----	-----
South Dakota.....	3.7	4.8	-----	-----	-----	-----	-----
Tennessee.....	7.6	5.2	-----	-----	-----	-----	-----
Virginia.....	10.2	( <sup>1</sup> )	17.8	12.6	10.2	20.9	16.6
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	2.9	2.7	3.1	5.0	3.6	3.5	4.8

<sup>1</sup> Not available.<sup>2</sup> No deaths.

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
<b>DIPHTHERIA (10)</b>							
<b>States with complete data:</b>							
Total (12 States and District of Columbia).....	5.7	6.7	6.7	6.8	7.8	9.7	12.5
Alabama.....	9.5	9.2	9.8	8.2	6.8	6.1	8.5
Arizona.....	5.5	5.3	5.0	4.7	5.1	5.8	8.7
California.....	4.1	6.0	6.9	6.7	6.4	17.2	16.5
Connecticut.....	3.7	5.2	5.9	5.3	8.2	11.2	12.7
District of Columbia.....	6.2	8.2	4.4	5.5	7.2	6.0	8.7
Indiana.....	4.8	5.7	7.0	5.9	5.6	8.1	14.3
Louisiana.....	7.0	7.3	10.0	7.5	6.8	6.2	8.1
Maryland.....	4.6	6.5	7.4	6.2	5.6	7.6	10.0
Minnesota.....	2.4	2.6	3.1	5.8	8.9	8.5	8.4
New Jersey.....	11.6	12.0	10.9	8.6	9.1	9.6	13.9
New York (exclusive of New York City).....	3.5	4.0	4.8	4.6	6.4	7.1	9.4
Pennsylvania.....	6.8	8.5	8.6	8.3	10.3	11.5	15.4
Wisconsin.....	2.7	3.3	4.4	5.4	6.1	7.3	13.0
<b>Other States:</b>							
Georgia.....	5.4	-----	-----	-----	-----	-----	-----
Hawaii.....	9.2	16.9	-----	-----	-----	-----	-----
Illinois.....	10.1	8.7	8.9	5.7	5.8	-----	-----
Iowa.....	1.3	2.8	-----	-----	-----	-----	-----
Kansas.....	3.7	3.3	-----	-----	-----	-----	-----
Michigan.....	10.9	-----	-----	-----	-----	-----	-----
North Carolina.....	11.7	11.1	-----	-----	-----	-----	-----
South Carolina.....	8.0	9.4	8.2	-----	-----	-----	-----
South Dakota.....	1.6	2.1	-----	-----	-----	-----	-----
Tennessee.....	8.4	7.8	-----	-----	-----	-----	-----
Virginia.....	7.3	( <sup>1</sup> )	6.0	9.1	9.6	8.8	13.9
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	8.5	9.4	10.2	9.5	10.2	12.7	15.5
<b>INFLUENZA (11)</b>							
<b>States with complete data:</b>							
Total (10 States and District of Columbia).....	46.2	38.2	19.6	35.1	26.0	17.6	36.5
Alabama.....	121.3	71.6	30.4	66.8	46.1	26.7	49.6
Arizona.....	16.7	55.5	23.5	44.5	32.0	16.3	36.1
California.....	24.2	46.6	15.7	26.4	17.5	12.2	22.1
Connecticut.....	37.0	21.2	18.8	35.9	26.6	19.2	38.1
District of Columbia.....	17.9	15.2	17.2	24.8	12.3	6.6	32.9
Indiana.....	59.7	59.6	26.4	51.5	44.6	23.1	62.9
Minnesota.....	37.1	39.7	17.9	20.2	22.9	8.6	24.1
New Jersey.....	25.9	15.9	20.2	19.7	11.2	9.9	22.0
New York (exclusive of New York City).....	37.5	18.3	13.9	29.9	14.7	11.0	29.7
Pennsylvania.....	54.2	41.7	24.5	44.0	29.2	25.8	44.3
Wisconsin.....	41.6	43.2	20.4	35.6	31.8	15.1	39.0
<b>Other States:</b>							
Georgia.....	78.1	-----	-----	-----	-----	-----	-----
Hawaii.....	18.1	24.4	-----	-----	-----	-----	-----
Illinois.....	35.1	-----	-----	-----	-----	-----	-----
Iowa.....	52.2	56.0	-----	-----	-----	-----	-----
Kansas.....	52.4	82.3	28.8	49.6	30.2	-----	-----
Louisiana.....	94.1	65.0	30.8	67.1	( <sup>1</sup> )	( <sup>1</sup> )	42.0
Michigan.....	38.6	-----	-----	-----	-----	-----	-----
North Carolina.....	83.2	47.1	-----	-----	-----	-----	-----
South Carolina.....	74.5	70.8	15.0	8.3	6.4	-----	-----
South Dakota.....	50.3	53.6	-----	-----	-----	-----	-----
Tennessee.....	106.8	66.9	-----	-----	-----	-----	-----
Virginia.....	86.1	( <sup>1</sup> )	43.1	60.3	42.4	32.9	82.6
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	36.9	21.9	15.7	27.4	19.4	14.2	30.1

<sup>1</sup> Not available.

**TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued**

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
<b>ACUTE ANTERIOR POLIOMYELITIS (22)</b>							
<b>States with complete data:</b>							
Total (8 States and District of Columbia)	0.7	1.2	1.8	0.8	1.9	0.9	0.7
Arizona	.6	2.7	6.1	.7	3.0	.7	(1)
California	1.0	1.8	5.1	.7	3.5	.8	.8
Connecticut	.5	.8	1.0	.4	1.2	1.5	.7
District of Columbia	.7	.9	1.1	1.3	.8	.2	.2
Indiana	.3	.2	1.4	.6	.9	.5	.8
Louisiana	.6	1.0	2.0	.7	.8	.6	.5
Minnesota	.3	2.2	1.3	.6	5.5	1.2	.6
New York (exclusive of New York City)	1.4	1.7	.9	2.0	2.0	1.8	1.2
Pennsylvania	.6	.8	1.0	.5	.7	.4	.6
<b>Other States:</b>							
Alabama	1.0	.8	.9	1.0	.9		
Hawaii	1.1	.3					
Illinois	.2						
Iowa	.9	.7					
Kansas	.5	.5					
Michigan	1.1						
New Jersey	.4						
North Carolina	.6	.6					
South Carolina	.6	.9	1.3	.8	2.1		
South Dakota	1.1	2.4					
Tennessee	1.2	1.6					
Virginia	1.2						
Wisconsin	.4	.5					
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over	.6	1.2	2.0	.7	1.4	1.0	.7
<b>MENINGOCOCCUS MENINGITIS (24)</b>							
<b>States with complete data:</b>							
Total (6 States and District of Columbia)	3.6	1.4	1.0	1.0	0.8	0.7	1.0
Arizona	15.0	5.5	.2	.7	.5	.5	.3
California	8.3	2.5	2.3	2.4	.9	1.0	1.2
Connecticut	1.4	1.2	.6	.6	.8	1.5	3.1
District of Columbia	2.5	.9	.6	.8	.6	(2)	1.2
Indiana	2.8	.2	.3	.3	.5	.4	.4
Minnesota	1.7	1.6	2.2	.6	.7	.5	.8
Pennsylvania	2.2	1.0	.5	.9	.8	.7	.8
<b>Other States:</b>							
Alabama	1.0	.1					
Hawaii	22.6	4.0					
Illinois	3.4	3.0	1.8	.8	.8		
Iowa	1.6	.9					
Kansas	2.8	1.1					
Louisiana	2.8						
Michigan	18.5						
New Jersey	2.8						
New York	1.8						
North Carolina	.6	.03					
South Carolina	2.8	1.5	1.6	2.1	1.8		
South Dakota	1.3	.6					
Tennessee	2.3	.9					
Virginia	1.4	(1)	.9	.8	1.0	1.3	.9
Wisconsin	3.7						

<sup>1</sup> Not available.

<sup>2</sup> No deaths.



TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
<b>TUBERCULOSIS, ALL FORMS (31-37)</b>							
<b>States with complete data:</b>							
Total (12 States and District of Columbia).....	79.5	81.6	83.3	90.3	92.6	95.4	99.1
Alabama.....	85.4	90.4	87.0	94.1	99.6	97.4	98.6
Arizona.....	330.0	302.1	304.6	315.5	329.2	315.3	311.3
California.....	128.5	133.3	134.4	134.2	141.1	148.8	147.3
Connecticut.....	60.5	67.4	66.8	78.2	75.3	81.5	89.3
District of Columbia.....	102.2	104.5	112.2	110.0	106.6	111.8	119.4
Indiana.....	70.8	70.0	70.4	84.0	82.2	84.0	94.7
Louisiana.....	91.7	92.0	88.4	98.1	102.1	103.3	107.1
Maryland.....	105.7	104.4	101.7	113.9	120.8	119.9	124.0
Minnesota.....	51.1	52.1	58.3	63.6	61.0	66.4	73.5
New Jersey.....	75.9	74.0	75.3	84.0	83.1	86.6	92.0
New York (exclusive of New York City).....	72.4	76.0	77.5	84.8	88.7	91.4	100.9
Pennsylvania.....	62.5	67.3	69.9	77.0	76.9	81.9	85.1
Wisconsin.....	52.5	55.1	59.3	64.8	61.0	62.9	65.8
<b>Other States:</b>							
Georgia.....	67.1	-----	-----	-----	-----	-----	-----
Hawaii.....	113.2	124.1	-----	-----	-----	-----	-----
Illinois.....	70.0	73.6	76.4	76.3	78.1	-----	-----
Iowa.....	33.1	35.3	-----	-----	-----	-----	-----
Kansas.....	38.5	40.5	35.3	41.0	43.0	42.2	-----
Michigan.....	68.5	-----	-----	-----	-----	-----	-----
North Carolina.....	88.6	81.5	-----	-----	-----	-----	-----
South Carolina.....	72.5	85.2	83.0	88.8	89.3	-----	-----
South Dakota.....	52.6	63.9	-----	-----	-----	-----	-----
Tennessee.....	123.9	127.6	-----	-----	-----	-----	-----
Virginia.....	85.6	-----	-----	-----	-----	-----	-----
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	85.6	90.6	93.8	99.5	98.2	104.4	110.5
<b>CANCER (43-49)</b>							
<b>States with complete data:</b>							
Total (12 States and the District of Columbia).....	105.8	103.6	101.7	101.0	100.0	97.5	95.1
Alabama.....	50.7	50.8	50.6	46.1	44.7	45.9	42.6
Arizona.....	48.1	47.7	45.5	41.3	41.1	39.4	42.5
California.....	143.1	140.5	133.7	130.6	126.3	126.3	121.0
Connecticut.....	110.6	108.4	106.9	106.7	107.6	104.1	98.2
District of Columbia.....	115.4	110.1	112.0	109.1	108.0	106.4	90.8
Indiana.....	100.7	100.4	102.0	106.3	100.3	97.6	90.4
Louisiana.....	68.4	67.9	67.9	65.2	63.3	62.1	59.2
Maryland.....	109.9	114.2	100.1	107.5	103.9	102.8	106.0
Minnesota.....	106.8	106.3	101.9	99.7	104.3	99.5	96.8
New Jersey.....	113.4	106.7	105.2	103.6	103.7	97.7	92.9
New York (exclusive of New York City).....	126.3	123.5	125.1	122.0	121.2	119.9	123.6
Pennsylvania.....	96.2	95.6	95.3	95.4	91.8	91.5	89.9
Wisconsin.....	106.4	105.0	101.0	106.4	103.4	98.9	91.6
<b>Other States:</b>							
Georgia.....	44.2	-----	-----	-----	-----	-----	-----
Hawaii.....	66.2	62.2	-----	-----	-----	-----	-----
Iowa.....	109.3	113.3	-----	-----	-----	-----	-----
Kansas.....	94.4	100.5	100.6	91.9	84.3	76.9	-----
Michigan.....	96.7	-----	-----	-----	-----	-----	-----
South Carolina.....	30.4	41.3	39.0	38.0	38.8	-----	-----
South Dakota.....	65.3	69.5	-----	-----	-----	-----	-----
Tennessee.....	59.4	58.8	-----	-----	-----	-----	-----
Virginia.....	58.8	( <sup>1</sup> )	61.5	61.5	61.9	60.3	59.6
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	77.3	77.0	75.6	75.1	71.8	71.5	72.7

<sup>1</sup> Not available.

