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SOME NUTRITION EXPERIMENTS WITH BREWERS' YEAST

With Especial Reference to its Value in Supplementing Certain Deficiencies in Experimental Rations

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In the course of an investigation on the influence of dietary deficiencies on experimental tuberculosis in the albino rat it was noted that a diet composed of 40 per cent rolled oats (6 per cent protein) plus 10 per cent purified casein supplemented with fat soluble A and inorganic salts failed to produce normal growth, such as is obtained when the rat is maintained on a synthetic diet of 16 to 18 per cent purified casein supplemented with fat soluble A, inorganic salts, and vitamin B.

McCollum, Simmonds, and Pitz, in 1917 (1) examined the dietary properties of the oat kernel and found the quality of its protein to be inferior to that of other cereal grains. They obtained better results by supplementing the oat protein with casein or with gelatin, though growth on such mixtures was still below normal.

The results we obtained with the oat-casein ration ¹ which was employed in the work referred to above (2) clearly indicated that it was lacking in some essential factor. Growth on this ration was decidedly subnormal. It was suspected that the ration did not contain a sufficient amount of the water-soluble factor. Addition of 2 per cent dried brewers' yeast to the ration, replacing an equivalent amount of starch, gave, indeed, a much better growth curve, with less individual variation. It was not clear whether the improvement was due to the yeast protein, the water-soluble vitamin, or to some other unknown factor.

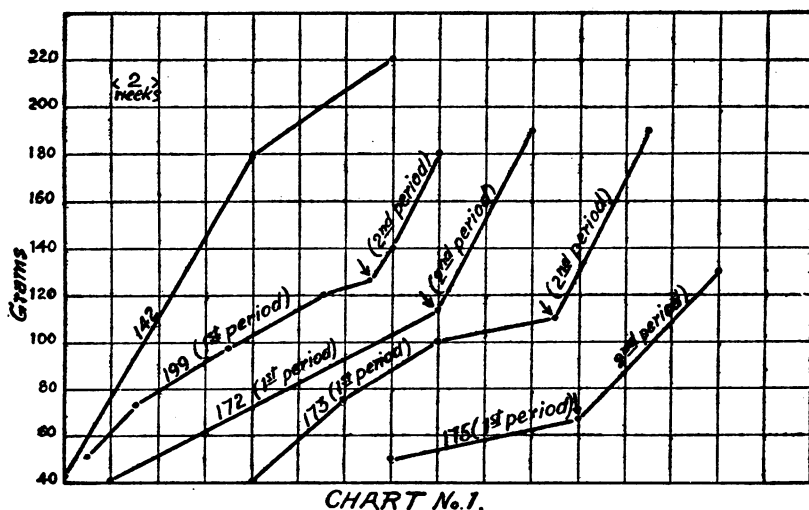
In the present work this observation was extended with a view to determining the nature of the oat deficiency and the character of the yeast constituent that is capable of correcting this deficiency.

	Per cent
¹ Rolled oats	40.0
Purified casein	10.0
NaCl	1.0
CaCO ₃	1.5
Butterfat	10.0
Starch	37.5

100.0

The experiments were carried out upon carefully selected rats from our own colony, bred and raised under standard conditions. Young males, weighing 40 to 50 grams, and about 4 weeks of age, were placed on the respective diets in groups of five or six animals each. The rations were made up by mixing intimately the various constituents and fed ad libitum. The animals were weighed once a week. The curves in the charts represent the average weights of the corresponding groups.

When rats of the above description are placed on an adequate synthetic diet, the composition of which is indicated in Table 1 under ration No. 142, good uniform growth results, which, for pur-



poses of comparison, may be regarded as normal. (See curve 142, Chart 1.)

A ration in which the oat kernel furnished all the protein (14 per cent), and supplemented with inorganic salts and vitamin A, failed to produce normal growth, as shown in the first period of curve 199 of Chart 1.

The results were no better when the protein in the oat ration was increased to 16 and 18 per cent, part of which was furnished in the form of casein or gelatin, as shown in the first periods of curves 172, 173, and 175 (Chart 1). It is evident, therefore, that neither casein nor gelatin is capable of supplementing satisfactorily the oat deficiency.

TABLE 1.—*Showing composition of rations used for the groups indicated in the curves of Charts 1 and 2*

Ration	Rollod oats	Casein ¹	Gelatin	Salt mixture 185%	Dried brewer's yeast	Autoclaved yeast	Yeast protein	Butterfat ²	Olive oil	NaCl	CaCO ₃	Starch
142.....		18.0		4.0	5.0			5.0	5.0			63.0
199 (first period).....	92.5							5.0		1.0	1.5	
199 (second period).....	86.5				6.0			5.0		1.0	1.5	
172 (first period).....	40.0	12.0						5.0	5.0	1.0	1.5	35.5
172 (second period).....	40.0	9.0			6.0			5.0	5.0	1.0	1.5	32.5
173 (first period).....	40.0	10.0		4.0				5.0	5.0			36.0
173 (second period).....	80.0				8.0			5.0	5.0	1.0	1.5	
175 (first period).....	40.0		10.0	4.0				5.0	5.0			36.0
175 (second period).....	48.0		10.0	4.0		5.0		5.0	5.0			31.0
176.....	40.0	10.0			5.0			5.0	5.0	1.0	1.5	32.5
195.....	40.0		10.0		5.0			5.0	5.0	1.0	1.5	32.5
192.....	80.0				6.0			5.0	5.0	1.0	1.5	1.5
191 (first period).....	80.0	6.0						5.0	5.0	1.0	1.5	1.5
191 (second period).....	80.0				6.0			5.0	5.0	1.0	1.5	1.5
177.....	40.0	10.0				5.0		5.0	5.0	1.0	1.5	32.5
234 (first period).....	80.0						6.0	5.0	5.0	1.0	1.5	1.5
234 (second period).....	80.0					6.0		5.0	5.0	1.0	1.5	1.5
197.....		12.0		4.0	6.0			5.0	5.0			68.0

¹ Purified by the method of McCollum et al. (3).² McCollum and Davis: Jour. Biol. Chem., 1915, 23, 235.

The addition of 5 to 6 per cent dried brewers' yeast to the oat ration produced a normal growth curve, irrespective of whether the ration contained casein, gelatin, or neither. This is shown in curves 176, 195, and 192, Chart 2. It is clear, therefore, that dried brewers' yeast satisfactorily supplements the oat kernel. The same is evident from the results of the second period of feeding of groups 199, 172, 173, Chart 1, and 191 of Chart 2, when 6 per cent yeast was either added to the oat-casein mixture or entirely replaced the casein constituent of the diet, or when it replaced an equivalent amount of oats.

It should be noted here that the suggestion that the oat kernel contains a toxic substance which might be injurious if fed in large amounts (1) is untenable, for as much as 80 per cent of oats fed in a ration supplemented with 6 per cent yeast, inorganic salts, and vitamin A, produced a normal growth curve. (See curve 192, Chart 2.)

A consideration of the results obtained thus far led us to inquire into the factor or factors present in dried brewers' yeast capable of supplementing the oat deficiency. Though the oat kernel is known to contain liberal amounts of vitamin B (1), the possibility suggested itself that the level at which oats were fed in rations 172, 173, or 175 might not furnish this vitamin in adequate amounts. To test this possibility a quantity of dried brewers' yeast was autoclaved for six hours at 15-pound pressure, which procedure completely destroyed its vitamin B content, as shown by repeated tests on rats, and this material was fed at a 5 per cent level to group 177 (Chart 2) and to

group 175 (Chart 1) during the second period of feeding. The results demonstrate that autoclaving brewers' yeast, though destroying its vitamin B content, does not impair its efficacy in supplementing the oat deficiency. The oat kernel is therefore not deficient in vitamin B, even if fed at a level of 40 per cent, but is deficient in some other factor, a factor which is present in brewers' yeast and which withstands prolonged autoclaving.

The possibility that the oat protein is deficient in some essential amino acid which is furnished in brewers' yeast suggested itself. It must be admitted, however, that on a priori grounds such a possibility is very remote; for, from what we know of the chemistry of the oat protein, it contains very liberal amounts of the essential amino acids, cystin, lysin, histidine, and arginine (4). There appears to be no definite data on its tryptophane content; but that this

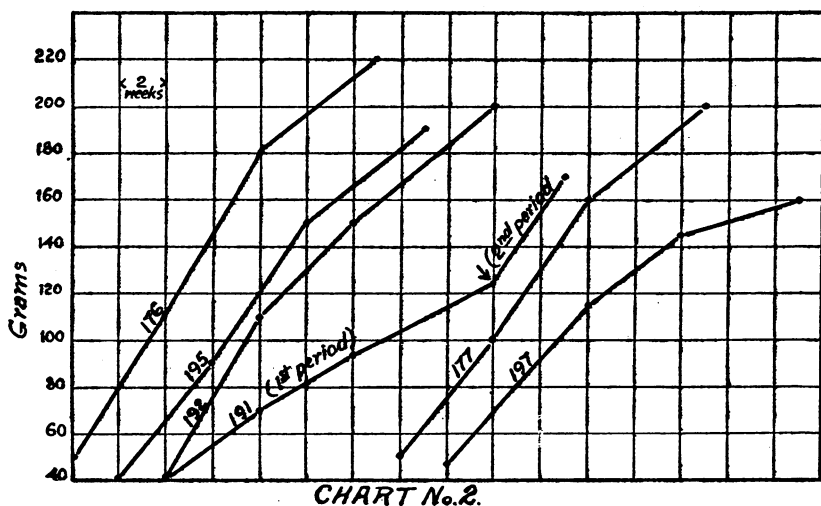


CHART No. 2.

can not be the limiting factor is shown by the fact that casein protein containing 2 per cent tryptophane (5) does not supplement oats even if fed at 10 and 12 per cent levels, while yeast with a tryptophane content of only 0.5 per cent (5) supplements it admirably when fed at 6 per cent level. Similar considerations exclude tyrosine and glutaminic acid as possible limiting factors. The matter was further put to test by feeding yeast protein² at a 6 per cent level along with 80 per cent rolled oats in a ration similar to that of 192 (ration 234). The animals showed a decidedly subnormal growth after a period of five weeks, the curve being almost exactly the same as that of 191. Upon replacing the 6 per cent yeast protein

² I am indebted for this yeast fraction to Dr. A. Seidell, of this laboratory. It consisted of the insoluble product obtained by diluting fresh brewers' yeast with about an equal volume of water, heating to 90° C., filtering, and drying.

with 6 per cent autoclaved yeast (ration 234, second period), growth was resumed and proceeded in a normal manner.

The fact that the oat protein and the casein protein do not supplement each other and that they are both adequately supplemented by brewers' yeast clearly indicates that they are both lacking in the same essential factor. In other words, a ration in which purified casein is the only source of protein, besides having to be supplemented with vitamin B and the other known essential factors, must be also supplemented with that unknown factor present in yeast in order to make it adequate. This factor, as pointed out earlier, withstands prolonged autoclaving.

In the light of these experiments it is hardly possible to regard casein protein in any way superior to oat protein. This is shown in a very striking manner by comparing curves 197 and 192. The diet in the former case consisted of 12 per cent casein protein, that in the latter of 12 per cent oat protein, both being supplemented with 6 per cent yeast. The growth curve on the oat protein diet was better. If one now compares curve 197 with 172 or 173 it is quite apparent that casein is better supplemented by 6 per cent yeast (about 3 per cent protein) than by 40 per cent oats (6 per cent protein), in spite of the fact that this amount of oats furnishes all the necessary vitamin B, as is readily seen from curve 177.

Further evidence of the correctness of the above view was secured from some experiments carried out in cooperation with Doctor Seidell while testing the activity of some of his vitamin B fractions.

Young rats weighing from 30 to 35 grams each were placed on a ration consisting of the following:

	Per cent
Casein (purified).....	18
Salt mixture 185.....	4
2 per cent vitamin B picrate (6) in milk sugar.....	1
Cod liver oil.....	2
Olive oil.....	8
Starch.....	67
	<hr/> 100

The rats consumed from 1 to 2 milligrams of the picrate per day, but failed to show any gain in weight during a period of three weeks. At the end of this time 5 per cent autoclaved yeast was added to the above ration, replacing an equivalent amount of starch, when the animals promptly began gaining in weight. It should be added that the same ration, including the autoclaved yeast but without the picrate, when fed to animals of about the same weight and age, resulted in a gradual loss in weight, and death within three to four weeks.

In another series of experiments a number of rats that had attained a weight of 90 to 110 grams on diet 142 (adequate in every respect) were placed upon a similar diet from which the yeast was omitted. In three weeks their weights declined to from 75 to 90 grams. Nine groups of animals were then selected, three in each, placed in individual cages, and fed separately from the basal ration graded amounts of a vitamin B fraction³ daily, with and without the daily addition of 500 milligrams autoclaved yeast. The results of this test, which lasted 11 days, may be summarized in the following:

Milligrams vitamin B fraction fed daily	Gain per rat in 11 days		Milligrams vitamin B fraction fed daily	Gain per rat in 11 days	
	Without autoclaved yeast	With autoclaved yeast		Without autoclaved yeast	With autoclaved yeast
25.....	20	27	2.5.....	0	9
15.....	14	27	.5.....	-7	-3
5.....	3	27			

The effect produced with the 2.5 and 5 milligrams of the yeast vitamin fraction when fed in combination with the autoclaved yeast is approximately the same as that obtained from the feeding of 200 and 500 milligrams whole dried brewers' yeast, respectively, under the same conditions. It would thus seem that this particular vitamin fraction is about one hundred times as active as whole dried brewers' yeast in its vitamin B content. Since fair growth also resulted from feeding of this fraction alone in doses of upwards of 15 milligrams, it would appear that some of the unrecognized factor in yeast is carried along with the vitamin B factor in this fraction.

CONCLUSIONS

Dried brewers' yeast contains some factor essential in nutrition other than vitamin B. This factor withstands autoclaving at 15 pounds pressure for six hours. It is not in the heat and acid coagulable yeast protein. It is capable of adequately supplementing a ration in which the oat kernel is the sole source of protein and vitamin B.

Evidence is advanced to show that a synthetic ration with casein as the sole source of protein must be supplemented with this unrecognized factor present in yeast, besides vitamin B, in order to make it adequate.

When properly supplemented, oat protein appears to be just as satisfactory in the nutrition of the rat as is casein protein.

³ I am indebted to Doctor Seidell for this vitamin fraction, a description of which will soon appear in his publication.

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THE RATE OF DEOXYGENATION OF POLLUTED WATERS¹

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The biochemical oxygen demand test to be discussed in this paper, although at present it enjoys a certain measure of renewed interest, is by no means new. The earliest record of such a procedure is probably to be found in a report published in 1870 by a British Rivers Pollution Commission. In France, oxygen demand determinations were made as long ago as 1885 in a study of the pollution of the Seine. In Germany, extensive series of experiments were conducted on the test from 1900 to 1911. In the United States, a modified procedure appears to have been used in the early experiments at the Lawrence Experiment Station, although it is only since 1915 that the method now in use has been more or less generally adopted.

It is significant both of the intrinsic merit of the biochemical oxygen demand test and, it must be admitted, of the numerous difficulties which arise in its practical application that, in a recent bibliographical review, no less than 150 references were found which dealt directly with the subject. The consensus of opinion appears to be that the test is valuable. In fact, for the purposes of stream-pollution studies, it is frequently the only chemical procedure which can be used to advantage. As a measure of the relative strength of various organic wastes and as a guide in estimating the efficiency of particular methods of treatment, the test also appears to possess decided advantages over the usual chemical procedures.

