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PROTECTION OF SMALL WATER SUPPLIES USED BY RAILROADS.

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Many of the underground water supplies used by the railroads in Minnesota for supplying water to cars for drinking and culinary purposes are obtained from wells equipped with pumps of the simple hand-operated type similar to those commonly found on farms and at isolated residences. Considerable difficulty has been encountered in maintaining the bacteriological standards of the United States Treasury Department and the Minnesota State Board of Health, for drinking water from this type of water supply; whereas the bacteriological condition of water from the larger installations, when they are properly located and constructed, have been satisfactory year after year. The more satisfactory bacteriological results which are generally obtained from the larger supplies are principally due to the fact that the heavier pumping equipment fastened to solid concrete foundations is more resistant to vibration and wear than that of the smaller ones, and, consequently, leaks are not so likely to occur. The larger supplies usually have daily care and maintenance, whereas in the smaller supplies defects are often neglected until after contamination has entered the system.

It is probably true that the entrance of a small quantity of certain non-pathogenic bacteria into a supply may not necessarily be detrimental to the health of those drinking the water; on the other hand, the presence of these organisms in the water is an indication that there is an opening in the system through which disease-producing bacteria may enter, and this condition must be considered unsatisfactory and dangerous. Furthermore, the opening through which contamination enters is more likely to become larger through continued action of the agent producing it. Any opening in a water supply which permits contact of foreign material with the water either by a direct or indirect route affords a possibility for contaminating the supply. Examples of openings through which small amounts of contaminated water may enter the supply are worn-out

gaskets at the base of the pump and openings around the pump rod at the top of the pump. The use of wood for the casings and covers of dug wells, which permits surface and waste water to enter the supply through cracks and knot holes, is another means by which water supplies are sometimes contaminated. Priming is a dangerous form of direct contact, as the priming water may be polluted and so contaminate the supply.

Figure 1 illustrates the defects mentioned above, and several others which offer opportunities for the contamination of water supplies.

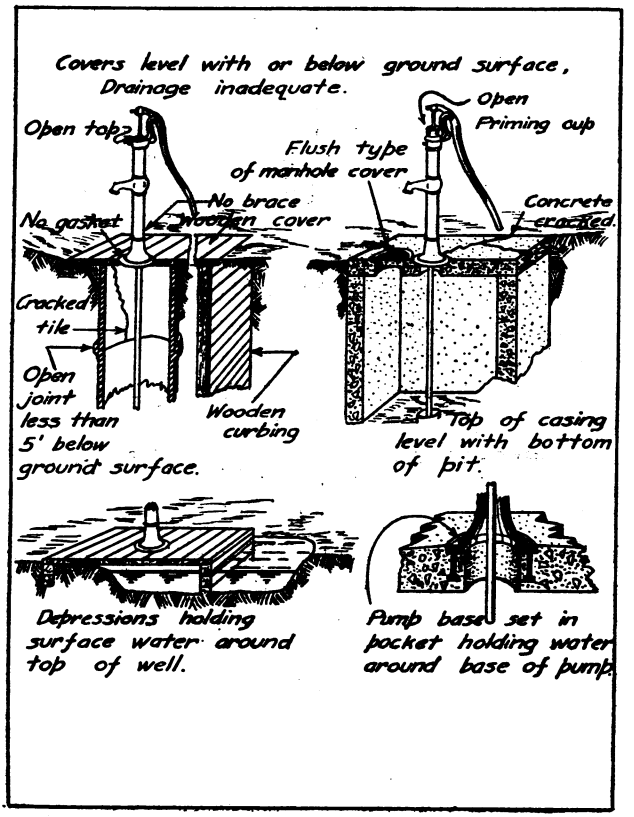

FIGURE 1.—Some defects frequently found.

The safety of small water supplies depends upon their proper location, construction, and maintenance. The following general principles govern the location and construction of such supplies: (1) A well should be located as far away as possible from gross pollution, such as privies, cesspools, sewers, etc. (50 feet is considered a safe distance under most conditions found in Minnesota); it should be high enough to exclude the possibility of its being flooded with surface water, and the drainage, either natural or artificial, should be

away from the well in all directions. (2) The construction should be water-tight for a depth of at least 5 feet below the surface, and for a greater depth if possible, depending upon the character of the earth, and should extend above the surface for at least 1 foot. Projection above the surface, overlapping covers for manhole openings, stuffing boxes, etc., are forms of construction which should be provided in order to protect these supplies.

Figures 2 to 7, inclusive, show various types of wells properly constructed so as to protect the water against pollution. It should be noted that the driven wells shown by Figures 6 and 7 have surface construction which follows the same general principles indicated

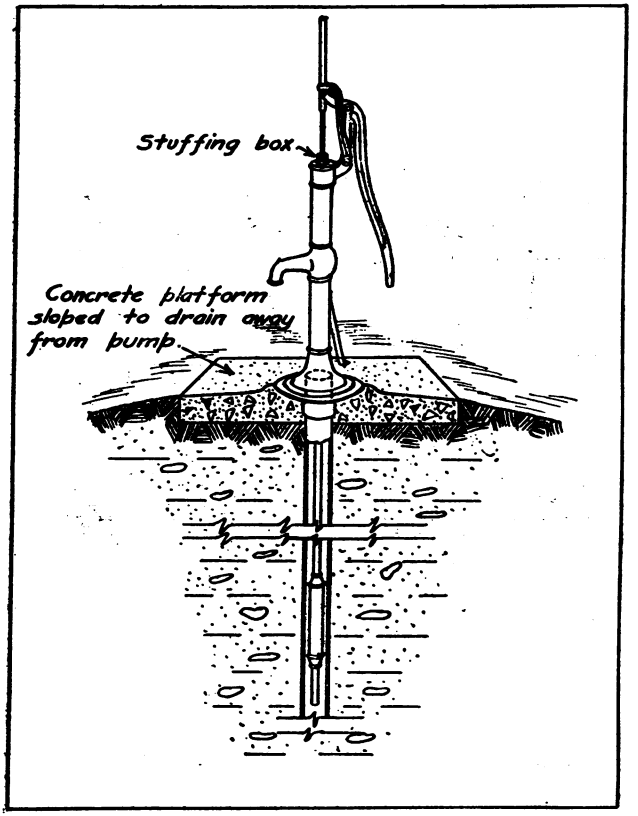

FIGURE 2.—Properly constructed drilled well.

for properly constructed dug wells (see figs. 3 and 4). It is considered a better principle in the case of new driven wells to construct them with a casing large enough to receive the pump cylinder and with surface construction similar to that shown for the drilled well (fig. 2). Figure 8 shows a detail of pump base construction which may be used with either dug or drilled wells and which will prevent the entrance of contamination at the base of the pump. It should

be noted that the casing or pipe sleeve projects up into the pump base so that even though leaks should occur between the pump stand and the pump base due to a defective gasket it would be practically impossible for this contamination to enter the well. Figure 9 illustrates the principle of the overlapping type of manhole cover which should be used for all such openings in wells, tanks, and reservoirs on a water supply system.

After the supply has been properly located and constructed, the safety of the water depends upon the proper maintenance and opera-

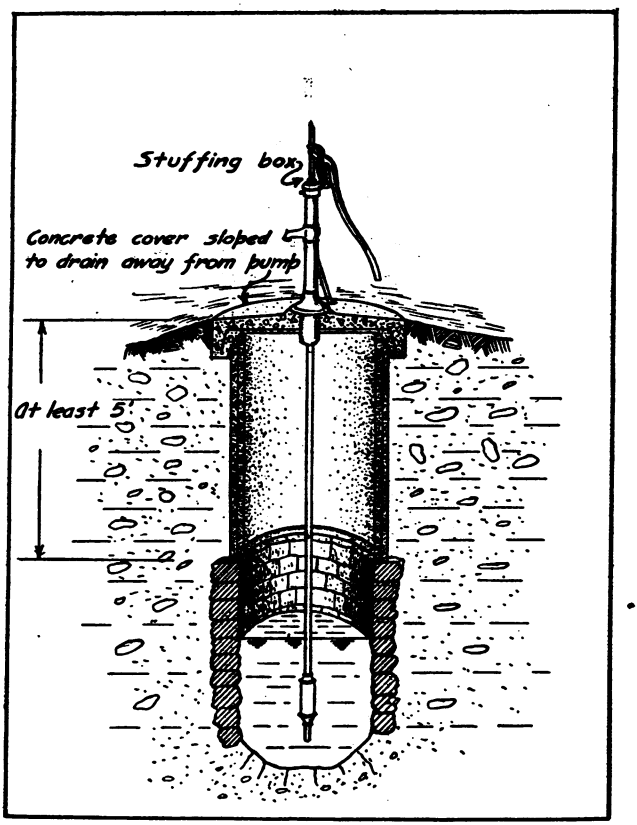

FIGURE 3.—Properly reconstructed dug well.

tion of the supply. The persons responsible for these supplies should understand the purpose of careful maintenance which is necessary for their protection. Periodic inspections should be made with the view of detecting defects and making corrections before the safety of the supply becomes menaced.

Contamination is often found in the water from wells which have recently been constructed, even where the construction work has been properly carried out, unless care has been taken to disinfect

the well and pumping equipment thoroughly after completing the work. Pollution may gain access to a supply when the system is opened for repair work, at which time parts of its equipment may become infected through handling or contact with foreign material. Water supplies should always be disinfected following new construction, or repair work, in order to remove traces of contamination which may be dangerous or may affect the results of subsequent examinations of the water. Disinfection of small water supplies can usually be readily accomplished by introducing into the well

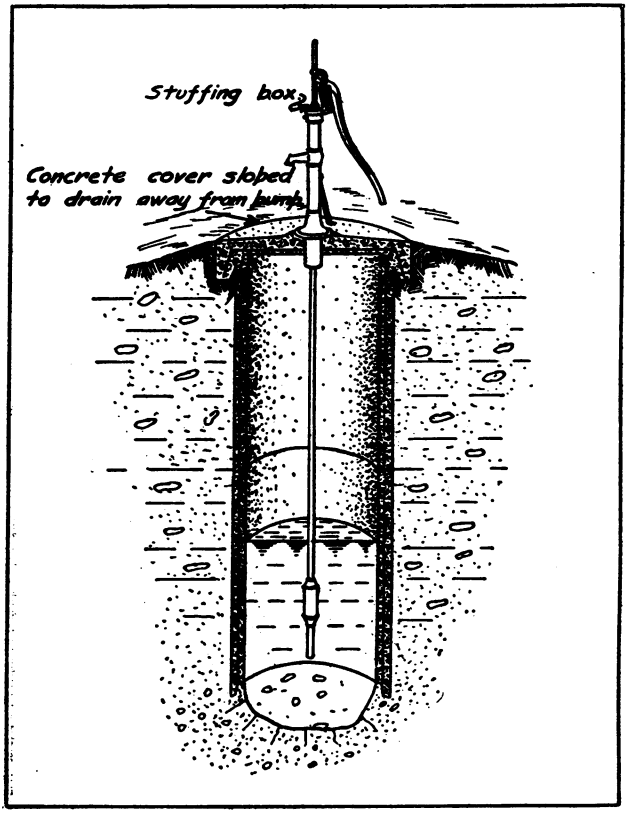

FIGURE 4.—Properly constructed dug well.

one pound of calcium hypochlorite (chlorinated lime). Wherever possible, the chemical should be scattered over the surface of the water in the well so that the powder will sink to the bottom, thereby permeating the supply. If necessary, the chemical may be mixed with 5 gallons of water and poured through some opening where it will drain into the well. The water containing the chemical should be permitted to remain in the well for a period of at least 12 hours, following which the water should be pumped to waste until the odor and taste of the chemical have practically disappeared.

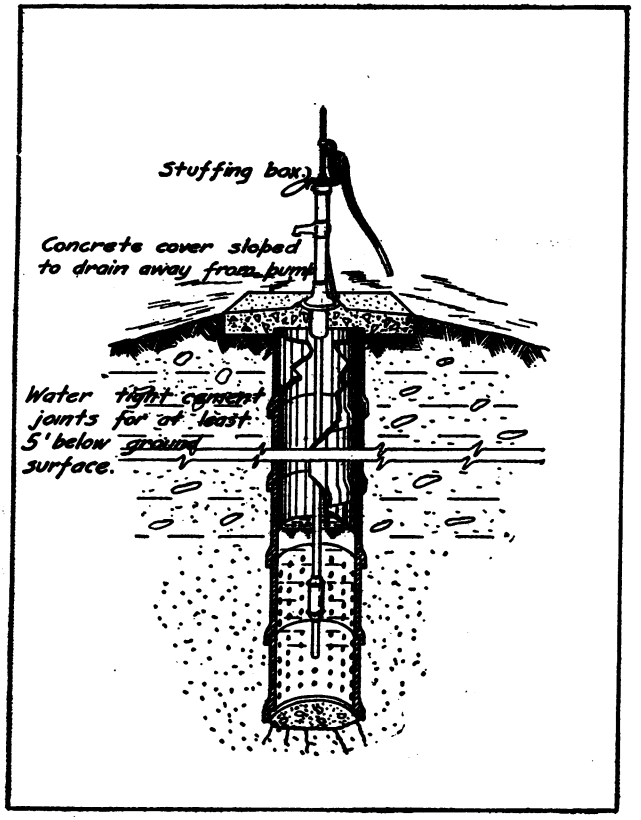

FIGURE 5.—Properly constructed bored well.

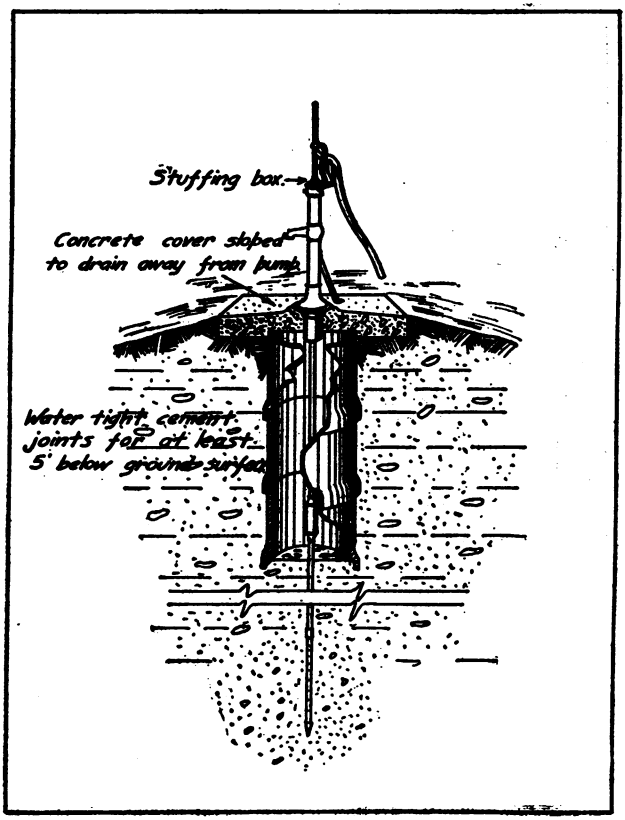

FIGURE 6.—Properly constructed driven well.

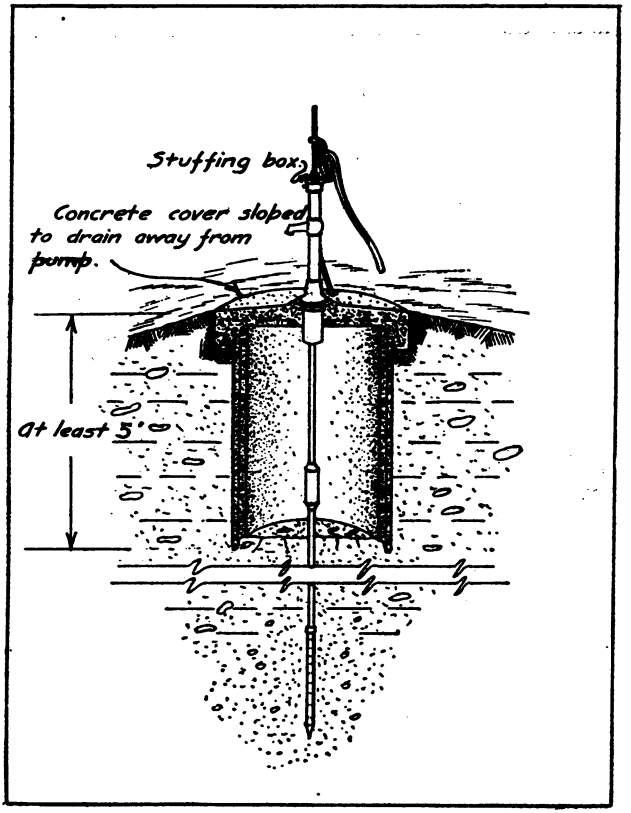

FIGURE 7.—Properly constructed driven well.

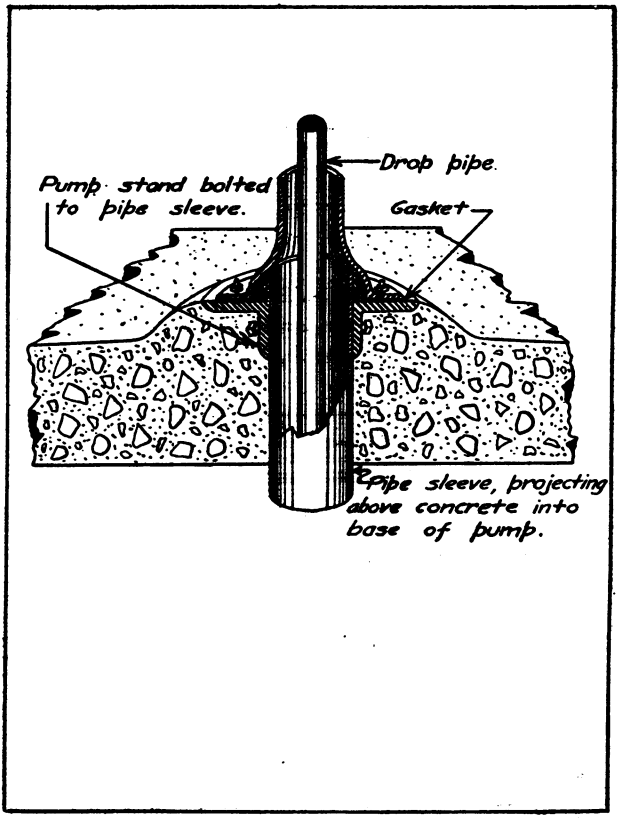

FIGURE 8.—Detail of construction at base of pump.