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1925-1929—Continued

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
<b>DIABETES MELLITUS (57)</b>							
States with complete data:							
Total (4 States and District of Columbia).....	21.2	20.7	18.7	18.9	17.8	17.4	18.1
Alabama.....	9.0	9.7	8.2	7.8	6.7	5.6	5.5
Arizona.....	4.4	3.2	2.4	5.8	3.3	6.1	5.6
District of Columbia.....	24.3	24.1	20.2	19.9	14.0	16.2	16.9
New York (exclusive of New York City).....	26.7	25.1	24.4	23.8	22.6	21.4	24.5
Pennsylvania.....	21.5	21.7	19.0	19.6	18.2	18.6	18.8
Other States:							
California.....	22.9	21.9	-----	-----	-----	-----	-----
Connecticut.....	16.7	-----	-----	-----	-----	-----	-----
Georgia.....	9.2	-----	-----	-----	-----	-----	-----
Hawaii.....	12.9	7.2	-----	-----	-----	-----	-----
Indiana.....	15.1	-----	-----	-----	-----	-----	-----
Iowa.....	18.7	19.5	-----	-----	-----	-----	-----
Kansas.....	21.8	20.7	-----	-----	-----	-----	-----
Louisiana.....	11.9	12.4	(1)	(1)	8.7	8.3	9.1
Michigan.....	20.4	-----	-----	-----	-----	-----	-----
Minnesota.....	17.5	18.8	-----	-----	-----	-----	-----
New Jersey.....	23.8	-----	-----	-----	-----	-----	-----
South Carolina.....	7.9	8.3	6.7	7.0	5.9	-----	-----
South Dakota.....	18.3	17.6	-----	-----	-----	-----	-----
Tennessee.....	10.5	9.6	-----	-----	-----	-----	-----
Virginia.....	11.1	(1)	10.7	8.9	10.2	9.0	11.7
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	18.3	17.9	17.1	17.0	15.5	15.1	16.2
<b>CEREBRAL HEMORRHAGE, APOPLEXY (74)</b>							
States with complete data:							
Total (6 States and District of Columbia).....	94.5	94.9	90.9	96.4	99.4	101.3	97.5
Alabama.....	64.8	58.2	50.8	52.9	52.3	48.1	43.5
Arizona.....	43.0	37.1	42.7	31.9	32.0	33.3	36.1
District of Columbia.....	73.4	92.9	90.9	104.2	103.3	105.2	113.6
Indiana.....	109.4	110.8	102.4	109.3	105.5	106.0	104.3
Louisiana.....	64.2	68.1	69.0	63.6	68.3	62.6	54.5
Maryland.....	101.8	100.1	99.5	112.8	123.2	120.2	120.7
New York (exclusive of New York City).....	115.7	115.6	112.1	121.2	119.6	130.6	135.2
Other States:							
California.....	96.8	99.9	-----	-----	-----	-----	-----
Georgia.....	70.7	-----	-----	-----	-----	-----	-----
Hawaii.....	55.3	61.9	-----	-----	-----	-----	-----
Iowa.....	98.5	99.1	-----	-----	-----	-----	-----
Kansas.....	111.1	114.7	100.2	101.1	95.7	-----	-----
Michigan.....	96.9	-----	-----	-----	-----	-----	-----
Minnesota.....	70.6	-----	-----	-----	-----	-----	-----
New Jersey.....	86.5	-----	-----	-----	-----	-----	-----
Pennsylvania.....	84.1	-----	-----	-----	-----	-----	-----
South Dakota.....	53.7	53.4	-----	-----	-----	-----	-----
Tennessee.....	60.8	-----	-----	-----	-----	-----	-----
Virginia.....	83.7	-----	-----	-----	-----	-----	-----
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	57.7	57.6	56.0	56.5	54.4	61.1	61.9

<sup>1</sup> Not available.

TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
<b>HEART DISEASES (87-90)</b>							
<b>States with complete data:</b>							
Total (7 States and District of Columbia).....	233.5	227.3	209.5	214.5	202.7	189.9	185.5
Alabama.....	136.3	134.4	103.3	108.5	101.3	95.3	79.0
Arizona.....	115.4	115.4	103.5	104.3	95.3	84.4	71.9
District of Columbia.....	285.0	272.8	247.4	249.6	257.6	196.4	213.8
Indiana.....	199.1	189.6	171.0	168.8	159.9	156.3	156.7
Louisiana.....	204.1	192.7	177.8	179.4	191.6	189.5	159.1
Maryland.....	236.6	234.4	226.9	230.6	207.9	193.1	202.9
New York (exclusive of New York City).....	318.8	308.6	286.7	302.8	273.4	261.3	266.7
Pennsylvania.....	227.5	227.1	214.0	216.0	198.0	186.0	186.3
<b>Other States:</b>							
California.....	300.8	280.6	-----	-----	-----	-----	-----
Connecticut.....	184.6	174.0	-----	-----	-----	-----	-----
Georgia.....	112.7	-----	-----	-----	-----	-----	-----
Hawaii.....	121.2	112.9	-----	-----	-----	-----	-----
Iowa.....	218.5	215.4	-----	-----	-----	-----	-----
Kansas.....	167.0	177.8	-----	-----	-----	-----	-----
Michigan.....	222.3	-----	-----	-----	-----	-----	-----
Minnesota.....	145.7	150.7	-----	-----	-----	-----	-----
New Jersey.....	255.2	-----	-----	-----	-----	-----	-----
South Dakota.....	123.4	117.6	-----	-----	-----	-----	-----
Tennessee.....	133.4	127.1	-----	-----	-----	-----	-----
Virginia.....	165.5	( <sup>1</sup> )	166.1	171.3	160.5	157.4	149.4
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over [other (organic) heart only (90)].....	146.1	144.4	134.7	136.4	128.7	125.2	128.7
<b>PNEUMONIA, ALL FORMS (100, 101)</b>							
<b>States with complete data:</b>							
Total (11 States and District of Columbia).....	96.9	96.5	76.9	99.7	98.5	101.2	112.2
Alabama.....	88.8	100.0	68.4	96.4	106.0	120.4	91.1
Arizona.....	117.9	150.8	121.6	128.5	129.9	158.4	127.9
California.....	95.2	98.0	85.4	84.0	86.7	96.2	97.5
Connecticut.....	100.4	100.3	84.8	108.6	109.3	101.8	127.3
District of Columbia.....	125.5	115.6	106.9	152.8	124.5	147.9	209.7
Indiana.....	99.7	103.9	78.9	112.5	100.8	100.7	120.1
Louisiana.....	91.3	100.6	45.7	61.6	108.3	113.2	97.0
Minnesota.....	68.1	69.1	63.1	70.2	70.7	69.4	76.1
New Jersey.....	107.4	82.3	55.4	79.5	69.0	63.5	74.2
New York (exclusive of New York City).....	104.9	98.1	86.3	113.9	97.7	91.9	121.3
Pennsylvania.....	101.7	115.8	98.1	133.0	128.0	137.0	155.4
Wisconsin.....	73.5	86.6	64.8	82.5	88.7	89.4	106.3
<b>Other States:</b>							
Georgia.....	69.7	-----	-----	-----	-----	-----	-----
Hawaii.....	144.7	148.7	-----	-----	-----	-----	-----
Illinois.....	83.4	103.4	75.0	92.0	83.3	-----	-----
Iowa.....	64.7	71.1	-----	-----	-----	-----	-----
Kansas.....	59.1	63.4	50.9	59.1	66.0	68.3	-----
Michigan.....	92.0	-----	-----	-----	-----	-----	-----
North Carolina.....	96.1	97.6	-----	-----	-----	-----	-----
South Carolina.....	90.0	104.5	98.3	125.5	106.2	-----	-----
South Dakota.....	61.1	66.3	-----	-----	-----	-----	-----
Tennessee.....	94.7	97.1	-----	-----	-----	-----	-----
Virginia.....	71.3	( <sup>1</sup> )	70.4	92.2	83.4	96.5	98.2
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	72.6	72.8	63.0	78.2	69.0	70.2	77.6

<sup>1</sup> Not available.