GENERAL CONSIDERATIONS

As regards the theory underlying the test, it is a well-established fact that a polluted water containing bacteria, if exposed to air, tends to become completely purified. It has been repeatedly demon-

¹ The second of four papers of a symposium on stream pollution presented at the meeting of the sanitary engineering division of the American Society of Civil Engineers at Cincinnati, Ohio, Apr. 23, 1925, and published in the *Proceedings of the Society*, Vol. LI, No. 9, November, 1925. The first paper, "A review of the work of the United States Public Health Service in investigation of stream pollution," by W. H. Frost, was published in *Public Health Reports* for January 15, 1926.

strated that definite quantities of dissolved oxygen are absorbed during this self-purification process. It follows that the quantity of oxygen required for the complete stabilization of a polluted water may be taken as a measure of its organic matter content. In the simplest case, two glass-stoppered bottles are completely filled with the sample under examination. The initial dissolved oxygen content is found by analyzing one of these subsamples at the beginning of the test. The other subsample is placed in a constant temperature chamber at 20° C. After an arbitrarily selected time, preferably five days, the sample is removed from the incubator and its oxygen content is redetermined. If bacteria and organic matter were present, a decrease in the oxygen content is invariably observed. This decrease is then reported as the five-day oxygen demand of the sample at 20° C.

A limitation of this test as outlined lies in the fact that the saturation value for the dissolved oxygen content of water at 20° C. is only 9 parts per million, corresponding to the five-day oxygen demand of a highly purified effluent or a highly polluted water. With sewage effluents of average quality, a five-day oxygen demand value of about 20 parts per million may be expected. Before the test can be applied it is necessary, therefore, to dilute such effluents with 5 or 10 volumes of fully aerated distilled water or tap water of good quality. For raw sewages, the five-day oxygen demand is generally greater than 100 parts per million, so that the samples must be diluted about fifty times in order to provide a sufficient supply of oxygen throughout the course of the test. Tannery and abattoir wastes possess oxygen demand values which range from 1,000 to 10,000 parts per million. With unusual trade wastes, five-day oxygen demand values of 50,000 parts per million have been obtained. At the other extreme, the 5-day oxygen demand of good tap water is about 0.5 part per million.

Various other methods of procedure have been proposed for determining the oxygen requirements of heavily polluted waters without resorting to dilution. The "excess-oxygen" method just described, inasmuch as it depends on the volumetric determination of dissolved oxygen, using ordinary glass-stoppered bottles, possesses the merit of extreme simplicity. Extensive series of experiments conducted at the Cincinnati Laboratory of the United States Public Health Service have amply demonstrated that the precision attainable leaves little to be desired even if it is necessary to dilute the samples before conducting the test. With suitable laboratory facilities, the dilution technique is simple.

A more serious limitation, and a limitation which is inherent in any method of procedure, is the necessity for interpreting the results in the light of time and temperature relationships. Owing to the fact

that the rate of absorption of oxygen by a polluted water is exceedingly slow, it is generally desirable to extend the incubation period over several days. Again, as the reaction is purely biochemical, the temperature at which the test is conducted must be carefully controlled. In order to correlate the laboratory results with the ever-changing time of flow and temperature conditions of a stream, it is necessary, therefore, to obtain reasonably accurate formulas by which the oxygen demand of a sample after any interval of time at any specified temperature may be calculated from the values obtained under standardized conditions.

The experiments herein described were undertaken primarily for the purpose of confirming the validity of the various time and temperature correction formulas which have thus far been proposed. The discussion will be limited to the formulas developed in the course of the Ohio River investigation.² These experiments have also demonstrated that factors other than time and temperature must be considered before a valid interpretation of the highly consistent results obtained with the "excess-oxygen" method can be made. In particular, the condition of a sample with respect to its state of oxidation and, possibly, the nature of the microorganisms present both exert a marked influence on the magnitude of the observed oxygen demand values.

EXPERIMENTAL PROCEDURE

For the purpose of securing representative samples, a large vessel was first filled with Ohio River water or, in some instances, with sewage suitably diluted. After the sample had been thoroughly mixed, it was siphoned into bottles with capacities of 350 cubic centimeters. The initial oxygen content was then determined and the remaining subsamples were incubated at 9°, 20°, or 30° C. In the course of experiments, which have extended somewhat more than a year, 12 separate series of observations have been made. In most cases the course of the deoxygenation was followed for at least one month. As a rule the experiments were conducted in duplicate, and in several instances comparative data were obtained at three different temperatures.

PRECISION OF BASE DATA

The agreement between duplicate samples was excellent, even when the incubation period extended over several months. In one series of experiments, in which a large number of subsamples were titrated after an incubation period of 96 days at 20° C., the average deviation from the mean was found to be less than 0.2 part per million. The findings in this respect are of considerable analytical interest.

² H. W. Streeter and E. B. Phelps: Public Health Bulletin No. 146, U. S. Public Health Service.

GENERAL COURSE OF DEOXYGENATION CURVE

Given the precision of the base data, the next step has been to plot the observed average oxygen demand values against the period of incubation. The type of curve obtained in a typical series of observations is illustrated by Figure 1. The data plotted in this chart are probably unique in so far as they all refer to the same sample incubated at different temperatures over prolonged periods. It is also to be noted that the oxygen demand determinations were made at relatively short intervals, so that the general course of the deoxygenation curve is reasonably well defined. At 9° C. (lower curve) there was a slight lag in the establishment of bacterial equi-

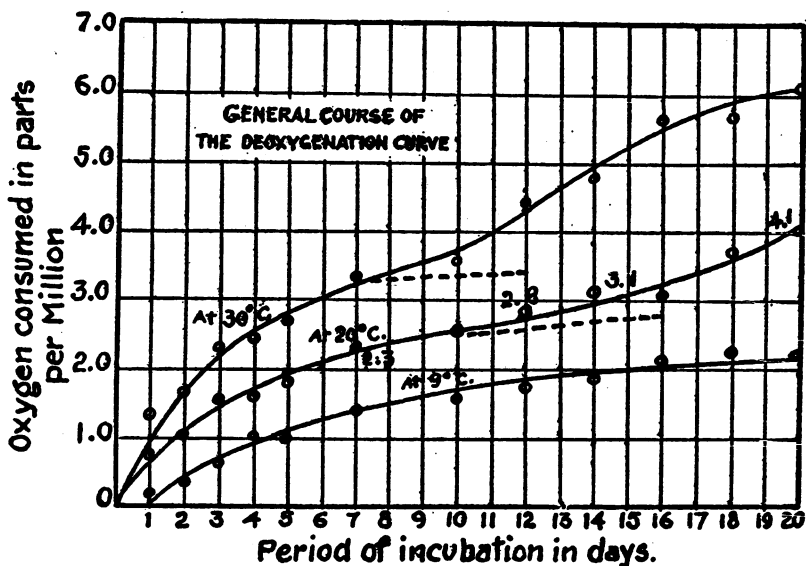


FIG. 1

librium. In other respects, however, there is a striking parallelism between the results obtained at different temperatures.

Considering only the results obtained at 20° C. (middle curve), it is evident that the rate of deoxygenation decreased very uniformly during the first 9 or 10 days. Relatively small quantities of oxygen were absorbed during the next 5 or 6 days. After the sixteenth day, the rate of deoxygenation suffered a marked acceleration. It is also noteworthy that, contrary to a generally accepted notion, appreciable quantities of dissolved oxygen continued to be absorbed even after the twentieth day. As the same phenomenon has been observed with fully aerated samples, this secondary increase in the rate of deoxygenation can hardly be ascribed to the approaching exhaustion of dissolved oxygen. In fact, within wide limits, the rate of deoxygenation is quite independent of the quantity of dissolved oxygen present.

The evidence accumulated thus far is very favorable to a view emphasized by Adeney and other British experimenters, namely, that under aerobic conditions the stabilization of organic matter proceeds in two distinct and strictly consecutive stages—the carbonaceous matter, etc., is first oxidized; then, and only then, does nitrification set in. The second point of inflection on the deoxygenation curve, therefore, marks the onset of the nitrification stage. It will be convenient to discuss these two distinct stages separately.

RATE OF DEOXYGENATION FORMULA

Considering only the average oxygen demand values corresponding to the first or carbon-oxidation stage, an attempt was next made to determine whether these results conformed with reasonable accuracy to a formula proposed some years ago by Phelps. The formula in question is based on the assumption that the rate of deoxygenation at any instant is directly proportional to the amount of organic matter present in a sample. In the differential notation:

$$\text{Rate of deoxygenation} = \frac{d(L_a - L)}{dt} = \frac{-dL}{dt} = K' L \dots \dots (1)$$

in which,

L_a = oxygen absorbed during the first stage.

L = oxygen requirement of the sample at the time, t .

K' = a constant at a given temperature.

The integration of this expression leads directly to the equation:

$$\log \frac{L_a}{L} = \log \frac{L_a}{L_a - X} = Kt \dots \dots (2)$$

in which,

X = oxygen absorbed in t days (the value generally reported as the oxygen demand of the sample).

$K = 0.4343$ K' = the deoxygenation constant.

Solving for X in equation (2), the following expression is obtained:

$$X = L_a (1 - 10^{-Kt}) \dots \dots (3)$$

By the aid of tables giving the value of the term $(1 - 10^{-Kt})$, the validity of the Phelps formula may readily be tested. It is only necessary to observe whether a value of L_a exists which satisfies the condition imposed by equation (3). The agreement between the observed and the computed values is represented graphically by the data plotted in Figure 2, where the average values obtained in 12 separate series of observations have been recorded. In order to place all values on a comparable basis, and for the sake of avoiding a multiplicity of charts, the results have been plotted, not in parts per million, but as a percentage of the oxygen absorbed during the first stage of the deoxygenation. At each temperature the line drawn through these average results is simply the graph of the expression:

$$X = L_a (1 - 10^{-Kt})$$

For periods of incubation of less than 8 days at 30° C., 10 days at 20° C., or 15 days at 9° C., the agreement between the observed and the computed percentage values is excellent.

TEMPERATURE CONVERSION FORMULAS

(a) *The value of K at different temperatures.*—It is also to be noted that in plotting the theoretical curves the value of K was computed by the equation:

$$K_T = K_{20} (1.047^{T-20}) \text{ ----- (4)}$$

in which,

K_T = the deoxygenation constant at T° C.

K_{20} = the deoxygenation constant at 20° C. = 0.100.

The indication is that, in the interval from 9° to 30° C., the deoxygenation constant is accurately defined in terms of equation (4).

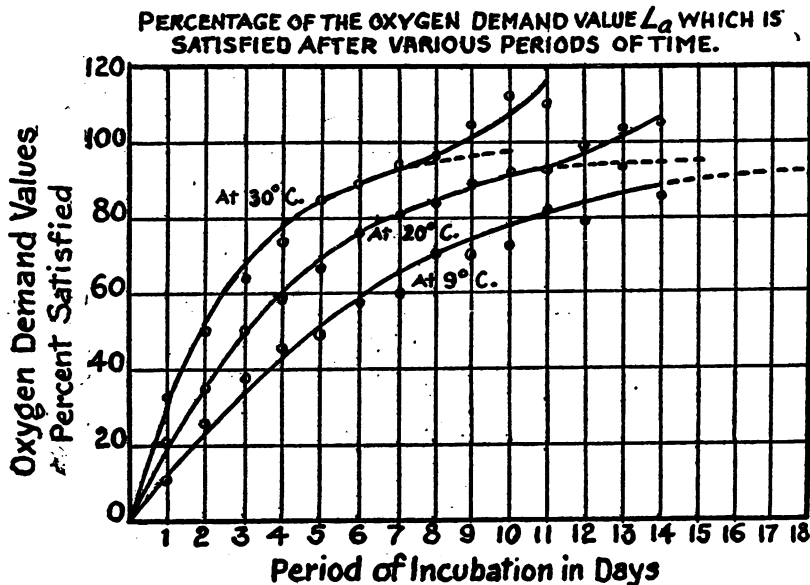


FIG. 2

(b) *The value of L_a at different temperatures.*—One further point to be considered in connection with Figure 2 is the value of L_a at different temperatures. Denoting the value of L_a at 20° C. by 100, the value of L_a at 9° C. becomes 78 ± 5 . Similarly, the relative value of L_a at 30° C. is 120 ± 7 . These values may be represented empirically by the equation:

$$(L_a)_T = (L_a)_{20} (0.02 T + 0.60) \text{ ----- (5)}$$

in which,

$(L_a)_T$ = value of L_a at T° C.

$(L_a)_{20}$ = value of L_a at 20° C.

The failure to correct for this variation in the oxidizability of a sample with a change in the temperature of incubation does not lead to serious

error when the temperature differences are small. In extreme cases a suitable correction can readily be applied.

APPLICABILITY OF FORMULAS TO STREAM-POLLUTION PROBLEMS

Within certain limits, therefore, the possibility exists of converting an oxygen value obtained at any temperature over any period of incubation into terms of the oxygen demand value which would have been obtained under any other given set of conditions. It is to be borne in mind, however, that the applicability of the formulas is restricted to heavily polluted waters, such as raw river water or recently diluted sewage. By inspection of the data plotted on Figure 1, it is obvious that an entirely different type of deoxygenation curve would be obtained if samples in a more advanced state of oxidation were to be selected. As it is seldom necessary to consider periods of flow exceeding 5 or 10 days below a point of fresh pollution, these limitations are of little consequence in stream-pollution studies. On the whole it appears safe, therefore, to conclude that, when the various formulas discussed in this paper are applied to the average values corresponding to reasonably large groups of observations on recently polluted water, the cumulative error should not exceed 10 per cent. For the purposes of stream-pollution studies, this degree of precision is entirely satisfactory.

APPLICABILITY OF FIVE-DAY OXYGEN DEMAND TEST TO SEWAGE TREATMENT PROBLEMS

From the foregoing discussion it may be inferred that for highly polluted waters the oxygen demand values obtained over relatively short periods of incubation possess a clear-cut significance, so that the interpretation of such results offers no difficulty. Attention will now be directed to samples which have reached a higher state of oxidation. The discussion will be conducted with particular reference to sewage-treatment problems.

Considering the data plotted in Figure 1, and assuming that the five-day oxygen demand of the sample at 20° C. had been determined only after a preliminary conditioning period of 7 days, corresponding to the relatively flat portion of the deoxygenation curve, the observed depletion would have been about $(2.8 - 2.3) = 0.5$ part per million. However, if the examination had been delayed for 15 days, so that nitrification was about ready to start, the observed loss of oxygen would have been about $(4.1 - 3.1) = 1.0$ part per million. Referred to a sewage effluent which had been diluted 50 times before conducting the test, the two oxygen demand values obtained would have been 25 or 50 parts per million, depending on the amount of preliminary purification which the sample had received. It is noteworthy

that under these special conditions the five-day oxygen demand of the more highly oxidized sample was apparently twice as great as that of the same sample in a less highly purified state. In part the discrepancy arises from the fact that one set of values has been selected from the relatively flat portion of the deoxygenation curve (8 to 14 days at 20° C.).

The findings in this respect have a direct bearing on the calculation of the percentage removal of organic matter effected by a treatment plant, and on similar problems in connection with the operation or the comparison of various types of treatment plants. The usual procedure is to base such calculations on the five-day oxygen demand value of the influent and effluent wastes. In the extreme case in question it is obvious that the percentage values obtained would stand in inverse relation to the purification actually accomplished. It is not inconceivable that a good measure of the efficiency commonly attributed to Imhoff tanks and similar treatment devices may be due to an effect of this nature. For filter effluents, however, the maximum effect produced by the abrupt change in the slope of the curve may generally be discounted, because the nitrification stage should be fully established when such samples are examined. The possibility of error from this source is nevertheless to be borne in mind.

