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REPORT OF THE UNITED STATES PUBLIC HEALTH SERVICE ON THE MONTREAL TYPHOID-FEVER SITUATION

The board of officers convened under bureau order of June 16, 1927, for the purpose of surveying the typhoid-fever situation in Montreal, Canada, and the vicinity thereof, with a special view to the determination of measures needed to prevent the spread of the infection from that city and vicinity into the United States, has the honor to submit the following report:

Our survey was begun on June 18 and was terminated on June 29.

Upon arrival at Montreal on the morning of June 18 we conferred with the consul in charge of the United States consulate and with officials of the city, provincial, and Federal health departments.

Our studies included (1) the examination of the typhoid-fever records of the city of Montreal and other parts of the Province of Quebec for the period January 1 to June 18, 1927, and for previous years; (2) a survey of the city water supply and sewerage system; (3) the inspection of milk plants in the city and of milk-receiving stations and dairy farms in the surrounding country; (4) the collection, by personal interview, of detailed epidemiological histories of 203 cases selected so as to be fairly representative of all the cases occurring in the entire epidemic period; and (5) a consideration of the adequacy of the locally operating health forces to cope with the situation.

EXTENT AND FEATURES OF THE OUTBREAK

According to the official records, there were reported in the city of Montreal for the period March 1 to June 28, inclusive, of this year 4,755 cases of typhoid fever with 453 deaths, as against 37 cases with 11 deaths, 48 cases with 18 deaths, and 44 cases with 21 deaths for the period March 1 to June 30 of the years 1926, 1925, and 1924, respectively. From the official record of cases and without consideration of the possible number of additional cases unattended by physicians or not diagnosed and reported, it is evident that since March 1, 1927, Montreal has suffered a severe epidemic of typhoid fever with a case incidence in proportion to population probably unprecedented by any other large city in the world within the present century.

No evidence was obtained by our survey to suggest that either the city water supply or the city sewerage system operated in the spread of the infection causing the epidemic.

The disease was distributed over the greater part of the area of the city with much more concentration in proportion to population in some sections than in others. The geographical distribution of the cases, when considered in connection with the distribution areas of the city water, furnished practically conclusive evidence that the city water supply was not infected as delivered from either of the two separate plants, or in its course through the city mains, so as to have operated importantly in the spread of the infection causing the epidemic.

The distribution of the disease was such, however, as to suggest strongly that the main volume of the infection had been conveyed through some medium other than water which reached a large number of persons in different parts of the city at the same time.

CAUSATION OF EPIDEMIC

According to the official records furnished us, it was found soon after the beginning of the outbreak that a very large proportion of the cases were in persons who gave a history of drinking milk distributed from the plant of the Montreal Dairy Co. (Ltd.). The distribution from this plant constituted in the period of causation of the outbreak about one-eighth of the total milk supply of the city. Judging from the epidemiological case histories obtained by the city health department through detailed inquiry at the homes of patients and from those obtained by ourselves through, usually, direct interviews with patients or convalescents at private homes, in public institutions, and in hospitals, it appears definite that at least six-eighths of the cases in the epidemic were in persons who, in the period of causation, were knowingly exposed to the milk output from the plant of the Montreal Dairy Co. (Ltd.). We found no evidence that there was any significant disproportion of cases among habitual users of milk from any of the other dairy plants in the city.

The local institutions, such as boarding schools, orphanages, and homes for helpless adults, with a total population of approximately 15,000, furnished a striking contrast. In those institutions whose inmates used milk from the plant of the Montreal Dairy Co. (Ltd.) the rate of prevalence of typhoid fever was high, while in those whose inmates, though constituting a large majority of the total institution population of the city, used milk from various other milk plants, the rate of prevalence was little, if any, higher than that for the general population in the corresponding periods in the several preceding years.

The age distribution of the disease was also highly significant. About 32 per cent of the cases in the epidemic were reported among children under 10 years of age. These points and every other point of evidence obtained by us throughout the course of our study of the situation supported the conclusion that the vast bulk of the infection causing the recent epidemic of typhoid fever in Montreal, Canada, was disseminated in the milk distributed from the plant of the Montreal Dairy Co. (Ltd.).

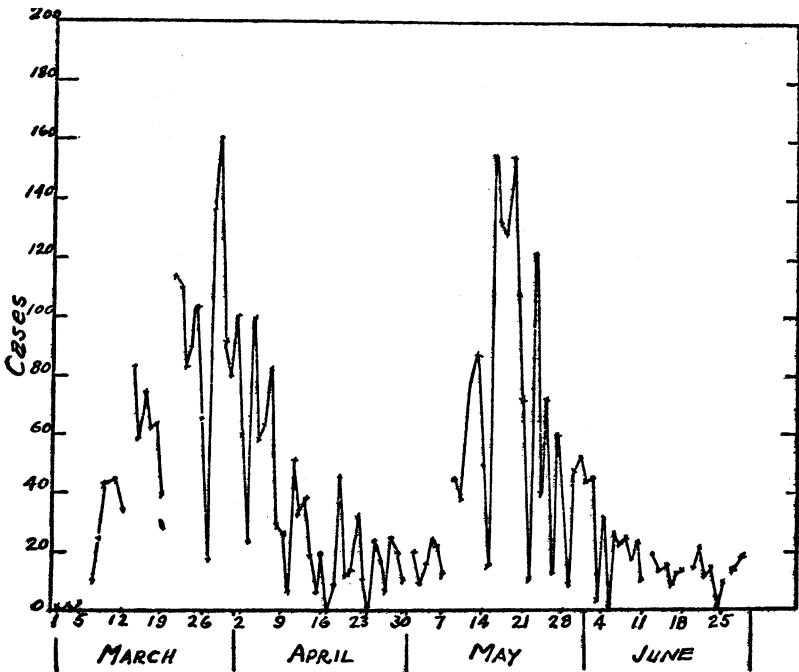
No evidence to support any other conclusion has become apparent to us. Exactly when and how the infection was introduced into this milk supply has not been determined. In view of the tremendously high rate of prevalence of typhoid fever among the persons who were exposed to this infected milk in the period between February 15 and May 15, 1927, it is only reasonable to assume that there was at times within this period heavy dosage infection in this milk when it was ingested. Such evidence of dosage suggests that after the infecting matter was introduced into the milk there were sufficient time and suitable temperature to permit a large multiplication of the typhoid bacilli. Otherwise very gross contamination of the milk with infected human excreta would have to be assumed.

The two accompanying charts indicate, respectively, the daily report of cases and the dates of onset of the cases. The date of onset as given in Chart 2 varies considerably in meaning; but according to the best information we could obtain it means, as a rule, the date which the patient gave as that of the earliest typhoidal symptom or symptoms. From these charts it appears that the causation of the epidemic began about February 15, increased rapidly toward its maximum about February 19, reached its maximum about March 5, continued high until March 18, and then rapidly declined so as to be at less than one-fifth of its maximum rate of operation by March 26. From careful study of individual cases it seems that the decline of causation was greater than is suggested by the chart. In fact it is quite probable that there was a complete cessation of the main current of infection from March 27 to April 20. At about the latter date there was another very sharp rise in the rate of causation. The causation rate of this second outbreak, or recrudescence, reached its maximum about May 2, began a very rapid decline about May 6, and was down to less than one-fifth of its maximum by May 15. The cases reported with onsets subsequent to May 25 have been in decreasing proportion among persons exposed to the milk distributed by the Montreal Dairy Co. (Ltd.), and in markedly increasing proportion among persons exposed to personal contact with previous cases.

The milk supply distributed by this company was obtained from 1,200 to 1,500 farms. The families on the farms producing milk

within the general vicinity of Montreal are, on the average, large. The farms, as a rule, are narrow, and the dwellings along the high-ways for long distances are close together. The residents are sociable people. We estimate that the milk from the farms furnishing the milk distributed by the Montreal Dairy Co. (Ltd.) was exposed more or less to a population of 20,000. In view of the usual rate of prevalence of typhoid fever in this community, it would be unreasonable to assume that there was no typhoid infection among these persons during the period of causation of the city epidemic. Judging