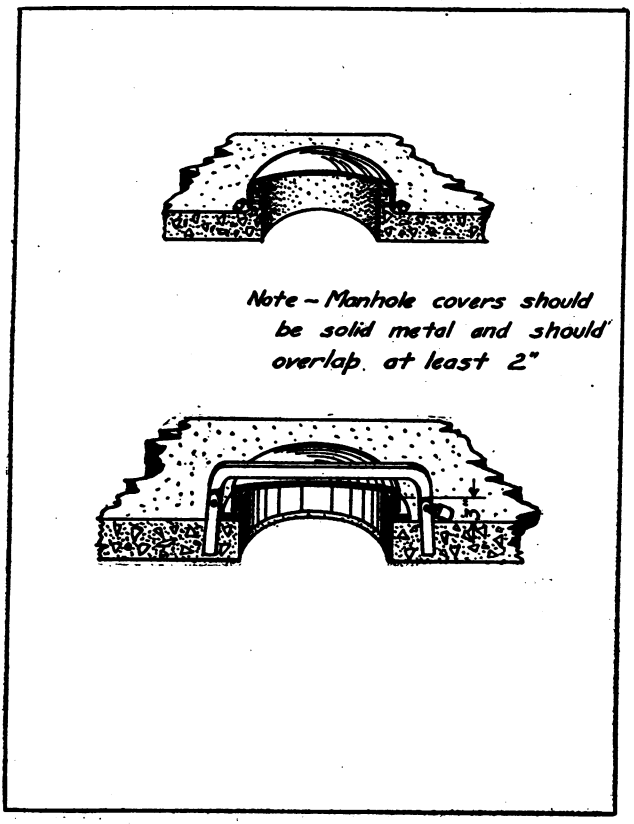

FIGURE 9.—Manhole covers of the overlapping type.

THE KATA THERMOMETER: ITS VALUE AND DEFECTS.[1]

By W. J. McCONNELL, Passed Assistant Surgeon (R), United States Public Health Service (with the Bureau of Mines), and C. P. YAGLOGLOU, Research Engineer, American Society of Heating and Ventilating Engineers Research Laboratory.

INTRODUCTION.

The study of the various physiological responses of the human body to different degrees of temperature combined with different percentages of relative humidity in still and in moving air, now being conducted in the Research Laboratory of the American Society of Heating and Ventilating Engineers, cooperating with the United States Bureau of Mines and the United States Public Health Service, presents the added opportunity of investigating the instruments which have been devised to measure atmospheric conditions as they affect the comfort and health of human beings.

The ordinary mercury thermometer, as pointed out by Heberden [2] almost a hundred years ago, is a very inadequate instrument for measuring the physiological effects of atmospheric conditions. It merely accounts for that part of the body heat lost by radiation and convection, whereas, as a matter of fact, a great part of the body heat resulting from the metabolic processes within the body is eliminated by means of evaporation from the surface of the body.

This source of heat loss, however, is cut off when the atmosphere is saturated, for the reason that the space contains all the water vapor that it is capable of holding at a given temperature. In view of this fact, relative humidity must always be considered as an important factor which affects the heat loss and influences human comfort. The greatest factor of all is air motion, because the cooling resulting from evaporation and convection largely depends upon the velocity of the air.

HISTORY AND DEVELOPMENT OF THE KATA THERMOMETER.

Dr. W. Heberden, who apparently gave careful study to these factors, conceived the idea of determining the combined effect of evaporation, convection, and radiation, by observing the rate of fall of an ordinary thermometer previously heated to a high temperature.

Recently, Hill,[3] in England, independently devised a special thermometer called the "kata" thermometer, which operates on the same principle, namely, the cooling of a hot body in an atmosphere of comparatively lower temperature.

The original instrument consisted of a specially designed large bulb and stem, the latter graduated from 86° to 110° F. Two such

[1] Published by permission of the Director, Bureau of Mines.

[2] Transactions of the Royal Society, London, 1826, Part II, p. 69.

[3] The science of ventilation and open air treatment. By Leonard Hill. London, 1919.

thermometers were used simultaneously, one as a dry-bulb thermometer and the other as a wet-bulb thermometer, with a silk glove slipped over the bulb of the latter. Both instruments were heated in water to about 110° F., and then removed. The bulb of the dry kata was then wiped dry and the superfluous moisture was removed from the surface of the bulb of the wet kata. The two instruments were then placed horizontally in clips, and the time of fall from 100° to 90° was observed by means of a stop-watch.

It is obvious that under these conditions the dry kata loses heat by radiation and convection, while the wet kata does so by radiation, convection, and evaporation.

DESCRIPTION OF THE INSTRUMENT PROPER.

It was not until recently (1916) that the kata thermometer was introduced as a physical instrument with possibilities of approaching the dynamical functions of the body in losing heat by radiation, convection, and evaporation. The later pattern is a distinct improvement over the earlier model in so far as results can be duplicated with different instruments.

The instrument is designed to measure the rate of heat loss from its surface at approximately body temperature. Fundamentally, it is a specially constructed alcohol thermometer with a cylindrical bulb 1.8 cm. in diameter and 2.2 cm. in length. The top and bottom of the bulb are hemispherical, and its total length is 4 cm. The stem, 20 cm. in length, is graduated in tenths of a degree Fahrenheit from 95° to 100°. An enlargement of the bore at the top of the stem serves as a safety reservoir in case of accidental overheating, and it also permits the instrument to be heated considerably above 100°, so that by the time it is suspended in the desired position it has acquired a uniform rate of cooling.

MANIPULATION OF THE KATA.

The procedure followed in taking a reading is to heat the kata in water until the alcohol rises to the top reservoir. The bulb is then dried and the instrument set up firmly in a suitable position. The time taken for the fluid to fall from 100° to 95°, measured by a stop watch, is a function of the heat loss from the surface of the kata by radiation and convection. While the heat loss from the surface of the kata in cooling from 100° to 95° is always the same, the rate of the loss depends entirely upon the surrounding atmospheric conditions. It is therefore apparent that there exists a definite relation between the time of cooling of the kata thermometer and the external conditions.

FUNDAMENTAL LAWS OF THE KATA.

The problem of heat loss from the kata thermometer was studied in 1916 by Hill, Griffith, and Flack,[4] the heat loss being expressed in millicalories per square centimeter per second. A more exhaustive investigation was recently carried out by Miss D. Hargood-Ash and Leonard Hill,[5] upon the findings of which are based the fundamental laws of the kata thermometer given in this paper.

The total heat loss in cooling from 100° to 95° was determined experimentally in millicalories, which, divided by the surface area of the kata in square centimeters, give the heat loss in millicalories per square centimeter. This figure is known as the kata factor and constitutes the converting constant of the reading of any kata thermometer in millicalories per square centimeter. In other words, to obtain the rate of heat loss the kata factor is divided by the time of cooling from 100° to 95° F.

Let F equal the total heat loss per square centimeter, and T equal the number of seconds taken by the kata to cool from 100° to 95° in an atmosphere with a temperature of t° C. According to the law of cooling of hot bodies the heat loss can be expressed by

$$F = K(\phi - t)\,T \qquad (1)$$

where K is a constant and ϕ the mean temperature of the hot body.

The rate of cooling per square centimeter per second, H, is similarly given by

$$H = \frac{F}{T} = K(\phi - t) \qquad (2)$$

The numerical value of K depends upon the emissivity, shape, and size of the kata surface, and is therefore the same for all standard instruments. For still-air conditions and at sea level, K was found to be 0.27, and therefore equation (2) becomes

$$H = 0.27\ (36.5 - t) \qquad (3)$$

36.5 being the average temperature of the kata thermometer in degrees centigrade.

It will be seen that the rate of heat loss is directly proportional to the difference between the mean temperature of the kata and that of the air. This is only an approximation, due to the fact that the range of cooling employed in the investigation was over 5° F. However, the error thus introduced is too small to affect the results appreciably.

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[4] The measurement of the rate of heat loss at body temperature by convection, radiation, and evaporation. Phil. Trans. Royal Soc., London, series B, Vol. CCVII, 1916, p. 183.

[5] The kata thermometer in studies of body heat and efficiency. Medical Research Council, London, 1923.

The kata factor, prefixed by F, is engraved on the stem of every instrument. It can be experimentally determined by noting the time of cooling from 100° to 95° in a still-air chamber, with walls and air at the same temperature. If F is the kata factor, T the time of cooling in seconds, and t the temperature of the air in ° C., then

$$F = 0.27\ (36.5 - t)\ T \tag{4}$$

In making kata observations it is very desirable to take a number of readings—from four to six, depending upon the agreement of the data. The first observation will often differ from the others, owing to the fact that the bulb, stem, and spirit did not attain a uniform temperature, and should be discarded. The average of the remaining observations will then give a good mean reading, by which the kata factor is divided to determine the cooling power of the air per square centimeter per second.

This method gives the cooling power of the air under any condition. It takes into account the radiation and convection loss due to temperature difference and also of air motion, if any, created by natural or artificial means. It should, therefore, be differentiated from equation (3), which holds true for still-air conditions only. The cooling produced by air motion on the dry kata will obviously be

$$H_a = \frac{F}{T} - 0.27\ (36.5 - t) \tag{5}$$

in millicalories per square centimeter per second.

In practice, temperature conditions often exceed 36.5° C., or the average kata temperature. In such cases a heating effect on the kata is produced, and the bulb should be cooled in water until the spirit drops to the top of the bulb. The time taken for the spirit to rise from 95° to 100° is then measured by means of a stop watch, and then used in the above equations.

It will be noticed in equation (3) that if t=36.5, H=0. When t is greater than 36.5°, H becomes a negative quantity, indicating the warming of the kata. The numerical value of H will then be the warming power of the atmosphere in millicalories per square centimeter per second. Cooling powers are reckoned as positive owing to the fact that the natural course of the human body, upon which the design of the kata thermometer is fundamentally based, is to lose heat to the surrounding air and objects. Conventionally, a negative sign should be appended to the ratio $\frac{F}{T}$ to denote the warming power of the air.

As mentioned above, the dry kata thermometer loses heat by radiation and convection only. It does not take account of the heat loss by evaporation, which in a human body constitutes a

great part of the heat elimination, especially at high temperatures. It has been found that dry kata readings vary with the dry-bulb temperature of the air, regardless of the wet-bulb temperature or relative humidity, factors which would have rendered the instrument valueless if not taken into consideration.

To overcome this difficulty, the ordinary kata thermometer is converted to a wet kata by merely covering the bulb with a cotton glove, long enough to draw up tight above the area of the bulb.

To take readings, the instrument is dipped in water at about 110° until the spirit rises to the top reservoir. After removing excess moisture, it is suspended so that its bulb is fully exposed, and the time of fall from 100° to 95° is measured by means of a stop watch. It is obvious under these conditions that the wet kata will lose heat by radiation and convection and also by evaporation, the amount of the latter depending upon the humidity and movement of the air.

The problem of heat loss by evaporation has been studied by a number of scientists. Their results show that in still air the relation between heat loss by evaporation and atmospheric conditions can be represented by

$$E = x(P-p)^c \tag{6}$$

where E = the heat loss by evaporation, x and c are constants to be determined experimentally, P = the maximum vapor pressure at the average temperature of the body, and p = the actual vapor pressure of the air.

If H and H' are the dry and wet kata cooling powers, respectively, the heat loss by evaporation in still air may be taken approximately as the difference between the heat loss by the wet and dry kata. The degree of such an approximation depends, however, on the surface temperature of the wet and dry kata, in so far as this is the determining factor of the heat loss by radiation and convection. Assuming this temperature to be nearly the same, it follows that

$$E = H' - H = x(P-p)^c \tag{7}$$

or

$$H' = H + x(P-p)^c \tag{8}$$

Substituting the value of H from equation (3) we find that

$$H' = 0.27\ (36.5-t) + x(P-p)^c \tag{9}$$

The values of x and c are found (by Dr. Hill and his associates) to be 0.085 and 4/3, respectively, and so equation (9) becomes

$$H' = 0.27\ (36.5-t) + 0.085(P-p)^{\frac{4}{3}} \tag{10}$$

The exact law of the cooling of the wet kata has not yet been definitely established, owing to the many variables involved in the problem and the limited data available at present. There is strong evidence that the cooling of a wet kata is largely dependent upon

the wet-bulb temperature. However, in so much as the wet kata loses heat by radiation and convection in addition to evaporation, the dry-bulb temperature or relative humidity of the air should also be considered as a factor, and the law can not be expressed by the simple relationship of cooling rate to the difference between 36.5° C. and the wet-bulb temperature of the air.

It is certain that for the same dry-bulb temperature the surface temperature of the wet kata will be lower than that of the dry kata, owing to the cooling effect produced by evaporation. The difference may amount to 2 or 3 degrees; and in cases involving air motion it will be considerably greater, depending upon the velocity of the wind.

The practice, therefore, of expressing the cooling by evaporation or the heating by condensation, under any condition of temperature, humidity, and air motion by—

$$\pm E = \pm \frac{F'}{T'} - \left(\pm \frac{F}{T}\right) \tag{11}$$

involves considerable error, and is justified only when the surface temperature of both katas is the same. In the above equation, F' = the wet kata factor and T' the time of cooling of the wet kata from 100° to 95°.

PRACTICAL USE OF THE KATA THERMOMETER AS AN ANEMOMETER.

The kata thermometer can be conveniently used as an anemometer, provided that its factor is accurately known and the walls and surrounding objects are at the same temperature as the moving air. Especially at low velocities does it constitute a useful instrument in readily detecting drafts and the like. It sums up undirectional air currents and eddies, and is thus superior to any vane anemometer.

The relation between the cooling power, H, of the dry kata and wind velocity has very recently been established by Doctor Hill[6] and his associates in their latest experiments, and their results differ from those of the earlier investigators. It was found that the wind tunnel must be of very large cross-sectional area as compared with that of the kata bulb, and the wind should be determined by means of the Pitot tube. The relation is given by the equation

$$H = \frac{F}{T} = (0.13 + 0.47\sqrt{V})\ (36.5 - t) \tag{12}$$

for velocities greater than one meter per second, and by

$$H = \frac{F}{T} = (0.20 + 0.40\sqrt{V})\ (36.5 - t) \tag{13}$$

for velocities below one meter per second.

[6] Work cited.

In the above equations, V is expressed in meters per second and H, T, and t are the same as before. Denoting $(36.5-t)$ by θ, and solving for V, we get

$$V=\left(\frac{H/\theta-0.13}{0.47}\right)^2 \text{meters per second} \tag{14}$$

for velocities greater than 1 meter per second, and

$$V=\left(\frac{H/\theta-0.20}{0.40}\right)^2 \text{meters per second} \tag{15}$$

for velocities less than one meter per second.

The corresponding equations in feet per minute, using the Fahrenheit temperature scale, are:

$$H=\frac{F}{T}=(0.07222+0.01861\sqrt{V})\ (97.7-t) \tag{16}$$

or

$$V=\left(\frac{H/\theta-0.07222}{0.01861}\right)^2 \text{feet per minute} \tag{17}$$

for velocities greater than 200 feet per minute;

and

$$H=\frac{F}{T}=(0.1111+0.01548\sqrt{V})\ (97.7-t) \tag{18}$$

or

$$V=\left(\frac{H/\theta-0.1111}{0.01584}\right)^2 \text{feet per minute} \tag{19}$$

for velocities less than 200 feet per minute.

The value of H in the equations is found as above by dividing the kata factor by T, the time of cooling from 100° to 95°; θ is the difference between 36.5°, or 97.7° F., if the Fahrenheit scale is used, and the temperature of the air. In cases where $\frac{H}{\theta}$ is found to be less than 0.60, or less than 0.355 (the latter when the Fahrenheit scale is employed) equations (15) or (19) should be used. If the value of $\frac{H}{\theta}$ exceeds 0.60 or 0.355 (the latter when the Fahrenheit scale is employed) equations (14) or (17) should be used in determining the velocity of the wind. The velocity figures thus obtained are accurate within ± 2 per cent.

Equations (17) and (19) are rather cumbersome for practical use, and for convenience the calculated values of velocity in feet per minute are plotted against the corresponding ratios of $\frac{H}{\theta}$ in the three accompanying charts. Chart 1 gives the computed velocities from 10 to 200 feet per minute; Chart 2 those from 200 to 1,000 feet per minute; and Chart 3 the velocities from 1,000 to 3,000 feet per minute.