As regards the time required under laboratory conditions to effect the complete oxidation of the organic matter in a polluted water, definite conclusions can hardly be drawn. On the basis of nitrite, nitrate, and free ammonia determinations, it is probably safe to conclude that at 20° C. the oxidation of the purely nitrogenous impurity is virtually completed after 40 or 50 days. Appreciable quantities of dissolved oxygen, however, continue to be absorbed even after several months of incubation at 20° C. (See Fig. 3.) The absorption of oxygen beyond the sixtieth day is probably due to the slow oxidation of celluloselike materials. As it would be impractical to conduct routine tests over such extended periods, it is obviously necessary to conclude that the ultimate oxygen demand of a sample is an indeterminate quantity.

Continuing the discussion of the results derived over long periods of incubation, it appears that when a stage of oxidation has been reached corresponding to that which obtains when a sample of raw sewage is incubated for 30 days at 20° C., the deoxygenation curve is approximately a straight line. (See Figs. 1 and 3.) The five-day oxygen demand of a given type of waste, therefore, should be a constant when a sufficiently high degree of purification is reached. It follows that the percentage purification figures computed on the basis of the five-day oxygen demand test should also tend to be constant when samples in an advanced state of oxidation are examined.

The findings in this respect are in satisfactory accord with the direct observation that the removal of organic matter effected by a representative group of treatment plants was always approximately 90 per cent when partly nitrified effluents only were considered. In view of wide variations in the strength of the raw sewages, in the nature of the treatment devices, and in the methods of operation, this approximate constancy³ of the percentage purification values obtained was an unlooked-for result.

Finally, it need hardly be pointed out that a statement to the effect that the five-day oxygen demand of a sample is, say, 20 parts per million, is of little significance unless a great deal is known concerning the nature or, more precisely, the state of oxidation of the

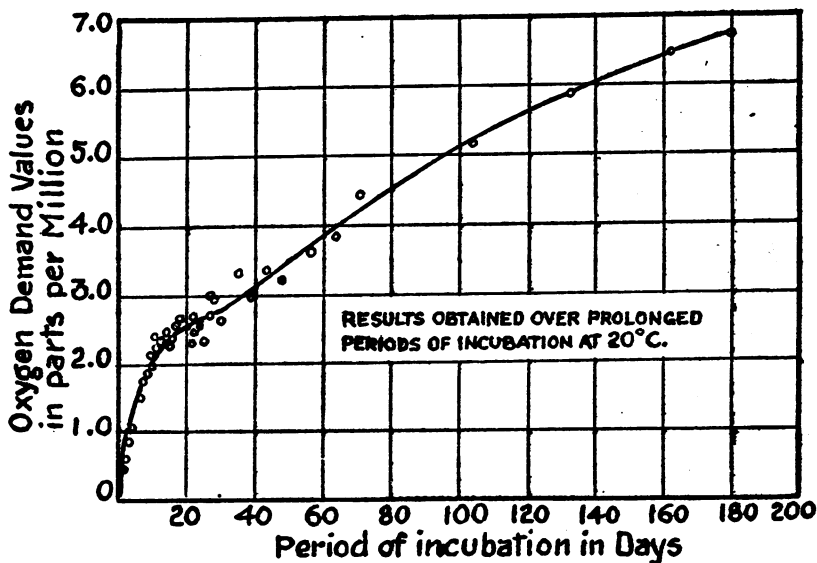


FIG. 3

sample. Thus, a five-day oxygen demand value of 20 parts per million could be referred, with equal reason, to the middle or relatively flat portion of the deoxygenation curve, corresponding to a highly polluted sample, or to the last portion when the nitrification stage has been virtually completed.

CORRESPONDENCE BETWEEN ANALYTICAL DATA AND OBSERVED NATURAL CONDITIONS

The results thus far presented, although indicative of great uniformity, could hardly be referred to natural conditions without further supporting data. Evidence to the effect that the oxygen demand values obtained during the first stage of the oxidation are

³ Sewage treatment in the United States. Public Health Bulletin No. 132, U. S. Public Health Service, p. 29.

directly related to the quantity of organic matter present is given in Table 1. Using the five-day oxygen demand of a raw sewage as a measure of its organic matter content, and given the contributing population and the total flow of sewage, the per capita contribution of organic matter has been computed for places where fairly accurate data were available. The average per capita oxygen requirement is 51.1 grams per day, with an average deviation from this figure of 5 grams. The high value obtained at Columbus, Ohio, is probably due to the presence of relatively large quantities of industrial wastes. Omitting the Columbus result, the average per capita oxygen demand is 48.8 ± 3.1 grams per day. The constancy of the per capita values is remarkable and leads to the conclusion that the five-day oxygen demand of a raw waste is directly proportional to the concentration of organic matter present. Moreover, it is apparent that the rate of deoxygenation of diluted raw sewage is not subject to extreme variations; otherwise, the per capita values derived with different sewages would not be consistent.

TABLE 1.—*Per capita oxygen demand values*

(Base data from Public Health Bulletin No. 132, p. 115.)

Locality	Results, in parts per million			
	Five-day oxygen demand actually observed	Per capita oxygen demand daily	Deviation from mean, d_1	Deviation from mean, d_2
Alliance, Ohio.....	92	45.6	5.5	3.2
Baltimore, Md.....	120	45.1	6.0	3.7
Canton, Ohio.....	213	51.6	0.5	2.8
Columbus, Ohio.....	190	67.6	16.5	-----
Fitchburg, Mass.....	155	51.6	0.5	2.8
Lexington, Ky.....	144	48.5	2.6	0.3
Reading, Pa.....	118	45.1	6.0	3.7
Rochester, N. Y.....	104	53.9	2.8	5.1
Average ¹		51.1	± 5.0	-----
Average ²		48.8	-----	± 3.1

¹ To include all observations.² Omitting the Columbus results.

As regards the general course of the oxidation of organic matter under natural conditions, it is well established that, in sewage treatment, nitrification does not begin until considerable preliminary purification has been effected. Moreover, it has recently been demonstrated in experiments conducted at the New Jersey Agricultural Experiment Station that, even in a filter bed, the onset of the nitrification stage is sharply defined. In the Illinois River investigation, nitrification was not observed until a point far removed from the source of initial pollution had been reached. The

exhaustive studies of the Royal Commission on Sewage Disposal of Great Britain also afford instances where the deoxygenation curve represented by Figure 1 was clearly reproduced in streams. Similar curves were also obtained using undiluted sewage. It appears reasonable to assume, therefore, that the phenomena observed in the laboratory actually correspond to natural conditions.

CONCLUSIONS

As a result of the foregoing, the following conclusions have been reached:

1. The Phelps formula holds with reasonable accuracy when applied to samples recently polluted with organic matter.
2. For periods of incubation of less than 10 days it is possible to refer the results obtained under standardized laboratory conditions to the actual times of flow and temperatures of a stream.
3. Under aerobic conditions the stabilization of organic matter apparently proceeds in two distinct stages.
4. The rate at which a polluted water is deoxygenated depends largely on the condition of the sample with respect to its state of oxidation.
5. It is necessary to exercise considerable caution in interpreting the results of analyses when the nitrification stage has almost been reached.
6. Absolute values for the purification accomplished by a treatment plant can not be obtained without resorting to protracted incubation.
7. A complete solution of the problem probably depends on the development of methods whereby the state of oxidation of a sample may be determined more readily.

PNEUMONIA (ALL FORMS) AND INFLUENZA

DEATHS IN LARGE CITIES OF THE UNITED STATES DURING THE FIRST THREE WEEKS OF JANUARY, 1925 AND 1926

The following tables give the numbers of deaths from pneumonia (all forms) and influenza during the periods from January 3 to 23, 1926, and from January 4 to 24, 1925, in 72 large cities of the United States. The figures were taken from reports of the health officers of the cities.

PNEUMONIA (ALL FORMS) \

	Week ended—					
	Jan. 10, 1925	Jan. 9, 1926	Jan. 17, 1925	Jan. 16, 1926	Jan. 24, 1925	Jan. 23, 1926
Atlanta.....	10	6	27	12	17	17
Baltimore.....	59	53	56	60	49	56
Birmingham.....	12	13	8	13	18	13
Boston.....	23	37	27	37	40	30
Bridgeport.....	3	4	4	2	3	6
Buffalo.....	9	17	18	11	5	12
Cambridge, Mass.....	5	5	4	2	9	1
Camden.....	5	10	6	8	7	12
Canton.....	5	3	7	8	4	7
Chicago.....	82	89	86	78	75	58
Cincinnati.....	14	10	16	20	19	21
Cleveland.....	21	52	20	29	20	28
Columbus, Ohio.....	8	6	4	6	11	11
Dallas.....	6	10	12	16	15	17
Denver.....	15	6	16	20	21	12
Detroit.....	43	52	41	48	48	29
Duluth.....	3	5	4	4	1	1
Elizabeth.....	7	7	7	4	4	2
El Paso.....	7	8	8	5	3	3
Erie.....	3	5	8	1	1	6
Fall River.....	3	2	2	1	3	3
Flint.....	2	2	1	1	4	4
Fort Worth.....	3	7	12	7	7	5
Grand Rapids.....	4	3	1	4	1	2
Hartford.....	6	8	4	10	6	8
Houston.....	9	17	12	12	11	7
Indianapolis.....	20	13	10	11	24	16
Kansas City, Kans.....	6	6	2	8	15	1
Kansas City, Mo.....	12	11	17	8	15	7
Los Angeles.....	23	34	25	16	33	27
Louisville.....	13	23	6	10	10	12
Lowell.....	5	9	4	3	3	1
Lynn.....	1	4	2	2	1	1
Memphis.....	11	13	9	11	19	11
Milwaukee.....	14	17	16	16	19	19
Minneapolis.....	6	11	5	17	9	15
Nashville.....	7	9	7	13	3	3
New Bedford.....	3	6	5	5	5	8
New Haven.....	5	3	10	8	11	7
New Orleans.....	16	22	26	26	12	17
New York.....	287	248	280	286	254	261
Newark.....	22	19	20	25	9	19
Norfolk.....	6	8	5	2	4	5
Oakland.....	9	5	10	6	6	5
Oklahoma City.....	4	5	2	7	3	3
Omaha.....	6	15	5	9	15	5
Philadelphia.....	96	101	114	92	99	99
Pittsburgh.....	16	42	53	27	66	7
Portland, Oreg.....	14	8	7	12	7	11
Providence.....	3	22	7	11	10	9
Rending.....	2	4	4	4	6	6
Richmond.....	7	6	5	5	14	13
Rochester.....	5	8	4	8	9	10
St. Paul.....	7	12	10	10	8	5
Salt Lake City.....	4	4	5	9	6	12
San Antonio.....	11	11	26	9	14	16
San Diego.....	4	6	3	6	1	1
San Francisco.....	18	17	11	13	7	14
Schenectady.....	8	4	6	1	3	3
Scranton.....	2	10	10	10	1	2
Somerville.....	2	5	6	1	2	2
Springfield, Mass.....	3	1	1	2	6	3
Syracuse.....	3	7	6	6	4	4
Tacoma.....	3	2	4	3	4	4
Toledo.....	0	11	6	9	6	11
Trenton.....	7	4	8	7	6	6
Washington.....	13	32	15	30	10	35
Waterbury.....	5	6	3	7	4	1
Wilmington, Del.....	5	7	7	7	2	3
Worcester.....	1	20	4	12	2	12
Yonkers.....	4	1	1	5	5	4
Youngstown.....	5	6	9	5	9	4

INFLUENZA

	Week ended—					
	Jan. 10, 1925	Jan. 9, 1926	Jan. 17, 1925	Jan. 16, 1926	Jan. 24, 1925	Jan. 23, 1926
Atlanta.....	1	1	3	2	1	1
Baltimore.....	7	5	9	5	3	13
Birmingham.....	2	4	2	6	3	1
Boston.....	2	2	3	2	1	1
Bridgeport.....	1	1	2	1	1	1
Buffalo.....	1	2		2	4	2
Cambridge, Mass.....					1	
Camden.....	2		1		1	1
Canton.....	1	1				1
Chicago.....	4	4	5	2	11	6
Cincinnati.....	5	4	6	4	3	2
Cleveland.....	5	5	1	2	3	
Columbus, Ohio.....		1		1	2	2
Dallas.....	1	3	1	2	2	3
Denver.....	1	5	3	6	1	2
Detroit.....	2	1	3	1	1	
Duluth.....						
Elizabeth.....	1			1		
El Paso.....			5	3	7	5
Eric.....		1			1	4
Fall River.....	2					
Flinn.....						
Fort Worth.....		1				
Grand Rapids.....	1	1	1	2	1	
Hartford.....			1	1		1
Houston.....	1		1	5	3	
Indianapolis.....	1		1	1	1	
Kansas City, Kans.....				3	7	1
Kansas City, Mo.....	5	2				
Los Angeles.....	2	3	2		1	1
Louisville.....	1	1		2	1	
Lowell.....		1				
Lyann.....						
Memphis.....		6	3	4	3	3
Milwaukee.....	1	1	1	1	2	1
Minneapolis.....		1				
Nashville.....	2	3	2	3	3	6
New Bedford.....						
New Haven.....			1		1	
New Orleans.....	5	6	6	8	9	14
New York.....	19	21	19	17	24	16
Newark.....		3				
Norfolk.....						
Oakland.....		4		2		2
Oklahoma City.....	1				2	1
Omaha.....					1	
Philadelphia.....	9	6	11	9	9	5
Pittsburgh.....	5	3	4	3	1	
Portland, Oreg.....						
Providence.....			2	1		
Reading.....						
Richmond.....	1		1	1	4	1
Rochester.....	1		1	1		
St. Paul.....		1		2		3
Salt Lake City.....						
San Antonio.....	1	1	8		4	2
San Diego.....		1				4
San Francisco.....	3	10	1	11	2	8
Schenectady.....		3			2	1
Scranton.....			1			
Somerville.....						
Springfield, Mass.....	2	1	2		1	
Syracuse.....						
Tacoma.....						
Toledo.....		4		1	2	1
Trenton.....	2	2				4
Washington.....	3	2	4	2		2
Waterbury.....		1	1			1
Wilmington, Del.....						
Worcester.....						
Yonkers.....			2			
Youngstown.....				1		

DEATHS DURING WEEK ENDED JANUARY 23, 1926

Summary of information received by telegraph from industrial insurance companies for week ended January 23, 1926, and corresponding week of 1925. (From the Weekly Health Index, January 26, 1926, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan. 23, 1926	Corresponding week, 1925
Policies in force.....	62, 860, 526	58, 444, 053
Number of death claims.....	13, 869	12, 053
Death claims per 1,000 policies in force, annual rate.....	11. 5	10. 8

Deaths from all causes in certain large cities of the United States during the week ended January 23, 1926, infant mortality, annual death rate, and comparison with corresponding week of 1925. (From the Weekly Health Index, January 26, 1926, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 23, 1926		Annual death rate per 1,000 corre- sponding week, 1925	Deaths under 1 year		Infant mortality rate week ended Jan. 23, 1926 ¹
	Total deaths	Death rate ¹		Week ended Jan. 23, 1926	Corre- sponding week, 1925	
Total (68 cities).....	8, 289	14. 9	14. 2	914	942	74
Akron.....	50			10	3	106
Albany.....	54	23. 9	18. 1	6	3	126
Atlanta.....	78			18	11	
White.....	38			8		
Colored.....	40	(²)		10		
Baltimore.....	283	18. 5	17. 0	29	20	85
White.....	229			19		68
Colored.....	54	(²)		10		162
Birmingham.....	73	18. 5	15. 7	13	7	
White.....	39			8		
Colored.....	34	(²)		5		
Boston.....	237	15. 9	16. 7	18	32	51
Bridgeport.....	43			9	4	153
Buffalo.....	160	15. 5	12. 3	18	19	75
Cambridge.....	29	12. 6	21. 4	1	7	17
Camden.....	39	15. 8	17. 8	7	9	118
Canton.....	26	12. 8	12. 3	4	4	89
Chicago.....	694	12. 1	12. 5	78	103	69
Cincinnati.....	137	17. 5	18. 3	7	20	44
Cleveland.....	186	10. 4	11. 2	25	32	65
Columbus.....	88	16. 4	16. 4	9	8	83
Dallas.....	61	16. 4	17. 0	7	17	
White.....	42			6		
Colored.....	19	(²)		1		
Dayton.....	32	9. 6	9. 6	5	2	79
Denver.....	66	12. 3	18. 6	10	13	
Des Moines.....	40	14. 0	7. 3	3	5	50
Detroit.....	348	14. 6	10. 6	72	38	116
Duluth.....	20	9. 4	7. 1	4	4	94
El Paso.....	33	16. 4	19. 9	4	10	
Erie.....	39			4	5	76
Fall River.....	37	15. 0	8. 5	6	5	87
Flint.....	17	6. 8	5. 2	4	2	66
Fort Worth.....	28	9. 6	9. 2	2	3	
White.....	22			2		
Colored.....	6	(²)		0		
Grand Rapids.....	35	11. 9	13. 2	4	4	58
Houston.....	48	15. 2	19. 9	7	10	
White.....	32			4		
Colored.....	16	(²)		3		
Indianapolis.....	102	14. 8	14. 8	7	7	51
White.....	86			4		34
Colored.....	16	(²)		3		165
Jacksonville, Fla.....	52	25. 8	17. 4	5	2	109
White.....	27					
Colored.....	25	(²)		1		

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 1924. Cities left blank are not in the registration area for births.