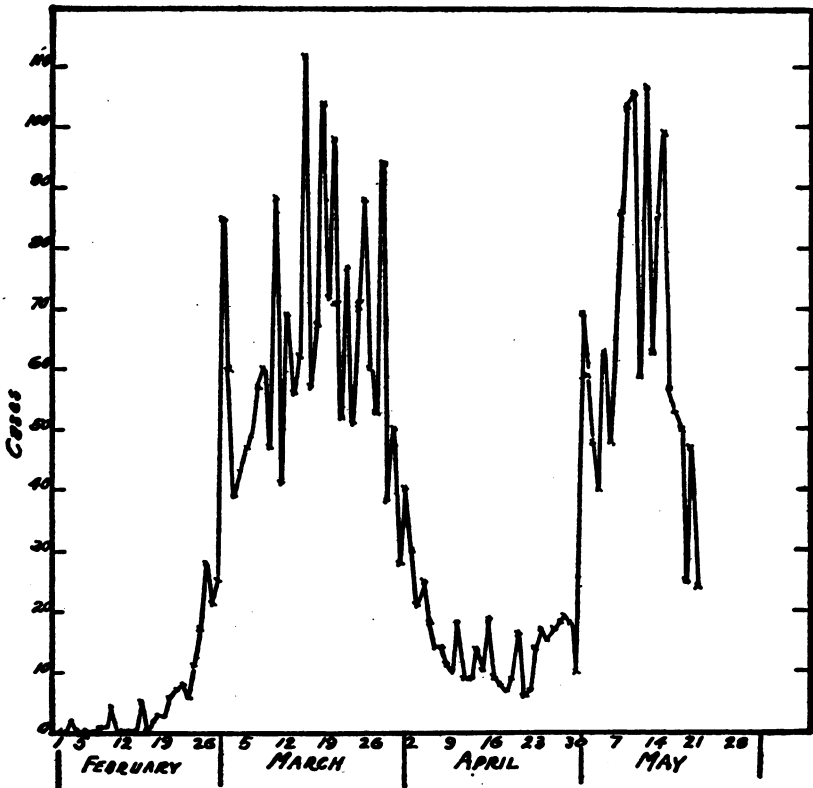
CHART No. 1
 MONTREAL TYPHOID FEVER EPIDEMIC, 1927
 BY DATE OF REPORTING OF CASES
 CITY HEALTH DEPARTMENT RECORDS



from such reports as we received and from quite extensive observations made by us, the average dairy farm in the general vicinity of Montreal presents unsatisfactory sanitary conditions. Open privies and open wells are frequent. In much of the country there is a limestone formation outcropping or near the surface of the ground. Milk-house doors are, in many instances, within a few feet of kitchen doors. Surface streams are used quite commonly as sources of water for the milk houses and for the disposal of sewage from homes upstream.

Some of the milk from the farms was conveyed direct to the city plant of the Montreal Dairy Co. (Ltd.), and some was sent through four receiving stations in the country. At the receiving stations the milk usually was emptied from the farmer's cans, cooled, placed in the company's cans, and then conveyed to the city plant. There was certainly a possibility for the introduction of typhoid infection at these receiving stations. At one of them the water used mainly for washing the interior of the milk-cooling vats and other equipment

CHART No. 2
MONTREAL TYPHOID FEVER EPIDEMIC, 1927
 BY DATE OF ONSET OF CASES
 CITY HEALTH DEPARTMENT RECORDS



was pumped from a near-by river which was obviously polluted with sewage and privy contents at numerous points upstream from and near the intake for the water. The amount of whole milk transmitted through this station was markedly decreased after March 26 and was discontinued altogether after May 6.

At the city plant the routine procedure was reported to have been as follows: The milk upon delivery was weighed, cooled in a surface cooler, and passed by gravity to storage tanks, where it was held

until needed. From the storage tanks it was passed to the clarifier and thence to the open-surface regenerator. From the regenerator it passed to the Pasteurizing machine, where it was heated to a temperature of 142° to 145° F. and held at that temperature for a period of about 30 minutes. After Pasteurization the milk went through the inside of the pipes of the regenerator, then to the surface cooler, and then to the bottling machine. Inspections of this plant were made by Assistant Sanitary Engineer F. J. Moss, of the United States Public Health Service, who was detailed to assist the board in its survey. Mr. Moss reports that the Pasteurizing machine was of an efficient type, but that as it was probably operated in at least a part of the period of causation of the epidemic, there was a possibility for a very small quantity of milk to leak through the valve leading from the Pasteurizer before being held at the temperature of 142° or more for the full 30 minutes. The charts of the recording thermometer were examined carefully by Mr. Moss and Mr. Crohurst. The charts indicated that the milk which was run through the Pasteurizer within the period of causation of the outbreak was, with occasional minor exceptions, heated to 142° or over and held at that temperature for 30 minutes. Such heating is regarded as sufficient to have killed all typhoid bacilli which may have been in the milk actually so Pasteurized. If all the milk which entered the plant direct from the farms or through the receiving stations was freed by the Pasteurization process from whatever typhoid infection it contained, the question is where and how the infection could have been introduced into the milk in sufficient volume, or so as to become of sufficient volume, to account for the epidemic. According to all the evidence obtained by us, the milk immediately after leaving the Pasteurizing machine was kept at a temperature of 40° F. or below until transferred to the delivery wagons, and as a rule the milk was started on the delivery wagons immediately or within a few hours after being bottled or canned for ultimate delivery. If such was the case, the chances for great multiplication of typhoid bacilli introduced into the milk after Pasteurization would have been exceedingly remote, and very gross contamination of the Pasteurized milk in the plant would have been necessary to account for the tremendous current of infection which went out with the supply of milk distributed from this plant.

It appears that slight contamination of the Pasteurized milk by finger touch or otherwise by workers in the plant was possible. All the evidence, however, seems to us to make untenable such an explanation of the main current of the infection. A search was made by the city and the provincial health departments for possible typhoid bacillus carriers in the plant. One of the employees, the foreman of the

plant, was found on April 6 to give a positive Widal blood test. This man gave a history of having had typhoid fever 20 years previously, when he was 13 years of age. His feces have been examined on nine occasions and his urine on seven occasions since April 8 by either the city or the provincial health department laboratory, or both. The urine has been found negative on all examinations. The feces were found positive for *B. typhosus* on four of the examinations. The last two specimens of feces obtained from him on June 17 and 25 were both found negative for typhoid. This man states that he knows of no attack of typhoid fever among any of his immediate household associates since his attack 20 years ago. He worked for about seven years at the creamery of the Montreal Dairy Co. (Ltd.) immediately before entering upon his duties at the milk plant of that company on February 5, 1927. He states that as foreman of the milk plant he seldom touched with his hands the milk either before or after it was Pasteurized, but that while engaged at the creamery he frequently had finger contact with both the equipment and the cream. No evidence of a typhoid outbreak traceable to the cream from the creamery while he was engaged there has been presented. This man appears tidy and seems to be of very cleanly habits. He was removed from the milk plant on April 16. The time he began duty at the milk plant synchronized with the beginning of the causation period of the epidemic, and this might be considered as possibly suggestive of cause and effect. It is difficult, however, to conceive, if he started the current of infection in the milk, why he ceased to infect the milk during the period from about March 26 to the date upon which he was removed from the plant, April 16. It is entirely unreasonable to suspect that he was a causative factor in the second outbreak or recrudescence which had the peak of its causation about May 2.

The possibility that other persons working in or visiting the plant may have been minor contributory factors in introducing typhoid infection into the milk may be argued, but all the general epidemiological evidence would definitely oppose any hypothesis upon which to base a conclusion that the main current of the infection was derived from personal touch within the milk plant.

On the other hand, the general epidemiological evidence supports the view that the main current of the infection causing the epidemic was in all probability in the raw milk as this milk entered the plant, and that through advertence or inadvertence on the part of the workers in the plant a very considerable proportion of the raw milk which entered and was distributed from the plant escaped efficient Pasteurization, or even a run through the Pasteurizer, regularly or at least frequently during the periods February 15 to March 27 and from April 20 to May 15, 1927. From a study of records available

to us it appears certain that at times during the period of causation of the epidemic more raw milk was delivered to the plant than was run through the Pasteurizer.

OTHER POSSIBLE FACTORS

The epidemiological case histories and other evidence obtained by us eliminated all factors other than milk which might operate preponderantly in the causation of such an epidemic. The hypothetical factors so eliminated were vegetables, shellfish, "carriers" in public eating places, etc.

The case histories obtained by us do suggest that cream and ice cream distributed by the Montreal Dairy Co. (Ltd.)—the ice cream having been made at the older plant of the company which was operated in close connection with the milk plant—served as a factor of causation for a small proportion of the cases occurring in the second outbreak, or recrudescence.

ADEQUACY OF LOCAL HEALTH SERVICE

When the epidemic began, the city health department was operating on an annual budgetary basis of 40 cents per capita. The working force has since been augmented by the employment of four sanitary inspectors. Only one inspector is especially engaged in the inspection of Pasteurization plants, of which there are 41 or 42 in the city, and he is said to devote a considerable proportion of his time to other duties. The conditions generally found on the dairy farms indicate that the sanitary control of these farms has been and is yet far from adequate.

Only eight health nurses are now engaged in communicable disease-control work in Montreal. With over 3,000 typhoid cases or convalescents at homes in the city, and with the usual prevalence of other communicable disease, the inadequacy of such a small force of nurses is obvious.

Our definite impression is that the city health officer of Montreal has honestly and sincerely recognized his responsibilities during the epidemic and has done his best to render efficient service under most difficult and trying circumstances. It is evident that he should be given ample authority and adequate efficient personnel at once to cope effectively with the present typhoid situation and with other serious preventable disease situations which are likely, under existing conditions, to develop in Montreal in the future. Such provision is of critical importance to all the people of the city and would be to the business interests of all the citizens and especially of those who may profit from tourist traffic. Since the epidemic began, the

city health forces have been augmented by the temporary detail of two sanitary engineers and one sanitary inspector from the provincial health department. This provincial force took charge of the milk plant and the creamery of the Montreal Dairy Co. (Ltd.) on May 21, and apparently has managed them since that date in a highly efficient manner.