**TABLE 4.—Mortality from certain causes in several States and in a group of insured wage earners, 1923-1929—Continued**

State	Rate per 100,000 population						
	1929	1928	1927	1926	1925	1924	1923
<b>DIARRHEA AND ENTERITIS UNDER 2 YEARS (113)</b>							
<b>States with complete data:</b>							
Total (10 States and District of Columbia).....	18.2	18.9	20.6	25.5	33.5	30.5	35.0
Alabama.....	27.4	35.4	30.2	36.2	31.4	34.1	35.0
Arizona.....	107.2	93.2	78.2	60.0	115.2	113.4	94.6
California.....	18.5	18.1	22.0	22.9	27.5	31.4	36.2
Connecticut.....	13.3	6.5	11.2	16.0	18.6	19.8	21.3
District of Columbia.....	16.1	12.7	10.7	24.2	32.7	22.4	23.9
Indiana.....	17.1	17.7	17.0	27.2	31.3	29.0	29.0
Louisiana.....	27.9	26.1	38.3	33.9	56.5	51.8	33.3
New Jersey.....	12.6	14.9	16.6	20.4	26.1	26.2	30.1
New York (exclusive of New York City).....	11.3	12.2	13.9	18.5	24.7	21.0	29.1
Pennsylvania.....	19.1	21.4	22.7	31.5	42.0	36.1	47.6
Wisconsin.....	11.5	10.6	13.8	15.1	20.1	14.6	18.6
<b>Other States:</b>							
Georgia.....	16.2	.....	.....	.....	.....	.....	.....
Hawaii.....	105.7	82.8	.....	.....	.....	.....	.....
Iowa.....	4.0	6.1	.....	.....	.....	.....	.....
Kansas.....	10.6	17.2	21.1	29.5	37.0	.....	.....
Michigan.....	16.6	.....	.....	.....	.....	.....	.....
Minnesota.....	3.9	.....	.....	.....	.....	.....	.....
North Carolina.....	32.1	40.8	.....	.....	.....	.....	.....
South Dakota.....	5.4	8.9	.....	.....	.....	.....	.....
Tennessee.....	24.7	32.7	.....	.....	.....	.....	.....
Virginia.....	18.5	( <sup>1</sup> )	30.9	39.1	43.0	33.7	43.5
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over, including adults as well as children under 2 years.....	7.8	8.7	9.1	10.5	12.3	11.3	11.1
<b>NEPHRITIS (128, 129)</b>							
<b>States with complete data:</b>							
Total (9 States and District of Columbia).....	105.2	106.1	102.5	108.4	102.7	99.9	101.0
Alabama.....	90.0	86.9	76.2	83.4	82.6	72.6	77.7
Arizona.....	39.0	39.5	37.3	42.9	43.9	40.9	39.4
California.....	107.8	113.1	110.4	107.3	91.8	95.2	96.6
District of Columbia.....	142.4	135.9	154.6	138.8	108.0	122.6	124.0
Indiana.....	81.6	81.7	80.3	85.6	89.6	93.2	92.7
Louisiana.....	115.0	118.1	97.5	107.2	85.2	81.5	75.0
Maryland.....	150.6	138.2	149.8	157.0	148.8	140.3	138.8
New Jersey.....	103.3	104.9	97.4	102.2	97.6	105.1	104.2
New York (exclusive of New York City).....	110.6	110.2	113.7	123.8	118.2	111.8	117.3
Pennsylvania.....	101.6	107.7	102.0	107.0	104.0	99.0	103.5
<b>Other States:</b>							
Connecticut.....	67.8	.....	.....	.....	.....	.....	.....
Georgia.....	121.8	.....	.....	.....	.....	.....	.....
Iowa.....	50.0	53.0	.....	.....	.....	.....	.....
Kansas.....	92.3	95.7	83.9	89.1	78.1	.....	.....
Michigan.....	68.5	.....	.....	.....	.....	.....	.....
Minnesota.....	52.7	53.8	.....	.....	.....	.....	.....
South Carolina.....	100.2	104.5	93.4	97.1	98.2	.....	.....
South Dakota.....	38.2	38.9	.....	.....	.....	.....	.....
Tennessee.....	74.1	.....	.....	.....	.....	.....	.....
Virginia.....	96.5	( <sup>1</sup> )	106.9	112.1	109.5	99.6	93.3
Industrial policyholders, Metropolitan Life Insurance Co., ages 1 and over.....	69.2	71.8	70.8	74.9	71.2	66.5	69.6

<sup>1</sup> Not available.

**DEATHS DURING WEEK ENDED APRIL 19, 1930**

*Summary of information received by telegraph from industrial insurance companies for the week ended April 19, 1930, and corresponding week of 1929. (From the Weekly Health Index, April 23, 1930, issued by the Bureau of the Census, Department of Commerce)*

	Week ended Apr. 19, 1930	Corresponding week, 1929
Policies in force.....	75, 207, 702	73, 966, 398
Number of death claims.....	13, 465	15, 325
Death claims per 1,000 policies in force, annual rate	9. 3	10. 8

*Deaths from all causes in certain large cities of the United States during the week ended, April 19, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, April 23, 1930, issued by the Bureau of the Census, Department of Commerce)*

City	Week ended Apr. 19, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Apr. 19, 1930 <sup>1</sup>
	Total deaths	Death rate <sup>1</sup>		Week ended Apr. 19, 1930	Corresponding week, 1929	
Total (65 cities).....	7, 683	13. 7	12. 8	674	718	1 60
Akron.....	54			8	9	73
Albany <sup>4</sup> .....	60	26. 0	18. 9	4	6	87
Atlanta.....	72	14. 7	15. 1	7	9	74
White.....	34			3	3	95
Colored.....	38	( <sup>5</sup> )	( <sup>5</sup> )	4	6	63
Baltimore <sup>4</sup> .....	227	14. 3	13. 1	16	15	54
White.....	152			14	10	60
Colored.....	75	( <sup>5</sup> )	( <sup>5</sup> )	2	5	32
Birmingham.....	68	15. 9	19. 9	7	13	65
White.....	31			2	4	31
Colored.....	37	( <sup>5</sup> )	( <sup>5</sup> )	5	9	118
Boston.....	261	17. 0	14. 5	35	26	99
Bridgeport.....	30			2	2	34
Buffalo.....	175	16. 4	14. 1	18	18	80
Cambridge.....	22	9. 1	9. 1	0	2	0
Camden.....	28	10. 8	13. 1	5	4	91
Canton.....	33	14. 7	10. 3	5	2	124
Chicago <sup>4</sup> .....	690	11. 4	12. 5	58	77	51
Cincinnati.....	139			10	13	59
Cleveland.....	242	12. 5	10. 6	15	24	45
Columbus.....	87	15. 2	13. 1	13	8	127
Dallas.....	59	14. 1	13. 9	6	2	
White.....	46			4	2	
Colored.....	13	( <sup>5</sup> )	( <sup>5</sup> )	2	0	
Dayton.....	38	10. 7	10. 5	3	4	44
Denver.....	83	14. 7	12. 8	5	7	52
Des Moines.....	24	8. 2	11. 3	1	4	17
Detroit.....	313	11. 8	12. 2	41	44	63
Duluth.....	24	10. 7	8. 0	1	0	27
El Paso.....	26	11. 5	13. 7	5	5	
Erie.....	23			2	4	43
Fall River <sup>4</sup> .....	41	15. 9	13. 2	3	3	69
Flint.....	21	7. 4	8. 8	6	4	70
Fort Worth.....	32	9. 8	7. 6	2	3	
White.....	28			2	2	
Colored.....	4	( <sup>5</sup> )	( <sup>5</sup> )	0	1	
Grand Rapids.....	32	10. 2	10. 5	3	2	46
Houston.....	57			1	6	
White.....	28			1	3	
Colored.....	29	( <sup>5</sup> )	( <sup>5</sup> )	0	3	
Indianapolis.....	123	16. 8	17. 1	7	13	52
White.....	109			7	10	61
Colored.....	14	( <sup>5</sup> )	( <sup>5</sup> )	0	3	0

<sup>1</sup> Annual rate per 1,000 population.

<sup>2</sup> Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

<sup>3</sup> Data for 71 cities.

<sup>4</sup> Deaths for week ended Friday.

<sup>5</sup> In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis 33; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended April 19, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, April 23, 1930, issued by the Bureau of the Census, Department of Commerce)—Continued

City	Week ended Apr. 19, 1930		Annual death rate per 1,000 corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Apr. 19, 1930
	Total deaths	Death rate		Week ended Apr. 19, 1930	Corresponding week, 1929	
Jersey City	84	13.5	9.5	5	7	43
Kansas City, Kans.	27	11.9	16.3	4	6	95
White	18			4	4	106
Colored	9	( <sup>1</sup> )	( <sup>1</sup> )	0	4	0
Knoxville	29	14.3	6.4	0	0	0
White	21			0	0	0
Colored	8	( <sup>1</sup> )	( <sup>1</sup> )	0	0	0
Los Angeles	246			15	33	46
Louisville	82	13.0	9.3	3	5	26
White	71			3	3	30
Colored	11	( <sup>1</sup> )	( <sup>1</sup> )	0	2	0
Lowell	31			4	6	95
Lynn	24	11.9	10.4	1	2	25
Memphis	96	26.3	10.4	12	2	143
White	55			6	6	110
Colored	41	( <sup>1</sup> )	( <sup>1</sup> )	6	0	202
Milwaukee	115	11.0	13.5	11	33	55
Minneapolis	112	12.8	12.5	10	6	65
Nashville	64	23.9	18.3	9	2	139
White	43			6	1	123
Colored	21	( <sup>1</sup> )	( <sup>1</sup> )	3	1	190
New Bedford	24			1	3	26
New Haven	49	13.6	10.5	1	2	19
New Orleans	167	29.3	18.3	15	18	87
White	106			13	8	115
Colored	61	( <sup>1</sup> )	( <sup>1</sup> )	2	10	34
New York	1,623	14.1	12.7	135	128	57
Bronx Borough	204	11.2	10.0	10	14	23
Brooklyn Borough	531	12.0	11.7	45	60	48
Manhattan Borough	685	20.4	17.8	63	41	103
Queens Borough	150	9.2	7.6	17	12	49
Richmond Borough	53	18.3	14.5	0	1	6
Newark, N. J.	127	14.0	11.7	18	13	94
Oakland	74	14.1	9.3	4	2	48
Oklahoma City	40			3	4	59
Omaha	71	16.6	14.5	4	5	45
Paterson	39	14.0	12.2	3	3	52
Philadelphia	487	12.3	12.1	41	31	61
Pittsburgh	205	15.9	12.7	22	24	81
Portland, Oreg.	71			3	4	37
Providence	75	13.7	16.8	8	14	73
Richmond	50	13.4	11.5	4	6	59
White	33			2	3	45
Colored	17	( <sup>1</sup> )	( <sup>1</sup> )	2	3	87
Rochester	98	15.6	9.2	10	7	66
St. Louis	222	13.6	14.1	7	26	23
St. Paul	54			2	11	20
Salt Lake City	22	8.3	12.1	2	0	31
San Antonio	88	21.0	15.8	14	14	
San Diego	44			6	1	126
San Francisco	162	14.4	18.2	8	11	55
Schenectady	24	13.4	14.5	2	1	62
Seattle	80	10.9	13.1	4	5	40
Somerville	17	8.6	10.7	4	2	130
Spokane	38	18.2	16.2	1	3	26
Springfield, Mass.	30	10.4	10.8	2	6	32
Syracuse	50	13.1	12.6	3	1	37
Toledo	87	14.5	12.3	5	12	46
Trenton	36	13.5	15.4	3	4	56
Utica	38	29.0	14.0	5	3	142
Washington, D. C.	167	15.8	12.0	12	7	70
White	101			7	3	60
Colored	66	( <sup>1</sup> )	( <sup>1</sup> )	5	4	89
Waterbury	18			1	3	26
Wilmington, Del.	25	10.1	15.0	5	1	113
Worcester	59	15.6	14.8	6	2	78
Yonkers	29	12.5	7.3	1	1	24
Youngstown	30	9.0	8.7	4	5	63