³ Data for 63 cities.

⁴ Deaths for week ended Friday, Jan. 22, 1926.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentage of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 33, Richmond 32, and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended January 23, 1926, infant mortality, annual death rate, and comparison with corresponding week of 1925. (From the Weekly Health Index, January 26, 1926, issued by the Bureau of the Census, Department of Commerce)—Continued.

City	Week ended Jan. 23, 1926		Annual death rate per 1,000 corresponding week, 1925	Deaths under 1 year		Infant mortality rate week ended Jan. 23, 1926
	Total deaths	Death rate		Week ended Jan. 23, 1926	Corresponding week, 1925	
Jersey City.....	90	14.9	13.9	12	10	85
Kansas City, Kans.....	25	11.2	14.4	1	10	17
White.....	15			1		21
Colored.....	10	(⁹)		0		0
Kansas City, Mo.....	94	13.3	13.6	9	12	
Los Angeles.....	248			25	28	69
Louisville.....	92	15.9	14.0	7	5	60
White.....	76			6		60
Colored.....	16	(⁹)		1		63
Lowell.....	35	16.5	9.9	5	1	93
Lynn.....	28	14.2	14.2	2	1	50
Memphis.....	70	20.9	29.0	12	8	
White.....	39			7		
Colored.....	31	(⁹)		5		
Milwaukee.....	117	12.2	10.0	21	20	97
Minneapolis.....	102	12.5	12.9	10	19	56
Nashville.....	63	24.1	16.8	5	9	
White.....	39			3		
Colored.....	24	(⁹)		2		
New Bedford.....	33	14.4	10.9	5	5	87
New Haven.....	48	14.0	16.0	0	5	0
New Orleans.....	181	22.8	20.4	15	21	
White.....	118			10		
Colored.....	63	(⁹)		6		
New York.....	1,689	15.9	14.2	176	160	71
Bronx Borough.....	207	12.4	11.3	12	13	40
Brooklyn Borough.....	589	13.9	13.4	66	59	67
Manhattan Borough.....	710	19.0	18.2	77	73	85
Queens Borough.....	146	10.7	9.8	17	15	77
Richmond Borough.....	37	14.0	12.4	4	0	70
Newark, N. J.....	118	13.6	14.6	16	18	77
Norfolk.....	39			1		19
White.....	23			1		30
Colored.....	16	(⁹)		0		0
Oakland.....	73	15.0	12.1	8	7	93
Oklahoma City.....	23			1	5	
Omaha.....	62	15.3	14.5	7	8	73
Paterson.....	31	11.4	14.7	2	2	35
Philadelphia.....	603	15.9	14.8	69	54	92
Pittsburgh.....	176	14.5	19.0	19	32	63
Portland, Oreg.....	74	13.7	12.2	4	3	41
Providence.....	63	12.3	13.4	3	6	25
Richmond.....	75	21.0	20.1	12	8	151
White.....	34			1		20
Colored.....	41	(⁹)		11		385
Rochester.....	103	17.0	11.9	9	5	72
St. Louis.....	249	15.8	15.9	24	22	
St. Paul.....	43	9.1	12.7	2	4	18
Salt Lake City.....	42	16.7	13.1	5	6	69
San Antonio.....	77	20.3	18.2	13	15	
San Diego.....	41	20.2	23.6	1	5	21
San Francisco.....	226	21.1	14.8	9	7	54
Schenectady.....	29	16.3	18.0	2	6	58
Seattle.....	70			3	6	28
Somerville.....	26	13.7	10.0	3	2	78
Springfield, Mass.....	30	11.0	12.5	1	5	14
Syracuse.....	47	13.5	13.8	4	6	51
Tacoma.....	20	10.0	10.0	2	0	47
Toledo.....	89	16.1	11.4	11	13	107
Trenton.....	54	21.3	19.0	11	5	184
Washington, D. C.....	181	19.0	14.7	17	13	96
White.....	131			10		
Colored.....	50	(⁹)		7		
Waterbury.....	28			4	4	86
Wilmington, Del.....	36	15.4	15.0	8	5	188
Worcester.....	59	16.1	10.4	7	7	81
Yonkers.....	38	17.4	11.0	4	8	90
Youngstown.....	32	10.4	14.7	6	3	76

¹ Deaths for week ended Friday, Jan. 22, 1926.

² In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentage of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Kansas City, Kans., 14, Louisville 17, Memphis 38, Nashville 30, New Orleans 26, Norfolk 38, Richmond 32, and Washington, D. C., 25.

PREVALENCE OF DISEASE

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

UNITED STATES

CURRENT WEEKLY STATE REPORTS

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

Reports for Week Ended January 30, 1926

ALABAMA		CALIFORNIA	
	Cases		Cases
Chicken pox.....	53	Cerebrospinal meningitis:.....	
Diphtheria.....	16	Los Angeles.....	2
Influenza.....	326	Los Angeles County.....	2
Malaria.....	8	San Diego Naval Training Station.....	7
Measles.....	21	Chicken pox.....	270
Mumps.....	55	Diphtheria.....	123
Pellagra.....	7	Influenza.....	755
Pneumonia.....	198	Leprosy—Tracy.....	1
Scarlet fever.....	18	Lethargic encephalitis—Los Angeles.....	1
Smallpox.....	26	Measles.....	62
Tetanus.....	1	Mumps.....	186
Tuberculosis.....	32	Poliomyelitis:	
Typhoid fever.....	9	Oakland.....	1
Whooping cough.....	34	Salinas.....	1
		San Francisco.....	1
		San Leandro.....	1
		Scarlet fever.....	190
		Smallpox:	
		Los Angeles.....	40
		Los Angeles County.....	12
		Scattering.....	34
		Typhoid fever.....	7
		Whooping cough.....	68
ARIZONA		COLORADO	
Chicken pox.....	2	Chicken pox.....	61
Diphtheria.....	1	Diphtheria.....	19
Measles.....	1	Measles.....	8
Mumps.....	8	Mumps.....	3
Pneumonia.....	1	Pneumonia.....	7
Poliomyelitis.....	1	Poliomyelitis.....	1
Scarlet fever.....	8	Scarlet fever.....	33
Tuberculosis.....	19	Tuberculosis.....	22
Typhoid fever.....	1	Typhoid fever.....	1
Whooping cough.....	9	Whooping cough.....	67
ARKANSAS		CONNECTICUT	
Chicken pox.....	32	Chicken pox.....	170
Diphtheria.....	7	Diphtheria.....	48
Influenza.....	211	German measles.....	13
Malaria.....	6	Influenza.....	12
Measles.....	1	Lethargic encephalitis.....	1
Mumps.....	12		
Pellagra.....	2		
Scarlet fever.....	8		
Smallpox.....	7		
Trachoma.....	8		
Tuberculosis.....	7		
Typhoid fever.....	3		
Whooping cough.....	3		

CONNECTICUT—continued	
	Cases
Measles.....	779
Mumps.....	30
Pneumonia (broncho).....	32
Pneumonia (lobar).....	55
Scarlet fever.....	109
Septic sore throat.....	7
Tuberculosis (all forms).....	24
Typhoid fever.....	3
Whooping cough.....	88

DELAWARE	
Chicken pox.....	8
Diphtheria.....	5
Measles.....	84
Mumps.....	1
Pneumonia.....	3
Scarlet fever.....	11
Tuberculosis.....	4

FLORIDA	
Cerebrospinal meningitis.....	3
Chicken pox.....	38
Diphtheria.....	18
Influenza.....	25
Malaria.....	3
Measles.....	4
Mumps.....	18
Pneumonia.....	9
Scarlet fever.....	8
Smallpox.....	84
Tuberculosis.....	14
Typhoid fever.....	6
Whooping cough.....	4

GEORGIA	
Actinomycosis.....	1
Chicken pox.....	21
Conjunctivitis (acute).....	2
Diphtheria.....	20
Dysentery.....	1
Hookworm disease.....	1
Influenza.....	448
Malaria.....	5
Measles.....	19
Mumps.....	31
Pellagra.....	1
Pneumonia.....	136
Scarlet fever.....	9
Septic sore throat.....	11
Smallpox.....	17
Tuberculosis.....	13
Typhoid fever.....	15
Whooping cough.....	20

IDAHO	
Cerebrospinal meningitis—Moscow.....	2
Chicken pox.....	7
Diphtheria.....	7
Measles.....	1
Mumps.....	3
Pneumonia.....	1
Scarlet fever.....	10
Smallpox.....	7

ILLINOIS	
Cerebrospinal meningitis—Cook County.....	1
Diphtheria.....	102
Influenza.....	43

ILLINOIS—continued	
Measles.....	610
Pneumonia.....	407
Poliomyelitis:	
Cook County.....	1
Henry County.....	1
Macon County.....	1
Scarlet fever.....	443
Smallpox:	
Logan County.....	11
Scattering.....	30
Tuberculosis.....	180
Typhoid fever.....	26
Whooping cough.....	150

INDIANA	
Cerebrospinal meningitis.....	1
Chicken pox.....	51
Diphtheria.....	34
Influenza.....	42
Jaundice (epidemic).....	3
Measles.....	175
Mumps.....	1
Pneumonia.....	27
Poliomyelitis.....	2
Scarlet fever.....	228
Smallpox.....	121
Tuberculosis.....	49
Typhoid fever.....	2
Whooping cough.....	37

IOWA	
Chicken pox.....	47
Diphtheria.....	17
German measles.....	4
Measles.....	214
Mumps.....	44
Pneumonia.....	6
Scarlet fever.....	51
Smallpox.....	29
Tuberculosis.....	23
Typhoid fever.....	6
Whooping cough.....	18

KANSAS	
Cerebrospinal meningitis—Ottawa.....	1
Chicken pox.....	93
Diphtheria.....	26
German measles.....	2
Influenza.....	50
Measles.....	41
Mumps.....	20
Pneumonia.....	108
Poliomyelitis:	
Linn.....	1
Wichita.....	1
Scarlet fever.....	94
Smallpox.....	9
Trachoma.....	1
Tuberculosis.....	29
Typhoid fever.....	2
Whooping cough.....	80

LOUISIANA	
Diphtheria.....	22
Influenza.....	120
Malaria.....	2
Pneumonia.....	40

LOUISIANA—continued

	Cases
Scarlet fever.....	7
Smallpox.....	42
Tuberculosis.....	30
Typhoid fever.....	12
Whooping cough.....	6

MAINE

Chicken pox.....	58
Diphtheria.....	2
German measles.....	3
Influenza.....	14
Measles.....	19
Mumps.....	27
Paratyphoid fever.....	1
Pneumonia.....	32
Scarlet fever.....	33
Septic sore throat.....	9
Tuberculosis.....	9
Typhoid fever.....	2
Vincent's angina.....	3
Whooping cough.....	32

MARYLAND¹

Chicken pox.....	164
Diphtheria.....	31
Dysentery.....	2
German measles.....	7
Influenza.....	1,073
Lethargic encephalitis.....	1
Measles.....	1,249
Mumps.....	120
Pneumonia (broncho).....	127
Pneumonia (lobar).....	145
Scarlet fever.....	49
Tuberculosis.....	117
Typhoid fever.....	8
Whooping cough.....	61

MASSACHUSETTS

Cerebrospinal meningitis.....	2
Chicken pox.....	287
Conjunctivitis (suppurative).....	7
Diphtheria.....	79
German measles.....	75
Influenza.....	16
Lethargic encephalitis.....	1
Malaria.....	1
Measles.....	1,584
Mumps.....	115
Ophthalmia neonatorum.....	14
Pneumonia (lobar).....	135
Poliomyelitis.....	2
Scarlet fever.....	358
Septic sore throat.....	4
Tuberculosis (pulmonary).....	106
Tuberculosis (other forms).....	59
Typhoid fever.....	6
Whooping cough.....	469

MICHIGAN

Diphtheria.....	86
Measles.....	1,601
Pneumonia.....	159
Scarlet fever.....	340
Smallpox.....	15
Tuberculosis.....	171
Typhoid fever.....	7
Whooping cough.....	223

MINNESOTA

	Cases
Chicken pox.....	102
Diphtheria.....	58
Influenza.....	3
Measles.....	35
Pneumonia.....	1
Poliomyelitis.....	2
Scarlet fever.....	401
Smallpox.....	4
Tuberculosis.....	40
Typhoid fever.....	2
Whooping cough.....	46

MISSISSIPPI

Diphtheria.....	13
Poliomyelitis.....	1
Scarlet fever.....	9
Smallpox.....	8
Typhoid fever.....	3

MISSOURI

(Exclusive of Kansas City)

Cerebrospinal meningitis.....	1
Chicken pox.....	52
Diphtheria.....	72
Epidemic sore throat.....	4
Influenza.....	22
Measles.....	41
Mumps.....	56
Ophthalmia neonatorum.....	2
Pneumonia.....	7
Scarlet fever.....	163
Smallpox.....	7
Trachoma.....	1
Tuberculosis.....	45
Whooping cough.....	22

MONTANA¹

Chicken pox.....	56
Diphtheria.....	17
German measles.....	23
Influenza.....	1
Lethargic encephalitis.....	1
Measles.....	16
Mumps.....	96
Scarlet fever.....	74
Smallpox.....	18
Tuberculosis.....	8
Typhoid fever.....	2
Whooping cough.....	39

NEBRASKA

Chicken pox.....	25
Diphtheria.....	5
Influenza.....	2
Measles.....	1
Mumps.....	2
Scarlet fever.....	27
Smallpox.....	13
Tuberculosis.....	3
Whooping cough.....	5

NEW JERSEY

Cerebrospinal meningitis.....	2
Chicken pox.....	430
Diphtheria.....	101
Influenza.....	21

¹ Week ended Friday.¹ Report for two weeks ended Jan. 30, 1926.