When the epidemic began the Montreal Dairy Co.'s milk plant was receiving and distributing in the city from 6,000 to 8,000 gallons of milk a day. This amount has been reduced to about 2,000 gallons a day since May 21. The milk diverted from this plant is, according to our information, going in part to creameries in the surrounding country, where it is made up into cheese, and in part to other milk plants in the city. As there is yet a definite possibility of typhoid infection being derived from some of the dairy farms which formerly were supplying the Montreal Dairy Co. plant, rigid official supervision of milk from these and neighboring farms throughout its course from its sources to its consumers in Montreal or elsewhere is important. With the large number of human foci of potential typhoid infection now in Montreal, and in view of the inefficiency of precautionary measures to prevent secondary infections from existing patients and convalescents, the inadequacy of the sanitary inspection force for milk and other food establishments, and the fact that the number of new cases of typhoid fever reported for the 10 days ended June 28 averaged over 10 a day, it is obvious that, from a typhoid-fever standpoint, Montreal is not yet a comparatively safe city for visitors and is not likely to become such until much more efficient local health service is established.

It is apparent that the biggest factor in the prevention of secondary cases in the epidemic has been the hospitalization of a large number of the primary cases—about one-third of the total cases reported. The bedside prophylaxis at the hospitals generally—both the emergency hospitals for typhoid cases and the permanent hospitals—impressed us as being painstaking and efficient.

The large volume of milk, cream, butter, and cheese shipped from the general vicinity of Montreal into the United States is not now officially so controlled at its sources as to give satisfactory assurance of its freedom from typhoid or other dangerous infection at any time. To remove such menace to the health of the people of the United States, provision should be made at once for effective processing of such foods under adequate official supervision at the places to which they are shipped before they are distributed to the consumers.

CONCLUSIONS

(1) The typhoid fever epidemic in Montreal, Canada, since February 15, 1927, was beyond reasonable doubt caused by infection

distributed in the output of milk from the plant of the Montreal Dairy Co. (Ltd.) in that city.

(2) Though contributory infection may have been introduced into the milk at one or more of the four stations or within the plant in Montreal, the preponderance of evidence is that the bulk of the infection was introduced into the milk at the farm sources and was enabled to multiply before the milk reached the city plant.

(3) Though it was barely possible for a very small proportion of whatever infection was in the milk to pass through the Pasteurization machine without being heated long enough and at a high enough temperature to be destroyed, the preponderance of evidence is that a very considerable proportion of the infected milk was passed through and distributed from the plant without being subjected to Pasteurization treatment.

(4) A large proportion of the milk which at the beginning of the epidemic was distributed through the plant of the Montreal Dairy Co. (Ltd.), and which is now presumably being distributed through other plants or channels to consumers in Montreal and elsewhere, is not now being officially controlled in such manner as to preclude its possible menace to the public health.

(5) Montreal is not yet a comparatively safe city for visitors who are likely to be susceptible to typhoid-fever infection.

(6) Milk and milk products derived from sources within the general vicinity of Montreal do not appear to be produced or processed under satisfactory sanitary conditions nor under official health supervision approaching adequacy.

RECOMMENDATIONS

(1) That State and local health officials and other persons concerned be advised that Montreal is not now, from a typhoid-fever standpoint, a comparatively safe city for tourists from the United States to visit and is not likely to be such for months yet to come, unless local health service in the city of Montreal and the vicinity thereof promptly is made much more nearly adequate than it now is.

(2) That such steps as may be necessary be taken to encourage or bring about under proper official supervision radical improvement in sanitary conditions under which milk and milk products are produced, handled, or processed in the city of Montreal or at any other place in the Province of Quebec within a radius of 100 miles of the city of Montreal for export to the United States; and that such milk or milk products after reaching points to which shipped in this country and before being distributed to consumers, be Pasteurized or otherwise processed under official supervision so as to be rendered free from typhoid, tuberculosis, or any other infection likely to endanger human health.

ACKNOWLEDGMENTS

We are especially indebted for much essential assistance and many courtesies (1) to the health departments of the city of Montreal, the Province of Quebec, and the Dominion of Canada, (2) to the hospital authorities of the city of Montreal, (3) to the consul in charge of the United States consulate in Montreal, (4) to Surgeon Louis Schwartz, of the United States Public Health Service, the medical officer assigned to the United States immigration station for the medical inspection of aliens, and (5) to the many individual citizens in Montreal and the vicinity thereof whom we interviewed.

L. L. LUMSDEN, *Surgeon, Chairman.*

J. P. LEAKE, *Surgeon, Member.*

H. R. CROHURST, *Sanitary Engineer, Member.*

C. E. WALLER, *Surgeon, Recorder.*

ANOPHELES ATROPOS Dyar and Knab

A Note on Its Breeding and Other Habits

By T. H. D. GRIFFITTS, *Epidemiologist, United States Public Health Service*¹

Dyar² describes *Anopheles atropos* as a "rather small blackish *Anopheles* with unspotted wings. Mesonotum elongate, deep brown. Abdomen blackish in the integument, with dark hairs, legs and palpi entirely dark, the latter with traces of paler markings at the articulations. Wing scales entirely dark, not forming spots. Little is known of this form, and nothing of the male or life history. Specimens were taken by Dr. M. J. White biting between 4 and 5 in the morning. Malaria relation unknown. Distribution: Coasts of Florida and Louisiana." Beyer³ states that "*A. atropos* is strictly a salt water mosquito confined to a comparatively narrow belt along the Gulf coast; it is somewhat smaller than either *quadrimaculatus* or *crucians*, and almost all black in superficial appearance. Within its range it outnumbered *crucians* by three to one; its larvae dwell in soft mud and not in open water" (*italics* are the writer's).

In the course of the survey, now being conducted by the United States Public Health Service, of the salt-marsh mosquito-breeding areas of the South Atlantic and Gulf States, *Anopheles atropos* has been encountered in several areas in the States of Alabama, Mississippi, and Louisiana.

¹ From the "Survey of Salt Marsh Areas, South Atlantic and Gulf States."

² Dyar, Harrison G.: The Mosquitoes of the United States. No. 2447.—From the Proceedings of the United States National Museum, Vol. 62, Art. 1, pp. 1-119. (Reprinted by the U. S. Public Health Service.)

³ Mosquitoes of Louisiana. Quarterly Bulletin, Louisiana State Board of Health, Vol. XIV, June 1, 1923, pp. 54-54.

We would add to the description of *Anopheles atropos* as follows:

1. *Color*.—Recently emerged imagoes are very dark, almost a bluish-black. Older specimens appear brownish or even reddish on the mesonotum, so much so that attention is likely to be drawn to the reddish color of the mosquito about one's person. This was especially noticeable in a great attack of them in the marsh near the Lake Borgne Lighthouse on Mississippi Sound on October 29, 1926.

2. *Resting and biting attitude*.—When observed biting in the hot sunshine this species assumes less of an angle than does *quadrimaculatus* and decidedly less than does *punctipennis* or *crucians*. In fact, they often are sprawled when about ready to finish the blood meal. On account of this characteristic one not familiar with *atropos*, or not looking for them particularly, may regard them as *Culex*, especially *C. salinarius*, owing to the color of the mesonotum as well as their near-*Culex* position.

3. *Biting habits*.—In marsh areas close to its breeding places *atropos* may be found in such numbers as to be a tormenting pest. In at least two areas we have found it at times more annoying than *Aedes sollicitans*. This held true at Lake Borgne Lighthouse, Mississippi (October 29, 1926), and at Buras, Plaquemines Parish, Louisiana (April 5, 1927). They will attack in large numbers in direct sunlight and are free biters by night. So intrepid are they in their attacks that one may pick them up between finger and thumb and place them in a container.

4. *House-entering habits*.—*Atropos* were found in large numbers in occupied rooms at the hotel at Buras, La., and in bunk cars on a siding which were occupied by laborers; they were biting severely and hundreds of engorged specimens were found in the rooms the following morning. At Biloxi, Miss., on the night of April 1, 1927, there occurred a definite flight of *atropos* to various parts of the city, specimens being taken the next morning in houses in different parts of the city. A number of them had fed during the night. The nearest breeding place was a mile, or slightly more, from the houses to which flight occurred.

5. *Breeding and larval habits*.—From our observations *A. atropos* should not be classed as a mud breeder any more than *crucians* should be so classed. However, it is a salt-water breeder. We have never taken larvae of this species from non-saline water. It seems to be strictly a salt-water breeder, and is frequently found along with *Aedes sollicitans*, *taeniorhynchus*, and *Anopheles crucians* in water of considerable salinity. Near Bayou Labatre, Mobile County, Ala., in salt-marsh pools located on a firm, clayey marsh, the bottoms of the pools being sandy, *atropos* continually produces in a salinity of 12 per cent, the water of Mobile Bay at this point showing a salinity

of only 10 per cent (salinometer with direct salinity reading). Here is an instance of heavy production of *A. atropos* in clear salt pools, which production has been observed at all seasons of the year when the pools are filled with water. In the same marsh innumerable hoof prints wholly or partially filled with rather fouled salt water were producing freely. At Pointe aux Chênes, near Ocean Springs, Miss., they were found repeatedly under similar conditions. The marsh on which this species was producing at Buras, Plaquemines Parish, La., was a firm, alluvial, dense root-mat formation, covered with a heavy growth of salt grass (*Spartina* spp.). Here the water could scarcely be roiled or muddied. Larvae (all sizes) were present on practically every square foot of water surface. The depth of water at the time averaged about 1 inch. In brief, the preferential breeding place of *A. atropos*, as we have found it, is water of a salinity of from 3 to 12 per cent, in permanent salt pools or in shallow water on muck or alluvial marshes.