Due to the inaccuracy in the existing information on the wet kata thermometer, and its short period of cooling as compared with that of the dry kata, the latter is, by far, the more accurate in determining wind velocities; and the wet kata should not be used as an anemometer. However, for the sake of completeness, the equation representing the relation between wet kata, cooling power (H'), wind velocity (V), and wet-bulb temperature (t'), is given below; but it should be used with caution:

For velocities above one meter per second,

$$V=\left[\frac{H'/(36.5-t')-0.10}{1.10}\right]^2 \text{ meters per second;}$$

and for velocities below one meter per second,

$$V=\left[\frac{H'/(36.5-t')-0.35}{0.85}\right]^2 \text{ meter per second.}$$

In the above two equations t' is the wet-bulb temperature in °C. The corresponding equations in feet per minute are—

For velocities above 200 feet per minute,

$$V=\left[\frac{H'/(97.7-t')-0.056}{0.11}\right]^2 \text{ feet per minute;}$$

and for velocities below 200 feet per minute.

$$V=\left[\frac{H'/(97.7-t')-0.19}{0.082}\right]^2 \text{ feet per minute.}$$

In the last two equations t' is the wet-bulb temperature in °F.

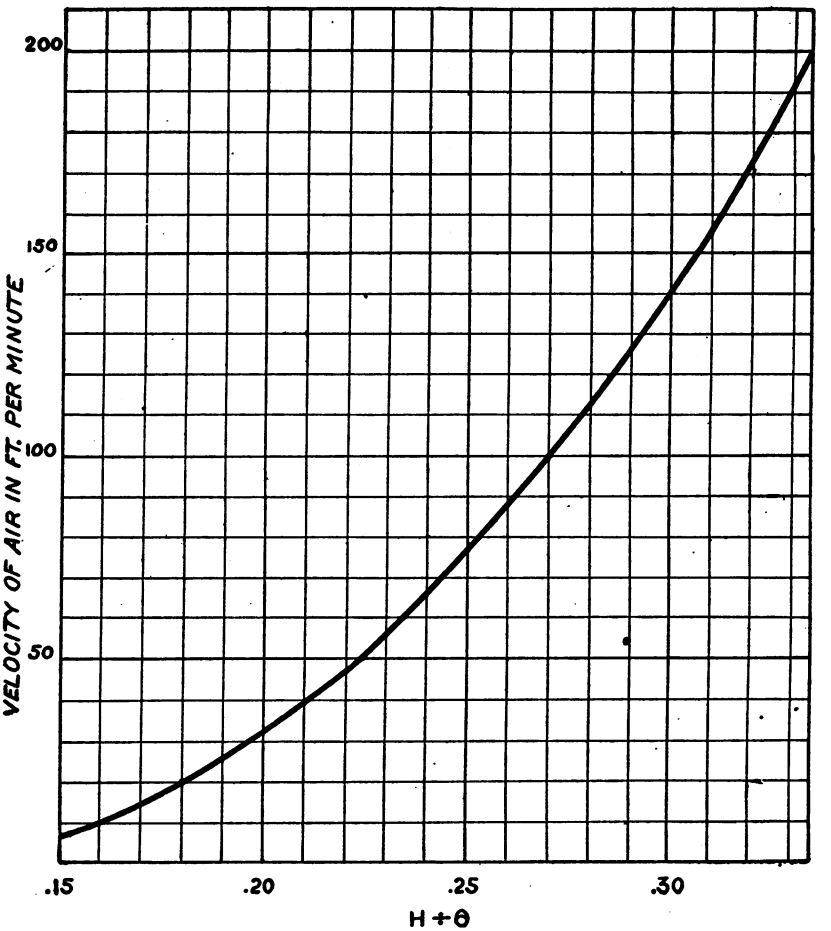

CHART 1.

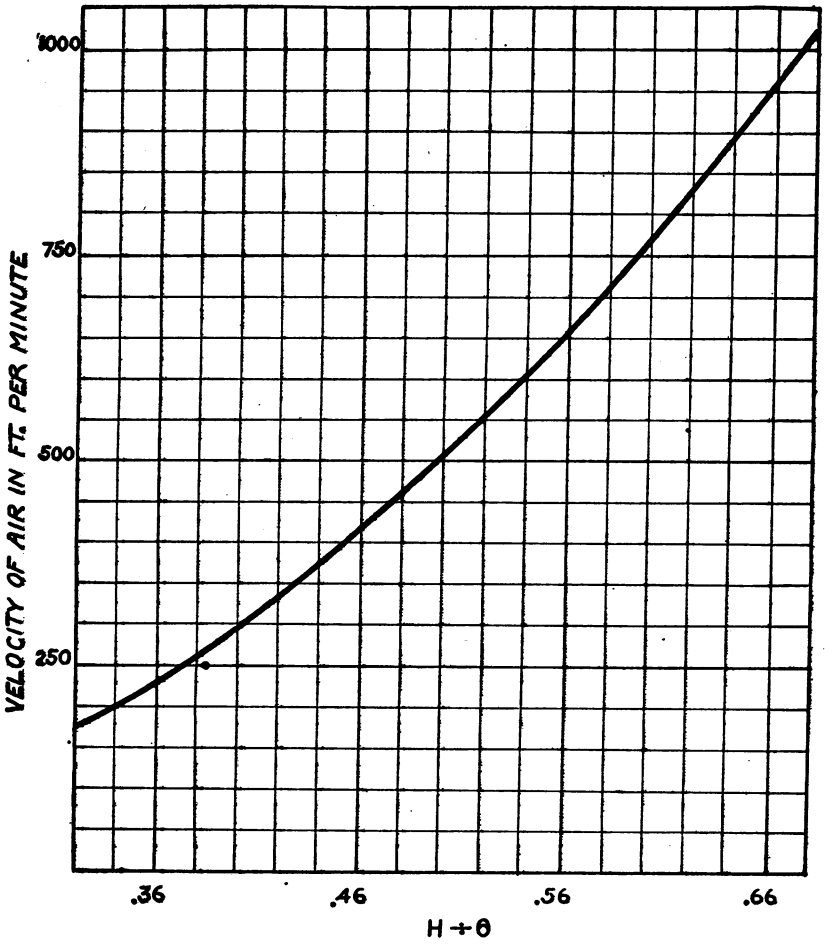

CHART 2

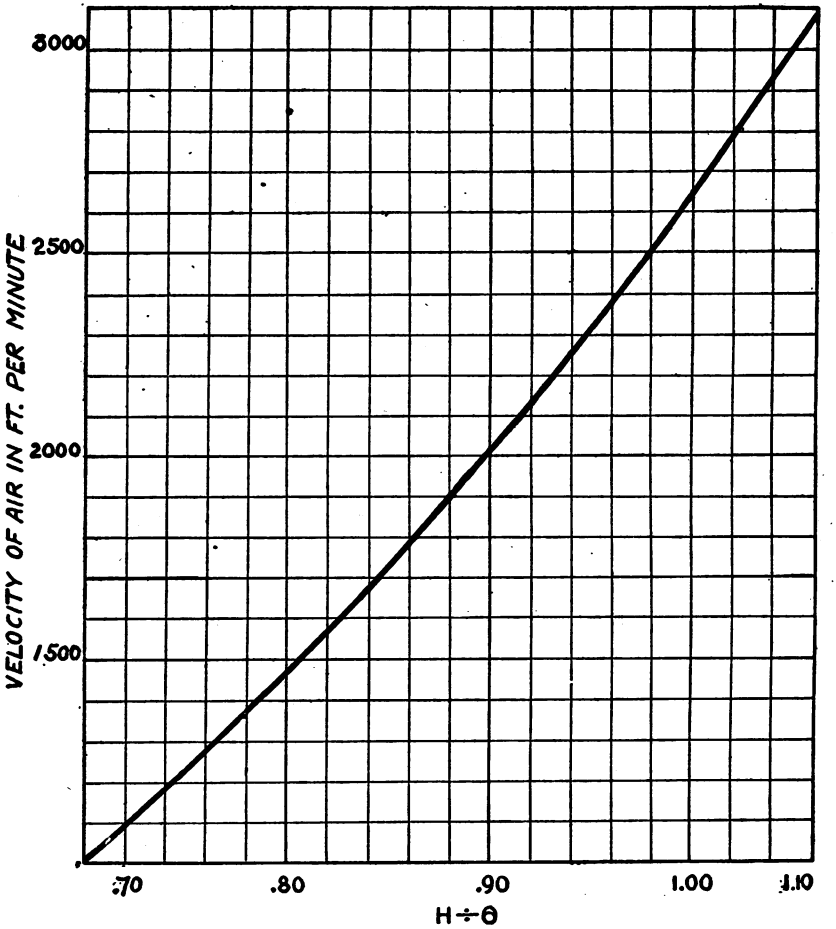
3000
2500
2000
1,500
VELOCITY OF AIR IN FT. PER MINUTE
.70
.80
.90
1.00
1.10
H÷θ

CHART 3.

OTHER TYPES OF SIMILAR INSTRUMENTS.

Besides the ordinary kata thermometer there are a number of other instruments on the market, such as the electric kata, the recording kata, and the fresh-air gage.

The electric kata is a modified form of kata thermometer, with the cooling powers marked on the stem of the instrument. It is especially designed for indoor use. A fixed amount of heat is supplied electrically by means of a heating coil in the bulb of the instrument. When the kata temperature reading becomes constant, the heat loss, H, equals the heat supplied to the instrument.

In the recording electric kata type, a continuous record of cooling powers is obtained. The heat supply is variable and adjusted in each case so as to keep the temperature of the instrument constant (36.5°). An automatic arrangement regulates the heat supply so that the temperature of the bulb is maintained at 36.5°C., the current being automatically increased or decreased as the cooling power of the air increases or diminishes. The principal advantage of this kata over the former two is that, since the temperature is kept the same under all conditions, the readings are accurate in still air as well as in moving air.

The fresh-air gage constitutes a distinct departure from the ordinary kata thermometer. An 8-candle power carbon filament lamp of known wattage is enclosed in a cylindrical metal box 10 cm. in diameter and 18 cm. high. The top of the box communicates with a chimney 2½cm. in diameter and 25 cm. high, through a cone-shaped metal section. Centrally within the chimney a mercury thermometer is hung with its bulb 9 cm. from the top of the chimney and attached at the top by means of a suitable arrangement. To provide ventilation, a number of holes are cut around the box.

The filament of the lamp is supplied with electric current at constant voltage, generating thus a constant amount of heat, which is lost to the outside by radiation and convection from the surface of the box and chimney. This heat loss (H) is directly proportional to the reading of the gage thermometer, and the instrument is calibrated against a kata thermometer to convert the gage readings into millicalories per square centimeters per second.

THE KATA THERMOMETER AS AN INDEX OF HUMAN COMFORT.

The concerted efforts of the various investigators on the subject of human comfort lead to the conclusion that there is no single index of human comfort in atmospheric conditions. It is very questionable whether any single instrument can be designed that will answer this purpose. The factors which influence heat production and heat loss are difficult to evaluate. We know, in general, that in order to maintain

constant the internal temperature the heat-regulation mechanism in the human body must produce a total quantity of heat above that amount required to carry on the indispensable physiological functions of the body for the purpose of performing muscular work. Atmospheric conditions may alter the amount. The factor of coordination of the nervous mechanism over the muscles of the body in response to sensations of heat and cold is very important. Many other factors influence heat production and heat loss in man, and further study must be given to the relative importance and correct correlation of these.

While the wet-bulb kata takes account of the temperature, humidity, and air motion, the main difficulty lies in estimating the relative degree of importance to be attached to these various measurements.

The cooling of the naked human body depends largely upon the condition of the skin. At low temperatures the skin is comparatively dry, and the rate of cooling to some extent can be comparable to that of the dry kata thermometer. However, there is always a certain amount of heat lost by evaporation from insensible perspiration. At high temperatures, when the skin is completely moist with perspiration, the rate of cooling approaches that of the wet kata thermometer.

Our experience shows that while a temperature of 57.7° F. with no air motion is too cold for comfort, a temperature of 85.6° F. with an air motion of 500 feet per minute is too warm to be comfortable. Perhaps two intermediate conditions—say 70.8° F. at 50 feet per minute and 75.8° F. at 100 feet per minute—will appeal to the comfort of the average person, provided that the humidity is not outside the limits of the ordinary range.

Observations of Hill and his colleagues show that the clothed kata is affected considerably less by air currents than is the naked kata; and that the dry and wet kata enclosed in a bag of dry flannel cooled much more slowly, as the bag prevented the air current from carrying off the moisture evaporated from the wet kata.

It is therefore apparent that for the wet or dry body clothed in dry clothes the rate of cooling in dry air will be different from that in moist air; and especially since several garments clothe the human body a still greater departure is to be expected. Under very few conditions do the body and the kata thermometer act alike. In some mines, for example, where conditions are so severe that the naked body of the miners is completely covered with perspiration, wet kata thermometer observations may be taken as a fair index of comfort.

The inconsistency of the kata thermometer as an index of comfort can be demonstrated by calculating a few equivalent kata conditions for various air velocities. According to Hill, a dry kata

heat loss of 6 millicalories per square centimeter per second constitutes a good standard of comfort for office and residential buildings. This corresponds to 57.7° F. in still air; 70.8° F. in air moving at the rate of 50 feet per minute; 75.5° F. in air moving 100 feet per minute; and 85.6° F. at 500 feet per minute.

In conclusion, the kata thermometer stands in need of much more experimentation. It is possible by partly covering the bulb with a wet cotton glove to obtain a satisfactory approach to the conditions of the human body. Arrangements may be made by means of expanding and contracting metal strips automatically to vary the wet and dry surface of the bulb, according to the temperature condition of the air, so as to approach the various degrees of wetness of the human body at various atmospheric conditions.

The presence of clothes renders matters still more complicated, almost to the extent that it is impossible to obtain a satisfactory approach in the condition of the clothed body and the wet or dry kata thermometer. Moisture in the clothes increases their conductivity of heat, and while they may not be completely wet, as is always the case with the wet kata, there is a certain amount of heat loss by evaporation as well as by radiation and convection.

Perhaps nothing constitutes better information than that obtained in the field with human beings as subjects. The research laboratory of the American Society of Heating and Ventilating Engineers, in cooperation with the Pittsburgh Experimental Station of the United States Bureau of Mines, established a composite index of comfort for still-air conditions, called "Effective temperature index."[7] It was found that several combinations of high temperatures and low humidities were sensibly and physiologically equivalent to other combinations of comparatively lower temperature and higher humidity; hence, though a person feels equally hot or equally cold under all equivalent conditions, kata thermometer observations will vary radically under the same conditions, depending on the dry bulb temperature alone when dry kata observations are made and on the wet-bulb temperature when wet kata observations are made. Furthermore the relative importance of the wet and dry-bulb temperature as affecting human comfort was found to vary with temperature. At 32° the dry-bulb temperature was found to be the only index of comfort, while at about 132° the wet-bulb temperature constituted such an index, regardless of dry bulb. At ordinary temperatures the two temperatures were of equal importance.

It follows, therefore, that at 32°, in still-air conditions, the rate of heat loss of the dry kata corresponds to that of the human body,

[7] Equal comfort series. By F. C. Houghton and C. P. Yaglogiou. Jour. of Amer. Soc. of Heat. & Vent. Eng., March, 1923.

and at 132° the rate of heat loss of the wet kata corresponds to that of the human body. To take care of the changing predominancy of the two temperatures, the arrangement of the expanding members proposed above should be such as to free completely the kata bulb of the cotton glove at 32° and cover it completely at 132°, water being supplied to the lower end of the cotton glove and carried up automatically by capillary action.

The effects of air motion on human comfort are being studied at present by investigators of the research laboratory of the American Society of Heating and Ventilating Engineers and officers of the United States Bureau of Mines, at Pittsburgh, Pa. On the completion of the work a certain relation may be found between kata cooling powers and effective temperature which will greatly increase the usefulness of the kata thermometer.

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SOME RECENT STATE PUBLIC HEALTH ACTIVITIES

EXTRACTS FROM A REPORT OF THE COMMITTEE ON RECENT ADVANCES IN SANITARY PRACTICE, CONFERENCE OF STATE AND PROVINCIAL HEALTH AUTHORITIES OF NORTH AMERICA[1]

ALABAMA.

Containers for the shipping of specimens for the detection of typhoid carriers have been devised which greatly increase the chance of isolating the typhoid bacilli, if present. It is proposed to place the specimen in sterile bile containing brilliant green in a concentration of 1 to 1,500. The bile permits the typhoid bacilli to start growing in the container at once and the dye almost completely inhibits the growth of the colon bacillus.

CONNECTICUT.

A bureau of public health instruction has been established in the State health department.

A monthly tabulation of infant mortality is being undertaken.

A state-wide campaign has been started for immunization against diphtheria and a state-wide study is being made of diphtheria deaths. Reports of occupational diseases are now being received.

Prenatal classes for expectant mothers are being conducted in some parts of the State.

A state-wide survey of institutions caring for mental cases is being made.

DELAWARE.

The entire health work of Delaware has been reorganized within the past year by consolidation of health activities.

DISTRICT OF COLUMBIA.

A child hygiene service has been established.

The Schick test has been carried out in the various orphanages in the District, and toxin antitoxin treatment has been administered to non-immunes. The work has also been begun in the public schools.

ILLINOIS.

A definite plan for promoting the establishment of full-time county health units has been worked out and will be put into execution during 1924.

Completeness of birth registration has been stimulated through a cooperative arrangement with the Federated Women's Clubs of the State, by which the latter make periodical investigations of the

[1] It is regretted that lack of space prevents the publication of the entire report. A number of interesting activities are necessarily omitted in this extract; but no injustice is intended toward any State by reason of such omissions.—Ed.

records of local registrars in order to determine the completeness of registration of local communities.

Death statistics by months and ages of occurrence have been made available for the first time.

A series of demonstrations before county medical societies on allergic and other skin reactions has been carried out. These demonstrations also included practical illustrations of technique in connection with vaccination against smallpox and immunization against diphtheria.

A detailed study of water-treatment plants was completed during the year.

Standard procedures for diphtheria examinations have been recommended.

A survey of the school-nursing service was conducted and it was found that all communities of 8,000 population or over, with the exception of two, employed school nurses. Thirty-five communities with less than 8,000 population also employed nurses in schools.