<sup>1</sup> In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

# 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 April 19, 1930, and April 20, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 19, 1930, and April 20, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929
<b>New England States:</b>								
Maine.....	1	4	9	5	30	131	0	0
New Hampshire.....			5		5	56	0	0
Vermont.....	3				92	4	0	0
Massachusetts.....	72	86	16	14	1,071	391	2	2
Rhode Island.....	10	11	2	1	3	82	0	0
Connecticut.....	16	29	10	18	26	570	2	3
<b>Middle Atlantic States:</b>								
New York.....	115	329	21	20	1,871	1,002	16	29
New Jersey.....	117	108	20	3	1,314	289	2	8
Pennsylvania.....	130	119			1,800	1,899	10	11
<b>East North Central States:</b>								
Ohio.....	28	32	20	10	744	1,168	6	9
Indiana.....	16	21			121	399	20	0
Illinois.....	135	130	15	19	702	1,774	13	18
Michigan.....	66	68		1	1,874	958	38	64
Wisconsin.....	11	15	35	17	674	1,229	3	10
<b>West North Central States:</b>								
Minnesota.....	9	24	3	5	201	811	3	2
Iowa.....	4	4			427	57	8	0
Missouri.....	32	47	14	2	105	236	18	28
North Dakota.....	2	4			19	77	4	4
South Dakota.....	2				119	48	0	0
Nebraska.....	20	19		4	355	149	1	1
Kansas.....	12	11		12	812	488	0	5
<b>South Atlantic States:</b>								
Delaware.....	5			1	12	29	0	0
Maryland.....	18	31	25	12	42	25	2	1
District of Columbia.....	5	7			26	19	0	0
Virginia.....								
West Virginia.....	13	7	14	14	122	379	5	0
North Carolina.....	22	16	24		62	26	6	0
South Carolina.....	12	9	639	351		18	3	0
Georgia.....	11	7	76	31	226	22	0	6
Florida.....	2	16		3	282	56	0	0

<sup>1</sup> New York City only.

<sup>2</sup> Week ended Friday.

*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 19, 1930, and April 20, 1929—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929
<b>East South Central States:</b>								
Kentucky.....		5			69	41	4	1
Tennessee.....	2	1	29	28	143	33	8	6
Alabama.....	17	8	52	26	130	130	6	7
Mississippi.....	7	12					14	
<b>West South Central States:</b>								
Arkansas.....	6	6	139	17	72	69	3	8
Louisiana.....	38	20	14	15	92	58	4	2
Oklahoma <sup>1</sup> .....	6	8	29	49	259	64	2	2
Texas.....	25	29	8	32	170	100	1	0
<b>Mountain States:</b>								
Montana.....	5	6			5	66	2	4
Idaho.....					7	4	2	2
Wyoming.....	1		2	8	23	25	0	2
Colorado.....	4	7		7	930	18	4	4
New Mexico.....	5	2		1	60	5	0	0
Arizona.....	2	2	1	1	128	2	8	4
Utah <sup>2</sup> .....	1	3	6	2	232	7	6	12
<b>Pacific States:</b>								
Washington.....	9	3		3	526	170	3	19
Oregon.....	5	6	25	64	99	215	1	2
California.....	46	52	18	58	1,766	109	14	20

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929
<b>New England States:</b>								
Maine.....	0	0	39	16	0	8	4	9
New Hampshire.....	0	2	10	12	0	1	0	0
Vermont.....	0	0	5	6	0	5	1	0
Massachusetts.....	0	0	232	331	0	0	3	2
Rhode Island.....	0	0	35	8	0	0	0	0
Connecticut.....	0	0	92	57	0	1	1	0
<b>Middle Atlantic States:</b>								
New York.....	2	4	557	527	4	0	17	14
New Jersey.....	0	1	242	168	0	0	3	0
Pennsylvania.....	1	0	469	416	1	0	16	15
<b>East North Central States:</b>								
Ohio.....	0	0	277	211	143	50	1	9
Indiana.....	0	0	191	186	167	41	1	1
Illinois.....	0	0	531	416	150	108	11	8
Michigan.....	0	0	294	409	88	69	0	1
Wisconsin.....	0	0	240	137	0	3	1	1
<b>West North Central States:</b>								
Minnesota.....	0	0	93	143	6	6	1	4
Iowa.....	0	1	62	137	111	32	1	11
Missouri.....	0	0	185	69	64	15	10	14
North Dakota.....	0	0	24	43	24	9	1	2
South Dakota.....	0	0	12	8	65	104	1	0
Nebraska.....	0	0	70	120	66	31	0	3
Kansas.....	0	0	141	122	107	89	5	6
<b>South Atlantic States:</b>								
Delaware.....	0	0	11	2	0	0	0	0
Maryland <sup>1</sup> .....	0	0	128	46	0	0	3	7
District of Columbia.....	0	0	23	18	0	0	1	1
Virginia.....	1							
West Virginia.....	0	0	44	17	0	19	12	9
North Carolina.....	0	1	50	14	21	23	4	5
South Carolina.....	0	0	5	6	6	5	3	5
Georgia.....	0	0	22	13	0	0	6	3
Florida.....	0	4	10	6	0	3	3	5

<sup>1</sup> Week ended Friday.

<sup>2</sup> Figures for 1930 are exclusive of Oklahoma City and Tulsa.



*Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended April 19, 1930, and April 20, 1929—Continued*

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929	Week ended Apr. 19, 1930	Week ended Apr. 20, 1929
<b>East South Central States:</b>								
Kentucky.....	0	0	59	76	11	0	4	0
Tennessee.....	1	0	52	23	15	6	6	5
Alabama.....	0	0	13	8	3	2	7	2
Mississippi.....	0	0	10	3	14	2	8	11
<b>West South Central States:</b>								
Arkansas.....	0	0	8	19	9	0	16	5
Louisiana.....	0	0	15	48	12	2	5	19
Oklahoma <sup>1</sup> .....	0	0	35	47	94	95	7	7
Texas.....	0	0	32	45	48	87	1	4
<b>Mountain States:</b>								
Montana.....	0	0	48	19	18	9	2	1
Idaho.....	0	0	7	6	1	7	0	0
Wyoming.....	0	0	3	17	4	7	0	0
Colorado.....	0	0	24	31	12	11	3	2
New Mexico.....	0	0	16	18	5	1	1	3
Arizona.....	0	0	14	8	21	9	4	1
Utah <sup>1</sup> .....	0	0	12	8	0	7	0	0
<b>Pacific States:</b>								
Washington.....	0	0	26	42	65	47	1	10
Oregon.....	2	1	20	26	27	30	2	1
California.....	0	1	147	444	77	77	13	4

<sup>1</sup> Week ended Friday.

<sup>1</sup> Figures for 1930 are exclusive of Oklahoma City and Tulsa.

**SUMMARY OF MONTHLY REPORTS FROM STATES**

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

State	Menin-gococ-cus menin-gitis	Dipha-theria	Influ-enza	Ma-laria	Mea-sles	Pel-lagra	Polio-my-e-litis	Scarlet fever	Small-pox	Ty-phoid fever
<i>February, 1930</i>										
Hawaii Territory.....	4	30	30	-----	60	-----	2	4	0	5
<i>March, 1930</i>										
Idaho.....	12	5	1	-----	375	-----	0	44	59	5
Illinois.....	61	664	303	10	2,761	3	5	2,512	536	22
Louisiana.....	14	86	112	33	497	26	0	89	9	53
Maine.....	5	12	72	-----	280	1	1	240	0	4
Minnesota.....	21	58	8	-----	1,199	-----	2	668	27	20
Missouri.....	99	239	145	15	727	-----	5	645	448	19
Rhode Island.....	-----	57	4	-----	16	-----	0	108	-----	0
South Dakota.....	3	24	30	-----	618	-----	0	127	260	2
West Virginia.....	6	75	166	-----	480	1	0	180	137	94

*February, 1930*

*March, 1930*

	Cases		Cases
<b>Hawaii Territory:</b>		<b>Chicken pox:</b>	
Broncho-pneumonia.....	30	Idaho.....	63
Chicken pox.....	69	Illinois.....	1,399
Conjunctivitis, follicular.....	22	Louisiana.....	66
Dysentery (amebic).....	1	Maine.....	248
Hookworm disease.....	1	Minnesota.....	466
Impetigo contagiosa.....	3	Missouri.....	548
Leprosy.....	5	Rhode Island.....	70
Mumps.....	7	South Dakota.....	153
Pneumonia (lobar).....	41	West Virginia.....	361
Trachoma.....	2	<b>Conjunctivitis:</b>	
Whooping cough.....	19	Illinois.....	2

<b>Dysentery:</b>	<b>Cases</b>	<b>Rocky Mountain spotted or tick fever:</b>	<b>Cases</b>
Illinois.....	11	Idaho.....	1
Louisiana.....	1	<b>Septic sore throat:</b>	
Minnesota (amebic).....	6	Idaho.....	2
<b>German measles:</b>		Illinois.....	15
Illinois.....	237	Louisiana.....	3
Maine.....	26	Maine.....	5
Rhode Island.....	65	Missouri.....	62
<b>Hookworm disease:</b>		Rhode Island.....	2
Louisiana.....	9	<b>Tetanus:</b>	
<b>Lead poisoning:</b>		Illinois.....	2
Illinois.....	7	Louisiana.....	3
<b>Leprosy:</b>		<b>Trachoma:</b>	
Louisiana.....	1	Illinois.....	10
<b>Lethargic encephalitis:</b>		Minnesota.....	1
Illinois.....	6	Missouri.....	32
Maine.....	1	Rhode Island.....	9
<b>Mumps:</b>		<b>Tularaemia:</b>	
Idaho.....	84	Illinois.....	5
Illinois.....	977	Louisiana.....	4
Louisiana.....	10	<b>Undulant fever:</b>	
Maine.....	410	Illinois.....	6
Missouri.....	256	Louisiana.....	2
Rhode Island.....	2	Maine.....	2
South Dakota.....	47	Minnesota.....	2
<b>Ophthalmia neonatorum:</b>		Missouri.....	6
Illinois.....	29	West Virginia.....	1
Louisiana.....	1	<b>Vincent's angina:</b>	
South Dakota.....	1	Maine.....	4
<b>Paratyphoid fever:</b>		<b>Whooping cough:</b>	
Idaho.....	1	Idaho.....	31
Illinois.....	1	Illinois.....	834
Louisiana.....	1	Louisiana.....	50
Maine.....	7	Maine.....	173
Minnesota.....	2	Minnesota.....	266
<b>Puerperal septicemia:</b>		Missouri.....	219
Illinois.....	7	Rhode Island.....	156
<b>Rabies in animals:</b>		South Dakota.....	55
Illinois.....	2	West Virginia.....	283
Louisiana.....	14		
Rhode Island.....	11		

**PATIENTS IN INSTITUTIONS FOR FEEBLE-MINDED, JULY TO  
SEPTEMBER, 1929**

Reports for the third quarter of the year 1929 have been received by the Public Health Service from 30 institutions for the care of the feeble-minded, located in 25 States. The total number of patients in these institutions on September 30, 1929, including those on temporary leave or otherwise absent, but still on the books, was 34,135.