THE SCHICK TEST AND DIPHTHERIA CARRIERS IN DAIREN, MANCHURIA¹

An increasing prevalence of diphtheria had been noted in Dairen, Manchuria, which brought the number of diphtheria patients hospitalized in that city to ten times the average number formerly recorded. This condition led to the institution of an examination of school children to detect carriers, and to the application of the Schick test, the ultimate purpose being the general administration of the toxin-antitoxin mixture. Although this latter purpose has not been achieved, a report was made on the results obtained from the search for carriers and from the application of the Schick test.

On microscopic examination of material from the pharynx and nasal fossae of 1,559 pupils of two primary schools, in February, 1923, 13 diphtheria bacillus carriers were found—eight boys and five girls between 7 and 11 years of age. In one case the culture also proved positive. No animal tests were made.

Eight of these carriers—five boys and three girls—were given the Schick test, and only two boys, 10 and 11 years of age, respectively, proved positive, indicating that six were carriers, although possessing an immunity.

In March and May, 1923, the Schick test was given to 1,204 pupils, boys and girls, of the two primary schools noted above. The children were between 7 and 12 years of age. Of this number, 419,

¹ Abstract of *Sur la prevention de la diphterie*, a note by Dr. K. Nakadate, presented by Dr. Tsurumi, Japanese delegate, at the October, 1926, session of the Committee of the International Office. *Bulletin Mensuel*, April, 1927.

or 34.8 per cent, gave a positive reaction. The proportion of positive reactions according to age in this group showed little variation.

There were no differences in susceptibility between the sexes.

The table below shows the results of the Schick test given to 10 diphtheria patients cared for in the isolation hospital of Dairen.

Relation between the Schick reaction and the injection of antitoxin

No.	Age	Sex	Interval between the onset of the disease and the Schick test	Day of inoculation after the injection of the antitoxin	Number of units injected	Results of the Schick test ¹	Second test 10 days later ¹
1	15	F	<i>Days</i> 11	Third day	6,000	I	I
2	3	F	8	Fifth day	4,000	I	I
3	2	M	7	Third day	4,000	I	I
4	6	M	12	Second day	5,000	I	I
5	3	F	11	do	4,000	I	I
6	5	F	12	Tenth day	4,000	II	I
7	4	M	11	Second day	5,000	II	I
8	3	F	8	Sixth day	6,000	III	III
9	4	M	3	Second day	4,000	IV	IV
10	2	M	6	Fifth day	4,000	I	I

¹ I=negative; II=doubtful; III=slowly positive.

The Schick test was negative with all the patients except Nos. 8 and 9. It was doubtful in patients Nos. 6 and 7 until 11 and 12 days, respectively, after the first appearance of the symptoms, but became negative on a second test, 10 days later, indicating that at the time of the first test an insufficient number of antibodies had been formed completely to neutralize the inoculated toxin.

In patients Nos. 8 and 9 the Schick reaction was positive, although the injection of the antitoxin had caused the disappearance of all symptoms of diphtheria. This was not considered a question of pseudoreactions, caused by a hypersensitivity to the proteins of the toxin, but was believed to be due to individual hypersensitivity to the toxin.

The following summary is given:

1. Among 1,559 pupils of primary schools, 13 diphtheria carriers were found, a proportion of 0.83 per 100.

2. Among 1,204 pupils Schick tested, 35 per 100 gave a positive reaction.

3. The proportion of positive reactions was practically the same in the two sexes; the morbidity rate and the susceptibility rate coincided.

4. No difference in the rate of positive reactions to the Schick test was noted in the ages 7 to 12 years.

5. In most cases the Schick test produced only a redness and a weak infiltration.

6. In some cases the reaction was negative at the end of 24 hours, then slowly became positive during the next 24 hours.

7. In two of eight carriers the Schick test was positive.

THE COST AND THE PREVENTION OF DIPHTHERIA IN LONDON¹

A report on "The Prevention of Diphtheria," by Dr. J. Graham Forbes, has been issued by the Medical Research Council. It was originally prepared from the information of the Public Health Committee of the London County Council and is a comprehensive survey of the methods for the prevention of diphtheria which have been practiced on a large scale during the past 10 years in America, and to a much less, though growing, extent in Great Britain. The antitoxin treatment of the disease brought down the case mortality quickly from 30 to below 10 per cent, but since 1904 the decline, though continued, had only been from about 9 to about 7 per cent. During the whole time of the use of this method the attack rate and the virulence of the disease had been increasing. In London, for instance, between 1904 and 1924 the attack rate per thousand persons living rose from 11.2 to 19.1, and the deaths from 0.99 to 1.33. The cost of applying to the 620,000 children of the London schools the Schick test for diphtheria and prevention of the disease by active immunization would be \$500,000, inclusive of extra medical service, which might amount to \$425,000. During 1921 the cost of diphtheria alone to London taxpayers was estimated at about \$2,500,000 and the cost of every case of diphtheria at about \$150, a sum which would cover the cost of protecting 200 children. After analyzing the results of preventive work in Great Britain, and also for many countries abroad, the conclusion is reached that the Schick test and immunization constitute one of the most notable advances in preventive medicine. Their systematic adoption would result in a great yearly saving of child life, notably in London, where, though diphtheria has been more generally prevalent and presents a more pressing and difficult problem than in the provinces, no coordinated effort has been made to introduce immunization. The problem calls for the closest cooperation of all authorities concerned, whether public health, administrative, or educational, particularly in London, where, for diphtheria, the attack rate surpasses, and the mortality rate nearly so, that of any other city in Great Britain, and almost every other capital in Europe, if not the world.

METHOD TO ENCOURAGE EARLY DIPHTHERIA IMMUNIZATION

In order to bring about a more general use of toxin-antitoxin among young children, the Virginia State Board of Health has recently devised what appears to be an excellent plan to increase the practice of employing this prophylactic measure early. Stickers,

¹ From The Journal of the American Medical Association, July 2, 1927, p. 44.

containing the legend shown below, are being attached to the birth certificates, and in this manner the matter of diphtheria immunization is brought directly to the attention of the parents.

This method might profitably be adopted by the health authorities of other States, using the form of sticker shown below, or some similar form, in their efforts to encourage the use of toxin-antitoxin, especially among young children.

When the Baby is **SIX MONTHS OLD** have
your **DOCTOR** give **TOXIN-ANTITOXIN** to
PREVENT DIPHThERIA.

—United States Public Health Service

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for May, 1927

The accompanying table is taken from the Statistical Bulletin for June, 1927, published by the Metropolitan Life Insurance Co., and presents the mortality experience of the industrial insurance department of the company for May, 1927, as compared with that for April and for May, 1926. The rates for this year are based on a strength of approximately 18,000,000 insured persons of the industrial populations of the United States and Canada.

The death rate for May, 1927, for this group of insured persons was 8.7 per 1,000—the lowest death rate for that month ever recorded in the experience of the company. The April rate, 9.5 per 1,000, was also the minimum recorded rate for that month in this group. Health conditions in the industrial populations of the two countries during the first five months of 1927, as interpreted by the death rate, have been better than during the corresponding period of any preceding year, and unless conditions change materially during the remainder of the year it would seem that 1927 is destined to be a record health year.

The figures for May, 1927, show a pronounced improvement over those for the corresponding month of last year, with respect both to most of the diseases of numerical importance and to those of predominant health interest because of their being subject to control. The rate for all causes combined showed a decline of nearly 6 per cent from the rate for May, 1926, and registered the usual seasonal decline as compared with the preceding month.

A notable decline in May from both the rate for April and that for May last year is shown for automobile fatalities, which dropped from

15.1 per 100,000 in 1926 to 13 in 1927, a reduction of nearly 14 per cent.

Death rates (annual basis) for principal causes per 100,000 lives exposed, May and April, 1927, and May and year, 1926

Causes of death	Rate per 100,000 lives exposed ¹			
	May, 1927	April, 1927	May, 1926	Year 1926 ²
Total, all causes.....	874.8	954.1	927.1	942.7
Typhoid fever.....	5.2	6.7	1.8	4.2
Measles.....	7.5	7.5	16.8	10.2
Scarlet fever.....	3.5	3.8	3.5	3.4
Whooping cough.....	6.5	7.6	11.2	9.6
Diphtheria.....	10.6	9.7	8.7	9.7
Influenza.....	18.7	27.1	39.0	31.0
Tuberculosis (all forms).....	98.4	107.2	100.2	98.7
Tuberculosis of respiratory system.....	81.5 ³	95.0	87.7	86.5
Cancer.....	63.4	77.0	66.4	73.5
Diabetes mellitus.....	16.0	17.5	14.2	16.7
Cerebral hemorrhage.....	49.3	58.6	50.9	55.5
Organic diseases of heart.....	130.8	137.3	123.5	133.9
Pneumonia (all forms).....	84.3	110.7	110.0	97.9
Other respiratory diseases.....	16.3	16.6	12.7	13.1
Diarrhea and enteritis.....	17.7	15.2	15.6	29.8
Bright's disease (chronic nephritis).....	70.1	66.1	70.6	73.3
Puerperal state.....	14.7	14.7	15.4	15.3
Suicides.....	7.6	8.9	7.9	7.6
Homicides.....	7.6	6.0	6.0	7.0
Other external causes (excluding suicides and homicides).....	53.6	54.8	54.4	62.2
Traumatism by automobiles.....	13.0	15.7	15.1	16.7
All other causes.....	189.8	203.2	193.3	190.4

¹ All figures include infants insured under 1 year of age.