INDIANA.

A regulation has been adopted requiring that plans and specifications for all new construction and for all inspections of existing works in connection with water supplies and sewage disposal shall be submitted by the engineer in charge to the sanitary engineering department of the State board of health for inspection and approval before contract is made.

The child hygiene and maternity division has covered nearly every county in the State with an educational campaign and has organized mothers' classes and baby health centers.

Baby clinics have been held in most of the cities and towns of the State in cooperation with the local medical profession and with public health and welfare organizations.

The child-hygiene division has carried on an educational campaign covering practically the entire State by means of two trucks carrying exhibits, literature, moving-picture films, and lecturers.

The venereal-disease division has carried on an extensive campaign of education by means of lectures, moving pictures, and exhibits, and during the year has reached most of the Y. M. C. A.'s, Y. W. C. A.'s, many high schools, practically all colleges, and many public meetings throughout the State.

LOUISIANA.

Malaria-control work has made notable progress.

A child health center was established in the city of Baton Rouge under the auspices of the American Child Health Association and directed by the Louisiana State Board of Health.

In cooperation with the American Society for the Control of Cancer, a large amount of literature was distributed.

MAINE.

The Public Health Council reports the establishment of a division of dental hygiene.

MASSACHUSETTS.

The Kahn precipitation test is being used in the Wassermann laboratory to check specimens of serum submitted which are hemolytic.

A regular service of weekly articles of a popular nature has been established as a health educational measure.

A division of tuberculosis has for the past three years been holding clinics for the examination of selected groups of school children. A very definite program covering a period of 10 years has been carefully planned for the division of tuberculosis. It is estimated that the expense of this program will average about $50,000 per year, or $500,000 for the 10-year program.

From the experience of the past three years, it has been thought best to examine only those children that may be classified in the following groups:

(1) All children of 10 per cent or more under weight.
(2) All contacts.
(3) A small group of so-called delicate children who are unable to attend school regularly on account of frequent illness.

Fifteen per cent of the total school population are said to fall within these classes.

The State Health Department began the manufacture of sulpharsphenamine in June, 1923.

MINNESOTA.

A vital statistics agent has been appointed and is in the field a great deal of the time securing information concerning unreported births and deaths and filing complaints against those responsible for negligence. The vital statistics law, which was amended in 1921, now requires superintendents and managers in charge of hospitals, almshouses, etc., to make monthly reports to the State Board of Health of all births and deaths occurring therein. As the monthly reports from hospitals call for the name and address of the attending physician, they have an important bearing on the complaints filed against offenders.

A system of supervision of disposal of dairy products from a farm where a chronic typhoid or diphtheria carrier resides has been

developed whereby the dairyman is permitted to sell cream to an approved creamery to be manufactured into butter after first being pasteurized at a temperature of not less than 145° F. for at least 30 minutes.

Necessary precautions are taken where typhoid cases and convalescents are living on dairy farms.

During the summer of 1923 a survey of midwives of the State was made. A total of 166 were found, of whom 118 were licensed.

The regulation of the State Board covering the reporting of venereal diseases has been changed so that now, when a patient with such disease changes physicians, the second physician reports directly to the division of venereal diseases, which in turn informs the previous physician in charge. The Kolmer technique in performing the Wassermann reactions has been adopted.

MISSOURI.

A full-time epidemiologist has been employed and a fully equipped public-health laboratory has been established.

A trachoma hospital was established last year in cooperation with the United States Public Health Service. Twenty-five field clinics have been held in rural portions of the State, where considerable trachoma was found.

The Missouri Legislature accepted the provisions of the Sheppard-Towner Act and the division of child hygiene is actively engaged in infant, preschool, and school health work.

Eighteen free clinics are in operation and free salvarsan is furnished to any physician for the treatment of indigent cases.

MONTANA.

In April, 1923, the State Board of Health called a conference of State and public health officers of the Rocky Mountain district to consider Rocky Mountain spotted fever. It was at this conference that Doctor Noguchi announced a prophylactic vaccine.

NEW BRUNSWICK (CANADA).

The Government, through the Department of Health, is supplying insulin to indigent diabetic patients throughout the Province.

NEW MEXICO.

During 1923 a supervisor of county health work was employed in cooperation with the International Health Board. His duties are to give field supervision to all the county health officers and especially to the 10 who are working on a full-time basis. Two new full-time

county health departments have been created, making a total of 10 out of the 31 counties served. These full-time health units reach a little over 45 per cent of the entire population and are conducted in cooperation with the International Health Board and the United States Public Health Service.

A request has been made for an official test for admission to the birth and death registration areas.

Work in child hygiene under the Sheppard-Towner Act has been extended to a few counties that had not had the benefits of intensive work for the hygiene of mothers and infants. This work included the instruction of midwives, infant health conferences, prenatal and maternal instruction, and visits to homes for demonstration purposes. Monthly news letters are being issued to the nurses working under the direction of the bureau or in cooperation with it.

NEW YORK.

A so-called model milk code has been formulated and has been recommended for adoption by cities.

District officers have been authorized to arrange for the collection of immune measles serum.

A research bureau of the division of vital statistics has been organized and is at present engaged upon an extensive study of maternal and infant mortality, infancy, and child hygiene. An extensive study of the causes of stillbirths is also in progress.

The administration of diphtheria toxin antitoxin mixture without the Schick test in young children is being recommended.

Two new laboratory procedures, the result of experiments completed last year, have been adopted, namely, the cultural examination of blood clots from specimens of serum sent for the agglutination test and the examination of dried preparations stained by the Fontena method for the presence of *Treponema pallidum*.

The production of arsphenamine has been resumed. Human serum has been prepared for distribution from convalescent cases of measles. The practice of preparing a limited amount of human serum for emergency use from recovered cases of poliomyelitis has been resumed.

A pamphlet entitled "Standards for Maternity Care" has been completed and printed and distributed to all physicians in the State.

A study of the physical status of the preschool child was begun in December, 1923.

A series of diet cards for expectant and nursing mothers and children of preschool age has been published.

A demonstration relating to breast feeding has been carried on throughout the entire year in Nassau County.

Fifty-five mothers' health clubs have been organized for instruction by public-health nurses.

Financial aid has been extended to 10 counties and 20 municipalities from the Sheppard-Towner funds, based upon the high maternity and infant mortality rates in certain areas of the State.

PENNSYLVANIA.

A special effort is being made to place the work in the field on a full-time basis in charge of men especially trained in public-health work. To insure this special training, full-time health officers are being given an intensive six weeks' course at the United States Medical Field Service School in Carlisle.

In 30 of the districts of the State trained nurses are being employed as health officers.

A sanitary water board has been organized and has taken measures to keep clean 2,000 miles of now clean streams.

A campaign to eliminate diphtheria is being carried on by the free immunization with toxin antitoxin of all children of preschool age whose parents will accept the offer.

Tuberculosis clinics are being turned over to local communities ready to assume this responsibility.

At the last session of the legislature an antiprostitution law controlling the male as well as the female was passed.

PORTO RICO.

A bureau of social welfare has been organized, with prenatal and infantile clinics and medical inspection of schools. A service of public-health nursing is being developed.

Permanent services for the capture, throughout the island, of rats for daily laboratory examinations have been organized.

RHODE ISLAND.

The State Board of Health will inaugurate a movement to supervise the many automobile camps in the State.

SASKATCHEWAN (CANADA).

A campaign has been inaugurated to promote the use of toxin and antitoxin, which is being supplied free by the Department of Health.

A nurse who is able to speak several languages has been added to the child hygiene staff.

Municipalities are authorized to require those furnishing them milk to have their cows tested for tuberculosis.

Wax models showing the ravages of venereal disease have been exhibited under supervision at fairs and exhibits in the Province.

SOUTH CAROLINA.

Toxin antitoxin is being distributed free.

A child-health truck, accompanied by two nurses and a mechanician, has covered 30 counties, in which 6,000 children 7 years of age were examined.

Additional films have been purchased for the use of the movie health truck in rural sections.

An additional campaign has been inaugurated against rabies, which advocates the compulsory vaccination of dogs with antirabic vaccine.

Standard quinine placards have been used throughout the State as a part of the campaign against malaria.

Dental clinics among school children have been inaugurated in 13 counties. Twelve thousand typhoid inoculations were made by one county health officer from April to November, inclusive.

County campaigns against malaria have been started.

WASHINGTON.

A division of child hygiene has been created.

The index of births and deaths for the last 14 years has been reclassified, making it alphabetical instead of chronological.

An examination of the teachers and janitors in all of the schools was conducted.

Several typhoid carriers in various parts of the State were discovered, and the danger from them was eliminated.

All cross connections in water supplies in the State have been abolished.

The sanitation of the industrial camps has been added to the activities of the department.

A correspondence course has been given in hygiene of maternity and infancy.

The Washington "Mother and Baby Book" has been published.

Two new county health units have been created.

WYOMING.

An extensive program in child hygiene has been carried on, and prenatal work and field-nurse work have been undertaken.

DEATHS DURING WEEK ENDED AUGUST 23, 1924.

Summary of information received by telegraph from industrial insurance companies for week ended August 23, 1924, and corresponding week of 1923. (From the Weekly Health Index, August 26, 1924, issued by the Bureau of the Census, Department of Commerce.)

	Week ended August 23, 1924.	Corresponding week, 1923.
Policies in force	56, 783, 309	53, 202, 702
Number of death claims	8, 664	9, 309
Death claims per 1,000 policies in force, annual rate	8. 0	9. 1

Deaths from all causes in certain large cities of the United States during the week ended August 23, 1924, infant mortality, annual death rate, and comparison with corresponding week of 1923. (From the Weekly Health Index, August 26, 1924, issued by the Bureau of the Census, Department of Commerce.)

City.	Week ended Aug. 23, 1924.		Annual death rate per 1,000 corresponding week, 1923.	Deaths under 1 year.		Infant mortality rate, week ended Aug. 23, 1924.[2]
	Total deaths.	Death rate.[1]		Week ended Aug. 23, 1924.	Corresponding week, 1923.	
Total (63 cities)	5, 293	10. 3	[3] 10. 5	749	[3] 790	
Akron	22			2	5	21
Albany [4]	34	15. 0	14. 2	2	5	46
Atlanta	60	13. 7	14. 3	6	9	
Baltimore [4]	186	12. 4	11. 1	36	28	107
Birmingham	49	12. 7	13. 6	8	6	
Boston	166	11. 1	11. 5	24	20	67
Bridgeport	26			4	6	34
Buffalo	110	10. 5	11. 6	20	22	84
Cambridge	24	11. 2	8. 4	4	4	69
Camden	28	11. 6	14. 3	4	8	66
Chicago [4]	498	8. 8	9. 1	74	70	69
Cincinnati	109	13. 9	15. 4	19	22	119
Cleveland	126	7. 2	9. 6	19	24	48
Columbus	49	9. 6	11. 8	6	6	57
Dallas	45	12. 5	8. 9	6	5	
Dayton	42	12. 9	11. 3	8	5	134
Denver	74			10	10	
Des Moines	33	11. 9	9. 3	1	2	
Detroit	225			59	34	110
Duluth	11	5. 3	6. 9	2	2	43
Erie	27			3	0	62
Fall River [4]	28	12. 1	10. 3	3	4	42
Flint	17			2	5	35
Fort Worth	20	7. 0	4. 7	1	2	
Grand Rapids	21	7. 4	8. 9	0	6	0
Houston	32			5	5	
Indianapolis	92	13. 7	14. 5	12	15	88
Jacksonville, Fla	26	13. 2	12. 0	5	3	
Jersey City	64	10. 7	12. 0	6	14	43
Kansas City, Kans	26	11. 5	9. 0	7	2	135
Kansas City, Mo	92	13. 3	10. 7	17	10	
Los Angeles	180			18	27	56
Louisville	60	12. 1	10. 1	11	5	103
Lowell	25	11. 3	13. 1	6	6	107
Lynn	14	7. 0	7. 6	0	1	0
Memphis	78	23. 6	17. 8	10	4	
Milwaukee	78	8. 3	10. 5	13	20	62
Minneapolis	62	7. 7	6. 6	4	6	21
Nashville [4]	49	20. 7	14. 5	11	6	
New Bedford	17	6. 7	10. 0	3	12	47
New Haven	38	11. 3	10. 2	7	3	92
New Orleans	125	15. 9	13. 3	17	6	

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1923. Cities left blank are not in the registration area for births.
[3] Data for 61 cities.
[4] Deaths for week ended Friday Aug. 22, 1924.

Deaths from all causes in certain large cities of the United States during the week ended August 23, 1924, infant mortality, annual death rate, and comparison with corresponding week of 1923. (From the Weekly Health Index, August 26, 1924, issued by the Bureau of the Census, Department of Commerce.)—Continued.

City.	Week ended Aug. 23, 1924.		Annual death rate per 1,000 corresponding week, 1923.	Deaths under 1 year.		Infant mortality rate, week ended Aug. 23, 1924.
	Total deaths.	Death rate.		Week ended Aug. 23, 1924.	Corresponding week, 1923.	
New York	1,074	9.3	10.0	151	170	61
Bronx Borough	123	7.4	8.7	7	15	25
Brooklyn Borough	345	8.2	8.8	64	58	68
Manhattan Borough	468	10.8	11.5	62	83	63
Queens Borough	94	8.8	8.2	12	9	60
Richmond Borough	44	17.6	16.8	6	5	110
Newark, N. J.	81	9.5	11.2	10	16	47
Norfolk	35	11.1	7.5	2	4	36
Oakland	51	10.8	11.7	4	5	50
Oklahoma City	19	9.5		3		
Omaha	39	9.8	16.1	7	11	75
Paterson	22	8.2	6.7	0	0	0
Philadelphia	339	9.1	11.0	51	73	65
Pittsburgh	130	10.8	8.9	16	18	54
Portland, Oreg	60	11.3	7.6	4	5	41
Providence	58	12.4	10.8	12	12	98
Richmond	38	10.8	15.6	6	12	73
Rochester	52	8.3		3		24
St. Louis	200	12.8	11.5	22	17	
San Antonio	60	16.3	11.0	15	8	
San Francisco	126	12.0	11.0	6	4	36
Schenectady	16	8.3	11.1	2	5	59
Seattle	40			3	3	29
Somerville	7	3.6	6.3	2	2	54
Spokane	17			0	0	0
Springfield, Mass	25	8.8	6.9	9	1	152
Syracuse	39	10.8	11.3	7	8	87
Tacoma	30	15.2	6.2	2	2	48
Toledo	47	8.9	11.4	4	7	38
Trenton	38	15.3	9.4	3	4	50
Utica	15	7.4	10.1	2	2	44
Washington, D. C	88	9.4	10.8	13	13	75
Waterbury	9			2	4	46
Wilmington, Del	20	8.7	8.9	4	7	89
Worcester	46	12.3	12.2	5	6	60
Yonkers	22	10.5	10.7	5	5	109
Youngstown	31	10.4	10.7	7	8	95

MORTALITY AND BIRTH RATES FOR FIRST QUARTER OF 1924.

ANNOUNCEMENT OF PROVISIONAL FIGURES MADE BY THE DEPARTMENT OF COMMERCE.

Provisional Mortality Rates.

The Department of Commerce announces that provisional figures for the first three months of 1924 show lower death rates than for the corresponding quarter of 1923. For the States compared, the death rate for the three months was 12.6 in 1924 against 15 for the first three months of 1923.

Owing to differences in the sex and age distribution of the population, the crude death rates of States are not always comparable. Therefore, for purposes of comparison, it is customary to use adjusted rates based on what is known as the standard million population. If the ratios of the crude rates to the adjusted rates for 1920 be applied to the 1924 quarterly rates, the highest death rate for the

first quarter of 1924 is that shown for Florida, 16.6, and the lowest that for Montana, 8.3.

Death rates (exclusive of stillbirths) per 1,000 population for certain registration States.

[The 1924 figures are provisional.]

State.	Crude annual death rate per 1,000 population for—									Adjusted death rate for—	
	1924				1923						
	The quarter.	Jan.	Feb.	Mar.	The quarter.	Jan.	Feb.	Mar.	The year.	Year 1923.	First quarter 1924.
Total [1]	12.6	12.5	12.9	12.6	15.0	14.7	15.9	14.4	12.0	(2)	(2)
Colorado	13.2	13.6	13.2	12.9	15.3	14.3	15.8	15.8	12.4	12.4	13.2
Connecticut	13.2	12.2	13.5	13.8	15.5	14.6	16.2	15.6	12.0	11.4	12.5
Delaware	14.9	14.7	15.0	14.9	18.2	18.3	20.2	16.2	14.0	13.2	14.0
Florida	16.1	15.9	16.9	15.7	14.6	15.2	15.5	13.3	13.5	13.9	16.6
Georgia	12.2	11.6	13.0	12.2	12.5	14.6	11.7	11.1	11.3	(2)	-------
Idaho	6.7	6.4	7.4	6.3	8.5	8.3	8.6	8.5	7.1	(2)	(2)
Indiana	13.6	13.4	13.3	14.1	16.0	14.4	17.9	16.1	12.9	11.6	12.3
Kansas	11.4	11.6	11.1	11.4	14.7	12.6	17.1	14.7	11.6	10.1	10.4
Kentucky	10.8	11.3	11.4	9.7	15.7	16.3	16.8	14.1	11.9	11.8	10.7
Louisiana	13.7	13.2	14.8	13.1	13.4	12.2	14.9	13.3	12.1	13.5	15.3
Maine	15.0	14.7	15.1	15.1	20.1	16.9	23.7	20.2	15.0	12.1	12.0
Maryland	15.9	15.4	16.1	16.2	19.2	17.9	21.7	18.3	14.7	14.4	15.6
Massachusetts	13.3	13.3	13.3	13.3	17.3	16.5	18.8	16.6	13.0	12.1	12.4
Minnesota	10.5	10.8	10.0	10.7	12.2	10.7	13.0	13.1	10.1	9.9	10.3
Mississippi	12.0	11.6	12.5	11.9	13.1	14.4	12.7	12.0	11.4	12.4	13.1
Missouri	12.9	12.8	12.7	13.3	15.7	14.3	17.5	15.4	12.2	11.6	12.3
Montana	7.7	7.4	8.7	7.2	9.6	9.2	10.1	9.5	8.0	8.6	8.3
New Hampshire	14.2	14.4	14.9	13.4	19.4	17.4	22.7	18.2	15.1	12.0	11.3
New Jersey	13.2	12.7	13.6	13.2	16.2	14.8	18.6	15.5	12.3	12.4	13.3
North Carolina	11.5	11.9	12.4	10.4	13.9	16.2	13.3	12.3	12.0	12.7	12.2
Oregon	12.1	13.2	11.3	11.7	12.4	11.5	12.5	13.0	10.9	10.1	11.2
South Carolina	13.8	13.2	14.5	13.9	13.0	14.8	12.5	11.7	11.8	13.2	15.4
Tennessee	12.4	11.7	12.8	12.9	14.9	17.1	14.4	13.3	11.9	12.3	12.8
Vermont	14.4	14.1	14.5	14.7	19.2	15.9	22.1	19.7	15.2	11.9	11.3
Virginia	13.6	12.9	14.1	13.9	16.6	18.4	16.2	15.2	12.8	13.2	14.1
Wisconsin	11.1	11.4	11.0	11.0	13.6	11.8	15.0	14.1	10.7	10.0	10.4
Wyoming	10.2	11.5	10.0	9.1	10.8	10.0	10.7	11.6	10.3	(2)	(2)

[1] Includes only registration States from which returns have been received for the first quarter of 1924.
[2] Not available.