The first admissions were as follows:

	Male	Female	Total
July.....	170	178	348
August.....	229	154	383
September.....	180	161	341
<b>Total.....</b>	<b>579</b>	<b>493</b>	<b>1,072</b>

Of the first admissions during the three months, 54 per cent were males and 46 per cent were females, the ratio being 117 males per 100 females.

On September 30, 1929, there were 17,295 male and 16,840 female patients on the books. During the three months 306 patients were discharged; 104 male and 85 female patients died.

The annual death rates based on the estimated number of patients on the books of the institutions the middle of August were: Males, 24.09 per 1,000; females, 20.19 per 1,000; persons, 22.17 per 1,000.

The following table shows the numbers of patients in the institutions and on temporary leave on July 1 and at the end of each month of the third quarter of 1929, and the percentage of the total patients who were on leave:

	July 1, 1929	July 31, 1929	Aug. 31, 1929	Sept. 30, 1929
<b>Patients in institutions:</b>				
Male.....	14,088	13,975	14,335	14,534
Female.....	14,351	14,343	14,527	14,780
Total.....	28,439	28,318	28,862	29,294
<b>Patients on temporary leave:</b>				
Male.....	2,792	3,023	2,923	2,761
Female.....	2,165	2,297	2,234	2,080
Total.....	4,957	5,320	5,157	4,841
<b>Total patients on books:</b>				
Male.....	16,880	16,998	17,258	17,295
Female.....	16,516	16,640	16,761	16,840
Total.....	33,396	33,638	34,019	34,135
<b>Per cent of total patients on temporary leave:</b>				
Male.....	16.5	17.8	16.9	16.0
Female.....	13.1	13.8	13.3	12.4
Total.....	14.8	15.8	15.2	14.2

#### GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,895,000. The estimated population of the 87 cities reporting deaths is more than 29,860,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

## Weeks ended April 12, 1930, and April 13, 1929

	1930	1929	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States.....	1,080	1,417	-----
96 cities.....	585	747	880
Measles:			
44 States.....	18,766	15,873	-----
96 cities.....	7,536	4,919	-----
Meningococcus meningitis:			
46 States.....	314	334	-----
96 cities.....	155	92	-----
Poliomyelitis:			
47 States.....	22	23	-----
Scarlet fever:			
46 States.....	5,235	5,074	-----
96 cities.....	2,000	1,633	1,409
Smallpox:			
46 States.....	1,601	1,007	-----
96 cities.....	180	72	73
Typhoid fever:			
46 States.....	147	220	-----
96 cities.....	29	74	33
<i>Deaths reported</i>			
Influenza and pneumonia:			
87 cities.....	1,073	871	-----
Smallpox:			
87 cities.....	1	0	-----
Boise, Idaho.....	1	0	-----

## City reports for week ended April 12, 1930

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

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 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			
<b>NEW ENGLAND</b>								
Maine:								
Portland.....	6	1	0	-----	0	2	42	3
New Hampshire:								
Concord.....	0	0	1	-----	0	0	0	1
Manchester.....	0	0	0	-----	0	0	0	21
Vermont:								
Barre.....	5	0	0	-----	0	14	0	0
Burlington.....	0	0	0	-----	0	0	0	0
Massachusetts:								
Boston.....	6	36	23	8	0	486	80	42
Fall River.....	7	3	1	-----	0	2	0	4
Springfield.....	14	3	1	-----	0	0	10	2
Worcester.....	27	4	1	-----	1	133	3	4
Rhode Island:								
Pawtucket.....	2	0	0	-----	0	1	0	2
Providence.....	5	8	5	-----	0	2	2	8
Connecticut:								
Bridgeport.....	2	4	1	3	2	0	3	4
Hartford.....		5	-----	-----	-----	-----	-----	-----
New Haven.....	35	1	0	-----	0	6	16	2

City reports for week ended April 18, 1930—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			
<b>MIDDLE ATLANTIC</b>								
New York:								
Buffalo.....	26	10	12		2	32	24	18
New York.....	292	264	124	32	24	963	207	260
Rochester.....	25	7	0		0	41	4	3
Syracuse.....	40	5	1		0	16	70	6
New Jersey:								
Camden.....	5	8	0		0	2	1	2
Newark.....	63	14	31	10	0	401	33	14
Trenton.....	16	3	5		0	22	0	3
Pennsylvania:								
Philadelphia.....	115	65	15	14	12	301	98	55
Pittsburgh.....	40	15	14	1	5	351	18	43
Reading.....	8	2	1		0	2	4	3
Scranton.....	0	3	1			0	0	
<b>EAST NORTH CENTRAL</b>								
Ohio:								
Cincinnati.....	27	7	1			25	5	
Cleveland.....	140	26	20	10	3	10	39	26
Columbus.....	6	3	2		0	83	5	4
Toledo.....	35	3	1	5	4	138	26	4
Indiana:								
Fort Wayne.....	1	2	0		0	0	0	4
Indianapolis.....	23	4	2		0	15	4	13
South Bend.....		1						
Terre Haute.....	5	0	1		0	2	0	2
Illinois:								
Chicago.....	136	90	104	6	5	55	86	77
Springfield.....	8	0	1		0	1	0	0
Michigan:								
Detroit.....	97	43	43	4	1	1,179	88	47
Flint.....	21	3	1		0	70	2	7
Grand Rapids.....	6	1	0		2	0	2	7
Wisconsin:								
Kenosha.....	6	0	0		0	3	1	0
Madison.....	2	0	2			80	0	
Milwaukee.....	154	12	6	2	2	7	108	13
Racine.....	0	3	3	1	0	3	0	1
Superior.....	1	0	0		0	4	0	0
<b>WEST NORTH CENTRAL</b>								
Minnesota:								
Duluth.....	10	0	0		0	48	0	0
Minneapolis.....	57	12	2		0	55	57	7
St. Paul.....	39	9	2		0	5	12	11
Iowa:								
Davenport.....	2	0	0			41	3	
Des Moines.....	1	1	0			14	0	
Sioux City.....	0	1	0			187	11	
Waterloo.....	37	0	0			3	0	
Missouri:								
Kansas City.....	23	4	1	1	1	4	6	12
St. Joseph.....	0	1	0		0	3	0	6
St. Louis.....	34	37	29	1	2	8	32	
North Dakota:								
Fargo.....	3	0	0			0	14	
Grand Forks.....	0	0	0			0	0	
South Dakota:								
Sioux Falls.....	0	0	0			9	0	
Nebraska:								
Omaha.....	14	2	12		0	111	1	7
Kansas:								
Topeka.....	4	0	0	1	0	144	16	1
Wichita.....	14	1	0		0	51	1	6
<b>SOUTH ATLANTIC</b>								
Delaware:								
Wilmington.....	8	2	4		0	3	0	7
Maryland:								
Baltimore.....	188	24	14	16	4	16	12	42
Cumberland.....	1	0	0	1	0	1	0	1
Frederick.....	0	0	0		0	0	0	0
District of Columbia:								
Washington.....	28	11	8	1	0	12	0	25
Virginia:								
Lynchburg.....	4	0	1			124	7	2
Norfolk.....	30	1	1		0	5	34	5
Richmond.....	3	2	0		2	8	2	6
Roanoke.....	5	0	0		2	231	2	4

## City reports for week ended April 12, 1930—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			
<b>SOUTH ATLANTIC—CON.</b>								
West Virginia:								
Charleston.....	14	0	0	-----	0	10	1	2
Wheeling.....	24	0	0	-----	1	1	0	3
North Carolina:								
Raleigh.....	9	0	1	-----	0	0	0	1
Wilmington.....	5	0	1	-----	1	0	0	0
Winston-Salem.....	18	0	0	1	0	0	15	3
South Carolina:								
Charleston.....	1	0	0	49	0	0	6	2
Columbia.....	2	0	0	-----	0	0	5	3
Georgia:								
Atlanta.....	9	2	5	15	1	32	31	7
Brunswick.....	0	0	0	-----	0	0	1	0
Savannah.....	3	0	5	3	1	2	1	6
Florida:								
Miami.....	5	2	3	-----	0	3	1	0
St. Petersburg.....		0	-----	0	-----	-----	-----	1
Tampa.....	7	1	1	-----	1	93	7	1
<b>EAST SOUTH CENTRAL</b>								
Kentucky:								
Covington.....	0	1	0	-----	0	0	0	3
Tennessee:								
Memphis.....	19	3	0	-----	2	3	17	9
Nashville.....	2	1	1	-----	0	8	0	6
Alabama:								
Birmingham.....	4	1	0	4	3	2	3	10
Mobile.....	0	1	0	-----	2	2	0	3
Montgomery.....	4	0	0	1	-----	40	0	-----
<b>WEST SOUTH CENTRAL</b>								
Arkansas:								
Fort Smith.....	0	0	5	-----	-----	42	0	-----
Little Rock.....	8	0	0	-----	0	7	1	2
Louisiana:								
New Orleans.....	0	8	17	6	4	22	0	15
Shreveport.....	17	0	0	-----	0	10	7	5
Oklahoma:								
Oklahoma City.....	6	1	1	10	1	36	1	5
Tulsa.....	21	1	1	-----	-----	200	1	-----
Texas:								
Dallas.....	18	4	6	2	0	125	3	11
Fort Worth.....	7	1	3	-----	0	7	1	4
Galveston.....	0	0	1	-----	0	0	0	1
Houston.....	5	3	11	-----	1	0	2	12
San Antonio.....	5	3	4	-----	2	1	0	5
<b>MOUNTAIN</b>								
Montana:								
Billings.....	0	0	0	-----	1	0	5	3
Great Falls.....	5	0	0	-----	0	1	19	3
Helena.....	0	0	0	-----	0	0	2	1
Missoula.....	0	0	0	-----	0	2	1	-----
Idaho:								
Boise.....	0	1	0	-----	0	0	0	0
Colorado:								
Denver.....	52	8	8	-----	0	657	31	9
Pueblo.....	11	1	0	1	0	6	79	2
New Mexico:								
Albuquerque.....	6	0	0	-----	1	33	10	1
Arizona:								
Phoenix.....	4	0	0	-----	0	20	1	4
Utah:								
Salt Lake City.....	11	3	1	-----	2	204	2	3
Nevada:								
Reno.....	0	0	0	-----	0	1	0	0
<b>PACIFIC</b>								
Washington:								
Seattle.....	32	3	0	-----	-----	171	102	-----
Spokane.....	20	2	0	4	-----	0	0	-----
Tacoma.....	7	1	1	-----	0	46	0	3
Oregon:								
Portland.....	12	8	2	-----	0	25	19	3
Salem.....	1	0	0	-----	-----	0	8	-----
California:								
Los Angeles.....	93	37	21	13	3	483	71	18
Sacramento.....	6	2	0	-----	0	16	22	4
San Francisco.....	41	18	3	-----	2	301	80	4