² Based on provisional estimate of lives exposed to risk in 1926.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Milk ordinance held valid.—(Pennsylvania Supreme Court; *Hoar v. City of Lancaster et al.*, 137 A. 664; decided May 9, 1927.) The plaintiff brought suit to enjoin the city of Lancaster and its officers and agents from enforcing an ordinance regulating the sale of milk in the city. The trial court granted a preliminary injunction but subsequently dissolved the same, whereupon plaintiff appealed. It was urged by plaintiff (1) that the ordinance was violative of a statute which required that all bills, except general appropriation bills, should contain only one subject, which should be expressed in the title; (2) that the city had no power to constitute its board of health a milk-inspection bureau and confer authority upon the board's officers to enforce a milk-inspection ordinance; and (3) that the ordinance was unreasonable. In holding that these objections to the ordinance could not be sustained, the supreme court said:

* * * The ordinance in question clearly comprehends but one subject, the supervision by the proper authority of the sale of milk in the city. In connection with such sales, the enactment complained of merely provides the method of enforcing the provisions necessary and incidental to supervision, as the use of the word "regulate" indicates; consequently its title is sufficient and its terms are not in this respect violative of the act of June 27, 1913.

Under the act of May 27, 1919 (P. L. 323, 337, 384), council in cities of the third class is empowered to enact ordinances to secure the health of the inhabitants, and to this end may "create any office, public board, or department which they deem necessary for the good government and interest of the city," and, possessing that authority, the city of Lancaster created a board of health for the protection of the welfare and health of the citizens of that city. In the absence of forbidding legislation we know of no more appropriate body or officer in which to lodge the power of milk inspection than this municipal subdivision. Ordinances of this type are neither unreasonable nor unusual. They have frequently been upheld by the courts of this and other jurisdictions. * * *

License tax on nonresidents held unconstitutional.—(United States District Court, W. D. Missouri, W. D.; Campbell Baking Co. v. City of Harrisonville, Mo., et al., 19 F. (2d) 159; decided January 4, 1927.) The city of Harrisonville, Mo., passed an ordinance which required all persons, firms, or corporations residing outside of the city and keeping no place of business therein to take out a license. The court, in a suit brought by a nonresident bakery corporation, held the said ordinance to be unconstitutional because discriminatory.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Constitutionality of Zoning Laws Upheld by Highest Court. Anon. *The Nation's Health*, volume 9, No. 1, January, 1927, pages 59-60. (Abstract by R. C. Beckett.)

The Supreme Court of the United States, in a recent decision in the case of the village of Euclid, Ohio, *v. The Ambler Realty Company*, held zoning to be a valid right of public welfare as influenced by changing social conditions. The decision in part is as follows:

"Building zone laws are of modern origin. They began in this country about 25 years ago. Until recent years urban life was comparatively simple. But with the great increase and concentration of population, problems have developed, and constantly are developing, which require, and will continue to require, additional restrictions in the respect of the use and occupation of private lands in urban communities.

"Regulations, the wisdom, necessity, and validity of which, as applied to existing conditions, are so apparent that they are now uniformly sustained, a century ago, or even half a century ago, probably would have been rejected as arbitrary and oppressive. Such regulations are sustained, under the complex conditions of our day, for reasons analagous to those which justify traffic regulations, which, before the advent of automobiles and rapid-transit street railways, would have been condemned as fatally arbitrary and unreasonable.

"And in this there is no consistency, for while the meaning of constitutional guaranties never varies, the scope of their application must expand or contract to meet the new and different conditions which are constantly coming within the field of their operation. In a changing world it is impossible that it should be otherwise."

The complaint of the Ambler Realty Co. that the establishment of residential areas would limit their property to that purpose, thus depriving them of the right of developing more valuable business areas, was held by the court to be speculative in nature and not very well founded on facts at present available.

International Health Year Book 1925. Report of the League of Nations Health Organization.—Water supplies. (Abstract by A. L. Dopmeyer.)

Bulgaria.—Of the 57 towns of population 5,000 or over, 35 possess an up-to-date water-supply system. Nineteen of these were established in 1924–25. Ninety-nine villages have an up-to-date water-supply system, 35 of which were established in 1924 and 33 in 1925.

Czechoslovakia.—Work along the line of public sanitation has been mainly in connection with the supplying of drinking water. The construction of an aqueduct is proposed to supply 42 communities with drinking water. The town of Pilsen completed the construction of a water-filtration plant. Amounts of money to be spent by various provinces for water-supply improvements are given.

Special measures against typhoid fever: In the village of Kvasitz and the town of Zlin, where severe typhoid epidemics had occurred, a special study was made of sanitary conditions, particularly the water supplies, by 14 medical students. The survey lasted 12 days, during which time 255 samples of water were submitted for analysis. Conclusions reached were that work of public sanitation was imperative and a change in the system for providing drinking water was needed.

Estonia.—Two hundred and eighty-eight out of 379 rural communities, 17 out of 19 boroughs, 11 summer resorts, and all of the towns have been surveyed. Two thousand two hundred and five chemical analyses of water were made. Physical, chemical, and bacteriological analyses of the drinking water in all railway stations were made.

Hungary.—Work in connection with water supplies in the rural areas is at a standstill, due to lack of money, but progress has been made on the supplies of the towns.

Italy.—Typhoid fever: According to statistics, this disease has remained practically stationary during recent years. A table shows that the death rate from typhoid fever varies from 17.6 per 10,000 in one locality to 2.5 in another. Active control has been established over the water supplies of communities. An endeavor is being made to popularize antityphoid vaccination.

Netherlands.—At the end of 1925, 95 out of about 100 communes were connected with the main water system in North Brabant. There are various other rural community districts planning a district water-supply system. In addition to the National Bureau for Water Supply there is a central Water Supply Commission in the Netherlands.

Union of Socialist Soviet Republics.—Investigations are now being conducted to determine the best methods of supplying villages with water.

United States of North America.—There were no outstanding developments in this field. Increased attention was given to the use of liquid chlorine, aeration, iron removal, water softening, preliminary sedimentation before coagulation, application of iodine to the public water supply, and action by States and cities against cross connections between the public supply and polluted private supplies. New drinking-water standards were adopted for controlling the quality of water on interstate carriers.

Report of a Typhoid Epidemic in Grafton, West Virginia, during the Winter of 1926–1927.—E. S. Tisdale, director, division of sanitary engineering, West Virginia State Department of Health. *Public Health Reports*, volume 42, No. 18, May 6, 1927, pages 1217–1219. (Abstract by Arthur P. Miller.)

In December, 1926, and January, 1927, Grafton, W. Va., suffered from a typhoid-fever epidemic, due to polluted drinking water. There were more than 150 cases, resulting in 25 deaths. Grafton produces its drinking water from the Tygarts Valley River, and for five years the West Virginia State Health Department has been urging filtration of the water. Little success has been

met and it even was necessary to have recourse to the courts to obtain the installation of a chlorinator.

Investigation of this epidemic disclosed that chlorination had not been continuous nor at a high enough rate during the month preceding. As to the cause of the specific pollution of the river it was found that five cases of typhoid fever had occurred, in the late fall of 1926, 20 miles up the river, and that the stools of these patients had been thrown on the banks of a small stream leading to the river. Rainfall records showed that heavy rains had occurred during the second and third weeks of November, the period preceding the time of development of the greatest number of typhoid cases in Grafton by two or three weeks. The five cases up the river were virulent ones, and the disposal of the stools on the bank of the stream leading to the river probably caused the disastrous epidemic in Grafton.

As an outcome of this epidemic immediate steps were taken to retain a competent engineer to draw plans for a modern filtration plant and the West Virginia Legislature was asked to pass a special emergency bill allowing a special levy to be made by the Grafton authorities to finance a construction program.

Does Aeration Relieve Algae Troubles?—J. E. Gibson, manager and engineer, Charleston, S. C., water department. *Water Works Engineering*, volume 80, No. 9, April 27, 1927, pages 537-538 and 558. (Abstract by W. L. Havens.)

Water Works Engineering of September 1, 1926, carried data from experiments on aeration at Charleston, S. C. The article noted above describes the results of these experiments as embodied in practical measures for an existing 10-million-gallons-per-day plant. Changes were made in the sedimentation basins so as to improve flowing-through conditions. Aeration was obtained by means of 200 Yarway involute type nozzles in 10 groups, each set in 3-inch standard soil pipe connected by vertical risers to a 24-inch header main. The present rate of operation calls for the discharge of about 20 gallons per minute from each nozzle and with a head loss of from $2\frac{1}{2}$ to 3 feet. Analytical data for one month before aeration and one month after show about 50 per cent reduction in CO_2 content indicate an annual saving of \$2,200 for caustic soda, and record a 107 per cent time increase for filter operation between washings. The experiments are not conclusive, however, since the installation has not gone through a summer season.