NEW JERSEY—continued

	Cases
Measles.....	1,401
Pneumonia.....	218
Scarlet fever.....	207
Smallpox.....	2
Typhoid fever.....	9
Whooping cough.....	73

NEW MEXICO

Cerebrospinal meningitis.....	1
Chicken pox.....	54
Conjunctivitis.....	1
Diphtheria.....	2
Influenza.....	3
Measles.....	1
Mumps.....	22
Pneumonia.....	24
Scarlet fever.....	22
Smallpox.....	2
Tuberculosis.....	97
Whooping cough.....	23

NEW YORK

(Exclusive of New York City)

Cerebrospinal meningitis.....	2
Chicken pox.....	434
Diphtheria.....	81
German measles.....	200
Influenza.....	45
Lethargic encephalitis.....	1
Measles.....	928
Mumps.....	142
Ophthalmia neonatorum.....	2
Pneumonia.....	309
Poliomyelitis.....	2
Scarlet fever.....	266
Septic sore throat.....	3
Trachoma.....	1
Typhoid fever.....	28
Vincent's angina.....	16
Whooping cough.....	332

NORTH CAROLINA

Cerebrospinal meningitis.....	1
Chicken pox.....	170
Diphtheria.....	34
German measles.....	41
Measles.....	162
Scarlet fever.....	47
Smallpox.....	58
Typhoid fever.....	6
Whooping cough.....	111

OKLAHOMA

(Exclusive of Tulsa and Oklahoma City)

Cerebrospinal meningitis:	
Mayes.....	1
Tulsa.....	1
Chicken pox.....	29
Diphtheria.....	15
Influenza.....	451
Malaria.....	10
Measles.....	7
Mumps.....	3

1 Deaths.

OKLAHOMA—continued

	Cases
Pellagra.....	3
Pneumonia.....	211
Scarlet fever.....	21
Smallpox.....	10
Typhoid fever.....	14
Whooping cough.....	51

OREGON

Cerebrospinal meningitis.....	1
Chicken pox.....	15
Diphtheria.....	16
Influenza.....	49
Measles.....	14
Mumps.....	38
Pneumonia.....	16
Scarlet fever.....	49
Smallpox:	
Deschutes County.....	33
Linn County.....	26
Morrow County.....	11
Portland.....	10
Scattering.....	23
Tuberculosis.....	7
Typhoid fever.....	4
Whooping cough.....	44

PENNSYLVANIA

Cerebrospinal meningitis—Dayton.....	1
Chicken pox.....	929
Diphtheria.....	180
German measles.....	73
Impetigo contagiosa.....	9
Lethargic encephalitis.....	2
Measles.....	2,508
Mumps.....	204
Ophthalmia neonatorum—Philadelphia.....	1
Pneumonia.....	190
Scabies.....	8
Scarlet fever.....	619
Tetanus—Pittsburgh.....	1
Tuberculosis.....	106
Typhoid fever.....	23
Whooping cough.....	321

RHODE ISLAND

Chicken pox.....	8
Diphtheria.....	7
German measles.....	1
Influenza.....	9
Measles.....	513
Mumps.....	4
Pneumonia.....	1
Scarlet fever.....	10
Tuberculosis.....	5
Typhoid fever—Woonsocket.....	1
Whooping cough.....	16

SOUTH DAKOTA

Chicken pox.....	11
Diphtheria.....	4
Measles.....	7
Mumps.....	57
Pneumonia.....	3
Scarlet fever.....	54
Smallpox.....	2

TENNESSEE

	Cases
Cerebrospinal meningitis—Hardin County..	1
Chicken pox.....	39
Diphtheria.....	7
Influenza.....	137
Malaria.....	3
Measles.....	200
Ophthalmia neonatorum.....	3
Pellagra.....	5
Pneumonia.....	129
Scarlet fever.....	14
Smallpox.....	6
Tuberculosis.....	35
Typhoid fever.....	3
Whooping cough.....	10

TEXAS

Cerebrospinal meningitis.....	2
Chicken pox.....	57
Diphtheria.....	27
Influenza.....	114
Lethargic encephalitis.....	1
Measles.....	9
Mumps.....	17
Pellagra.....	1
Pneumonia.....	34
Scarlet fever.....	29
Smallpox.....	88
Tuberculosis.....	19
Typhoid fever.....	10
Whooping cough.....	43

UTAH

Cerebrospinal meningitis—Salt Lake City...	1
Chicken pox.....	85
Diphtheria.....	11
Influenza.....	662
Measles.....	2
Mumps.....	25
Pneumonia.....	31
Polio-myelitis—Salt Lake City.....	1
Scarlet fever.....	11
Smallpox.....	5
Typhoid fever.....	1
Whooping cough.....	25

VERMONT

Chicken pox.....	15
Diphtheria.....	2
Measles.....	3
Mumps.....	1
Scarlet fever.....	12
Typhoid fever.....	1
Whooping cough.....	25

VIRGINIA

Smallpox.....	8
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WASHINGTON

Cerebrospinal meningitis:	
Seattle.....	1
Spokane.....	4
Stevens County.....	3

†Incomplete report.

WASHINGTON—continued

	Cases
Chicken pox.....	137
Diphtheria.....	13
German measles.....	21
Influenza.....	3
Measles.....	16
Mumps.....	162
Scarlet fever.....	101
Smallpox:	
Tacoma.....	28
Scattering.....	55
Tuberculosis.....	33
Typhoid fever.....	1
Whooping cough.....	52

WEST VIRGINIA

Diphtheria.....	8
Scarlet fever.....	6
Smallpox.....	2
Typhoid fever.....	1

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis.....	1
Chicken pox.....	110
Diphtheria.....	28
German measles.....	6
Measles.....	10
Mumps.....	33
Pneumonia.....	28
Scarlet fever.....	27
Tuberculosis.....	20
Typhoid fever.....	1
Whooping cough.....	63
Scattering:	
Cerebrospinal meningitis.....	1
Chicken pox.....	205
Diphtheria.....	30
German measles.....	4
Influenza.....	52
Measles.....	167
Mumps.....	183
Pneumonia.....	29
Scarlet fever.....	144
Smallpox.....	27
Tuberculosis.....	32
Typhoid fever.....	5
Whooping cough.....	113

WYOMING

Cerebrospinal meningitis:	
Lincoln.....	1
Platte.....	1
Chicken pox.....	5
Diphtheria.....	1
Influenza.....	10
Measles.....	1
Mumps.....	13
Paratyphoid fever.....	1
Scarlet fever.....	12
Smallpox.....	4
Tuberculosis (pulmonary).....	1
Whooping cough.....	5

Reports for Week Ended January 23, 1926

DISTRICT OF COLUMBIA		NORTH DAKOTA—continued	
	Cases		Cases
Chicken pox.....	27	German measles.....	26
Diphtheria.....	21	Influenza.....	1
Influenza.....	2	Measles.....	20
Measles.....	26	Mumps.....	60
Pneumonia.....	97	Pneumonia.....	16
Scarlet fever.....	27	Scarlet fever.....	94
Tuberculosis.....	24	Smallpox.....	7
Whooping cough.....	22	Tuberculosis.....	5
		Typhoid fever.....	2
		Whooping cough.....	22
NORTH DAKOTA			
Chicken pox.....	16		
Diphtheria.....	2		

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	Cerebro-spinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Polio-myelitis	Scarlet fever	Smallpox	Typhoid fever
December, 1925										
California.....	25	547	367	3	131	0	23	667	278	59
District of Columbia.....	0	106	9		27	2	1	89	0	5
Kansas.....	6	95	36	1	84	3	4	233	15	30
Maine.....	3	15	7	0	13	0	0	126	0	25
Mississippi.....	2	159	4, 009	2, 567	1, 209	214	3	88	77	139
Missouri.....		516	58	1	59		3	660	37	22
New York.....	15	1, 063	180	3	7, 311		28	1, 503	2	232
Oregon.....	11	159	32		24			213	93	26
Rhode Island.....	1	117	32	0	1, 385	0	0	64	0	6
South Carolina.....		288	1, 969	328	34			65	58	104
Tennessee.....	2	89	221	29	108	12	4	178	27	97
Washington.....	14	92	1		68		1	284	322	17
West Virginia.....	2	129	127		267		1	234	3	91
Wyoming.....	0	7	4	0	2	0	0	52	25	3

¹ Reports incomplete.

PLAGUE-ERADICATIVE MEASURES IN THE UNITED STATES

The following items were taken from the reports of plague-eradicative measures from the cities named:

Los Angeles, Calif.

Week ended Jan. 16, 1926:

Number of rats trapped.....	3, 424
Number of rats found to be plague infected.....	0
Number of squirrels examined.....	816
Number of squirrels found to be plague infected.....	0
Number of mice trapped.....	3, 415
Number of mice found to be plague infected.....	0

Date of discovery of last plague-infected rodent, Nov. 6, 1925.

Date of last human case, Jan. 15, 1925.

Oakland, Calif.

(Including other East Bay communities)

Week ended Jan. 16, 1926:

Number of rats trapped.....	428
Number of rats found to be plague infected.....	0

Totals:

Number of rats trapped Jan. 1, 1925 to Jan. 16, 1926.....	80, 289
Number of rats found to be plague infected.....	21
Number of squirrels examined May 1 to Aug. 1, 1925.....	7, 277
Number of squirrels found to be plague infected.....	0
Number of mice trapped Jan. 1, 1925 to Jan. 16, 1926.....	31, 036

Date of discovery of last plague-infected rat, Mar. 4, 1925.

Date of last human case, Sept. 10, 1919.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

Diphtheria.—For the week ended January 16, 1926, 36 States reported 1,405 cases of diphtheria. For the week ended January 17, 1925, the same States reported 1,783 cases of this disease. One hundred and two cities, situated in all parts of the country and having an aggregate population of more than 30,300,000, reported 850 cases of diphtheria for the week ended January 16, 1926. Last year for the corresponding week they reported 959 cases. The estimated expectancy for these cities was 1,194 cases. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty-three States reported 7,955 cases of measles for the week ended January 16, 1926, and 1,931 cases of this disease for the week ended January 17, 1925. One hundred and two cities reported 5,687 cases of measles for the week this year, and 1,063 cases last year.

Poliomyelitis.—The health officers of 38 States reported 14 cases of poliomyelitis for the week ended January 16, 1926. The same States reported 21 cases for the week ended January 17, 1925.

Scarlet fever.—Scarlet fever was reported for the week as follows: Thirty-six States—this year, 3,714 cases; last year, 4,026 cases; 102 cities—this year, 1,664 cases; last year, 1,972 cases; estimated expectancy, 1,198 cases.

Smallpox.—For the week ended January 16, 1926, 36 States reported 879 cases of smallpox. Last year for the corresponding week they reported 1,249 cases. One hundred and two cities reported smallpox for the week as follows: 1926, 274 cases; 1925, 319 cases; estimated expectancy 106 cases. Three deaths from smallpox were reported by these cities for the week this year—at Los Angeles, Calif.

Typhoid fever.—Two hundred and fifty-two cases of typhoid fever were reported for the week ended January 16, 1926, by 35 States. For the corresponding week of 1925, the same States reported 293

cases of this disease. One hundred and two cities reported 63 cases of typhoid fever for the week this year and 116 cases for the corresponding week last year. The estimated expectancy for these cities was 56 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia were reported for the week by 95 cities, with a population of more than 29,600,000, as follows: 1926, 1,329 deaths; 1925, 1,270.

City reports for week ended January 16, 1926

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 1917 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	Population July 1, 1925, estimated	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
			Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
NEW ENGLAND									
Maine:									
Portland.....	75,333	1	2	0	1	0	4	6	1
New Hampshire:									
Concord.....	22,546	0	0	0	0	1	2	3	1
Vermont:									
Barre.....	10,008	0	0	0	0	0	0	0	0
Massachusetts:									
Boston.....	779,620	58	65	29	2	2	160	18	37
Fall River.....	128,993	1	6	6	0	0	188	6	1
Springfield.....	142,065	14	4	1	0	0	35	6	1
Worcester.....	190,757	1	6	7	0	0	167	1	12
Rhode Island:									
Pawtucket.....	69,760	8	2	0	0	0	29	0	4
Providence.....	267,918	0	12	7	0	1	454	0	11
Connecticut:									
Bridgeport.....	(1)	0	9	7	1	1	110	0	2
Hartford.....	160,197	12	8	4	0	1	31	0	10
New Haven.....	178,927	34	5	0	0	0	33	0	8
MIDDLE ATLANTIC									
New York:									
Buffalo.....	538,016	22	20	8	0	2	8	1	11
New York.....	5,873,356	247	222	167	56	17	1,236	33	286
Rochester.....	316,786	41	10	16	0	1	50	0	8
Syracuse.....	182,003	34	10	1	0	0	8	10	6
New Jersey:									
Camden.....	128,642	21	5	3	0	0	27	0	8
Newark.....	462,513	96	20	8	4	0	121	5	25
Trenton.....	132,020		6						
Pennsylvania:									
Philadelphia.....	1,979,364	196	78	89	1	9	226	26	92
Pittsburg.....	631,563	47	25	10	0	3	17	13	27
Reading.....	112,707	10	5	1	0	0	4	0	4
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	409,333	11	12	7	0	4	1	0	20
Cleveland.....	936,485	51	37	27	2	2	690	0	29
Columbus.....	279,836	19	5	1	0	1	10	0	6
Toledo.....	287,380	26	10	12	0	1	39	0	9

¹ No estimate made.