City reports for week ended April 12, 1930—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		
<b>NEW ENGLAND</b>											
<b>Maine:</b>											
Portland	3	2	0	0	0	1	1	0	0	2	31
<b>New Hampshire:</b>											
Concord	2	0	0	0	0	0	0	0	0	0	11
Manchester	3	0	0	0	0	0	0	0	0	0	27
<b>Vermont:</b>											
Barre	0	0	0	1	0	1	0	0	0	0	1
Burlington	0	0	0	0	0	0	0	0	0	0	6
<b>Massachusetts:</b>											
Boston	74	86	0	0	0	8	1	0	1	87	247
Fall River	5	3	0	0	0	3	1	0	0	5	34
Springfield	8	7	0	0	0	1	0	0	0	21	41
Worcester	9	5	0	0	0	2	1	0	0	19	60
<b>Rhode Island:</b>											
Pawtucket	1	2	0	0	0	0	0	0	0	7	
Providence	11	12	0	0	0	4	0	0	0	30	84
<b>Connecticut:</b>											
Bridgeport	12	16	0	0	0	2	0	0	0	0	31
Hartford	5	0	0	0	0	0	0	0	0	0	
New Haven	10	7	0	0	0	1	0	0	0	4	28
<b>MIDDLE ATLANTIC</b>											
<b>New York:</b>											
Buffalo	28	32	0	0	0	13	0	0	0	17	150
New York	332	319	0	0	0	112	9	3	1	49	1,062
Rochester	14	9	0	0	0	4	0	0	1	1	82
Syracuse	11	20	0	0	0	1	1	0	0	51	62
<b>New Jersey:</b>											
Camden	6	4	0	0	0	1	0	0	1	0	23
Newark	33	39	0	0	0	6	1	0	0	41	122
Trenton	4	9	0	0	0	2	0	0	0	2	39
<b>Pennsylvania:</b>											
Philadelphia	103	149	0	0	0	40	2	0	0	20	511
Pittsburgh	29	34	0	0	0	17	1	0	0	31	217
Reading	6	4	0	0	0	3	0	0	0	7	31
Scranton	2	5	0	0	0	0	0	0	0	1	
<b>EAST NORTH CENTRAL</b>											
<b>Ohio:</b>											
Cincinnati	16	25	1	2	0	0	1	0	0	8	
Cleveland	34	67	0	0	0	16	1	0	0	70	222
Columbus	8	12	1	4	0	4	0	0	0	8	86
Toledo	12	17	0	10	0	5	0	0	0	3	68
<b>Indiana:</b>											
Fort Wayne	5	2	2	12	0	1	0	0	0	3	41
Indianapolis	9	18	7	8	0	8	0	0	0	4	
South Bend	4	1	1	0	0	0	0	0	0	0	
Terre Haute	2	2	1	0	0	1	0	0	0	0	22
<b>Illinois:</b>											
Chicago	122	325	2	4	0	51	1	1	0	61	760
Springfield	4	3	1	1	0	1	0	0	0	7	22
<b>Michigan:</b>											
Detroit	107	147	1	2	0	32	1	0	1	72	369
Flint	10	20	2	2	0	2	0	0	0	7	38
Grand Rapids	8	24	0	0	0	1	0	0	0	2	47
<b>Wisconsin:</b>											
Kenosha	2	4	1	0	0	0	0	0	0	7	7
Madison	3	3	0	1	0	0	0	0	0	20	
Milwaukee	30	29	0	0	0	13	0	0	0	43	124
Racine	4	3	0	0	0	1	0	0	0	5	24
Superior	3	2	0	1	0	0	0	0	0	0	7
<b>WEST NORTH CENTRAL</b>											
<b>Minnesota:</b>											
Duluth	7	2	0	2	0	2	0	1	0	14	29
Minneapolis	49	22	3	0	0	4	0	1	0	11	83
St. Paul	29	15	1	0	0	6	0	0	0	13	61

## City reports for week ended April 12, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culus, deaths reported	Typhoid fever			Whoop- ing cough, cases reported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
<b>WEST NORTH CENTRAL—contd.</b>											
<b>Iowa:</b>											
Davenport.....	2	1	1	23			0	0		4	
Des Moines.....	7	25	2	14			0	0		0	30
Sioux City.....	1	6	0	2			0	0		4	
Waterloo.....	2	1	0	30			0	0		2	
<b>Missouri:</b>											
Kansas City.....	18	43	2	1	0	6	0	0	0	27	125
St. Joseph.....	3	8	1	0	0	1	0	0	0	0	37
St. Louis.....	39	65	2	5	0	10	1	0	0	19	252
<b>North Dakota:</b>											
Fargo.....	1	2	0	1			0	0		4	
Grand Forks.....	0	1	0	0			0	0		0	
<b>South Dakota:</b>											
Sioux Falls.....	1	0	1	3			0	0		0	7
<b>Nebraska:</b>											
Omaha.....	3	16	4	35	0	1	0	0	0	1	56
<b>Kansas:</b>											
Topeka.....	4	3	1	0	0	0	0	0	0	19	9
Wichita.....	4	23	2	1	0	1	0	0	0	7	33
<b>SOUTH ATLANTIC</b>											
<b>Delaware:</b>											
Wilmington.....	5	4	0	0	0	1	0	0	0	2	41
<b>Maryland:</b>											
Baltimore.....	32	97	0	0	0	18	2	4	0	20	249
Cumberland.....	0	0	0	0	0	0	0	0	0	0	5
Frederick.....	1	0	0	0	0	1	0	0	0	0	5
<b>District of Colum- bia:</b>											
Washington.....	25	23	0	0	0	11	1	0	0	13	155
<b>Virginia:</b>											
Lynchburg.....	0	0	0	0	0	1	0	0	0	13	14
Norfolk.....	2	1	1	0	0	0	0	2	0	2	
Richmond.....	2	5	0	0	0	3	0	1	0	0	61
Roanoke.....	1	2	0	0	0	1	0	0	0	5	24
<b>West Virginia:</b>											
Charleston.....	0	0	1	0	0	0	0	3	0	13	20
Wheeling.....	2	4	0	0	0	2	0	0	0	9	22
<b>North Carolina:</b>											
Raleigh.....	0	0	0	3	0	3	0	0	0	0	11
Wilmington.....	0	0	0	0	0	1	0	0	0	25	14
Winston-Salem.....	0	0	1	2	0	1	0	0	0	3	25
<b>South Carolina:</b>											
Charleston.....	0	0	0	0	0	2	0	1	0	0	20
Columbia.....	0	0	0	0	0	0	1	0	0	14	12
<b>Georgia:</b>											
Atlanta.....	4	17	3	0	0	8	0	0	0	3	98
Brunswick.....	0	0	0	0	0	0	0	1	0	0	1
Savannah.....	0	1	1	0	0	3	0	0	0	0	34
<b>Florida:</b>											
Miami.....	0	3	0	0	0	1	1	0	0	0	24
St. Petersburg.....	0	0	0	0	0	0	0	0	0	0	14
Tampa.....	1	1	0	0	0	1	0	1	0	0	18
<b>EAST SOUTH CENTRAL</b>											
<b>Kentucky:</b>											
Covington.....	2	2	1	0	0	1	0	0	0	0	19
<b>Tennessee:</b>											
Memphis.....	8	15	1	0	0	5	1	3	0	3	79
Nashville.....	3	5	1	2	0	1	1	0	0	1	44
<b>Alabama:</b>											
Birmingham.....	2	0	4	0	0	4	0	0	0	11	72
Mobile.....	0	0	1	0	0	0	0	0	0	0	20
Montgomery.....	1	0	0	0			1	0		1	
<b>WEST SOUTH CENTRAL</b>											
<b>Arkansas:</b>											
Fort Smith.....	0	0	0	0			1	0		1	
Little Rock.....	1	2	0	0	0	1	0	0	0	0	



City reports for week ended April 12, 1930—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		
<b>WEST SOUTH CENTRAL—continued</b>											
Louisiana:											
New Orleans.....	7	16	0	0	0	18	0	1	0	3	181
Shreveport.....	0	0	1	1	0	1	0	0	0	0	35
Oklahoma:											
City.....	2	19	3	21	0	1	1	0	0	0	39
Tulsa.....	2	2	2	3			0	0		17	
Texas:											
Dallas.....	4	5	2	1	0	2	0	0	0	2	64
Forth Worth.....	2	2	5	2	0	3	0	0	0	0	28
Galveston.....	0	0	0	0	0	0	0	0	0	0	12
Houston.....	1	4	1	6	0	5	0	1	0	0	82
San Antonio.....	1	4	0	0	0	6	0	0	0	0	56
<b>MOUNTAIN</b>											
Montana:											
Billings.....	0	0	0	0	0	0	0	0	0	0	12
Great Falls.....	1	16	0	0	0	0	0	5	1	0	8
Helena.....	0	0	1	0	0	0	0	0	0	0	5
Missoula.....	0	1	0	5	0	0	0	0	0	0	1
Idaho:											
Boise.....	0	0	0	1	1	0	0	0	0	0	7
Colorado:											
Denver.....	12	17	0	0	0	15	0	0	0	47	107
Pueblo.....	2	0	0	0	0	0	0	0	0	0	8
New Mexico:											
Albuquerque.....	0	0	0	0	0	2	0	0	0	0	15
Arizona:											
Phoenix.....	0	1	0	0	0	6	0	0	0	0	28
Utah:											
Salt Lake City.....	2	4	1	0	0	1	0	0	0	30	47
Nevada:											
Reno.....	0	0	0	1	0	1	0	0	0	0	3
<b>PACIFIC</b>											
Washington:											
Seattle.....	7	21	3	9			0	1		15	
Spokane.....	6	0	7	8			0	0		16	
Tacoma.....	2	5	4	6	0	0	0	0	0	10	31
Oregon:											
Portland.....	5	2	10	9	0	3	1	0	0	18	70
Salem.....	0	0	1	0	0	0	0	0	0	5	
California:											
Los Angeles.....	29	43	3	14	0	36	1	1	0	24	282
Sacramento.....	1	7	0	4	0	3	0	0	0	1	22
San Francisco.....	19	31	1	3	0	14	1	0	0	1	142

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Pollomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
<b>NEW ENGLAND</b>									
Maine:									
Portland.....	0	0	1	2	0	0	0	0	0
Massachusetts:									
Boston.....	3	1	0	0	0	0	0	1	0
<b>MIDDLE ATLANTIC</b>									
New York:									
Buffalo.....	0	1	0	1	0	0	0	0	0
New York City <sup>1</sup> .....	24	10	2	1	0	0	1	1	0
Syracuse.....	1	0	0	0	0	0	0	0	0
New Jersey:									
Newark.....	1	0	2	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	4	1	1	1	1	1	0	0	0
Pittsburgh.....	8	6	0	0	0	0	0	0	0
Scranton.....	0	0	1	0	0	0	0	0	0

<sup>1</sup> Typhus fever, 3 cases: 1 case at New York City, 1 case at Wilmington, N. C., and 1 case at Tampa, Fla.