NOTE.—The adjusted rate makes allowance for the differences in the age and sex composition of the populations in different States, and shows what the death rate would be if all States had the same proportion of males and females and the same proportion of the total population in each age group.

Provisional Birth Rates.

Provisional birth figures for the first three months of 1924 show lower birth rates than for the corresponding three months of 1923. For the States compared, the birth rate for the first quarter of 1924 was 21.3 as compared with 22.7 for the first quarter of 1923. The highest birth rate for the quarter is 28.9, for North Carolina, and the lowest, 13.8, for Montana.

Birth rates (exclusive of stillbirths) per 1,000 population for certain States

[The 1924 figures are provisional]

State.	Annual birth rate per 1,000 population for—								
	1924.				1923.				
	First quarter.	Jan.	Feb.	Mar.	First quarter	Jan.	Feb.	Mar.	The year.
Total [1]	21.3	22.0	22.3	19.8	22.7	22.2	23.1	22.9	22.2
California	19.0	21.3	20.4	15.5	20.5	20.5	20.7	20.2	21.1
Connecticut	21.1	20.9	20.7	21.7	21.0	20.6	20.6	21.7	20.8
Delaware	19.8	20.5	19.2	19.7	19.2	18.4	20.3	19.1	19.7
Illinois	17.3	19.7	19.5	12.9	20.1	19.3	20.6	20.0	19.4
Indiana	23.1	23.0	23.3	23.2	22.5	22.0	23.5	22.3	21.7
Kansas	21.9	22.1	23.0	20.9	22.7	23.2	23.6	21.4	21.8
Kentucky	22.4	25.0	25.1	17.6	28.9	28.2	29.6	29.0	26.3
Maine	23.2	21.7	24.0	24.2	23.4	21.4	23.8	25.1	22.6
Maryland	22.4	23.3	23.8	20.2	23.7	23.7	24.4	23.0	23.0
Minnesota	21.8	21.5	21.7	22.3	23.3	21.4	23.7	24.9	22.5
Mississippi	23.0	23.0	24.1	22.2	24.1	24.0	24.5	23.8	24.0
Montana	13.8	14.5	14.4	12.5	18.0	17.1	17.7	19.3	17.1
New Jersey	22.1	22.2	22.2	21.9	22.4	22.2	23.2	21.8	22.1
New York	20.3	21.2	21.5	18.4	21.9	21.5	22.1	22.1	21.2
North Carolina	28.9	29.5	29.1	28.3	30.7	30.4	30.1	31.6	31.3
Ohio	21.0	20.8	22.0	20.4	21.3	20.8	21.8	21.4	21.0
Oregon	17.8	17.5	17.9	18.1	18.5	18.1	18.9	18.6	18.2
South Carolina	25.5	26.4	26.1	24.3	24.7	24.5	24.6	25.0	25.4
Vermont	19.7	19.0	20.3	19.9	20.8	19.3	20.8	22.3	20.8
Virginia	26.7	25.8	27.8	26.8	27.7	26.9	28.5	27.8	26.8
Wisconsin	20.6	20.2	21.1	20.5	22.2	20.9	22.1	23.5	21.5
Wyoming	20.6	20.4	23.2	18.5	23.7	24.3	22.8	24.0	23.4

[1] Includes the District of Columbia and only those reigstration States from which returns have been received for the first quarter of 1924.

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 Week Ended August 30, 1924.

ALABAMA.

	Cases.
Cerebrospinal meningitis	1
Chicken pox	1
Dengue fever	2
Diphtheria	21
Dysentery	9
Influenza	7
Malaria	218
Mumps	5
Paratyphoid fever	4
Pellagra	5
Pneumonia	7
Scarlet fever	14
Smallpox	25
Tetanus	3
Tuberculosis	23
Typhoid fever	129
Whooping cough	10

ARIZONA.

Diphtheria	1
Malta fever	1
Tuberculosis	3
Whooping cough	2

ARKANSAS.

Chicken pox	10
Diphtheria	4
Hookworm disease	1
Influenza	13
Malaria	177
Measles	20
Mumps	9
Paratyphoid fever	3
Pellagra	3
Scarlet fever	5
Smallpox	3
Tuberculosis	7
Typhoid fever	36
Whooping cough	23

CALIFORNIA.

	Cases.
Diphtheria	131
Influenza	7
Leprosy—San Francisco	1
Lethargic encephalitis:	
Los Angeles County	1
San Francisco	1
Measles	14
Poliomyelitis:	
Long Beach	1
Los Angeles	2
Los Angeles County	1
Venice	1
Scarlet fever	29
Smallpox:	
Los Angeles	15
Los Angeles County	6
Oakland	6
Scattering	17
Typhoid fever	11

COLORADO.

(Exclusive of Denver.)

Chicken pox	4
Diphtheria	6
Paratyphoid fever	2
Scarlet fever	2
Tuberculosis	58
Typhoid fever	2
Whooping cough	11

CONNECTICUT.

Cerebrospinal meningitis	1
Diphtheria	17
Influenza	1
Lethargic encephalitis	2
Measles	9
Mumps	3
Pneumonia (lobar)	5

CONNECTICUT—continued.

	Cases.
Poliomyelitis	14
Scarlet fever	13
Tuberculosis (all forms)	29
Typhoid fever	17
Whooping cough	27

DELAWARE.

Influenza	1
Malaria	1
Mumps	2
Pneumonia	1
Scarlet fever	1
Tuberculosis	1
Typhoid fever	3

DISTRICT OF COLUMBIA.

Diphtheria	8
Measles	1
Scarlet fever	7
Tuberculosis	32
Typhoid fever	1
Whooping cough	7

FLORIDA.

Cerebrospinal meningitis	1
Diphtheria	7
Malaria	20
Scarlet fever	1
Typhoid fever	11

GEORGIA.

Diphtheria	14
Dysentery	2
Hookworm disease	8
Influenza	1
Malaria	51
Mumps	8
Paratyphoid fever	1
Pneumonia	4
Scarlet fever	3
Septic sore throat	1
Smallpox	5
Tuberculosis	14
Typhoid fever	29
Whooping cough	6

ILLINOIS.

Diphtheria:	
Cook County	29
Scattering	18
Influenza	6
Measles	16
Pneumonia	85
Poliomyelitis:	
Clinton County	1
Cook County	4
Lake County	1
Sangamon County	1
Whiteside County	3
Scarlet fever:	
Cook County	18
Scattering	28
Smallpox:	
Cook County	3
Scattering	6

ILLINOIS—continued.

	Cases.
Tuberculosis	315
Typhoid fever:	
Cook County	10
Scattering	29
Whooping cough	193

INDIANA.

Chicken pox	8
Diphtheria	22
Influenza	14
Measles	14
Mumps	3
Pneumonia	2
Poliomyelitis	6
Scarlet fever	19
Smallpox	17
Tuberculosis	49
Typhoid fever	40
Whooping cough	74

IOWA.

Diphtheria	10
Scarlet fever	5

KANSAS.

Cerebrospinal meningitis	2
Chicken pox	3
Diphtheria	12
Influenza	1
Measles	4
Mumps	14
Pneumonia	5
Scarlet fever	21
Smallpox	2
Tuberculosis	27
Typhoid fever	44
Vincent's angina	1
Whooping cough	57

LOUISIANA.

Diphtheria	10
Malaria	12
Paratyphoid fever	1
Pneumonia	7
Scarlet fever	3
Smallpox	6
Tuberculosis	24
Typhoid fever	28
Whooping cough	7

MAINE.

Cerebrospinal meningitis	2
Chicken pox	1
Diphtheria	10
Malaria	1
Measles	4
Mumps	14
Pneumonia	1
Poliomyelitis	20
Scarlet fever	4
Tuberculosis	8
Typhoid fever	18
Whooping cough	29

MARYLAND.

	Cases.
Cerebrospinal meningitis	2
Chicken pox	1
Diphtheria	22
Dysentery	12
Impetgo contagiosa	2
Influenza	9
Lethargic encephalitis	1
Malaria	2
Measles	12
Mumps	2
Ophthalmia neonatorum	1
Paratyphoid fever	2
Pneumonia	11
Poliomyelitis	13
Scarlet fever	8
Tuberculosis	61
Typhoid fever	56
Vincent's angina	2
Whooping cough	36

MASSACHUSETTS.

Cerebrospinal meningitis	3
Chicken pox	4
Conjunctivitis (suppurative)	5
Diphtheria	76
Dysentery	2
German measles	7
Hookworm disease	2
Lethargic encephalitis	3
Measles	24
Mumps	21
Ophthalmia neonatorum	10
Pneumonia (lobar)	14
Poliomyelitis	16
Rabies	1
Scarlet fever	48
Tuberculosis (pulmonary)	94
Tuberculosis (other forms)	18
Typhoid fever	21
Whooping cough	42

MICHIGAN.

Diphtheria	52
Measles	14
Pneumonia	20
Scarlet fever	73
Smallpox	4
Tuberculosis	308
Typhoid fever	14
Whooping cough	74

MINNESOTA.

Chicken pox	10
Diphtheria	27
Poliomyelitis	2
Scarlet fever	48
Smallpox	24
Tuberculosis	45
Typhoid fever	15
Whooping cough	3

MISSISSIPPI.

Diphtheria	15
Scarlet fever	9
Smallpox	10
Typhoid fever	50

MISSOURI.

	Cases.
Cerebrospinal meningitis	1
Chicken pox	5
Diphtheria	35
Measles	10
Mumps	11
Ophthalmia neonatorum	1
Pneumonia	5
Rabies	1
Scarlet fever	54
Smallpox	2
Tetanus	1
Trachoma	2
Tuberculosis	42
Typhoid fever	43
Whooping cough	16

MONTANA.

Diphtheria	6
Poliomyelitis:	
Anaconda	1
Billings, R. F. D	2
Butte Creek	1
Darby	2
Missoula, R. F. D	2
Missoula	11
Scarlet fever	5
Smallpox	3
Typhoid fever	7

NEBRASKA.

Chicken pox	1
Diphtheria	7
Measles	2
Scarlet fever	6
Smallpox	7
Tetanus	1
Whooping cough	15

NEW JERSEY.

Cerebrospinal meningitis	3
Chicken pox	6
Diphtheria	50
Dysentery	1
Malaria	2
Measles	17
Pneumonia	35
Poliomyelitis	3
Scarlet fever	25
Smallpox	5
Trachoma	1
Typhoid fever	22
Whooping cough	165

NEW MEXICO.

Diphtheria	10
Measles	6
Mumps	1
Pneumonia	1
Scarlet fever	2
Tuberculosis	11
Typhoid fever	20
Vincent's angina	1
Whooping cough	8

NEW YORK.

(Exclusive of New York City.)

	Cases.
Cerebrospinal meningitis	2
Diphtheria	59
Lethargic encephalitis	1
Measles	42
Pneumonia	43
Poliomyelitis	90
Scarlet fever	36
Smallpox	2
Typhoid fever	30
Whooping cough	164

NORTH CAROLINA.

Cerebrospinal meningitis	1
Chicken pox	4
Diphtheria	159
German measles	1
Measles	19
Poliomyelitis	2
Scarlet fever	27
Smallpox	11
Typhoid fever	78
Whooping cough	91

OREGON.

Diphtheria:	
Portland	14
Scattering	17
Measles	3
Pneumonia	2
Scarlet fever	13
Smallpox	6
Typhoid fever	3
Whooping cough	5

SOUTH DAKOTA.

Chicken pox	6
Diphtheria	4
Measles	1
Poliomyelitis	2
Scarlet fever	7
Typhoid fever	3

TEXAS.

Diphtheria	16
Dysentery	8
Influenza	5
Measles	7
Mumps	3
Paratyphoid fever	1
Pellagra	2
Pneumonia	4
Poliomyelitis	2
Scarlet fever	9
Smallpox	1
Trachoma	1
Tuberculosis	13
Typhoid fever	30
Typhus fever	1
Whooping cough	17

VERMONT.

	Cases.
Chicken pox	1
Diphtheria	2
Scarlet fever	5
Whooping cough	16

WASHINGTON.

Chicken pox	9
Diphtheria	17
Measles	1
Mumps	3
Poliomyelitis:	
Okanogan	3
Seattle	2
Snohomish	1
Whatcom	1
Scattering	3
Scarlet fever	17
Smallpox	9
Tuberculosis	50
Typhoid fever	9
Whooping cough	12

WEST VIRGINIA.

Diphtheria	4
Scarlet fever	1
Typhoid fever	9

WISCONSIN.

Milwaukee:	
Chicken pox	8
Diphtheria	7
German measles	2
Measles	2
Mumps	2
Pneumonia	4
Scarlet fever	4
Tuberculosis	35
Whooping cough	27
Scattering:	
Chicken pox	6
Diphtheria	25
Influenza	2
Measles	6
Mumps	2
Pneumonia	1
Scarlet fever	33
Smallpox	10
Tuberculosis	8
Typhoid fever	1
Whooping cough	71

WYOMING.

Diphtheria	1
Dysentery	1
Influenza	1
Measles	1
Mumps	3
Pneumonia	2
Scarlet fever	4
Typhoid fever	1
Whooping cough	2

Reports for Week Ended August 23, 1924.

DISTRICT OF COLUMBIA.

	Cases.
Diphtheria	8
Measles	1
Scarlet fever	7
Tuberculosis	32
Typhoid fever	1
Whooping cough	7

NEBRASKA.

	Cases.
Diphtheria	8
Measles	3
Scarlet fever	2
Smallpox	1
Tuberculosis	2
Typhoid fever	1
Whooping cough	1

NORTH DAKOTA.

	Cases.
Chicken pox	7
Diphtheria	9
Pneumonia	1
Poliomyelitis	1
Scarlet fever	14
Smallpox	7
Tuberculosis	4
Typhoid fever	2
Whooping cough	21

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.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Poliomyelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
July, 1924.										
California	9	803	18	9	404	3	10	302	431	161
Hawaii	3	30	13	-------	28	-------	-------	-------	-------	9
Kansas	2	60	3	1	88	0	1	89	35	63
Mississippi	-------	50	93	11,938	282	840	2	21	21	448
Montana	1	23	8	-------	15	-------	2	45	46	5
North Carolina	3	114	-------	-------	248	-------	2	65	-------	352
North Dakota	-------	12	-------	-------	47	-------	-------	94	64	10
Ohio	4	205	1	2	625	0	4	367	359	155
Oregon	1	48	-------	1	18	1	-------	34	52	20
South Carolina	0	58	2	39	4	4	-------	6	11	121
Virginia	7	97	357	467	239	19	14	80	19	253
Washington	0	81	0	0	36	0	4	84	125	38
West Virginia	1	62	12	-------	103	-------	3	49	13	66

ANTHRAX—LEFLORE COUNTY, MISS.

Under date of August 9, 1924, one fatal case of anthrax was reported from Leflore County, Miss. This makes seven cases of anthrax with three deaths in that county since June 29, 1924. The situation was said to have improved greatly.

PLAGUE-INFECTED GROUND SQUIRRELS, SAN LUIS OBISPO COUNTY, CALIF.

A plague-infected ground squirrel was shot August 6, 1924, near San Luis Obispo, in San Luis Obispo County, Calif.[1]

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES.

Diphtheria.—For the week ended August 16, 1924, 34 States reported 906 cases of diphtheria. For the week ended August 18, 1923, the same States reported 1,181 cases of this disease. One hundred and

[1] Earlier reports of plague in ground squirrels in San Luis Obispo County will be found in the Public Health Reports of July 4, 1924, p. 1641, and July 11, 1924, p. 1706.

one cities, situated in all parts of the country and having an aggregate population of more than 28,600,000, reported 455 cases of diphtheria for the week ended August 16, 1924. Last year for the corresponding week they reported 594 cases. The estimated expectancy for these cities was 587 cases of diphtheria. The estimated expectancy was based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty States reported 595 cases of measles for the week ended August 16, 1924, and 1,393 cases of this disease for the week ended August 18, 1923. One hundred and one cities reported 177 cases of measles for the week this year and 409 cases last year.