City reports for week ended January 16, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases re-reported	Diphtheria		Influenza		Measles, cases re-reported	Mumps, cases re-reported	Pneumonia, deaths re-reported
			Cases, estimated expectancy	Cases re-reported	Cases re-reported	Deaths re-reported			
EAST NORTH CENTRAL—continued									
Indiana:									
Port Wayne.....	97,846	3	5	1	0	1	0	0	4
Indianapolis.....	358,819	—	15	4	0	1	198	—	11
South Bend.....	80,091	10	1	0	0	0	1	0	3
Terre Haute.....	71,071	1	1	1	0	0	4	0	0
Illinois:									
Chicago.....	2,995,239	122	131	71	7	2	67	11	78
Peoria.....	81,564	4	2	1	0	0	1	4	2
Springfield.....	63,923	3	2	1	1	0	1	3	1
Michigan:									
Detroit.....	1,245,824	85	72	39	9	1	910	3	48
Flint.....	130,316	5	9	2	0	0	8	1	1
Grand Rapids.....	153,698	8	5	2	0	2	11	1	4
Wisconsin:									
Madison.....	46,385	27	0	0	0	0	2	2	0
Milwaukee.....	509,192	151	21	41	1	1	7	28	16
Racine.....	67,707	3	2	1	1	1	1	1	2
Superior.....	39,671	0	1	0	0	0	0	0	2
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	110,502	9	3	0	0	0	0	0	4
Minneapolis.....	425,435	84	22	32	0	0	7	0	17
St. Paul.....	246,001	47	17	23	0	2	4	12	10
Iowa:									
Davenport.....	(1)	1	1	2	0	—	1	0	—
Des Moines.....	(1)	2	4	4	0	—	3	0	—
Sioux City.....	(1)	8	2	0	0	—	2	0	—
Waterloo.....	36,771	1	0	0	0	—	1	1	—
Missouri:									
Kansas City.....	367,481	30	11	8	3	3	33	3	8
St. Joseph.....	78,342	2	4	0	0	2	0	0	5
St. Louis.....	821,543	31	55	59	1	1	11	5	—
North Dakota:									
Fargo.....	26,403	5	0	0	0	0	5	38	2
Grand Forks.....	14,811	6	0	0	0	—	0	0	—
South Dakota:									
Aberdeen.....	15,036	0	1	0	0	0	1	38	—
Sioux Falls.....	30,127	3	1	0	0	—	0	0	—
Nebraska:									
Lincoln.....	60,941	12	3	1	0	0	0	1	3
Omaha.....	211,768	7	5	2	0	0	1	0	9
Kansas:									
Topeka.....	55,411	12	2	2	0	1	0	0	2
Wichita.....	88,367	18	4	2	0	0	0	0	3
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	122,049	1	2	1	0	0	17	1	7
Maryland:									
Baltimore.....	796,296	132	30	16	55	5	653	117	60
Cumberland.....	33,741	0	1	2	0	0	3	0	0
Frederick.....	12,035	0	0	0	0	0	3	0	0
District of Columbia:									
Washington.....	497,906	22	20	26	6	2	19	0	30
Virginia:									
Lynchburg.....	30,395	24	1	2	0	0	1	2	0
Norfolk.....	(1)	21	3	3	0	0	4	1	2
Richmond.....	186,403	11	7	7	0	1	3	1	5
Roanoke.....	58,208	5	2	0	0	1	1	1	2
West Virginia:									
Charleston.....	49,019	0	2	1	0	0	0	4	4
Huntington.....	63,485	0	2	3	0	1	0	0	5
Wheeling.....	56,208	1	2	1	0	0	1	0	3
North Carolina:									
Raleigh.....	30,371	1	1	2	0	1	0	0	4
Wilmington.....	37,061	5	0	0	0	0	0	2	1
Winston-Salem.....	69,031	9	1	1	0	0	16	3	5

1 No estimate made.

City reports for week ended January 16, 1926—Continued

Division, State, and city	Population July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—con.									
South Carolina:									
Charleston.....	73, 125	1	1	2	0	0	0	0	4
Columbia.....	41, 225	2	1	0	0	0	0	1	0
Greenville.....	27, 311	2	0	0	0	0	0	0	0
Georgia:									
Atlanta.....	(1)	4	3	7	54	2	1	0	12
Brunswick.....	16, 800	0	0	0	10	0	0	0	0
Savannah.....	93, 134	2	2	3	16	0	0	1	5
Florida:									
Tampa.....	94, 743	6	1	1	0	0	0	0	3
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	58, 309	0	2	2	0	1	0	0	6
Louisville.....	305, 935	6	9	2	3	2	3	0	10
Tennessee:									
Memphis.....	174, 533	10	6	4	0	4	2	4	11
Nashville.....	136, 220	0	2	0	0	3	40	0	13
Alabama:									
Birmingham.....	205, 670	15	3	3	11	6	1	1	13
Mobile.....	65, 955	1	1	0	0	1	0	0	2
Montgomery.....	46, 481	9	1	2	1	0	0	23	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	31, 643	2	1	0	0	0	1	0	3
Little Rock.....	74, 216	2	1	0	0	0	0	0	3
Louisiana:									
New Orleans.....	414, 493	2	14	6	15	8	0	0	26
Shreveport.....	57, 857	5	1	1	0	2	0	0	5
Oklahoma:									
Oklahoma City.....	(1)	1	2	0	0	0	1	0	2
Texas:									
Dallas.....	194, 450	11	7	5	7	2	2	0	16
Galveston.....	48, 375	0	1	6	0	0	0	0	4
Houston.....	164, 954	0	4	5	6	5	1	0	12
San Antonio.....	198, 069	0	2	5	0	0	0	0	9
MOUNTAIN									
Montana:									
Billings.....	17, 971	11	0	0	0	0	0	5	1
Great Falls.....	29, 883	15	1	0	0	0	3	50	1
Helena.....	12, 037	2	0	0	0	0	0	3	1
Missoula.....	12, 668	0	0	1	0	0	1	3	0
Idaho:									
Boise.....	23, 042	5	0	0	0	0	0	0	0
Colorado:									
Denver.....	280, 911	25	9	8	0	6	5	1	20
Pueblo.....	43, 787	4	3	1	0	1	0	0	4
Arizona:									
Phoenix.....	38, 669	1	1	0	0	0	1	0	4
Utah:									
Salt Lake City.....	130, 948	49	3	4	0	0	1	34	9
Nevada:									
Reno.....	12, 645	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	(1)	63	6	4	0	0	4	90	3
Spokane.....	108, 897	17	4	1	0	0	0	0	1
Tacoma.....	104, 445	4	3	5	0	0	0	5	3
Oregon:									
Portland.....	282, 383	7	8	6	3	0	1	4	12
California:									
Los Angeles.....	(1)	69	42	12	18	0	9	12	16
Sacramento.....	72, 260	9	3	3	67	2	0	0	15
San Francisco.....	557, 530	30	28	5	56	11	6	4	13

1 No estimate made.

City reports for week ended January 16, 1926—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	2	13	0	0	0	0	1	0	0	10	17
New Hampshire:											
Concord	0	0	0	0	0	1	0	0	0	0	15
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	3
Massachusetts:											
Boston	50	94	0	0	0	23	0	0	0	73	251
Fall River	2	3	0	0	0	4	0	1	0	6	46
Springfield	9	8	0	0	0	2	0	0	0	7	34
Worcester	11	20	0	0	0	4	0	0	0	7	59
Rhode Island:											
Pawtucket	1	0	0	0	0	0	0	0	0	3	32
Providence	8	5	0	0	0	5	0	0	0	3	92
Connecticut:											
Bridgeport	6	10	0	0	0	2	0	0	0	6	29
Hartford	8	6	0	0	0	0	0	0	0	2	29
New Haven	10	2	0	0	0	0	0	0	0	5	40
MIDDLE ATLANTIC											
New York:											
Buffalo	22	24	1	5	0	12	1	6	2	35	152
New York	204	194	0	0	0	105	11	13	2	64	1,557
Rochester	14	26	0	0	0	4	1	0	0	1	86
Syracuse	14	1	0	0	0	2	1	0	0	62	45
New Jersey:											
Camden	4	19	0	0	0	0	1	4	0	3	31
Newark	21	29	0	0	0	8	0	2	0	18	123
Trenton	4		0				1				
Pennsylvania:											
Philadelphia	68	94	1	0	0	26	4	7	2	30	616
Pittsburgh	32	81	0	0	0	14	2	0	0	22	194
Reading	2	5	0	0	0	1	0	0	0	7	41
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	11	14	1	0	0	10	0	0	0	29	148
Cleveland	35	30	2	0	0	16	2	1	0	67	213
Columbus	10	20	1	5	0	3	0	1	0	12	64
Toledo	17	7	3	0	0	6	1	0	0	15	55
Indiana:											
Fort Wayne	4	8	1	0	0	2	0	1	1	0	27
Indianapolis	10	11	6	36	0	8	1	1	0	2	98
South Bend	4	3	1	11	0	1	1	0	0	2	18
Terre Haute	2	6	0	2	0	1	0	0	0	0	20
Illinois:											
Chicago	145	168	2	0	0	42	4	2	0	52	781
Peoria	6	7	0	0	0	1	0	0	0	2	16
Springfield	2	3	0	0	0	1	0	0	0	0	13
Michigan:											
Detroit	90	124	4	0	0	23	2	0	0	91	333
Flint	9	9	1	0	0	2	1	0	0	60	22
Grand Rapids	11	42	0	0	0	0	0	1	0	31	33
Wisconsin:											
Madison	3	3	0	0	0	0	0	0	0	3	4
Milwaukee	38	21	2	0	0	5	1	5	0	58	99
Racine	6	1	1	0	0	1	0	0	0	8	14
Superior	2	9	3	0	0	1	1	0	0	0	5
WEST NORTH CENTRAL											
Minnesota:											
Duluth	6	10	1	0	0	0	0	0	0	12	20
Minneapolis	42	59	16	0	0	3	1	1	0	1	122
St. Paul	24	58	10	1	0	5	0	0	0	15	61

1 Pulmonary tuberculosis only.

City reports for week ended January 16, 1926—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re-ported	Typhoid fever			Whoop- ing cough, cases re-ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—continued											
Iowa:											
Davenport	2	4	1	0			0	0		1	
Des Moines	8	6	2	1			0	0		0	
Sioux City	3	2	0	10			0	0		0	
Waterloo	2	1	0	2			0	0		2	
Missouri:											
Kansas City	14	27	2	0	0	9	0	0	0	17	108
St. Joseph	3	1	0	0	0	2	0	0	0	0	34
St. Louis	38	99	2	0	0	10	2	1	0	7	242
North Dakota:											
Fargo	2	4	0	0	0	0	0	0	0	2	7
Grand Forks	1	0	0	0			0	0		0	
South Dakota:											
Aberdeen	0	1	0	0			0	0		0	
Sioux Falls	2	1	1	0			0	0		0	
Nebraska:											
Lincoln	2	4	0	0	0	0	0	0	0	3	20
Omaha	5	8	5	13	0	2	0	0	0	2	57
Kansas:											
Topeka	2	4	0	0	0	1	0	0	0	1	14
Wichita	4	3	0	0	0	2	0	0	0	0	34
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	10	0	0	0	2	1	0	0	3	29
Maryland:											
Baltimore	33	23	1	0	0	23	2	0	0	33	309
Cumberland	1	0	0	0	0	1	0	0	0	2	8
Frederick	0	0	0	0	0	0	0	0	0	0	3
District of Col.:											
Washington	22	28	1	0	0	11	2	1	1	3	194
Virginia:											
Lynchburg	0	2	0	0	0	0	0	0	0	4	4
Norfolk	1	5	0	0	0	4	1	0	0	5	
Richmond	5	13	0	0	0	7	0	0	0	0	69
Roanoke	1	4	0	2	0	2	1	0	0	1	18
West Virginia:											
Charleston	1	0	0	0	0	1	0	0	0	2	12
Huntington	1	3	0	0	0	2	0	0	0	0	21
Wheeling	1	5	0	0	0	0	0	0	0	0	10
North Carolina:											
Raleigh	0	1	0	4	0	1	0	0	0	0	17
Wilmington	1	1	0	0	0	0	0	0	0	0	9
Winston-Salem	2	1	2	3	0	3	0	0	0	11	18
South Carolina:											
Charleston	1	1	0	0	0	4	0	0	0	0	33
Columbia	0	1	0	1	0	0	0	0	0	0	
Greenville	0	0	0	1	0	0	0	0	0	1	4
Georgia:											
Atlanta	3	3	2	1	0	9	0	1	1	1	64
Brunswick	0	0	1	0	0	0	0	0	0	0	2
Savannah	0	0	0	0	0	1	1	2	0	0	33
Florida:											
Tampa	1	1	0	24	0	2	1	0	0	0	37
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	3	0	0	0	2	0	0	0	0	33
Louisville	5	6	0	0	0	5	0	0	0	0	106
Tennessee:											
Memphis	4	7	1	2	0	2	0	0	0	0	77
Nashville	3	4	0	1	0	4	0	3	2	4	47
Alabama:											
Birmingham	4	4	2	8	0	4	1	0	0	5	77
Mobile	1	1	0	0	0	1	1	0	0	0	23
Montgomery	0	2	1	0	0	0	0	0	0	0	

City reports for week ended January 16, 1926—Continued.

Division, State, and city	Scarlet fever		Smallpox			Tuber- culo- sis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST SOUTH CEN- TRAL											
Arkansas:											
Fort Smith.....	1	1	0	0	-----	-----	0	0	-----	0	-----
Little Rock.....	2	0	0	0	0	3	0	0	0	0	-----
Louisiana:											
New Orleans.....	4	6	1	5	0	22	3	3	2	1	181
Shreveport.....	1	1	3	0	0	0	0	0	1	0	31
Oklahoma:											
Oklahoma City.....	2	4	1	0	0	1	1	0	0	1	19
Texas:											
Dallas.....	4	8	2	1	0	5	1	0	0	20	68
Galveston.....	0	2	0	3	0	1	0	0	1	0	28
Houston.....	2	1	0	25	0	5	0	0	0	0	60
San Antonio.....	1	2	0	0	0	13	0	0	0	0	60
MOUNTAIN											
Montana:											
Billings.....	2	4	0	0	0	0	0	0	0	0	3
Great Falls.....	1	6	2	0	0	0	0	0	0	1	4
Helena.....	0	1	0	0	0	0	0	0	0	0	6
Missoula.....	1	1	0	0	0	0	0	0	0	0	4
Idaho:											
Boise.....	2	0	1	2	0	0	0	0	0	0	3
Colorado:											
Denver.....	10	15	4	0	0	8	0	1	1	52	108
Pueblo.....	2	0	1	0	0	0	0	0	0	0	11
Arizona:											
Phoenix.....	0	2	0	1	0	3	0	0	0	0	11
Utah:											
Salt Lake City.....	3	7	4	0	0	0	0	0	0	16	27
Nevada:											
Reno.....	0	1	0	0	0	0	0	0	0	0	1
PACIFIC											
Washington:											
Seattle.....	10	35	3	2	-----	-----	0	0	-----	4	-----
Spokane.....	4	16	5	1	-----	-----	0	0	-----	6	-----
Tacoma.....	3	4	2	9	0	1	1	0	0	0	26
Oregon:											
Portland.....	6	11	3	4	0	0	0	0	0	1	75
California:											
Los Angeles.....	18	28	2	84	3	20	2	2	0	8	217
Sacramento.....	2	1	0	9	0	1	0	0	0	0	37
San Francisco.....	13	16	1	1	0	13	0	3	0	6	165

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Polioomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	4	1	0	0	1	0	1	0	0
Fall River.....	0	1	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York.....	1	1	6	5	0	0	1	0	0
Pennsylvania:									
Philadelphia.....	0	0	1	0	0	0	0	0	0

City reports for week ended January 16, 1926—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Columbus.....	0	0	0	1	0	0	0	0	0
Illinois:									
Chicago.....	0	0	1	0	0	0	1	0	0
Michigan:									
Detroit.....	0	1	2	2	0	0	0	0	0
Wisconsin:									
Milwaukee.....	3	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	0	0	0	0	0	0	0	1	1
St. Paul.....	1	0	0	0	0	0	0	0	0
Missouri:									
St. Louis.....	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	1	1	0	0	0	0	0	0	0
West Virginia:									
Huntington.....	0	1	0	0	0	0	0	0	0
EAST SOUTH CENTRAL									
Alabama:									
Birmingham.....	0	0	0	0	2	0	0	1	0
WEST SOUTH CENTRAL									
Louisiana:									
Shreveport.....	0	0	0	0	0	2	0	0	0
Texas:									
Dallas.....	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Colorado:									
Denver.....	0	0	0	0	0	0	0	1	1
Utah:									
Salt Lake City.....	1	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Spokane.....	2	0	0	0	0	0	0	0	0
California:									
Sacramento.....	2	0	0	0	0	0	0	0	0
San Francisco.....	1	0	1	1	0	0	0	0	0

¹ Typhus fever, 1 case at Baltimore, Md.