## City reports for week ended April 12, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
<b>EAST NORTH CENTRAL</b>									
<b>Ohio:</b>									
Cleveland.....	2	1	0	0	0	0	0	0	0
Columbus.....	0	0	1	1	0	0	0	0	0
<b>Indiana:</b>									
Fort Wayne.....	1	0	0	0	0	0	0	0	0
Indianapolis.....	4	0	0	0	0	0	0	0	0
<b>Illinois:</b>									
Chicago.....	14	3	1	1	0	0	1	0	0
<b>Michigan:</b>									
Detroit.....	20	10	1	0	0	0	0	1	0
Flint.....	1	1	0	0	0	0	0	0	0
<b>Wisconsin:</b>									
Milwaukee.....	1	0	0	0	0	0	0	0	0
Racine.....	1	0	0	0	0	0	0	0	0
<b>WEST NORTH CENTRAL</b>									
<b>Minnesota:</b>									
Minneapolis.....	1	0	0	0	0	0	0	0	0
<b>Iowa:</b>									
Waterloo.....	7	2	0	0	0	0	0	0	0
<b>Missouri:</b>									
Kansas City.....	0	7	0	0	0	0	0	0	0
St. Louis.....	10	5	0	0	0	0	0	0	0
<b>SOUTH ATLANTIC</b>									
<b>District of Columbia:</b>									
Washington.....	1	0	0	0	0	0	0	0	0
<b>Virginia:</b>									
Richmond.....	0	0	0	1	0	0	0	0	0
Roanoke.....	0	0	0	0	0	1	0	0	0
<b>West Virginia:</b>									
Wheeling.....	1	0	0	0	0	0	0	0	0
<b>North Carolina:<sup>1</sup></b>									
Winston-Salem.....	0	0	0	0	0	0	0	1	1
<b>South Carolina:</b>									
Charleston.....	0	0	0	0	0	1	0	0	0
<b>Georgia:</b>									
Atlanta.....	0	2	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	0	1	0	0	0
<b>Florida:<sup>1</sup></b>									
Miami.....	0	0	0	0	0	1	0	0	0
<b>EAST SOUTH CENTRAL</b>									
<b>Tennessee:</b>									
Memphis.....	22	5	0	0	0	0	0	0	0
Nashville.....	0	1	0	0	0	0	0	0	0
<b>Alabama:</b>									
Birmingham.....	1	1	0	0	1	0	0	0	0
Mobile.....	3	3	0	0	1	0	0	0	0
Montgomery.....	0	0	0	0	1	0	0	0	0
<b>WEST SOUTH CENTRAL</b>									
<b>Louisiana:</b>									
New Orleans.....	3	1	0	0	2	2	0	0	0
<b>Oklahoma:</b>									
Tulsa.....	1	0	0	0	0	0	0	0	0
<b>Texas:</b>									
Fort Worth.....	0	0	0	0	0	1	0	0	0
Houston.....	0	0	0	0	0	1	0	0	0
<b>MOUNTAIN</b>									
<b>Montana:</b>									
Billings.....	1	1	0	0	0	0	0	0	0
Helena.....	1	0	0	0	0	0	0	0	0
<b>Colorado:</b>									
Denver.....	1	1	0	0	0	0	0	0	0
<b>Arizona:</b>									
Phoenix.....	0	1	0	0	0	0	0	0	0
<b>Utah:</b>									
Salt Lake City.....	11	8	0	0	0	0	0	0	0
<b>PACIFIC</b>									
<b>Washington:</b>									
Seattle.....	2	0	0	0	0	0	0	0	0
<b>Oregon:</b>									
Portland.....	0	0	0	1	0	0	0	0	0
<b>California:</b>									
Los Angeles.....	4	1	0	0	0	0	0	2	0
Sacramento.....	1	0	0	0	0	0	0	0	0

<sup>1</sup> Typhus fever: 3 cases; 1 case at New York City, 1 case at Wilmington, N. C., and 1 case at Tampa, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended April 12, 1930, compared with those for a like period ended April 13, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

*Summary of weekly reports from cities, March 9 to April 12, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929*<sup>1</sup>

DIPHTHERIA CASE RATES

	Week ended—									
	Mar. 15, 1930	Mar. 16, 1929	Mar. 22, 1930	Mar. 23, 1929	Mar. 29, 1930	Mar. 30, 1929	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13, 1929
98 cities.....	104	126	100	135	84	128	<sup>2</sup> 81	131	<sup>3</sup> 96	124
New England.....	84	135	60	119	51	101	<sup>4</sup> 68	135	<sup>5</sup> 79	117
Middle Atlantic.....	99	159	102	180	84	187	78	190	97	166
East North Central.....	135	121	133	142	115	119	108	125	<sup>6</sup> 116	126
West North Central.....	108	152	72	131	63	139	51	75	<sup>7</sup> 87	83
South Atlantic.....	95	84	82	60	64	66	59	82	73	71
East South Central.....	27	55	40	41	54	41	34	27	7	75
West South Central.....	120	95	146	118	134	118	<sup>8</sup> 161	114	164	122
Mountain.....	26	44	86	35	43	44	<sup>9</sup> 27	44	77	61
Pacific.....	73	65	52	68	40	29	59	58	59	65

MEASLES CASE RATES

98 cities.....	660	679	793	757	899	716	<sup>2</sup> 1,041	839	<sup>3</sup> 1,232	824
New England.....	680	617	944	563	1,023	467	<sup>4</sup> 1,443	521	<sup>5</sup> 1,550	638
Middle Atlantic.....	418	135	568	179	644	154	832	174	1,019	160
East North Central.....	476	1,387	543	1,595	661	1,592	807	1,836	<sup>6</sup> 922	1,946
West North Central.....	765	1,967	973	1,882	890	1,784	842	1,963	1,174	1,657
South Atlantic.....	439	390	564	451	637	414	793	650	976	464
East South Central.....	715	41	1,457	137	1,093	89	594	89	371	130
West South Central.....	661	141	587	190	841	95	<sup>7</sup> 936	248	773	232
Mountain.....	2,386	636	2,815	766	3,424	409	<sup>8</sup> 4,883	618	7,475	192
Pacific.....	2,194	133	2,100	239	2,549	232	2,343	273	2,402	319

SCARLET FEVER CASE RATES

98 cities.....	344	324	323	345	315	318	<sup>2</sup> 303	290	<sup>3</sup> 327	270
New England.....	390	368	341	364	332	391	<sup>4</sup> 418	341	<sup>5</sup> 336	317
Middle Atlantic.....	345	286	310	308	315	294	308	244	296	224
East North Central.....	466	418	422	495	386	453	381	426	<sup>6</sup> 432	372
West North Central.....	302	368	328	292	300	310	286	275	391	242
South Atlantic.....	192	146	262	159	249	167	253	94	282	122
East South Central.....	106	222	202	308	263	267	162	212	148	185
West South Central.....	179	366	116	270	120	274	<sup>7</sup> 188	270	116	229
Mountain.....	369	157	343	113	446	78	<sup>8</sup> 155	104	326	165
Pacific.....	267	444	236	367	239	311	196	314	253	374

<sup>1</sup> The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930, and 1929, respectively.

<sup>2</sup> New Haven, Conn., San Antonio, Tex., and Great Falls, Mont., not included.

<sup>3</sup> Hartford, Conn., and South Bend, Ind., not included.

<sup>4</sup> New Haven, Conn., not included.

<sup>5</sup> Hartford, Conn., not included.

<sup>6</sup> South Bend, Ind., not included.

<sup>7</sup> San Antonio, Tex., not included.

<sup>8</sup> Great Falls, Mont., not included.

Summary of weekly reports from cities, March 9 to April 12, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1929—Continued

## SMALLPOX CASE RATES

	Week ended—									
	Mar. 15, 1930	Mar. 16, 1929	Mar. 22, 1930	Mar. 23, 1929	Mar. 29, 1930	Mar. 30, 1929	Apr. 5, 1930	Apr. 6, 1929	Apr. 12, 1930	Apr. 13, 1929
98 cities.....	25	12	25	11	23	16	24	11	29	12
New England.....	0	4	0	7	2	11	0	2	2	2
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	30	20	20	12	18	17	30	15	23	20
West North Central.....	68	31	95	12	97	25	85	17	146	8
South Atlantic.....	4	6	2	0	7	13	2	4	9	4
East South Central.....	27	7	7	7	20	41	0	7	13	7
West South Central.....	26	42	52	99	49	91	22	76	30	76
Mountain.....	9	17	34	44	26	44	109	26	60	78
Pacific.....	135	22	120	14	83	22	83	17	104	10

## TYPHOID FEVER CASE RATES

98 cities.....	6	5	8	7	8	10	5	5	5	12
New England.....	4	2	0	7	2	4	5	4	0	9
Middle Atlantic.....	5	4	7	6	15	5	3	2	1	7
East North Central.....	1	2	1	4	3	17	2	7	1	11
West North Central.....	4	2	9	6	4	8	2	4	4	25
South Atlantic.....	11	7	13	6	5	13	4	4	4	13
East South Central.....	27	7	94	27	34	27	34	7	7	20
West South Central.....	7	11	11	8	7	19	13	8	7	42
Mountain.....	51	26	17	9	0	0	18	0	43	0
Pacific.....	12	10	12	19	2	0	7	7	5	7

## INFLUENZA DEATH RATES

91 cities.....	14	33	16	27	14	18	13	20	17	15
New England.....	2	25	2	4	9	4	7	11	7	7
Middle Atlantic.....	12	31	14	23	11	12	15	16	21	14
East North Central.....	9	23	9	20	11	16	10	18	10	15
West North Central.....	6	27	12	30	6	18	9	27	11	6
South Atlantic.....	16	37	26	30	15	22	7	17	24	17
East South Central.....	96	119	88	90	110	90	44	75	52	36
West South Central.....	46	102	27	74	34	35	22	47	27	31
Mountain.....	17	35	60	78	51	52	27	44	26	17
Pacific.....	3	16	9	31	3	16	0	19	15	22

## PNEUMONIA DEATH RATES

91 cities.....	164	184	165	168	167	157	164	149	170	139
New England.....	155	200	199	186	202	171	164	101	173	126
Middle Atlantic.....	204	197	168	190	197	180	194	178	195	161
East North Central.....	128	155	150	141	118	132	146	135	134	126
West North Central.....	142	180	121	189	133	190	115	147	147	114
South Atlantic.....	179	198	203	185	194	159	179	144	211	165
East South Central.....	265	201	214	172	258	172	177	142	228	164
West South Central.....	153	230	214	78	176	125	157	137	195	90
Mountain.....	120	252	189	165	172	131	191	122	180	113
Pacific.....	80	135	95	163	114	151	77	126	89	94

<sup>1</sup> New Haven, Conn.; San Antonio, Tex.; and Great Falls, Mont., not included.