The Resistance of Different Concentrations of a Bacteriophage to Ultra-violet Rays.—Rudolph Fisher and Earl B. McKinley. *Journal of Infectious Diseases*, volume 40, No. 3, March, 1927, pages 399-403. (Abstract by C. T. Butterfield.)

Serial dilutions of bacteriophage, from 1 : 10 to 1 : 10^7 , were made in beef extract broth. Portions were exposed to ultra-violet rays from standard lamp of constant amperage and at a fixed distance. Using a strain of *B. coli* and its bacteriophage, they found that the organism was more resistant to ultra-violet than was the bacteriophage. (The reports of other workers reviewed in this article indicate that the bacteriophage is usually more resistant.) The results show that the resistance of this lytic principle to ultra-violet is directly proportional to its concentration. The effect is not a photosensitization to heat. The authors state that the graphs shown resemble the destruction of cultures rather than of chemicals or enzymes.

Cities Must Serve Pure Water to Avoid Liability for Sickness.—H. J. Darcey Sanitary Engineer, State of Oklahoma. *Water Works Engineering*, volume 80 No. 9, April 27, 1927, pages 570-578. (Abstract by W. L. Havens.)

If a municipality voluntarily installs a water system from which financial profit results, the city is subject to the same conditions of liability as pertain to a private corporation. The exercise of governmental function of supplying

water does not in itself carry liability for resulting disease but negligence in the installation of its operation does. This element of negligence nullifies any plea of immunity because the warranty of purity is but implied, but the negligence must be proved. Contributory negligence, as where warning is given, may be a valid defense. The onus of responsibility on the municipality makes care and forethought the best protection from litigation. Many important court cases relating to this subject are cited in the article.

Cross Connections and Typhoid.—Anon. Bulletin of Rhode Island State Board of Health, December, 1926, page 4. (Abstract by R. E. Tarbett.)

Fourteen cases of typhoid fever with one death occurred among the employees of one particular section of a factory in Tiverton, R. I., during a period of eight months. Investigation showed that the drinking water obtained from deep wells and piped to bubblers was of safe quality, while the industrial supply was subject to pollution from the mill. These two supplies were separated except for a cross connection between the storage tanks which would permit either to be washed out with water from the others.

The infections probably followed the cleansing of the drinking-water tank. The bubblers used by those who contracted the disease were relatively close to the tank. The State has no authority to prohibit dangerous connections with public or private water supplies.

Bacterial Efficiency of Mechanical Gravity Filters.—Rao Sahib V. Govinda Raju. *The Indian Journal of Medical Research*, volume 14, No. 3, January, 1927, pages 707-712. (Abstract by R. E. Tarbett.)

The investigation was carried on to determine the bacterial efficiency of filters independent of the other devices usually associated with this type of filter.

The plants studied comprised 14 Paterson gravity-type filters, 4 Jewell gravity filters, and 6 Mather & Platt type filters, all taking water from the Ganges within a length of 15 miles. The only variable factor in so far as the raw water was concerned was the bacterial pollution. The water in every case, after a varying dosage of alum, was given a short period of sedimentation. The efficiency of the filters was determined by the *B. coli* removal. The investigation was continued through two years. The summary of results from each of the eight plants studied is given. In general, 75 per cent of the samples showed a 90 per cent removal of *B. coli*.

The writer points out that where chlorination is not depended upon the preliminary treatment devices should be so designed as to allow the water to be delivered to the filters with a bacterial content such as to allow the filters to deliver a uniformity satisfactory water.

Should Chlorine be Applied to Apparently Safe Waters?—Linn H. Enslow. *Water Works Engineering*, volume 80, No. 7, March 30, 1927, page 435. (Abstract by F. C. Dugan.)

Although chlorination of apparently safe water supplies during the major portion of time is not essential, one can not always be certain of the continued absence of danger and hazard. It is judged from the article that the author is in favor of chlorinating all water supplies, and it is believed that public health officials will agree with him.

Summary of the Purpose and Principles of Aeration of Water Supplies.—C. A. Emerson, jr., Fuller & McClintock, consulting engineers, Philadelphia. Proceedings of Eighth Texas Water Works Short School, Bulletin No. 1, pages 78-83. (Abstract by C. R. Fields.)

Aeration is defined as the "process of bringing water into intimate contact with air, in order to introduce oxygen for the oxidation of iron, manganese, or organic matter, and for washing out gases and volatile odors." A popular and

efficient type of aerator is described and the difference pointed out in the effects of aeration on ground and surface water.

International Health Year Book, 1925. Report of the League of Nations Health Organization.—Water Supplies. (Abstract by A. L. Dopmeyer.)

Germany.—A list of laws passed in connection with foodstuffs and articles in general use is given.

Hungary.—A special control has been established over the production of milk and its by-products. There is at present no definition of pure food products and producers are not required to conform to any definite standard, although a regulation is now being prepared.

Italy.—The inspection of cattle is included among the general sanitary regulations. There is a provision that whenever a case of tuberculosis is reported on a dairy farm the sick animal shall be isolated and the stable disinfected, and no animal can be admitted until it is known to be free from tuberculosis. Whenever a case of tuberculosis is reported at a dairy farm (among employees or animals), the milk can be sold only after it has been boiled under the supervision of the sanitary authorities. Certain articles of the general sanitary regulations are outlined and explanations given of what constitutes adulteration of foodstuffs.

Netherlands.—The various requirements in connection with the production, handling, sale, etc., of milk are given.

Union of Socialist Soviet Republics.—Regulations dealing with bread, milk, and meat have been recently drawn up by the Commissariat of Public Health.

The Electropure Process.—Herbert J. Bailey. Annual Report, 1927, Pennsylvania Association of Dairy and Milk Inspectors, pages 165-168. (Abstract by F. J. Moss.)

This article gives a description of the Electropure Process and its application to the heat treatment of milk. The electric heater or, as it is called, the electro-purifier, contains an oblong chamber approximately 3 by 4 inches in cross section and 32 inches high, two opposite sides being of carbon and separated from each other by sides of hard rubber. There is an electrical connection on each of the carbon sides of the box, and a 60-cycle, 220-volt current is used in heating. Milk enters the bottom of the electric chamber and acts as a conductor for the current between the sides of the box. A temperature of 160° F. is used, and the time of passage of the milk through this machine is approximately 10 seconds. An automatic temperature control regulates the temperature of the milk coming from the heater by controlling the speed of pump and, consequently, the rate of flow of milk, the electrical input to the machine being constant. Statements are made that there is no change in the flavor of the milk as it goes through the machine, and that a phenomenal bactericidal efficiency is obtained. It is said that no attempt is made to explain the action as there are different opinions regarding it, the various opinions being listed as heat alone, heat and electricity, and electrochemical action, whereas the company feels that it is a heat-plus proposition.

DEATHS DURING WEEK ENDED JULY 9, 1927

Summary of information received by telegraph from industrial insurance companies for week ended July 9, 1927, and corresponding week of 1926. (From the Weekly Health Index, July 14, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended July 9, 1927	Corresponding week 1926
Policies in force.....	68, 059, 895	64, 941, 243
Number of death claims.....	9, 353	8, 929
Death claims per 1,000 policies in force, annual rate.....	7. 2	7. 2

Deaths from all causes in certain large cities of the United States during the week ended July 9, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, July 14, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended July 9, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended July 9, 1927 ²
	Total deaths	Death rate ¹		Week ended July 9, 1927	Corresponding week 1926	
Total (67 cities)-----	6,221	11.2	11.6	643	700	55
Akron-----	34			6	6	65
Albany ³ -----	24	10.4	11.0	1	1	21
Atlanta-----	81			11	17	
White-----	39			3	8	
Colored-----	42	(⁴)		8	9	
Baltimore ⁴ -----	187	11.9	11.9	25	24	77
White-----	143		10.4	19	16	73
Colored-----	44	(⁴)	20.6	6	8	93
Birmingham-----	72	17.5	20.3	5	15	
White-----	34		17.5	4	10	
Colored-----	38	(⁴)	24.5	1	5	
Boston-----	186	12.2	12.1	23	19	64
Bridgeport-----	27			1	4	19
Buffalo-----	248	23.5	12.8	9	22	38
Cambridge-----	28	11.8	7.7	3	2	53
Camden-----	23	9.0	10.7	5	6	86
Canton-----	22	10.2	9.0	3	1	71
Chicago ⁵ -----	575	9.7	10.7	72	59	62
Cincinnati-----	148	18.7	18.6	12	19	75
Cleveland-----	182	9.6	9.6	15	21	40
Columbus-----	69	12.4	15.7	6	5	56
Dallas-----	39	9.7	19.8	6	10	
White-----	29		18.4	4	10	
Colored-----	10	(⁴)	29.0	2	0	
Dayton-----	34	9.8	11.5	3	2	49
Denver-----	83	14.9	9.7	7	7	
Des Moines-----	42	14.7	10.4	5	4	84
Detroit-----	278	10.9	11.1	47	47	74
Duluth-----	21	9.5	10.6	1	4	22
El Paso-----	32	14.6	17.2	3	6	
Erie-----	19			2	5	39
Fall River ⁴ -----	28	11.0	11.9	4	6	71
Flint-----	25	9.1	9.2	2	3	33
Fort Worth-----	34	10.8	9.2	1	3	
White-----	28		8.9	1	3	
Colored-----	6	(⁴)	11.0	0	0	
Grand Rapids-----	31	10.2	9.7	4	5	59
Houston-----	44			8	4	
White-----	35			7	2	
Colored-----	9	(⁴)		1	2	
Indianapolis-----	85	11.9	13.1	5	9	39
White-----	69		12.3	3	8	27
Colored-----	16	(⁴)	19.0	2	1	122
Jersey City-----	59	9.6	9.3	5	14	37
Kansas City, Kans.-----	22	9.8	18.7	6	3	117
White-----	15		17.3	4	1	89
Colored-----	7	(⁴)	25.4	2	2	304
Kansas City, Mo.-----	88	12.0	13.5	9	6	
Knoxville-----	30	15.3		2		
White-----	22			2		
Colored-----	8	(⁴)		0		
Los Angeles-----	199			17	13	49
Louisville-----	77	12.5	18.4	6	13	51
White-----	60		15.8	6	8	58
Colored-----	17	(⁴)	33.3	0	5	0
Lowell-----	32	15.1	10.9	6	4	116
Lynn-----	12	6.0	7.5	2	3	53