Scarlet fever.—Scarlet fever was reported for the week as follows: Thirty-four States—this year, 660 cases; last year, 832 cases. One hundred and one cities—this year, 248 cases, last year, 283 cases; estimated expectancy, 243 cases.

Smallpox.—For the week ended August 16, 1924, 34 States reported 262 cases of smallpox. Last year for the corresponding week they reported 182 cases. One hundred and one cities reported smallpox for the week as follows: 1924, 88 cases; 1923, 27 cases; estimated expectancy, 30 cases. These cities reported 11 deaths from smallpox for the week.

Typhoid fever.—Seven hundred and seventy-two cases of typhoid fever were reported for the week ended August 16, 1924, by 34 States. For the corresponding week of 1923, the same States reported 880 cases. One hundred and one cities reported 231 cases of typhoid fever for the week this year and 249 cases for the week last year. The estimated expectancy for these cities was 225 cases.

Influenza and pneumonia.—Deaths for influenza and pneumonia (combined) were reported for the week by 101 cities as follows: 1924, 274 deaths; 1923, 306 deaths.

City reports for week ended August 16, 1924.

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

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1915 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city.	Chicken pox, cases reported.	Diphtheria.		Influenza.		Measles, cases reported.	Mumps, cases reported.	Pneumonia, deaths reported.	Scarlet fever.	
		Cases, estimated expectancy.	Cases reported.	Cases reported.	Deaths reported.				Cases, estimated expectancy.	Cases reported.
NEW ENGLAND.										
Maine:										
Lewiston	0	0	0	0	0	0	1	0	0	1
Portland	0	1	3	0	0	0	1	1	1	0
New Hampshire:										
Concord	0	0	0	0	0	0	0	0	0	0
Vermont:										
Barre	0	1	0	0	0	0	0	0	1	0
Burlington	0	1	0	0	0	0	0	1	1	1
Massachusetts:										
Boston	3	35	21	0	0	17	1	5	12	10
Fall River	2	2	1	0	0	0	0	0	1	0
Springfield	0	2	0	0	0	0	1	0	2	4
Worcester	----	3	9	0	0	1	----	3	2	2
Rhode Island:										
Pawtucket	0	1	0	0	0	0	0	0	0	0
Providence	0	5	7	0	0	0	0	4	2	2
Connecticut:										
Bridgeport	0	3	2	0	0	1	0	0	1	3
Hartford	0	4	3	0	0	2	1	1	1	1
New Haven	0	2	1	0	0	2	0	0	1	2
MIDDLE ATLANTIC.										
New York:										
Buffalo	5	13	8	0	0	2	8	3	5	5
New York	19	103	89	1	1	32	11	69	23	23
Rochester	----	5	1	0	0	0	----	0	3	1
Syracuse	0	5	3	0	0	3	2	2	4	3
New Jersey:										
Camden	3	2	1	0	0	0	0	0	1	0
Newark	4	7	5	0	0	4	5	4	4	1
Trenton	0	3	0	0	0	0	0	2	1	0
Pennsylvania:										
Philadelphia	----	32	29	----	2	21	----	22	14	12
Pittsburgh	1	18	10	----	1	3	5	13	6	4
Reading	0	1	3	0	0	0	4	0	0	0
E. NORTH CENTRAL.										
Ohio:										
Cincinnati	0	7	4	0	0	0	2	3	2	2
Cleveland	11	20	6	2	0	13	6	4	9	1
Columbus	1	1	3	0	0	1	0	1	2	1
Toledo	2	5	7	0	0	1	0	2	6	1
Indiana:										
Fort Wayne	----	2	1	0	0	0	----	0	0	1
Indianapolis	----	7	2	0	0	0	----	5	2	2
South Bend	0	1	0	0	0	0	0	1	1	1
Terre Haute	1	0	1	0	0	0	0	0	1	1
Illinois:										
Chicago	15	69	30	1	2	20	14	17	24	12
Cicero	0	1	0	0	0	0	0	0	0	0
Peoria	0	2	0	0	0	0	1	2	1	0
Springfield	----	1	1	0	0	1	----	0	1	0
Michigan:										
Detroit	3	34	23	0	0	5	5	9	19	13
Flint	1	5	1	0	0	1	3	1	2	15
Grand Rapids	1	2	2	0	0	0	0	2	1	2
Wisconsin:										
Madison	2	1	5	0	0	0	0	1	0	0
Milwaukee	25	10	10	0	0	10	2	3	9	3
Racine	0	0	2	0	0	0	0	1	2	2
Superior	0	1	0	0	0	0	0	0	2	1

City reports for week ended August 16, 1924—Continued.

Division, State, and city.	Chicken pox, cases reported.	Diphtheria.		Influenza.		Measles, cases reported.	Mumps, cases reported.	Pneumonia, deaths reported.	Scarlet fever.	
		Cases, estimated expectancy.	Cases reported.	Cases reported.	Deaths reported.				Cases, estimated expectancy.	Cases reported.
W. NORTH CENTRAL.										
Minnesota:										
Duluth	3	2	0	0	0	0	0	1	2	4
Minneapolis	9	11	11	0	0	0	0	2	6	11
St. Paul	----	12	8	0	0	1	----	5	3	5
Iowa:										
Sioux City	0	1	2	0	----	0	0	----	1	0
Waterloo	0	0	0	0	----	0	0	----	1	0
Missouri:										
Kansas City	0	3	0	0	0	0	0	3	2	4
St. Joseph	0	1	0	0	0	0	0	0	1	0
St. Louis	2	23	7	0	0	6	2	0	5	32
North Dakota:										
Fargo	0	1	1	0	0	0	0	0	1	1
Grand Forks	0	0	0	0	----	0	0	----	2	1
South Dakota:										
Sioux Falls	0	1	0	2	0	0	0	1	1	0
Nebraska:										
Lincoln	0	1	0	0	0	0	0	1	0	1
Omaha	1	4	7	0	0	0	1	3	1	1
Kansas:										
Topeka	0	1	2	0	0	0	8	1	1	2
Wichita	0	1	0	0	0	0	0	1	1	0
SOUTH ATLANTIC.										
Delaware:										
Wilmington	0	1	0	0	0	0	0	3	1	0
Maryland:										
Baltimore	2	11	11	2	0	10	5	13	6	1
Cumberland	----	1	0	0	0	0	----	1	1	0
Frederick	0	1	0	0	0	1	0	0	0	1
Dist. of Columbia:										
Washington	0	3	3	0	0	1	----	0	2	4
Virginia:										
Lynchburg	0	1	1	0	0	0	1	1	0	0
Norfolk	0	1	1	0	0	2	6	2	0	1
Richmond	0	4	9	0	0	0	0	2	2	3
Roanoke	0	2	2	0	0	0	2	0	1	0
West Virginia:										
Charleston	0	1	0	0	0	0	1	0	1	0
Huntington	0	1	0	0	1	0	0	0	0	0
Wheeling	0	1	2	0	0	1	0	2	1	0
North Carolina:										
Raleigh	----	0	----	----	----	----	----	----	1	----
Wilmington	----	0	0	0	0	0	----	0	0	0
Winston-Salem	0	1	6	0	0	0	0	1	0	1
South Carolina:										
Charleston	0	1	1	0	0	0	0	1	0	1
Columbia	0	1	2	0	0	0	0	0	1	0
Greenville	0	1	2	0	0	0	0	1	0	0
Georgia:										
Atlanta	0	3	0	0	0	0	0	4	3	0
Brunswick	0	0	0	0	0	0	2	0	1	0
Savannah	0	1	0	0	0	0	0	0	0	0
Florida:										
St. Petersburg	0	----	0	0	0	1	0	0	----	0
Tampa	0	1	0	0	0	0	1	1	0	0
EAST SOUTH CENTRAL.										
Kentucky:										
Covington	0	1	0	0	0	0	0	0	0	1
Louisville	0	4	2	0	0	4	0	2	1	3
Tennessee:										
Memphis	----	5	3	0	0	0	----	4	2	1
Nashville	0	1	1	0	0	0	0	1	1	0
Alabama:										
Birmingham	0	3	0	0	0	0	3	2	3	4
Mobile	0	0	1	0	0	0	0	0	0	0
Montgomery	0	1	0	0	0	0	2	1	1	1

City reports for week ended August 16, 1924—Continued.

Division, State, and city.	Chicken pox, cases reported.	Diphtheria.		Influenza.		Measles, cases reported.	Mumps, cases reported.	Pneumonia, deaths reported.	Scarlet fever.	
		Cases, estimated expectancy.	Cases reported.	Cases reported.	Deaths reported.				Cases, estimated expectancy.	Cases reported.
WEST SOUTH CENTRAL.										
Arkansas:										
Fort Smith	0	1	0	0	----	0	1	----	0	1
Little Rock	----	1	0	0	0	0	----	1	0	0
Louisiana:										
New Orleans	0	7	4	0	0	0	0	5	1	4
Shreveport	0	----	1	0	0	1	0	2	----	0
Oklahoma:										
Oklahoma	1	1	0	0	0	0	0	7	1	1
Tulsa	0	1	1	0	----	0	0	----	0	3
Texas:										
Dallas	0	4	2	0	0	0	0	0	2	3
Galveston	0	1	4	0	0	0	0	1	1	0
Houston	0	1	2	0	0	0	0	2	0	1
San Antonio	----	0	----	----	0	----	----	1	0	----
MOUNTAIN.										
Montana:										
Billings	0	0	0	0	0	0	0	0	0	0
Great Falls	0	1	1	0	0	0	0	0	1	0
Helena	0	0	3	0	0	0	0	0	0	0
Missoula	0	0	0	0	0	0	0	0	0	0
Idaho:										
Boise	1	0	0	0	0	1	0	0	1	0
Colorado:										
Denver	3	8	16	0	0	0	1	4	2	1
Pueblo	1	1	0	0	0	0	0	2	1	3
New Mexico:										
Albuquerque	----	1	1	0	0	0	----	0	0	0
Utah:										
Salt Lake City	2	2	2	0	0	0	0	1	1	0
Nevada:										
Reno	0	0	0	0	0	0	0	0	0	1
PACIFIC.										
Washington:										
Seattle	8	3	2	0	----	0	0	----	2	6
Spokane	2	2	4	0	----	1	0	----	2	1
Tacoma	4	1	4	0	----	1	2	----	1	4
California:										
Los Angeles	15	20	20	1	1	3	2	15	5	5
Sacramento	0	2	4	0	0	0	0	0	1	1
San Francisco	5	14	15	2	1	5	0	1	6	4

City reports for week ended August 16, 1924—Continued.

Division, State, and city.	Population July 1, 1923, estimated.	Smallpox.			Tuberculosis, deaths reported.	Typhoid fever.			Whooping cough, cases reported.	Deaths, all causes.
		Cases, estimated expectancy.	Cases reported.	Deaths reported.		Cases, estimated expectancy.	Cases reported.	Deaths reported.		
NEW ENGLAND.										
Maine:										
Lewiston	33,790	0	0	0	1	0	1	0	0	9
Portland	73,129	0	0	0	0	1	2	0	0	14
New Hampshire:										
Concord	22,408	0	0	0	0	0	0	0	0	6
Vermont:										
Barre	*10,008	0	0	0	0	1	0	0	0	1
Burlington	23,613	0	0	0	0	0	0	0	0	12
Massachusetts:										
Boston	770,400	0	0	0	14	4	2	1	11	173
Fall River	120,912	0	0	0	3	2	0	0	2	25
Springfield	144,227	0	0	0	0	0	7	0	6	24
Worcester	191,927	0	0	0	5	1	0	0	----	61
Rhode Island:										
Pawtucket	68,799	0	0	0	0	0	0	0	0	14
Providence	242,378	0	0	0	1	1	0	0	4	54
Connecticut:										20
Bridgeport	*143,555	0	0	0	1	0	0	1	2	22
Hartford	*138,036	0	0	0	0	2	0	0	9	
New Haven	172,967	0	0	0	1	2	4	0	7	33
MIDDLE ATLANTIC.										
New York:										
Buffalo	536,718	0	0	0	6	3	1	0	43	101
New York	5,927,625	0	0	0	[1] 82	37	32	1	246	1,106
Rochester	317,867	0	0	0	3	1	2	0	----	57
Syracuse	184,511	0	0	0	3	0	0	0	4	48
New Jersey:										
Camden	124,157	0	5	0	2	2	0	0	1	33
Newark	438,699	0	0	0	4	2	1	0	97	82
Trenton	127,390	0	0	0	1	1	0	0	3	34
Pennsylvania:										
Philadelphia	1,922,788	0	0	0	33	14	24	2	----	440
Pittsburgh	613,442	0	3	2	11	4	1	1	20	123
Reading	110,917	0	0	0	2	2	2	1	7	23
EAST NORTH CENTRAL.										
Ohio:										
Cincinnati	406,312	0	1	0	4	3	4	1	14	86
Cleveland	888,519	1	3	1	25	5	4	0	60	149
Columbus	261,082	0	0	0	2	1	0	0	8	41
Toledo	268,338	1	10	2	8	3	3	0	30	58
Indiana:										
Fort Wayne	93,573	0	3	0	1	0	0	0	----	22
Indianapolis	342,718	1	2	0	8	4	0	0	----	78
South Bend	76,709	0	0	0	1	1	0	0	0	10
Terre Haute	68,939	0	1	0	1	0	1	1	0	22
Illinois:										
Chicago	2,886,121	1	1	0	26	6	4	0	87	489
Cicero	55,968	0	0	0	0	0	0	0	2	6
Peoria	79,675	0	0	0	1	1	1	0	2	21
Springfield	61,833	0	0	0	0	1	5	1	----	15
Michigan:										
Detroit	995,668	2	5	3	16	6	7	0	99	196
Flint	117,968	0	0	2	1	2	0	0	0	22
Grand Rapids	145,947	0	0	0	2	0	1	0	2	22
Wisconsin:										
Madison	42,519	0	0	0	0	0	1	0	10	5
Milwaukee	484,595	1	0	0	4	1	2	0	21	71
Racine	64,393	1	0	0	2	0	0	0	0	17
Superior	*39,671	1	0	1	1	0	0	0	----	9
WEST NORTH CENTRAL.										
Minnesota:										
Duluth	106,289	0	1	0	1	1	0	0	0	12
Minneapolis	409,125	2	16	2	7	1	3	0	2	57
St. Paul	241,891	2	9	0	5	1	2	0	----	57

*Population Jan. 1, 1920.

[1] Pulmonary only.

City reports for week ended August 16, 1924—Continued.

Division, State, and city.	Population July 1, 1923, estimated.	Smallpox.			Tuberculosis, deaths reported.	Typhoid fever.			Whooping cough, cases reported.	Deaths, all causes.
		Cases, estimated expectancy.	Cases reported.	Deaths reported.		Cases, estimated expectancy.	Cases reported.	Deaths reported.		
WEST NORTH CENTRAL—contd.										
Iowa:										
Sioux City	79,662	1	0	------	------	0	0	------	0	------
Waterloo	39,667	0	0	------	------	0	0	------	4	------
Missouri:										
Kansas City	351,819	0	0	0	7	3	4	0	13	86
St. Joseph	78,232	0	0	0	2	0	4	0	0	26
St. Louis	803,853	0	0	0	7	8	5	1	12	172
North Dakota:										
Fargo	24,841	0	0	0	1	0	0	0	1	4
Grand Forks	14,547	0	0	------	------	0	0	------	0	------
South Dakota:										
Sioux Falls	29,206	0	0	0	0	0	0	0	0	7
Nebraska:										
Lincoln	58,761	0	0	0	0	1	0	0	4	12
Omaha	204,382	1	2	0	2	1	0	0	0	36
Kansas:										
Topeka	52,555	0	0	0	0	1	0	0	1	7
Wichita	79,261	1	0	0	0	2	4	0	2	19
SOUTH ATLANTIC.										
Delaware:										
Wilmington	117,728	0	0	0	0	1	0	0	0	25
Maryland:										
Baltimore	773,580	0	0	0	18	11	4	0	45	177
Cumberland	32,361	0	0	0	0	1	0	0	------	6
Frederick	11,301	0	0	0	0	1	0	0	0	5
District of Columbia:										
Washington	*437,571	0	0	0	10	6	8	0	5	89
Virginia:										
Lynchburg	30,277	0	0	0	0	1	1	0	3	5
Norfolk	159,089	0	0	0	0	2	3	0	0	------
Richmond	181,044	0	0	0	3	3	2	1	0	41
Roanoke	55,502	0	0	0	0	3	5	1	7	13
West Virginia:										
Charleston	45,597	0	0	0	0	2	1	1	0	10
Huntington	57,918	0	0	0	1	2	0	0	0	19
Wheeling	*56,208	0	0	0	0	1	0	0	0	17
North Carolina:										
Raleigh	29,171	0	------	------	------	0	------	------	------	------
Wilmington	35,719	0	0	0	0	1	1	0	------	7
Winston-Salem	56,230	1	3	0	1	3	0	0	0	23
South Carolina:										
Charleston	71,245	0	0	0	3	1	5	1	1	32
Columbia	39,688	0	0	0	2	2	1	0	6	16
Greenville	25,789	0	1	0	0	1	0	0	2	10
Georgia:										
Atlanta	222,963	1	2	0	3	4	5	2	4	77
Brunswick	15,937	0	0	0	0	0	1	0	0	0
Savannah	89,448	0	0	0	2	2	0	0	0	22
Florida:										
St. Petersburg	24,403	0	0	0	0	0	0	0	0	2
Tampa	56,050	0	0	0	3	0	0	0	0	19
EAST SOUTH CENTRAL.										
Kentucky:										
Covington	57,877	1	0	0	1	1	0	1	0	17
Louisville	257,671	1	5	0	9	6	1	0	5	62
Tennessee:										
Memphis	170,067	0	0	0	3	3	14	1	------	64
Nashville	121,128	0	0	0	4	6	9	2	5	42
Alabama:										
Birmingham	195,901	0	8	0	2	6	0	1	7	53
Mobile	63,858	0	0	0	1	1	0	0	0	10
Montgomery	45,383	0	0	0	0	1	0	0	0	------

*Population Jan. 1, 1920.