<sup>2</sup> Hartford, Conn., and South Bend, Ind., not included.

<sup>3</sup> New Haven, Conn., not included.

<sup>4</sup> Hartford, Conn., not included.

<sup>5</sup> South Bend, Ind., not included.

<sup>6</sup> San Antonio, Tex., not included.

<sup>7</sup> Great Falls, Mont., not included.

<sup>8</sup> Hartford, Conn.; Cincinnati, Ohio; South Bend, Ind.; and Fargo, N. Dak., not included.

<sup>9</sup> Cincinnati, Ohio; and South Bend, Ind., not included.

<sup>10</sup> Fargo, N. Dak., not included.

## FOREIGN AND INSULAR

### BRAZIL

*Mage—Yellow fever—April 22, 1930.*—On April 22, 1930, two cases of yellow fever were reported at Mage, Brazil. Mage is on the Leopoldina Railway, between Rio de Janeiro and Nictheroy.

### CANADA

*Provinces—Communicable diseases—Week ended April 5, 1930.*—The Department of Pensions and National Health reports cases of certain communicable diseases in Canada for the week ended April 5, 1930, as follows:

Provinces	Cerebro-spinal fever	Influenza	Lethargic encephalitis	Polio-myelitis	Small-pox	Typhoid fever
Prince Edward Island <sup>1</sup> .....						
Nova Scotia.....		4				1
New Brunswick.....						7
Quebec.....	4			1		1
Ontario.....	1	25			9	1
Manitoba.....			2			1
Saskatchewan.....					12	
Alberta.....					1	
British Columbia.....					9	
Total.....	5	30	2	1	31	10

<sup>1</sup> None of the diseases included in the table were reported during the week.

*Ontario Province—Communicable diseases (comparative)—Five weeks ended March 29, 1930.*—The following table shows the number of cases of certain communicable diseases, with deaths therefrom, reported in the Province of Ontario, Canada, for the five weeks ended March 29, 1930, as compared with the corresponding period of 1929:

## Five weeks ended March 30, 1929, and March 29, 1930

Disease	1929		1930	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis.....	11	2	10	4
Chancroid.....	3	2	7	1
Chicken pox.....	775	1	1,189	.....
Diphtheria.....	261	25	246	6
Dysentery.....	.....	.....	.....	1
Conjunctivitis.....	3	.....	.....	.....
Erysipelas.....	.....	.....	1	.....
German measles.....	22	.....	621	.....
Goiter.....	.....	.....	1	1
Gonorrhoea.....	197	.....	203	.....
Influenza.....	154	49	74	7
Lethargic encephalitis.....	3	.....	5	4
Measles.....	4,554	10	4,412	1
Mumps.....	708	.....	230	.....
Paratyphoid fever.....	1	.....	.....	.....
Pneumonia.....	.....	261	.....	230
Poliomyelitis.....	.....	1	.....	.....
Puerperal fever.....	1	4	3	3
Scarlet fever.....	646	7	1,432	5
Septic sore throat.....	8	.....	28	.....
Smallpox <sup>1</sup> .....	69	.....	149	.....
Syphilis.....	216	2	184	.....
Tuberculosis.....	127	44	133	84
Typhoid fever.....	30	4	55	2
Undulant fever.....	1	.....	7	.....
Whooping cough.....	466	1	309	1

<sup>1</sup> Cases of smallpox for this period were distributed as follows: Ottawa, 43; Sudbury, 25; Burwash, 23; Napanee, 15; Chisholm, 15; Neebing, 5; Plantagenet, 4; Welland, Chesley, and Blezard, 3 each. One case in each of the following: Himsworth, Cornwall, North Bay, Trenton, Bruce, York Township, McMurch, Cornwall Tp., Coniston, and Magnetawan.

*Quebec Province—Communicable diseases—Week ended April 5, 1930.*—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended April 5, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	4	Mumps.....	119
Chicken pox.....	112	Poliomyelitis.....	1
Diphtheria.....	30	Puerperal fever.....	2
Erysipelas.....	12	Scarlet fever.....	105
German measles.....	54	Tuberculosis.....	62
Influenza.....	4	Typhoid fever.....	7
Measles.....	148	Whooping cough.....	51

## CHINA

*Meningitis.*—During the week ended March 29, 1930, 29 cases of meningitis were reported at Shanghai, China. Two cases were reported at Canton, and 1 case at Swatow during the same week.

During the week ended April 5, 1930, 3 cases of meningitis with 1 death were reported at Canton, China. One case was reported at Hong Kong during the two weeks ended April 12.

CZECHOSLOVAKIA

*Communicable diseases—February, 1930.*—During the month of February, 1930, certain communicable diseases were reported in Czechoslovakia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	2	.....	Puerperal fever.....	53	24
Cerebrospinal meningitis.....	16	4	Scarlet fever.....	1,627	38
Diphtheria.....	1,889	149	Trachoma.....	214	.....
Dysentery.....	5	.....	Typhoid fever.....	559	34
Malaria.....	2	.....	Typhus fever.....	2	.....
Paratyphoid fever.....	1	.....			

DENMARK

*Communicable diseases—February, 1930.*—During the month of February, 1930, cases of certain communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	9	Paratyphoid fever.....	6
Chicken pox.....	92	Poliomyelitis.....	2
Diphtheria and croup.....	505	Psittacosis.....	5
Erysipelas.....	256	Puerperal fever.....	18
German measles.....	20	Scabies.....	833
Influenza.....	5,806	Scarlet fever.....	126
Jaundice.....	196	Tetanus.....	7
Lethargic encephalitis.....	18	Typhoid fever.....	6
Measles.....	1,832	Undulant fever <sup>1</sup> .....	41
Mumps.....	2,451	Whooping cough.....	1,333

<sup>1</sup> Reported from the State Serum Institute.

VIRGIN ISLANDS

*Communicable diseases—March, 1930.*—During the month of March, 1930, cases of certain communicable diseases were reported in the Virgin Islands as follows:

St. Thomas and St. John:	Cases	St. Thomas and St. John—Contd.	Cases
Chancroid.....	1	Tuberculosis.....	2
Gonorrhoea.....	1	Uncinariasis.....	2
Malaria.....	1	St. Croix:	
Pellagra.....	2	Chicken pox.....	2
Syphilis.....	11		













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

**PLAGUE—Continued**

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

Place	Octo-ber, 1929	No-ven-ber, 1929	De-cem-ber, 1929	Janu-ary, 1930	Feb-ruary, 1930	March, 1930	Place	Octo-ber, 1929	No-ven-ber, 1929	De-cem-ber, 1929	Janu-ary, 1930	Feb-ruary, 1930	March, 1930
British East Africa (see also table above):													
Kenya.....	C 146	157	54	34	.....	.....	Madagascar (see also table above)—Continued	27	4	12	.....	.....	.....
Uganda.....	C 384	179	216	87	.....	.....	Moramanga Province.....	27	3	12	.....	.....	.....
Ecuador: Guayaquil.....	C 351	164	199	75	.....	.....	Tamatave Province.....	5	.....	2	.....	.....	.....
Plague-infected rats.....	C 12	14	17	8	2	.....	Tananarive Province.....	4	103	97	.....	.....	.....
Greece (see also table above).....	C 4	8	6	4	2	.....	Peru.....	141	93	98	.....	.....	.....
Indo-China (see also table above).....	C 5	2	1	.....	.....	.....	Senegal:	132	.....	.....	.....	.....	.....
Madagascar (see also table above).....	C 2	1	.....	.....	.....	.....	Baol <sup>1</sup> .....	1	.....	.....	.....	.....	.....
Ambosatra Province.....	C 208	182	.....	10	27	.....	Dakar <sup>1</sup> .....	45	23	5	.....	.....	13
Antsirabe Province.....	C 193	163	.....	282	.....	.....	Louga <sup>1</sup> .....	13	10	2	.....	.....	6
Itasy Province.....	C 2	42	111	258	.....	.....	Thies <sup>1</sup> .....	3	17	8	.....	.....	.....
Misiranivo.....	C 17	33	96	.....	.....	.....	Tivaouane <sup>1</sup> .....	2	5	1	.....	.....	.....
	C 17	5	16	.....	.....	.....		41	1	.....	.....	.....	.....
	C 17	5	16	.....	.....	.....		24	.....	.....	.....	.....	.....
	C 10	19	.....	.....	.....	.....		3	.....	.....	.....	.....	.....
	C 10	16	.....	.....	.....	.....		3	.....	.....	.....	.....	.....
	C 12	5	3	.....	.....	.....		3	.....	.....	.....	.....	.....
	C 11	6	3	.....	.....	.....		41	8	.....	.....	.....	.....
	C 11	6	3	.....	.....	.....		21	4	.....	.....	.....	.....

<sup>1</sup> Incomplete reports.

















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

**TYPHUS FEVER—Continued**

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

Place	Week ended—												
	January, 1930			February, 1930			March, 1930			Apr. 5, 1930			
	18	25	1	8	15	22	1	8	15	22	29		
Morocco.....	5	4	2	7	2	7	7	2	7	2	7	14	13
Palestine.....	3	2	1	1	1	1	1	1	1	1	1	2	2
Peru: Arequipa (see table below).	31	62	74	61	96	52	81	67	96	52	81	69	54
Poland.....	3	3	10	4	5	7	8	5	7	8	1	5	2
Portugal: Oporto.....	1	3	3	3	7	8	1	2	7	8	1	2	2
Rumania.....	25	19	103	82	41	96	56	48	41	88	54	58	54
Tunisia.....	5	2	10	5	2	7	8	2	7	8	11	2	2
Turkey (see table below).	1	1	3	2	2	2	2	2	2	2	3	2	2
Union of South Africa:													
Cape Province.....	C	P	P	P	P	P	P	P	P	P	P	P	P
Natal.....	C	2	P	P	P	1	P	P	P	P	P	3	P
Orange Free State.....	C	P	P	P	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).	C	P	P	P	P	P	P	P	P	P	P	P	P

Place	Octo-ber, 1929	Novem-ber, 1929	Decem-ber, 1929	Janu-ary, 1930	Febru-ary, 1930	March, 1930
	Chosen: Seoul.....		3	1	10	D
Czechoslovakia.....					C	10
France.....	7	6	3	3	D	1
Greece: Athens.....					C	1
Latvia.....	6	5	63	2	D	
Lithuania.....	1	1	4	5	D	
Peru: Arequipa.....					D	1
Turkey.....					C	10
Yugoslavia.....					C	1
					D	6
					C	1
					D	26
					C	3
					D	5

**YELLOW FEVER**

On April 22, 1930, 2 cases of yellow fever were reported at Mace, Brazil.