¹ Annual rate per 1,000 population.

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

³ Data for 66 cities.

⁴ Data for 62 cities.

⁵ Deaths for week ended Friday, July 8, 1927.

⁶ In the cities for which deaths are shown by color, the colored population in 1925 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas, 15 Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 38, Nashville 30, New Orleans 28, and Richmond 32.

Deaths from all causes in certain large cities of the United States during the week ended July 9, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, July 14, 1927, issued by the Bureau of the Census, Department of Commerce)—Continued.

City	Week ended July 9, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended July 9, 1927
	Total deaths	Death rate		Week ended July 9, 1927	Corresponding week 1926	
Memphis	75	21.8	23.9	9	9	---
White	59		17.8	6	3	---
Colored	36	(⁶)	34.8	3	6	---
Milwaukee	106	10.4	10.3	12	15	56
Minneapolis	67	7.9	11.3	6	8	34
Nashville	44	16.6	27.8	5	7	---
White	27		23.9	1	4	---
Colored	17	(⁶)	37.4	4	3	---
New Bedford	26	11.3	8.7	5	0	87
New Haven	41	11.6	12.9	7	7	98
New Orleans	140	17.2	14.9	18	9	---
White	76		10.3	5	2	---
Colored	64	(⁶)	28.2	13	7	---
New York	1,184	10.3	10.1	115	134	46
Bronx Borough	147	8.3	8.4	6	14	19
Brooklyn Borough	412	9.4	8.4	51	42	53
Manhattan Borough	481	13.8	13.9	47	64	55
Queens Borough	104	6.7	6.9	7	8	30
Richmond Borough	40	14.2	15.3	4	6	74
Newark, N. J.	95	10.6	9.3	11	4	54
Oakland	43	8.4	8.4	8	3	94
Oklahoma City	32			4	2	---
Omaha	35	8.3	11.6	4	7	44
Paterson	24	8.7	9.1	0	3	0
Philadelphia	363	9.3	11.8	36	31	48
Pittsburgh	144	11.7	9.2	19	13	66
Portland, Oreg.	56			6	2	63
Providence	55	10.2	9.1	4	7	34
Richmond	53	14.4	18.5	8	15	106
White	37		11.7	4	5	81
Colored	16	(⁶)	35.1	4	10	152
Rochester	51	8.2	10.4	4	7	34
St. Louis	174	10.8	13.6	5	17	---
St. Paul	51	10.6	14.3	1	3	9
Salt Lake City	32	12.3	14.9	3	4	46
San Antonio	38	9.4	14.2	9	14	---
San Diego	37	16.8	16.1	3	2	64
San Francisco	157	14.2	12.0	9	7	56
Schenectady	19	10.7	4.5	3	2	90
Seattle	68			5	3	82
Somerville	10	5.1	8.3	1	1	36
Spokane	27	12.9	15.3	2	2	50
Springfield, Mass.	26	9.2	13.3	1	5	15
Syracuse	41	10.9	10.4	4	4	51
Tacoma	24	11.7	9.8	1	1	24
Toledo	66	11.3	10.8	6	4	58
Trenton	23	8.8	13.2	4	2	70
Utica	22	11.1	18.7	2	2	46
Waterbury	10			2	1	47
Wilmington, Del.	26	10.8	12.6	1	1	25
Worcester	36	9.6	11.1	7	2	84
Yonkers	25	11.0	9.9	0	1	0
Youngstown	25	7.7	12.0	7	4	98

¹ Deaths for week ended Friday, July 8, 1927.

⁶ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta 31, Baltimore 15, Birmingham 39, Dallas 15, Fort Worth 14, Houston 25, Indianapolis 11, Kansas City, Kans., 14, Knoxville 15, Louisville 17, Memphis 28, Nashville 30, New Orleans 26, and Richmond 32.

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 July 16, 1927

DIPHTHERIA		INFLUENZA	
	Cases		Cases
Alabama	14	Alabama	11
Arizona	2	Arkansas	3
Arkansas	4	California	10
California	78	Florida	2
Colorado	12	Georgia	12
Connecticut	22	Illinois	13
Florida	5	Kansas	7
Georgia	10	Louisiana	5
Illinois	65	Maine	2
Indiana	12	Massachusetts	1
Iowa ¹	17	Minnesota	1
Kansas	11	New Jersey	1
Louisiana	13	Oklahoma ²	11
Maine	3	Oregon	6
Maryland ¹	36	South Carolina	96
Massachusetts	75	Tennessee	6
Michigan	73	Texas	26
Minnesota	14	Utah ¹	2
Mississippi	9	West Virginia	1
Montana	3	Wisconsin	10
Nebraska	8		
New Jersey	75	MEASLES	
New Mexico	4	Alabama	30
New York ²	47	Arizona	20
North Carolina	15	Arkansas	22
Oklahoma ²	3	California	127
Oregon	10	Colorado	33
Pennsylvania	166	Connecticut	41
Rhode Island	6	Delaware	5
South Carolina	7	Florida	20
South Dakota	3	Georgia	15
Tennessee	6	Idaho	3
Texas	14	Illinois	104
Utah ¹	7	Indiana	30
Washington	14	Iowa ¹	9
West Virginia	6	Kansas	79
Wisconsin	30	Louisiana	16

¹ Week ended Friday.

² Exclusive of New York City.

³ Exclusive of Oklahoma City and Tulsa.

MEASLES—continued

	Cases
Maine.....	28
Maryland ¹	19
Massachusetts.....	818
Michigan.....	105
Minnesota.....	42
Montana.....	5
Nebraska.....	5
New Jersey.....	18
New York ¹	809
North Carolina.....	328
Oregon.....	60
Pennsylvania.....	371
Rhode Island.....	1
South Carolina.....	112
South Dakota.....	5
Tennessee.....	7
Texas.....	11
Utah ¹	3
Vermont.....	11
Washington.....	178
West Virginia.....	38
Wisconsin.....	214
Wyoming.....	7

MENINGOCOCCUS MENINGITIS

California.....	1
Connecticut.....	2
Florida.....	2
Illinois.....	6
Maryland ¹	2
Massachusetts.....	1
Michigan.....	1
Minnesota.....	1
Montana.....	1
New York ¹	2
North Carolina.....	1
Oregon.....	2
Texas.....	1
Washington.....	1
Wisconsin.....	8

POLIOMYELITIS

Arizona.....	3
Arkansas.....	2
California.....	48
Connecticut.....	3
Florida.....	2
Illinois.....	5
Kansas.....	3
Louisiana.....	6
Massachusetts.....	4
Mississippi.....	1
New Jersey.....	2
New Mexico.....	11
New York ¹	3
Oklahoma ¹	1
Pennsylvania.....	2
Texas.....	4
Utah ¹	1
Washington.....	1

SCARLET FEVER

Alabama.....	3
Arizona.....	10
Arkansas.....	6

SCARLET FEVER—continued

	Cases
California.....	57
Colorado.....	39
Connecticut.....	18
Delaware.....	1
Florida.....	4
Georgia.....	3
Idaho.....	1
Illinois.....	96
Indiana.....	24
Iowa ¹	16
Kansas.....	32
Louisiana.....	4
Maine.....	18
Maryland ¹	14
Massachusetts.....	147
Michigan.....	115
Minnesota.....	64
Mississippi.....	13
Montana.....	7
Nebraska.....	8
New Jersey.....	64
New Mexico.....	6
New York ¹	119
North Carolina.....	10
Oklahoma ¹	16
Oregon.....	7
Pennsylvania.....	220
Rhode Island.....	9
South Carolina.....	1
South Dakota.....	14
Tennessee.....	13
Texas.....	12
Utah ¹	8
Vermont.....	1
Washington.....	14
West Virginia.....	24
Wisconsin.....	64
Wyoming.....	4

SMALLPOX

Alabama.....	10
Arizona.....	1
California.....	19
Florida.....	4
Georgia.....	6
Idaho.....	15
Illinois.....	15
Indiana.....	58
Iowa ¹	19
Kansas.....	19
Louisiana.....	11
Michigan.....	35
Minnesota.....	1
Mississippi.....	1
Montana.....	5
Nebraska.....	6
New Mexico.....	14
New York ¹	6
North Carolina.....	11
Oklahoma ¹	36
Oregon.....	13
Pennsylvania.....	5
South Carolina.....	1

¹ Week ended Friday.