City reports for week ended August 16, 1924—Continued.

Division, State, and city.	Population July 1, 1923, estimated.	Smallpox.			Tuberculosis, deaths reported.	Typhoid fever.			Whooping cough, cases reported.	Deaths, all causes.
		Cases, estimated expectancy.	Cases reported.	Deaths reported.		Cases, estimated expectancy.	Cases reported.	Deaths reported.		
WEST SOUTH CENTRAL.										
Arkansas:										
Fort Smith	30,635	0	0	----	----	1	0	----	2	----
Little Rock	70,916	0	0	0	3	1	9	2	----	----
Louisiana:										
New Orleans	404,575	0	0	0	9	4	4	1	1	125
Shreveport	54,590	----	0	0	2	----	2	1	0	33
Oklahoma:										
Oklahoma	101,150	0	0	0	2	2	3	0	0	31
Tulsa	102,018	0	0	----	----	4	2	----	0	----
Texas:										
Dallas	177,274	1	0	0	4	4	11	0	8	42
Galvestou	46,877	0	0	0	0	0	0	0	1	6
Houston	154,970	0	0	0	4	1	0	0	0	33
San Antonio	184,727	0	----	0	10	0	----	1	----	----
MOUNTAIN.										
Montana:										
Billings	16,927	0	0	0	0	0	0	0	0	1
Great Falls	27,787	0	0	0	0	1	0	0	0	5
Helena	* 12,037	0	0	0	1	0	0	0	0	4
Missoula	* 12,668	0	0	0	0	1	0	0	0	2
Idaho:										
Boise	22,806	0	1	0	0	0	0	0	0	5
Colorado:										
Denver	272,031	2	0	0	17	3	1	1	0	77
Pueblo	43,519	0	0	0	0	1	2	0	0	11
New Mexico:										
Albuquerque	16,648	0	0	0	4	1	0	0	----	10
Utah:										
Salt Lake City	126,241	2	0	0	2	1	6	0	2	28
Nevada:										
Reno	12,429	0	0	0	0	1	0	0	0	2
PACIFIC.										
Washington:										
Seattle	* 315,685	2	0	----	----	1	4	----	10	----
Spokane	104,573	2	0	----	----	1	1	----	2	----
Tacoma	101,731	1	1	----	----	1	1	----	1	----
California:										
Los Angeles	666,853	0	20	0	29	5	1	1	15	189
Sacramento	69,950	0	0	0	2	2	0	0	0	13
San Francisco	539,038	1	0	0	9	2	0	0	4	124

* Population Jan. 1, 1920.

City reports for week ended August 16, 1924—Continued.

Division, State, and city.	Cerebro-spinal meningitis.		Dengue.		Lethargic encephalitis.		Pellagra.		Poliomyelitis (infantile paralysis).			Typhus fever.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases, est. expectancy.	Cases.	Deaths.	Cases.	Deaths.
NEW ENGLAND.													
Maine:													
Portland	0	0	0	0	0	0	0	0	0	2	0	0	0
Massachusetts:													
Boston	0	0	0	0	0	0	0	1	1	1	0	0	0
Fall River	0	0	0	0	0	0	0	0	1	2	0	0	0
Connecticut:													
Bridgeport	0	0	0	0	0	0	0	0	0	2	0	0	0
Hartford	0	0	0	0	1	0	0	0	0	3	0	0	0
MIDDLE ATLANTIC.													
New York:													
Buffalo	0	0	0	0	0	0	0	0	1	6	0	0	0
New York	2	1	0	0	9	4	0	0	8	9	1	0	0
Rochester	0	1	0	0	0	0	0	0	0	0	0	0	0
Syracuse	0	0	0	0	0	0	0	0	1	21	3	0	0
New Jersey:													
Newark	0	0	0	0	1	0	0	0	0	0	0	0	0
Pennsylvania:													
Pittsburgh	0	0	0	0	0	0	0	0	1	2	1	0	0
E. NORTH CENTRAL.													
Ohio:													
Cincinnati	0	0	0	0	0	0	0	0	0	1	0	0	0
Illinois:													
Chicago	2	0	0	0	0	0	0	0	6	3	0	0	0
Michigan:													
Detroit	0	0	0	0	1	0	0	0	0	15	2	0	0
W. NORTH CENTRAL.													
Missouri:													
St. Louis	0	0	0	0	0	0	0	0	1	1	1	0	0
SOUTH ATLANTIC.													
Maryland:													
Baltimore	0	0	0	0	0	0	0	0	1	14	0	0	0
District of Columbia:													
Washington	0	0	0	0	0	0	0	0	1	1	0	0	0
Virginia:													
Norfolk	0	0	0	0	0	0	0	0	0	6	0	0	0
South Carolina:													
Charleston	0	0	0	0	0	0	0	1	0	0	0	0	0
Columbia	0	0	0	0	0	0	0	1	0	0	0	0	0
Georgia:													
Atlanta	0	0	0	0	0	0	0	1	0	0	0	0	0
Florida:													
St. Petersburg	0	0	6	0	0	0	0	0	0	0	0	0	0
E. SOUTH CENTRAL.													
Kentucky:													
Louisville	0	0	0	0	1	1	0	0	0	0	0	0	0
Tennessee:													
Memphis	0	0	0	0	0	0	0	1	0	0	0	0	0
W. SOUTH CENTRAL.													
Louisiana:													
Shreveport	0	0	0	0	0	0	0	1	------	0	0	0	0
Texas:													
Galveston	1	0	0	0	0	0	0	0	0	0	0	0	0
Houston	0	0	0	0	0	1	0	0	0	0	0	0	0
MOUNTAIN.													
Montana:													
Missoula	0	0	0	0	0	0	0	0	0	7	2	0	0
PACIFIC.													
Washington:													
Seattle	0	0	0	0	0	0	0	0	0	1	0	0	0
California:													
Los Angeles	0	0	0	0	0	0	0	0	0	0	0	1	0
San Francisco	2	0	0	0	0	0	0	0	0	0	0	0	0

The following table gives a summary of the reports from 105 cities for the 10-week period ended August 16, 1924. The cities included in this table are those whose reports have been published for all 10 weeks in the Public Health Reports. Eight of these cities did not report deaths. The aggregate population of the cities reporting cases was estimated at nearly 29,000,000 on July 1, 1923, which is the latest date for which estimates are available. The cities reporting deaths had more than 28,000,000 population on that date. The number of cities included in each group and the aggregate population are shown in a separate table below.

Summary of weekly reports from cities, June 8 to August 16, 1924.

DIPHTHERIA CASES.

	1924, week ended—									
	June 14.	June 21.	June 28.	July 5.	July 12.	July 19.	July 26.	Aug. 2.	Aug. 9.	Aug. 16.
Total	911	885	891	666	693	652	560	477	538	456
New England	73	97	78	64	55	71	59	47	60	47
Middle Atlantic	405	368	387	296	301	274	222	188	197	149
East North Central	157	135	136	101	135	120	99	83	103	91
West North Central	55	65	36	50	52	36	37	40	43	38
South Atlantic	35	31	20	17	19	[1] 26	21	28	22	40
East South Central	6	4	8	1	3	2	6	3	6	7
West South Central	17	16	15	19	5	5	15	12	7	13
Mountain	15	30	30	19	36	25	14	5	10	22
Pacific	148	139	181	99	87	93	87	71	90	49

MEASLES CASES.

Total	2,847	2,302	1,857	1,186	987	676	528	406	253	178
New England	175	168	120	90	66	52	59	41	11	23
Middle Atlantic	1,287	1,051	774	535	422	283	204	160	97	65
East North Central	756	568	565	288	295	202	155	126	75	51
West North Central	97	87	63	46	29	35	22	16	11	7
South Atlantic	317	220	187	141	91	[1] 55	43	34	36	16
East South Central	32	26	19	15	15	13	6	3	2	4
West South Central	11	2	5	1	7	3	5	3	0	1
Mountain	20	33	35	22	11	7	6	7	3	1
Pacific	152	147	89	48	51	26	28	16	18	10

SCARLET FEVER CASES.

Total	1,067	973	713	563	561	441	340	369	360	248
New England	143	111	92	59	50	39	38	40	36	24
Middle Atlantic	335	331	226	186	144	114	90	73	85	49
East North Central	252	238	161	132	168	102	90	126	108	57
West North Central	160	128	102	68	100	93	65	65	61	61
South Atlantic	91	63	43	30	47	[1] 33	15	20	21	12
East South Central	6	6	1	1	7	7	7	2	3	10
West South Central	12	9	7	11	8	5	9	11	5	9
Mountain	3	13	12	16	4	14	5	7	12	5
Pacific	65	74	69	60	33	34	21	25	29	21

SMALLPOX CASES.

Total	334	346	239	159	169	158	108	116	106	93
New England	0	0	0	0	1	0	0	0	0	0
Middle Atlantic	7	10	16	19	16	17	9	9	7	8
East North Central	157	121	61	44	33	44	36	28	23	16
West North Central	33	34	41	23	47	33	13	18	15	28
South Atlantic	44	35	12	9	3	[1] 5	3	3	4	6
East South Central	22	65	36	23	21	18	13	16	8	13
West South Central	7	8	7	1	1	0	0	2	0	0
Mountain	6	10	9	5	6	4	2	2	1	1
Pacific	58	63	57	35	41	37	32	38	48	21

[1] Figures for Wilmington, Del., estimated. Report not received at time of going to press.

Summary of weekly reports from cities, June 8 to August 16, 1924—Continued.

TYPHOID FEVER CASES.

	1924, week ended—									
	June 14.	June 21.	June 28.	July 5.	July 12.	July 19.	July 26.	Aug. 2.	Aug. 9.	Aug. 16.
Total	107	132	91	128	142	197	191	191	250	232
New England	7	8	4	2	6	7	6	4	6	15
Middle Atlantic	46	58	41	46	34	50	59	59	63	63
East North Central	9	11	11	9	20	20	17	20	30	29
West North Central	5	4	5	15	12	10	11	9	22	22
South Atlantic	10	16	10	23	25	[1] 36	25	31	44	37
East South Central	8	13	3	8	10	31	29	36	40	24
West South Central	13	8	4	8	21	26	22	17	19	26
Mountain	0	4	3	6	5	4	7	4	5	9
Pacific	9	10	10	11	9	13	15	11	21	7

INFLUENZA DEATHS.

Total	15	22	13	9	11	5	3	13	8	8
New England	1	0	1	1	0	0	1	2	0	0
Middle Atlantic	6	8	3	2	5	1	0	6	3	4
East North Central	2	2	3	2	1	1	0	0	2	2
West North Central	2	1	0	0	0	1	1	2	0	0
South Atlantic	1	5	4	3	2	[1] 1	1	1	2	0
East South Central	3	3	2	1	3	0	0	1	0	0
West South Central	0	3	0	0	0	0	0	0	1	0
Mountain	0	0	0	0	0	0	0	0	0	0
Pacific	0	0	0	0	0	1	0	1	0	2

PNEUMONIA DEATHS.

Total	573	521	432	358	318	307	304	292	269	271
New England	46	28	22	19	16	14	16	17	14	14
Middle Atlantic	250	214	200	167	141	127	126	131	121	115
East North Central	108	130	91	62	55	53	58	50	51	48
West North Central	40	34	11	15	22	17	13	14	9	17
South Atlantic	51	50	50	39	39	[1] 37	35	36	29	32
East South Central	20	12	15	14	9	12	15	12	10	10
West South Central	27	24	12	16	16	22	20	11	14	12
Mountain	15	9	12	8	10	4	7	4	8	7
Pacific	16	20	19	18	10	21	14	17	13	16

[1] Figures for Wilmington, Del., estimated. Report not received at time of going to press.

Number of cities included in summary of weekly reports and aggregate population of cities in each group, estimated as of July 1, 1923.

Group of cities.	Number of cities reporting cases.	Number of cities reporting deaths.	Aggregate population of cities reporting cases.	Aggregate population of cities reporting deaths.
Total	105	97	28,898,350	28,140,934
New England	12	12	2,098,746	2,098,746
Middle Atlantic	10	10	10,304,114	10,304,114
East North Central	17	17	7,032,535	7,032,535
West North Central	14	11	2,515,330	2,381,454
South Atlantic	22	22	2,566,901	2,566,901
East South Central	7	7	911,885	911,885
West South Central	8	6	1,124,564	1,023,013
Mountain	9	9	546,445	546,445
Pacific	6	3	1,797,830	1,275,841

FOREIGN AND INSULAR.

BOLIVIA.

Communicable Diseases—La Paz—July, 1924.

During the month of July, 1924, communicable diseases were reported at La Paz, Bolivia, as follows:

Disease.	Cases.	Deaths.	Disease.	Cases.	Deaths.
Cerebrospinal meningitis	2		Scarlet fever		4
Diphtheria		2	Smallpox	5	3
Dysentery		7	Tuberculosis	17	9
Influenza		3	Typhus fever		1
Measles		6			

CUBA.

Communicable Diseases—Habana.

Communicable diseases have been notified at Habana as follows:

Disease.	Aug. 11–20, 1924.		Remaining under treatment Aug. 20, 1924.	Disease.	Aug. 11–20, 1924.		Remaining under treatment Aug. 20, 1924.
	New cases.	Deaths.			New cases.	Deaths.	
Diphtheria	2		1	Paratyphoid fever			1
Leprosy			15	Scarlet fever			1
Malaria	25		[1] 31	Typhoid fever	41	10	[2] 200
Measles	4		1				

[1] From the interior, 12.

[2] From the interior, 38.

FINLAND.

Communicable Diseases—July 1–15, 1924.

During the period July 1–15, 1924, communicable diseases were reported in Finland as follows:

Disease.	Cases.	Disease.	Cases.
Diphtheria	28	Poliomyelitis	1
Dysentery	4	Scarlet fever	42
Lethargic encephalitis	1	Typhoid fever	11
Paratyphoid fever	12		

GREECE.

Quarantine of Vessels Carrying Emigrants or Refugees.

According to information dated July 11, 1924, all vessels touching at any port in the Republic, carrying emigrants or refugees, as well as refugees traveling as third-class passengers, were made subject, from July 1, 1924, in compliance with royal decree of February 7, 1923, to a quarantine of 14 days' duration.

ITALY.

Malta Fever—Island of Sicily—Catania, City and Province.

During the week ended July 27, 1924, a case of Malta fever was reported at the city of Catania, Italy. A previous case was reported during the week ended July 20, 1924.[1] From December 31, 1923, to June 29, 1924, 21 cases of Malta fever were reported for the city of Catania and 13 cases for the Province of Catania, outside the city.

Malta Fever—Province of Syracuse.

During the week ended March 9, 1924, three cases of Malta fever were reported in the Province of Syracuse.

JAMAICA.

Smallpox (Reported as Alastrim).

During the week ended August 2, 1924, 27 new cases of smallpox (reported as alastrim) were reported in the island of Jamaica.

Chicken Pox.

During the same period four new cases of chicken pox were reported in the island.

JAPAN.

Typhoid Fever—Tokyo.

During the period June 29 to July 12, 1924, 156 cases of typhoid fever with 37 deaths were reported at Tokyo, Japan During the preceding period, June 1 to 28, 1924, 357 cases of typhoid fever with 57 deaths were reported at Tokyo. Estimated population, 1,650,000.

[1] Public Health Reports, Aug. 22, 1924, p. 2187.

MADAGASCAR.

Plague—Diego Suarez.

Information dated July 4, 1924, shows that on that date the town of Diego Suarez, on the northeast coast of the island of Madagascar, had been declared infected with plague. It was stated that measures for suppressing the outbreak were being enforced, including the inoculation of native crews handling merchandise and the prohibition of the lading of loose grain and other merchandise capable of harboring rats.

MALTA.

Communicable Diseases—July 16–31, 1924.

During the period July 16 to 31, 1924, communicable diseases were reported in the island of Malta as follows:

Disease.	Cases.	Disease.	Cases.
Lethargic encephalitis	5	Trachoma	15
Malaria	2	Tuberculosis	9
Measles	49	Typhoid fever	27
Pneumonia	1	Undulant fever	82

Estimated population 216,702.

NEW ZEALAND.

Measles—Wellington—July, 1924.

During the month of July, 1924, measles was reported, with numerous cases, in Wellington and vicinity, New Zealand. The number of cases was not reported. It was stated that the disease is not notifiable in that locality.

VIRGIN ISLANDS.

Communicable Diseases—July, 1924.

Communicable diseases were reported in the Virgin Islands of the United States during the month of July, 1924, as follows:

Island and disease.	Cases.	Remarks.	Island and disease.	Cases.	Remarks.
St. Thomas and St. John:			St. Thomas and St. John—Continued.		
Dysentery	1	Unclassified.	Uncinariasis	1	
Gonorrhea	6	1 imported; 1 St. John.	St. Croix:		
			Chancroid	3	
Pellagra	1		Dysentery	2	Unclassified.
Syphilis	3	Primary, 1; secondary, 1; nasal septum, 1.	Filariasis	8	
			Gonorrhea	1	
			Schistomiasis	1	
Tuberculosis	2	Chronic pulmonary.	Syphilis	2	Secondary.

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

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

Reports Received During Week Ended September 5, 1924.[1]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India				June 15–21, 1924: Cases, 8,453; deaths, 5,628.
Bombay	June 29–July 5	1		
Calcutta	July 6–19	33	31	
Rangoon	July 13–19	2	3	
Philippine Islands:				
Province—				
Bulacan	June 28–July 4	1		
Siam:				
Bangkok	June 22–28	1	1	

PLAGUE.