The following table gives the rates per 100,000 population for 103 cities for the three-week period ended January 16, 1926, compared with those for a like period ended January 17, 1925. The population figures used in computing the rates are approximate estimates as of July 1, 1925 and 1926, respectively, authoritative figures for many of the cities not being available. The 103 cities reporting cases had an estimated aggregate population of nearly 30,000,000 in 1925 and nearly 30,500,000 in 1926. The 96 cities reporting deaths had more than 29,250,000 estimated population in 1925 and more than

29,750,000 in 1926. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

*Summary of weekly reports from cities, December 27, 1925, to January 16, 1926—
Annual rates per 100,000 population—Compared with rates for the corresponding
period of 1924-25¹*

DIPHTHERIA CASE RATES

	Week ended—					
	Jan. 3, 1925	Jan. 2, 1926	Jan. 10, 1925	Jan. 9, 1926	Jan. 17, 1925	Jan. 16, 1926
103 cities.....	149	129	145	² 167	167	² 146
New England.....	249	189	247	139	173	144
Middle Atlantic.....	140	124	130	² 179	187	² 153
East North Central.....	141	129	122	151	132	135
West North Central.....	171	154	139	283	247	253
South Atlantic.....	138	126	161	178	115	141
East South Central.....	84	109	110	52	84	67
West South Central.....	141	146	137	189	185	120
Mountain.....	102	109	231	182	148	227
Pacific.....	160	124	185	97	196	81

MEASLES CASE RATES

103 cities.....	150	601	207	² 1,092	188	² 977
New England.....	367	2,373	381	3,094	424	2,967
Middle Atlantic.....	120	550	168	² 516	157	² 855
East North Central.....	277	736	391	1,761	327	1,302
West North Central.....	10	89	18	148	12	127
South Atlantic.....	50	460	79	1,289	42	1,356
East South Central.....	16	104	26	52	42	239
West South Central.....	9	0	4	0	22	22
Mountain.....	111	82	129	55	259	91
Pacific.....	75	46	185	65	152	51

SCARLET FEVER CASE RATES

103 cities.....	284	221	307	² 292	344	² 284
New England.....	587	300	637	295	542	361
Middle Atlantic.....	285	166	323	² 253	292	² 238
East North Central.....	227	243	166	330	350	321
West North Central.....	549	493	733	580	731	548
South Atlantic.....	192	137	148	158	246	186
East South Central.....	158	99	210	119	168	149
West South Central.....	79	120	141	112	110	90
Mountain.....	157	246	370	237	518	319
Pacific.....	155	285	180	243	174	267

SMALLPOX CASE RATES

103 cities.....	41	23	55	² 41	56	² 47
New England.....	0	0	0	0	0	0
Middle Atlantic.....	3	1	3	² 0	10	² 3
East North Central.....	25	22	38	48	37	37
West North Central.....	125	18	213	65	187	51
South Atlantic.....	36	24	29	43	58	68
East South Central.....	341	73	362	47	200	57
West South Central.....	31	22	62	52	31	146
Mountain.....	46	36	28	36	55	13
Pacific.....	108	148	141	111	202	264

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1925 and 1926, respectively.

² New York, N. Y., not included.

³ Trenton, N. J., not included.

*Summary of weekly reports from cities, December 27, 1925, to January 16, 1926—
Annual rates per 100,000 population—Compared with rates for the corresponding
period of 1924-25—Continued*

TYPHOID FEVER CASE RATES

	Week ended—					
	Jan. 3, 1925	Jan. 2, 1926	Jan. 10, 1925	Jan. 9, 1926	Jan. 17, 1925	Jan. 16, 1926
103 cities.....	36	10	32	* 13	20	* 11
New England.....	24	7	14	31	24	2
Middle Atlantic.....	58	7	49	* 12	21	* 16
East North Central.....	26	6	13	11	22	8
West North Central.....	4	6	6	2	10	4
South Atlantic.....	38	11	52	9	19	8
East South Central.....	37	31	47	16	16	16
West South Central.....	35	47	66	22	66	13
Mountain.....	0	9	9	9	0	9
Pacific.....	11	8	25	11	6	13

INFLUENZA DEATH RATES

	18	15	20	* 21	21	* 23
96 cities.....						
New England.....	2	12	17	9	26	14
Middle Atlantic.....	21	10	20	* 18	18	* 16
East North Central.....	9	8	15	12	14	11
West North Central.....	8	15	13	8	2	19
South Atlantic.....	25	19	33	15	42	23
East South Central.....	58	31	42	83	42	88
West South Central.....	48	43	39	47	82	80
Mountain.....	37	27	18	46	28	64
Pacific.....	11	39	18	57	11	46

PNEUMONIA DEATH RATES

	195	184	185	* 220	206	* 211
96 cities.....						
New England.....	168	210	117	246	151	206
Middle Atlantic.....	225	186	227	* 240	259	* 235
East North Central.....	155	142	143	176	143	153
West North Central.....	91	117	87	140	104	125
South Atlantic.....	232	261	232	289	271	276
East South Central.....	278	259	268	332	173	285
West South Central.....	324	312	247	335	426	354
Mountain.....	222	264	222	127	240	328
Pacific.....	167	135	164	220	145	167

* New York, N. Y., not included.

* Trenton, N. J., not included.

*Number of cities included in summary of weekly reports, and aggregate population of
cities in each group, approximated as of July 1, 1925 and 1926, respectively*

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1925	1926	1925	1926
Total.....	103	96	29,944,996	30,473,129	29,251,658	29,764,201
New England.....	12	12	2,176,124	2,206,124	2,176,124	2,206,124
Middle Atlantic.....	10	10	10,346,970	10,476,970	10,346,970	10,476,970
East North Central.....	16	16	7,481,656	7,655,436	7,481,656	7,655,436
West North Central.....	14	11	2,694,962	2,634,662	2,461,380	2,499,936
South Atlantic.....	21	21	2,716,070	2,776,070	2,716,070	2,776,070
East South Central.....	7	7	993,103	1,004,953	993,103	1,004,953
West South Central.....	8	6	1,184,057	1,212,057	1,078,198	1,103,695
Mountain.....	9	9	563,912	572,773	563,912	572,773
Pacific.....	6	4	1,888,142	1,934,084	1,434,245	1,468,144

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended January 2, 1926.—The following report for the week ended January 2, 1926, was transmitted by the Far Eastern Bureau of the health section of the League of Nations' secretariat, located at Singapore, to the headquarters at Geneva:

Port	Plague		Cholera		Small-pox		Port	Plague		Cholera		Small-pox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
Calcutta.....		0		9	30	13	Kobe.....	0	0	0	0	0	0
Bombay.....		0		0	11	4	Osaka.....	0	0	0	0	0	0
Madras.....		0	13	3	1	1	Keelung.....	0	0	0	0	0	0
Rangoon.....		0		0	1	1	Fusan.....	0	0	0	0	0	0
Karachi.....		0		0	7	2	Dairen.....	0	0	0	0	0	0
Nagapatam.....		0		12	0	0	Adelaide.....	0	0	0	0	1	0
Colombo.....	0	0	0	0	0	0	Brisbane.....	0	0	0	0	0	0
Basra.....	0	0	0	0	16	12	Fremantle.....	0	0	0	0	0	0
Singapore.....	0	0	0	0	0	0	Melbourne.....	0	0	0	0	0	0
Port Swettenham.....	0	0	0	0	0	0	Sydney.....	0	0	0	0	0	0
Penang.....	0	0	0	0	0	0	Rockhampton.....	0	0	0	0	0	0
Batavia.....	0	0	0	0	0	0	Townsville.....	0	0	0	0	0	0
Soerabaya.....	0	0	0	0	4	3	Port Darwin.....	0	0	0	0	0	0
Samarang.....	0	0	0	0	0	0	Broome.....	0	0	0	0	0	0
Belawan Deli.....	0	0	0	0	0	0	Port Moresby.....	0	0	0	0	0	0
Padang (Sumatra).....	0	0	0	0	0	0	Honolulu.....	0	0	0	0	0	0
Sabang (Rhio).....	0	0	0	0	0	0	Suez.....	0	0	0	0	0	0
Macassar.....	0	0	0	0	0	0	Alexandria.....	0	0	0	0	0	0
Sandakan (North Borneo).....	0	0	0	0	0	0	Port Said.....	0	0	0	0	0	0
Manila.....	0	0	0	0	0	0	Mombasa (Kenya).....	0	0	0	0	0	0
Zamboanga.....	0	0	0	0	0	0	Zanzibar.....	0	0	0	0	0	0
Bangkok.....	0	0	23	14	3	3	Massowah.....	0	0	0	0	0	0
Saigon and Cholon.....	0	0	0	0	0	0	Djibuti.....	0	0	0	0	0	0
Hongkong.....	0	0	0	0	0	0	Lourenco Marques.....	0	0	0	0	0	0
Shanghai.....	0	0	0	0		5	Durban.....	0	0	0	0	0	0
Amoy.....	0	0	0	0	0	0	East London.....	0	0	0	0	0	0
Nagasaki.....	0	0	0	0	0	0	Port Elizabeth.....	0	0	0	0	0	0
Yokohama.....	0	0	0	0	0	0	Cape Town.....	0	0	0	0	0	0
Simoneoski.....	0	0	0	0	0	0	Port Louis (Mauritius).....	0	0	0	0	0	0
Moji.....	0	0	0	0	0	0	Seychelles.....	0	0	0	0	0	0

ALGERIA

Smallpox—Increased prevalence at Algiers.—An increase in the prevalence of smallpox at Algiers, Algeria, has been noted, with 46 cases reported from December 1 to 10 and 51 cases from December 11 to 20, 1925, as compared with 12 cases reported during the last decade in the month of November, 1925. Under date of January 7, 1926, vaccination was stated to have been ordered for all persons in Algiers irrespective of age, and including temporary residents living in the vicinity of Algiers and Tizi Ouzou.

CANADA

Communicable diseases—January 3 to 16, 1926.—The following table shows the numbers of cases of certain communicable diseases in seven Provinces of Canada during the two-week period from January 3 to 16, 1926. The information was supplied by the Canadian Ministry of Health.

	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever:								
Week ended Jan. 9, 1926				1				1
Week ended Jan. 16, 1926			1	3				4
Lethargic encephalitis:								
Week ended Jan. 9, 1926								
Week ended Jan. 16, 1926					1			1
Pollomyelitis:								
Week ended Jan. 9, 1926				2	1			3
Week ended Jan. 16, 1926								
Smallpox:								
Week ended Jan. 9, 1926				21	14	1		36
Week ended Jan. 16, 1926				14		4	2	20
Typhoid fever:								
Week ended Jan. 9, 1926		1	8	13	2	17	2	43
Week ended Jan. 16, 1926		2	11	9	3	41		66

CANARY ISLANDS

Plague—Las Palmas—Vicinity of Santa Cruz de Tenerife.—Plague has been reported in the Canary Islands as follows: December 24, 1925—La Laguna, three cases with two deaths (vicinity of Santa Cruz de Tenerife); Las Palmas, one case.

ECUADOR

Plague—Guayaquil—December 16-31, 1925.—During the two week period ended December 31, 1925, 16 cases of plague with four deaths were reported at Guayaquil, Ecuador.

Plague-infected rats.—During the period under report, 12,794 rats were reported taken and 67 rats found plague infected.

GREAT BRITAIN (SCOTLAND)

*Measles—Glasgow.*¹—During the week ended January 2, 1926, 246 cases of measles with 17 deaths were reported at Glasgow, Scotland.

MEXICO

Epidemic smallpox—San Luis Potosi.—Smallpox has been reported present in epidemic form at San Luis Potosi, Mexico, with 26 deaths from the disease from December 20, 1925, to January 16, 1926. The number of cases has not been reported.

¹Public Health Reports, Jan. 22, 1926, p. 154.

PERU

Plague—Huacho.—Information has been received under date of January 26, 1926, of the occurrence of 15 cases of plague at Huacho, a port situated about 60 miles north of Callao, Peru. Huacho is an occasional port of call for vessels bound for the Canal Zone and a discharging port for some vessels southward bound. Plague was reported present at Huacho in July, 1925, with three cases and one death.

UNION OF SOUTH AFRICA

Plague—Cape Province—Orange Free State.—Plague has been reported in the Union of South Africa as follows: Week ended December 12, 1925—Cape Province, in Middleburg district, one case, European. Orange Free State, one fatal case occurring on a farm in Bothaville district, in a native.

VIRGIN ISLANDS

Communicable diseases—December, 1925.—During the month of December, 1925, communicable diseases were reported in the Virgin Islands of the United States as follows:

Island and disease	Cases	Remarks
St. Thomas and St. John:		
Chancroid.....	1	
Dengue.....	1	
Filariasis.....	1	From St. Croix; Bancrofti.
Gonorrhea.....	4	
Pellagra.....	1	
Syphilis.....	7	Primary, 2; secondary, 3; of aorta, 1; of eye, 1
St. Croix:		
Chancroid.....	2	
Filariasis.....	2	Bancrofti.
Gonorrhea.....	1	
Syphilis.....	2	Secondary.
Tuberculosis.....	1	Chronic, pulmonary.

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

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

Reports Received During Week Ended February 5, 1926¹

CHOLERA

Place	Date	Cases	Deaths	Remarks
India.....				Nov. 15-21, 1925: Cases, 2,188; deaths, 1,323.
Calcutta.....	Dec. 6-12.....	23	30	
Madras.....	Dec. 13-24.....	69	26	
Japan.....	Sept. 20-Oct. 17.....	288		
Philippine Islands:				
Manila.....	Dec. 14-24.....	5	2	
Provinces—				
Bulacan.....	Nov. 29-Dec. 12.....	71	35	
Pampanga.....	do.....	36	20	
Rizal.....	Nov. 8-21.....	5		
Russia.....	July-August.....	4		
Siam:				
Bangkok.....	Dec. 6-12.....	39	26	

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 February 5, 1926—Continued

PLAGUE

Place	Date	Cases	Deaths	Remarks
Canary Islands: Santa Cruz de Teneriffe	Dec. 21-27	1		Officially reported Dec. 24, 1925.
China: Nanking	Dec. 13-26			Present.
Do.	Dec. 27-Jan. 2			Do.
Ecuador: Guayaquil	Dec. 16-31	16	4	Rats taken, 12,794; plague-infected rats found, 67.
India: Bombay	Dec. 6-12	1	1	Nov. 15-21, 1925: Cases, 1,164; deaths, 696.
Calcutta	Dec. 6-12	1	1	
Karachi	Dec. 13-19	1	1	
Rangoon	Dec. 6-12	1	1	
Java: Djakakarta	Oct. 20			Epidemic. One locality.
Kediri	Dec. 7			Do.
Rembang	Oct. 20			Do.
Soerabaya	Nov. 22-23	6	6	
Mauritius	Oct. 18-Nov. 14	4	4	
Nigeria	August-September	349	267	
Peru: Huacho		15		Port. Situated 60 miles north of Callao. Reported under date of Jan. 23, 1926.
Russia	July-August	129		
Senegal	October	23	13	
Siam	Sept. 6-Oct. 3	27	20	
Union of South Africa: Cape Province— Middleburg District	Dec. 6-12	1		Dec. 6-12, 1925: Cases, 2; deaths, 1. One case occurred in European.
Orange Free State— Bothaville District	do.	1	1	European. Native. On farm.