China:				
Amoy	July 13–19		3	
India				June 15–21, 1924: Cases, 4,478; deaths, 3,645.
Bombay	June 29–July 5	1	2	
Rangoon	July 13–19	22	18	
Java:				
East Java—				
Soerabaya	June 15–21	4	4	
Madagascar:				
Diego Suarez	July 4			Present.

SMALLPOX.

Bolivia:				
La Paz	July 1–31	5	3	
British South Africa:				
Northern Rhodesia	July 1–7	2		Natives.
Canada:				
New Brunswick—				
Restigouche County	Aug. 10–16	1		
China:				
Amoy	July 13–19			Present.
Foochow	July 6–12			Do.
Manchuria—				
Dairen	June 29–July 6	1	1	
Egypt:				
Cairo	May 7–20	29	5	
India				June 15–21, 1924: Cases, 2,231; deaths, 576.
Bombay	June 29–July 5	37	25	
Calcutta	July 6–19	14	10	
Karachi	July 20–26	4	2	
Madras	July 13–19	4	1	
Rangoon	do	2		
Jamaica				July 27–Aug. 2, 1924: Cases, 27 (reported as Alastrim).
Java:				
East Java—				
Soerabaya	June 15–28	80	20	
West Java—				
Batavia	July 6–12	1		
Mexico:				
Mexico City	July 27–Aug. 2	6		Including municipalities in Federal district.
Portugal:				
Oporto	July 27–Aug. 2	2	1	
Spain:				
Malaga	July 27–Aug. 9		6	
Switzerland:				
Berne	July 20–26	1		

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

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

Reports Received During Week Ended September 5, 1924—Continued.

TYPHUS FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Bolivia:				
La Paz	July 1-31		1	
Chile:				
Concepcion	July 15-21		1	
Talcahuano	July 13-26	13	3	15 cases present.
Egypt:				
Alexandria	July 16-22	2		
Cairo	May 7-20	21		
Port Said	July 24-29	2		
Mexico:				
Mexico City	July 27-Aug. 2	11		Including municipalities in Federal district.
Palestine:				
Jerusalem	July 22-28	1		Date of occurrence, July 23.

Reports Received from June 28 to August 29, 1924.[1]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India				Apr. 20-June 14, 1924: Cases, 64,982; deaths, 46,980.
Bombay	May 4-10	1		
Calcutta	May 11-June 28	298	259	
Do	June 29-July 5	30	27	
Madras	June 1-21	7	6	
Do	June 29-July 5	1		
Rangoon	May 11-June 28	98	76	
Do	June 29-July 12	14	12	
Indo-China:				
Saigon	Apr. 27-June 28	6	4	Including 100 square kilometers of surrounding country.
Philippine Islands				June 15-28, 1924; 33 cases, 22 deaths, including suspects, June 29-July 5, 1924; 4 cases, 4 deaths.
Manila	June 22-28	1		Suspect. Occurring in a nonresident.
Do	July 6-12	1	1	
Province—				
Batangas	July 1	2	2	
Bulacan	June 21	1	1	
Cagayan	Mar. 30-Apr. 5	1	1	
Laguna	May 18-24	1	1	
Rizal	July 3	1	1	
Siam:				
Bangkok	May 4-June 21	20	17	
Do	June 29-July 5	2		
Straits Settlements:				
Penang	June 1-7	1	1	
Singapore	June 15-28	9	6	
Do	June 29-July 5	2	1	
On vessel:				
S. S. Argalia		1		At Bassein, Lower Burma, India. Case in European member of crew. Case removed to hospital. Vessel left May 16, 1924; arrived June 8 at Durban, South Africa; left Durban June 10 for Trinidad and Cuba.

PLAGUE.

Algeria:				
Mostaganem	July 21-28	4		Seaport.
Argentina:				
Chaco Territory				April, 1924: Cases reported.
British East Africa:				
Kenya—				
Tanganyika Territory	Feb. 24-June 7	1	2	

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

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

Reports Received from June 28 to August 29, 1924—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Canary Islands:				
Teneriffe—				
La Laguna	June 20	1		
Ceylon:				
Colombo	May 11–June 28	11	7	Ten plague rodents.
Do	June 29–July 12	2	1	
Chile:				
Antofagasta	June 1–16	4		
China:				
Amoy	June 15–28		4	
Do	June 29–July 12		7	
Foochow	May 4–June 21		25	Cases not reported.
Ecuador:				
Eloy Alfaro	May 16–31	1		
Guayaquil	May 16–June 15	2		Rats taken, 14,987; found infected, 88.
Do	July 1–15			Rats taken, 8,546; found plague-infected, 20.
Posorja	July 1–15	1		
Egypt				June 11–30, 1924: Cases, 36. July 2–15, 1924: Cases. 8. Total Jan. 1–July 15, 1924—cases, 328 (corresponding period, preceding year—cases, 1,190).
City—				
Alexandria	Apr. 2	1	1	
Port Said	Apr. 24–May 31	2	1	
Suez	Jan. 2–June 26	11	5	
Do	June 27–July 5	2		
Province—				
Assiout	Apr. 1–June 18	40	31	
Beni-Suef	June 21	3	3	
Charkieh	Jan. 31	1	1	
Fayoum	Feb. 18–June 19	105	32	
Gharbia	Apr. 21–June 17	2	1	
Ghirga	Jan. 17–May 13	10	3	
Kalioubieh	Jan. 6–May 22	10	1	
Kena	Apr. 9–May 17	44	26	
Menoufieh	Jan. 2–June 12	48	31	
Mina	Feb. 5–June 26	39	20	
Greece:				
Kalamata				Reported July 15, 1924; Cases, 29; deaths, 6.
Patras	July 7	36		
Saloniki	July 3–4	2		
Hawaii Territory				July 15, 1924: Near Kukuihaele Island of Hawaii, one plague rat.
India				Apr. 20–June 14, 1924: Cases, 96,438; deaths, 79,346.
Bombay	May 4–June 21	50	44	
Calcutta	May 11–June 14	10	10	
Karachi	May 18–June 21	16	13	
Madras Presidency	May 18–31	7	2	
Rangoon	May 11–June 28	77	72	
Do	June 29–July 12	42	39	
Indo-China:				
Saigon	May 4–June 28	10	2	Including 100 square kilometers of surrounding country.
Iraq:				
Bagdad	Apr. 20–June 21	121	60	
Japan:				
Shidzuoka Prefecture—				
Higashi				To June 20, 1924: Cases, 2; death, 1.
Java:				
East Java—				
Soerabaya	June 8–14	10	10	
Madagascar:				
Tamatave	June 2–8		2	
Tananarive Province				Apr. 1–May 31, 1924: Cases, 116; deaths, 108.
Tananarive Town	Apr. 1–May 31	11	11	
Other localities	do	105	97	
Persia:				
Abadan	May 1–31	20	12	
Bander Abbas	do	11	6	
Bushire	do	1	1	Landed at quarantine.
Mohammerah	do	111	78	
Peru				May 1–31, 1924: Cases, 5, deaths, 5.
Lima (city)	May 1–31	3	4	
Lima (country)	do	1		
Mollendo	do	1	1	
Siam:				
Bangkok	May 4–June 14	3	3	

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

Reports Received from June 28 to August 29, 1924—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Syria:				
Beirut	Aug. 4			Present.
Union of South Africa				Apr. 27–June 7, 1924: Cases, 28; deaths, 14. Dec. 16, 1923, to May 31, 1924: Cases, 347; deaths, 206 (white, 51 cases, 26 deaths; native, 296 cases, 182 deaths).
Orange Free State				May 11–June 14, 1924: Cases, 19; deaths, 7. June 22–28, 1924: Plague-infected mouse found in Kroonstad District.
On vessel:				
S. S. Amboise	July 10	1		At Marseille, France; removed to quarantine station. Case occurred in an Arab fireman embarked at Aden. Vessel left Yokohama May 30 and Colombo, Ceylon, June 22, 1924.

SMALLPOX.

Bolivia:				
La Paz	May 1–June 30	10	9	
Brazil:				
Bahia	May 18–24	1		
Porto Alegre	May 18–June 28	1	2	
Rio de Janeiro	May 18–24	2		
Do	July 20–26	1		
British East Africa:				
Kenya—				
Mombasa	May 4–31	3		
British South Africa:				
Northern Rhodesia	May 6–June 30	74	1	Natives.
Canada:				
British Columbia—				
Vancouver	June 15–28	11		
Do	June 29–July 26	18		Not including suburbs.
Victoria	Aug. 3–9	1		
Manitoba—				
Winnipeg	July 13–Aug. 1	3		
New Brunswick—				
Restigouche County	June 1–30	7		
Do	July 6–Aug. 9	18		
Ontario				June 1–30, 1924: Cases, 24. July 1–31: Cases, 7.
Sarnia	July 20–26	1		
Windsor	June 22–28	1		
Quebec—				
Montreal	June 8–14	1		
Ceylon:				
Colombo	July 6–12	1		
Chile:				
Antofagasta	June 11	2		Under treatment at lazaretto, 2 cases.
Valparaiso	June 1–7		1	This report covers the two principal districts of Valparaiso.
China:				
Amoy	May 11–June 28			Present.
Do	June 29–July 5			Do.
Antung	June 9–29	41	3	
Do	July 7–13	4		
Chungking	May 11–June 28			Do.
Do	May 29–July 12			Do.
Foochow	May 18–June 28			Do.
Hongkong	May 4–June 28	30	24	
Do	June 29–July 12	3	3	
Manchuria—				
Dairen	May 12–June 29	22	7	
Harbin	May 13–June 23	2		
Nanking	May 18–June 28			Do.
Do	July 6–19			Do.
Shanghai	May 25–31		1	
Tientsin	May 4–June 28	11	1	British municipality.
Chosen:				
Fusan	May 1–31	1		

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

Reports Received from June 28 to August 29, 1924—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Denmark	May 18-31	3	1	
Copenhagen	do	3	1	
Egypt:				
City—				
Alexandria	June 4-10	1		
Cairo	Feb. 19-May 6	71	20	
Port Said	June 18-24	1	2	
Do	June 25-July 8	3		On April 1.
France:				
Limoges	Apr. 1-May 31		2	
Marseille	May 1-31		1	
Paris	May 21-31	2		
Gibraltar	July 21-27	1		
Great Britain:				
England and Wales				May 25-June 28, 1924: Cases, 342. June 29-July 26, 1924: Cases, 213.
Counties—				
Derby	May 25-June 28	159		
Do	June 29-July 26	66		
London	do	1		
Northumberland	May 25-June 28	61		
Do	June 29-July 26	39		
Nottingham	May 25-June 28	29		
Do	June 29-July 26	32		
Yorks (North Riding).	May 25-June 28	54		
Do	June 29-July 26	27		
Yorks (West Riding).	May 25-June 28	5		
Do	June 29-July 26	27		
Greece:				
Saloniki	Apr. 21-May 4	7	2	
Haiti:				
Port au Prince	July 6-12	2		Developed at Cape Haitien.
India				Apr. 20-June 14, 1924: Cases, 24,027; deaths, 5,550.
Bombay	May 4-June 28	432	299	
Calcutta	May 11-June 28	36	32	
Karachi	May 18-June 28	51	18	
Do	June 29-July 19	4	5	
Madras	May 18-June 28	32	10	
Do	June 29-July 12	10	1	
Rangoon	May 11-June 28	53	21	
Do	June 29-July 12	9	5	
Indo-China:				
Saigon	Apr. 27-June 28	145	79	Including 100 sq. km. of surrounding country.
Iraq:				
Bagdad	Apr. 20-May 24	8	1	
Italy:				
Messina	May 26-June 1	1		
Jamaica				June 1-28, 1924: Cases, 141. June 29-July 19, 1924: Cases, 105. (Reported as alastrim.)
Kingston	June 1-28	6		Reported as alastrim.
Do	June 29-July 19	7		Do.
Japan:				
Kobe	May 26-June 21	3		
Nagoya	June 8-14	2		
Tokio	do	1		
Java:				
East Java—				
Madoera Residency:				
Sampang	May 22			Epidemic.
Malang	May 25-31	5	1	
Soerabaya	Apr. 13-June 14	421	123	
West Java—				
Batavia	May 31-June 27	3		
Latvia				Apr. 1-May 31, 1924: Cases, 2.
Mexico:				
Durango	June 1-30		2	
Guadalajara	May 1-June 30	9	4	
Do	July 8-14		1	
Mexico City	May 4-June 28	96		Including municipalities in Federal district.
Do	June 29-July 26	28		
Salina Cruz	May 25-31	1	1	
Tampico	June 14-20	2		
Do	July 1-31	7	6	
Tuxtepec	July 3-18	3	1	State of Oaxaca.

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

Reports Received from June 28 to August 29, 1924—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Palestine				June 17-23, 1924: 20 cases in northern district.
Samaria Province—				
Samak	May 27-June 2	1		
Paraguay:				
Asuncion	June 2			Present.
Encarnacion	do			Many cases reported.
Poland				Mar. 30-June 7, 1924: Cases, 261; deaths, 21.
Portugal:				
Lisbon	May 25-June 28	7	2	
Do	June 29-July 19	2	1	
Oporto	May 11-June 28	18	16	
Do	June 29-July 26	8	9	
Russia				Jan. 1-31, 1924: 2,243 cases.
Siam:				
Bangkok	Apr. 27-June 14	3	5	
Spain:				
Barcelona				Year 1923: Cases, 160.
Malaga	June 29-July 26		7	
Valencia	June 8-21	3		
Do	July 13-19	1		
Straits Settlements:				
Singapore	May 4-24	2	1	
Sumatra:				
Medan	Jan. 1-31	5		
Switzerland:				
Berne	May 25-June 28	22		
Do	June 29-July 19	8		
Syria:				
Damascus	May 28-June 12	12		
Tunis:				
Tunis	May 27-June 30	17	4	
Do	July 1-Aug. 4	6	8	
Turkey:				
Constantinople	June 1-7	1		
Union of South Africa				Mar. 1-May 31, 1924: Cases, 133 (white, 15; native, 118). June 29-July 5, 1924: Outbreaks.
Cape Province	May 4-31			Outbreaks.
Orange Free State	May 4-10			Do.
Transvaal	May 4-31			Do.
Johannesburg	July 6-12	1		
On vessel:				
S. S. Karoa	May 7	1		At Durban, South Africa, from Bombay, India. Vessel left Bombay Apr. 16, 1924. Patient, European.
S. S. Mount Evans	July 8	1		At Key West, Fla., from Manchester, England.

TYPHUS FEVER.

Algeria:				
Algiers	May 1-June 30	24	9	
Brazil:				
Porto Alegre	June 1-7		1	
Chile:				
Antofagasta				June 16, 1924: Two cases in lazaretto.
Concepcion	May 20-26		3	
Do	July 8-14		2	
Iquique	June 22-28		1	
Talcahuano	May 25-31	2		
Do	June 29-July 12	3	1	
Valparaiso	May 25-June 21		11	
Do	June 29-July 19		5	
China:				
Antung	June 2-16	6		
Chungking	May 11-June 14			Present.
Chosen:				
Chemulpo	May 1-June 30	10		
Seoul	do	43	5	
Egypt:				
Alexandria	June 25-July 1	1		
Cairo	Feb. 19-Apr. 15	17	9	
Esthonia				Apr. 1-May 31, 1924; Cases, 32.

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

Reports Received from June 28 to August 29, 1924—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Germany:				
Coblenz	July 13–19	2		
Great Britain:				
Ireland—				
Dublin	June 8–14	1		
Do	July 13–19	1		
Lismore	July 19	1		
Longford	do	1		
Greece:				
Saloniki	Apr. 20–May 4	6		
Iraq:				
Bagdad	Apr. 27–May 10	2		
Latvia				Apr. 1–May 31, 1924; Cases, 82.
Mexico:				
Durango	July 1–31		2	
Guadalajara	May 1–June 30	2	2	
Mexico City	May 4–June 28	59		Including municipalities in Federal district.
Do	June 29–July 26	29		Do.
Torreon	July 1–31		2	
Palestine:				
Jaffa	June 17–23	1		
Do	July 8	1		
Jerusalem	July 1–7	1		
Kantara	July 15–21	1		
Poland				Mar. 30–June 7, 1924: Cases, 2,616; deaths, 252.
Portugal:				
Oporto	June 15–21		1	
Russia				Jan. 1–31, 1924: 14,275 cases.
Spain:				
Barcelona	July 10–16		1	
Syria:				
Aleppo	June 8–14	1		
Tunis:				
Tunis	May 27–June 9	4		
Turkey:				
Constantinople	May 18–June 21	7	2	
Do	July 6–19	1	1	
Union of South Africa				Mar. 1–May 31, 1924: Cases, 344; deaths, 35 (white, cases, 20; deaths, 1; native, cases, 324; deaths, 34).
Cape Province				Mar. 1–May 31, 1924: Cases, 203; deaths, 17.
Do				June 1–7: Outbreaks.
Natal				Mar. 1–May 31, 1924: Cases, 18; deaths, 3.
Do				June 1–7: Outbreaks.
Durban	Apr. 20–26	1		
Orange Free State				Mar. 1–May 31, 1924: Cases, 64; deaths, 9.
Do				June 1–July 5: Outbreaks.
Transvaal				Mar. 1–May 31, 1924: Cases, 39; deaths, 5.
Johannesburg	May 11–24	2		
Do	June 29–July 5	1		

YELLOW FEVER.

Brazil:				
Pernambuco	May 11–17	2	1	
Salvador:				
San Salvador	June 10–Aug. 25			Present in San Salvador and vicinity.

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