SMALLPOX

Algeria: Algiers	Dec. 11-20	51		
Australia: Queensland— Brisbane	Dec. 9-15	1		
British East Africa: Kenya— Mombasa	Dec. 6-12	4	2	From Tivi, 9 miles distant on mainland.
British South Africa: Southern Rhodesia	Dec. 4-10	1		
Canada: Alberta	Jan. 10-16	2		Jan. 3-16, 1926: Cases, 56.
British Columbia— Vancouver	Jan. 4-10	1		
Manitoba	Jan. 3-9	14		
Winnipeg	Jan. 17-23	1		
Ontario	Jan. 3-16	35		
Toronto	Jan. 10-16	18		
Saskatchewan	Jan. 3-16	5		
China: Amoy	Dec. 6-19			Present.
Antung	Dec. 14-20	1		
Chungking	Dec. 20-26			Do.
Hankow	do.	1		
Nanking	Dec. 6-26			Do.
Do.	Dec. 27-Jan. 2			Do.
France: Geld Coast	October	66		
Great Britain: England and Wales	Dec. 27-Jan. 2	203		
Hull	Dec. 27-Jan. 2	14		
Newcastle-on-Tyne	Dec. 27-Jan. 2	1		
Nottingham	Dec. 13-26	5		

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

Reports Received During Week Ended February 5, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
India				Nov. 15-21, 1925: Cases, 1,842; deaths, 348.
Bombay	Nov. 29-Dec. 12	7	7	
Calcutta	Dec. 6-12	8	6	
Karachi	Dec. 13-19	3		
Madras	Dec. 13-26	5	1	
Rangoon	Dec. 6-12	2	1	
Iraq	Sept. 20-Oct. 17	40	16	
Italy	Oct. 4-31	12		
Java:				
Soerabaya	Nov. 22-28	51	4	
Mexico				September, 1925: Deaths, 252.
Aguascalientes	Jan. 3-16		3	
Guadalajara	Jan. 12-18		1	
Mexico City	Jan. 3-9	1		Including municipalities in Federal District.
San Luis Potosi	Dec. 20-Jan. 16		16	
Torreón	Dec. 1-31		86	
Nigeria	August-September	103	1	
Poland				Nov. 1-7, 1925: Cases, 8.
Portugal:				
Oporto	Dec. 27-Jan. 2	1		
Russia	May-June	2,333		Later than previously published reports.
Do	July-August	760		
Spain:				Year 1925: Deaths, 18.
Madrid				
Malaga	Dec. 27-Jan. 2		1	
Valencia	do	1		
Switzerland	Oct. 25-Nov. 21	26		
Tunisia:				
Tunis	Dec. 21-31		1	
Do	Jan. 1-10	1		
Union of South Africa:				
Transvaal—				
Pretoria District	Dec. 6-12			Outbreaks. In native compound.

TYPHUS FEVER

Algeria:				
Algiers	Dec. 11-20	1		
Bulgaria	September-October	26	2	
China:				
Antung	Dec. 21-27	1		
Czechoslovakia	October	8		
France	July-October	4		
Germany	Oct. 25-31	1		
Lithuania	October	1		
Mexico				September, 1925: Deaths, 25.
Mexico City	Jan. 3-9	3		Including municipalities in Federal district.
Morocco	August	3		
Poland				Nov. 1-14, 1925: Cases, 88; deaths, 11.
Rumania	July	74	9	
Russia	May-June	10,680		Later than previously published reports.
Do	July-August	3,136		
Union of South Africa				Dec. 6-12, 1925: Cases, deaths, 1.
Cape Province—				European. On farm.
Middleburg District	Dec. 6-12	1		
Orange Free State—				Outbreaks.
Bethulia District	do			Native. On farm.
Bothaville District	do	1		

YELLOW FEVER

Gold Coast	September	1	1	
Nigeria	August-September	2	1	

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

Reports Received from December 26, 1925, to January 29, 1926¹

CHOLERA

Place	Date	Cases	Deaths	Remarks
India				Oct. 18-Nov. 14, 1925: Cases, 6,544; deaths, 3,790.
Calcutta.....	Nov. 1-28.....	101	89	
Madras.....	Nov. 15-Dec. 12.....	77	31	
Rangoon.....	Nov. 8-Dec. 5.....	4	4	
Indo-China				September, 1925: Cases, 9; deaths, 5. September, 1924: Cases, 7; deaths, 4. (European cases, 2.)
Province—				September, 1924: None.
Annam.....	Sept. 1-30.....	2	2	September, 1924: 1 case; 1 death.
Cochin China.....	do.....	5	3	September, 1924: None.
Tonkin.....	do.....	2		
Japan	Aug. 30-Sept. 19.....	121		
Philippine Islands:				
Manila.....	Nov. 9-Dec. 5.....	8	6	
Provinces—				
Bataan.....	Nov. 30-Dec. 13.....	10	8	
Bulacan.....	Oct. 18-Nov. 7.....	92	64	
Do.....	Nov. 23-Dec. 13.....	108	24	
Laguna.....	do.....	16	13	
Nueva Ecija.....	do.....	6	2	
Pampanga.....	Nov. 1-7.....	1	1	
Do.....	Nov. 23-Dec. 13.....	42	30	
Rizal.....	Sept. 27-Oct. 24.....	70	21	
Romblon.....	Dec. 7-13.....	23	12	
Russia	May-June.....	7		
Siam:				
Bangkok.....	Oct. 4-Nov. 14.....	108	66	
Do.....	Nov. 22-Dec. 5.....	122	62	
On vessel:				
Steamship.....	Oct. 3.....	9		Arrived at Bangkok, Siam; 9 cases in coolie passengers.

PLAGUE

Brazil:				
Bahia.....	Nov. 8-14.....	2		
Santos.....	Dec. 8-21.....		2	
British East Africa:				
Kenya—				
Kisumu.....	Nov. 22-Dec. 5.....	1	2	
Uganda Protectorate.....	September, 1925.....	103	85	
Canary Islands:				
Santa Cruz de Tenerife.....	Dec. 18.....	2		
Ceylon:				
Colombo.....	Nov. 15-28.....	3	3	
Do.....	Nov. 29-Dec. 5.....			One plague rodent.
China:				
Nanking.....	Nov. 15-Dec. 5.....			Prevalent.
Ecuador:				
Guayaquil.....	Nov. 1-Dec. 15.....	15	8	
Egypt:				
Beni Suef.....	Nov. 18, 1925.....	1	1	
Fayoum Province.....	Dec. 3-9.....	1	1	
Greece:				
Athens.....	Nov. 1-30.....	18	4	
Patras.....	Nov. 13-Dec. 12.....	4	1	
India:				
Karachi.....	Nov. 1-14.....	3	2	
Madras.....	Oct. 25-Nov. 7.....	75	41	
Do.....	Nov. 15-21.....	35	22	
Rangoon.....	Oct. 25-Dec. 5.....	18	11	
Indo-China:				
Province—				
Cambodia.....	Sept. 1-30.....	11	11	
Cochin China.....	do.....	6	5	

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 December 26, 1925, to January 29, 1926—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Java:				
Batavia.....	Oct. 24-Nov. 6.....	94	89	Province.
Do.....	Nov. 14-Dec. 4.....	169	159	
Cheribon.....	Sept. 27-Oct. 17.....		166	Epidemic in one locality.
Djakakarta.....	Nov. 9.....			
Pekalongan.....	Sept. 27-Oct. 17.....		42	
Soerabaya.....	Oct. 11-Nov. 21.....	39	30	
Tegal.....	Sept. 27-Oct. 17.....	6	6	
Madagascar:				
Province—				
Itasy.....	Sept. 16-Oct. 31.....	20	20	
Moramanga.....	do.....	17	17	
Tananarive.....	do.....	174	159	
Town—				
Fort Dauphin.....	Sept. 16-Oct. 15.....	5	2	
Tamatave (port).....	Sept. 16-30.....	3	2	
Do.....	Oct. 16-31.....	4	4	
Tananarive.....	Sept. 16-30.....	2	2	
Mauritius Island.....	Sept. 20-Oct. 17.....	5	5	
Russia.....	May-June.....	67		
Senegal.....	September, 1925.....	22	12	
Siam.....	Aug. 23-Sept. 5.....	23	20	
Bangkok.....	Nov. 15-28.....	3	3	
Straits Settlements:				
Singapore.....	Nov. 1-21.....	5	5	
Syria:				
Beirut.....	Nov. 11-20.....	1		
Union of South Africa:				
Cape Province—				
Steynsburg district.....	Nov. 15-21.....	1		Native. On farm.
Orange Free State—				
Boshof district.....	Nov. 29-Dec. 5.....	1	1	In native.

SMALLPOX

Algeria:				
Algiers.....	Nov. 21-Dec. 10....	58		Imported.
Arabia:				
Aden.....	Nov. 29-Dec. 5....	1		
Argentina:				
Rosario.....	October, 1925.....		1	
Brazil:				
Rio de Janeiro.....	Nov. 1-28.....	134	72	
British East Africa:				
Kenya—				
Mombasa.....	Nov. 15-Dec. 5....	10	3	
Uganda Protectorate.....	Sept. 1-30.....	7	4	
British South Africa:				
Southern Rhodesia.....	Nov. 13-19.....	1		Native.
Canada.....				Sept. 13-Jan. 2: In seven prov-
Alberta—				inces, 186 cases.
Calgary.....	Dec. 13-19.....	1		From Drumbheller, vicinity of
Manitoba—				Calgary.
Winnipeg.....	do.....	2		
Do.....	Jan. 3-9.....	6		
New Brunswick—				
Northumberland.....	Dec. 6-13.....	1		
Ontario.....				December, 1925: Cases, 22;
Ottawa.....	Dec. 6-12.....	2		deaths, 1. Occurring in 15
Do.....	Jan. 3-9.....	1		localities.
Toronto.....	Dec. 27-Jan. 2....	1		
Do.....	Jan. 3-9.....	2		
Saskatchewan—				
Moose Jaw.....	do.....	2		
Ceylon:				
Colombo.....	Dec. 6-12.....	1		Port case.
China:				
Amoy.....	Oct. 25-Dec. 5....		1	
Antung.....	Dec. 7-13.....	1		
Chungking.....	Nov. 15-Dec. 5....			Present.
Foochow.....	Nov. 1-21.....			Do.
Hankow.....	Nov. 14-21.....	3		
Hongkong.....	Nov. 22-28.....	3		

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

Reports Received from December 26, 1925, to January 20, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China—Continued				
Manchuria—				
An-shan	Dec. 6-12	1		
Dairen	Oct. 19-Dec. 6	40	10	
Mukden	Oct. 24-Nov. 15	1		
Tieh-ling	do	2		
Nanking	Nov. 21-Dec. 5			Present.
Shanghai	Oct. 25-Dec. 19	23	25	
Swatow	Nov. 22-Dec. 5			Do.
Tientsin	Nov. 1-7	1		
Egypt:				
Alexandria	Dec. 3-9	1	1	
France				September, 1925: Cases, 25.
Great Britain:				
England and Wales	Nov. 15-Dec. 26	790		
Hull	Nov. 29-Dec. 26	25		
Newcastle-on-Tyne	do	6		
Sheffield	Nov. 22-Dec. 12	7		
Greece				Oct. 1-31, 1925: Cases, 16.
Athens	Nov. 1-30	17	1	
India				Oct. 18-Nov. 14, 1925: Cases, 5,093; deaths, 1,136.
Bombay	Nov. 8-28	12	7	
Calcutta	Nov. 29-Dec. 5	21	12	
Karachi	Nov. 1-21	23		
Do	Nov. 29-Dec. 5	4	2	
Madras	Nov. 15-Dec. 12	12	4	
Rangoon	Oct. 25-Nov. 28	3		
Indo-China				September, 1925: Cases, 123; deaths, 33. September, 1924: Cases, 78; deaths, 22.
Province—				
Annam	Sept. 1-30	47	9	September, 1924: Cases, 8; deaths, 2.
Cambodia	do	29	8	September, 1924: Cases, 16; deaths, 1.
Cochin China	do	28	16	September, 1924: Cases, 43; deaths, 19.
Tonkin	do	18		September, 1924: Cases, 11.
Iraq				Sept. 6-19, 1925: Cases, 41; deaths, 24.
Bagdad	Nov. 1-14	4	4	
Do	Nov. 22-Dec. 5	9	9	
Italy				Aug. 2-Sept. 30, 1925: Cases, 26.
Rome	Oct. 12-25	1		
Jamaica				Nov. 27-Dec. 26, 1925: Cases, 52. Reported as alastrim.
Kingston	Nov. 27-Dec. 26	43		
Japan:				
Taiwan	Nov. 11-Dec. 10	3		
Yokohama	Dec. 14-20	1		
Java:				Province and city.
Batavia	Oct. 24-30	1		
Do	Nov. 14-27	5		
Kraksaan	Oct. 11-17	11		
Malang	do	2		
North Bantam	Oct. 4-17	4		
Probolingo	Oct. 11-17	1		
Soerabaya	Oct. 11-Nov. 21	343	50	
South Bantam	do	1		
Tegal	Oct. 4-10	9	1	
Malta	November, 1925	14		
Mexico				July-August, 1925: Deaths, 905.
Aguascalientes	Dec. 13-Jan. 2	4	3	
Durango	Dec. 1-31		1	
Guadalajara	Dec. 23-Jan. 4		3	
Mexico City	Nov. 23-Dec. 5	1		
Torreon	Nov. 1-30		15	
Persia:				
Teheran	July 23-Aug. 23		68	
Peru:				
Arequipa	Oct. 1-31		1	
Portugal:				
Lisbon	Oct. 4-31	124		
Do	Nov. 16-Dec. 6		31	
Do	Nov. 14-Dec. 19	179		
Oporto	Nov. 22-Dec. 19	2	3	
Russia				May-June, 1925: Cases, 1,336.

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

Reports Received from December 26, 1925, to January 29, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Siam.....				July 12-Sept. 5, 1925: Cases, 21; deaths, 6.
Spain:				
Malaga.....	Nov. 29-Dec. 5.....		2	
Valencia.....	Dec. 20-26.....	1		
Switzerland.....				June 28-Oct. 24, 1925: Cases, 36.
Lucerne.....	Oct. 1-Nov. 30.....	8		
Tunisia:				
Tunis.....	Nov. 21-30.....	2		
Do.....	Dec. 11-20.....	10		

TYPHUS FEVER

Algeria:				
Algiers.....	October, November.....	3		
Argentina:				
Rosario.....	Oct. 1-31.....	1		
Chile:				
Valparaiso.....	Nov. 29-Dec. 5.....		1	
China:				
Antung.....	Nov. 29-Dec. 6.....	4	1	
Egypt:				
Port Said.....	Nov. 19-25.....	1		
Finland.....				October, 1925: One case.
Greece:				
Athens.....	Nov. 1-30.....	11	2	
Latvia.....	October, 1925.....	2		
Lithuania.....				September, 1925: Cases, 8; deaths, 1.
Mexico.....				July-August, 1925; deaths, 65.
Aguascalientes.....	Dec. 14-19.....	1		
Durango.....	Dec. 1-31.....		1	
Guadalajara.....	Dec. 8-Jan. 4.....		8	
Mexico City.....	Nov. 22-Jan. 2.....	162		Including municipalities in Federal district.
Tampico.....	Dec. 21-Jan. 10.....	1	1	
Torreon.....	November, 1925.....		1	
Palestine:				
Jaffa.....	Dec. 1-7.....	1		
Nazareth.....	Nov. 3-9.....	1		
Safad.....	Nov. 24-30.....	1		
Tel-Aviv.....	do.....	1		
Peru:				
Arequipa.....	October, 1925.....		2	
Poland.....	Oct. 11-31.....	54	5	
Rumania.....				July, 1925: Cases, 74; deaths, 9.
Russia.....				May-June, 1925: Cases, 7,600.
Union of South Africa.....				October 1-31, 1925: Cases, 88; deaths, 7 (colored); cases, 7 (European population).
Cape Province.....	Oct. 1-31.....	63	5	Colored.
Do.....	Nov. 8-14.....			Outbreaks in two districts.
Natal.....	Oct. 1-Dec. 5.....	1		
Orange Free State.....	Nov. 29-Dec. 5.....	23	1	
Transvaal.....	Oct. 1-31.....	1	1	