² Exclusive of New York City

¹ Exclusive of Oklahoma City and Tulsa.

SMALLPOX—continued	Cases
South Dakota.....	8
Tennessee.....	4
Texas.....	4
Utah ¹	3
Washington.....	21
West Virginia.....	19
Wisconsin.....	13

TYPHOID FEVER	Cases
Alabama.....	90
Arizona.....	1
Arkansas.....	34
California.....	20
Colorado.....	10
Connecticut.....	3
Delaware.....	1
Florida.....	16
Georgia.....	96
Illinois.....	29
Indiana.....	7
Iowa ¹	4
Kansas.....	20
Louisiana.....	27

¹ Week ended Friday.

² Exclusive of New York City.

TYPHOID FEVER—continued	Cases
Maine.....	2
Maryland ¹	12
Massachusetts.....	8
Michigan.....	12
Minnesota.....	3
Mississippi.....	59
Montana.....	3
Nebraska.....	5
New Jersey.....	11
New Mexico.....	5
New York ²	5
North Carolina.....	63
Oklahoma ³	74
Oregon.....	5
Pennsylvania.....	16
South Carolina.....	123
Tennessee.....	169
Texas.....	10
Utah ¹	2
Vermont.....	3
Washington.....	1
West Virginia.....	11
Wisconsin.....	3

³ Exclusive of Oklahoma City and Tulsa.

Reports for Week Ended July 9, 1927

DIPHTHERIA	Cases
District of Columbia.....	5
North Dakota.....	4
Rhode Island.....	10

MEASLES	Cases
District of Columbia.....	7
North Dakota.....	6
Rhode Island.....	2

SCARLET FEVER	Cases
District of Columbia.....	11
North Dakota.....	16
Rhode Island.....	25

SMALLPOX	Cases
District of Columbia.....	9

TYPHOID FEVER	Cases
District of Columbia.....	1
Rhode Island.....	3

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	Small-pox	Typhoid fever
<i>March, 1927</i>										
New Hampshire.....		13	2					61	0	2
<i>April, 1927</i>										
Georgia.....	5	46	989	172	871	38	0	62	227	45
New Hampshire.....		11	101					66	0	2
<i>May, 1927</i>										
Georgia.....		32	274	106	492	54	1	50	93	105
New Hampshire.....	1	6	226					36	0	2
Pennsylvania.....	9	729			2,962	4	2	2,027	1	77
<i>June, 1927</i>										
Georgia.....	2	32	93	168	246	59	1	42	56	234
Massachusetts.....	8	388	16	1	1,734	1	11	1,587	0	18
Michigan.....		334	17	2	900		3	921	151	29
Vermont.....		4			335		0	30	0	1

<i>April, 1927</i>		<i>May, 1927—Continued</i>	
	Cases		Cases
Georgia:		Whooping cough:	
Chicken pox.....	236	Georgia.....	180
Dysentery.....	65	Pennsylvania.....	813
German measles.....	17		
Hookworm disease.....	13	<i>June, 1927</i>	
Lethargic encephalitis.....	2	Chicken pox:	
Mumps.....	251	Georgia.....	40
Paratyphoid fever.....	4	Massachusetts.....	874
Septic sore throat.....	32	Michigan.....	820
Whooping cough.....	260	Vermont.....	107
		Conjunctivitis:	
<i>May, 1927</i>		Georgia.....	2
Anthrax:		Dengue:	
Pennsylvania.....	2	Georgia.....	5
Chicken pox:		Dysentery:	
Georgia.....	106	Georgia.....	131
Pennsylvania.....	1,921	German measles:	
Dengue:		Massachusetts.....	79
Georgia.....	28	Hookworm disease:	
Dysentery:		Georgia.....	23
Georgia.....	143	Lead poisoning:	
German measles:		Massachusetts.....	7
Pennsylvania.....	634	Lethargic encephalitis:	
Hookworm disease:		Massachusetts.....	3
Georgia.....	7	Michigan.....	8
Impetigo contagiosa:		Mumps:	
Pennsylvania.....	30	Georgia.....	83
Lead poisoning:		Massachusetts.....	1,044
Pennsylvania.....	1	Michigan.....	927
Lethargic encephalitis:		Vermont.....	141
Pennsylvania.....	6	Ophthalmia neonatorum:	
Mumps:		Massachusetts.....	168
Georgia.....	65	Rabies in animals:	
Pennsylvania.....	1,926	Vermont.....	3
Ophthalmia neonatorum:		Septic sore throat:	
Pennsylvania.....	8	Georgia.....	14
Puerperal fever:		Massachusetts.....	7
Pennsylvania.....	8	Michigan.....	3
Rabies in man:		Tetanus:	
Pennsylvania.....	2	Massachusetts.....	4
Scabies:		Trachoma:	
Pennsylvania.....	20	Massachusetts.....	6
Septic sore throat:		Typhus fever:	
Georgia.....	29	Georgia.....	1
Tetanus:		Whooping cough:	
Pennsylvania.....	5	Georgia.....	135
Trachoma:		Massachusetts.....	406
Georgia.....	2	Michigan.....	613
Pennsylvania.....	3	Vermont.....	125

PLAGUE IN CONTRA COSTA COUNTY, CALIF.

A death from bubonic plague occurred at Clayton, Contra Costa County, Calif., July 8, 1927. The diagnosis was confirmed July 16 after inoculation of a guinea pig. The patient was a child five years old. The family trapped squirrels for food. Five thousand ground squirrels from Contra Costa County have been examined for plague infection during the last two months, and all were found negative. An intensive survey is being made in the vicinity where the case of plague occurred, and squirrels are to be examined at the State hygienic laboratory. Poisoning operations are now in progress.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,440,000. The estimated population of the 91 cities reporting deaths is more than 29,800,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended July 2, 1927, and July 3, 1926

	1927	1926	Esti- mated ex- pectancy
<i>Cases reported</i>			
Diphtheria:			
41 States.....	1,250	1,072	
96 cities.....	831	709	677
Measles:			
40 States.....	4,671	9,051	
96 cities.....	1,613	2,682	
Poliomyelitis:			
41 States.....	45	27	
Scarlet fever:			
41 States.....	2,029	2,156	
96 cities.....	758	987	504
Smallpox:			
41 States.....	426	457	
96 cities.....	76	53	62
Typhoid fever:			
41 States.....	642	535	
96 cities.....	88	95	108
<i>Deaths reported</i>			
Influenza and pneumonia:			
91 cities.....	434	462	
Smallpox:			
91 cities.....	0	0	

City reports for week ended July 2, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding 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 non-epidemic 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 1918 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 ex- pectancy	Cases re- ported	Cases re- ported	Deaths re- ported			
NEW ENGLAND									
Maine:									
Portland.....	75,333	0	1	0	0	0	0	1	1
New Hampshire:									
Concord.....	22,546	0	0	0	0	0	3	0	1
Vermont:									
Barre.....	10,008	0	0	0	0	0	0	0	0
Burlington.....	24,089	1	0	1	0	0	4	0	0

City reports for week ended July 2, 1927—Continued

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 expec- tancy	Cases re- ported	Cases re- ported	Deaths re- ported			
NEW ENGLAND—contd.									
Massachusetts:									
Boston	779,620	33	44	23	0	0	116	19	14
Fall River	128,993	3	3	3	1	1	6	0	1
Springfield	142,065	2	2	2	0	0	2	1	1
Worcester	190,757	5	3	1	0	0	1	0	1
Rhode Island:									
Pawtucket	69,760	0	1	0	0	0	0	0	1
Providence	267,918	0	5	1	0	0	0	0	0
Connecticut:									
Bridgeport	(1)	0	3	2	0	0	0	0	2
Hartford	160,197	0	3	0	0	0	2	6	1
New Haven	178,927	10	1	0	0	1	17	0	3
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	25	8	9		1	11	3	14
New York	5,873,356	144	194	297	24	2	73	110	67
Rochester	316,786	5	7	6		0	4	8	4
Syracuse	182,003	25	4	0		0	140	3	0
New Jersey:									
Camden	128,642	0	4	6	0	0	1	2	0
Newark	452,513	90	11	12	0	0	4	45	5
Trenton	132,020	1	3	1	0	0	0	0	0
Pennsylvania:									
Philadelphia	1,979,364	64	52	70		1	44	61	35
Pittsburgh	631,563	30	14	27		1	70	11	18
Reading	112,707	1	2	2		0	60	9	1
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	4	6	4	0	1	4	5	9
Cleveland	936,485	43	18	35	0	1	3	66	11
Columbus	279,836	0	2	4	0	0	0	0	4
Toledo	287,380	48	4	4	1	1	21	2	6
Indiana:									
Fort Wayne	97,846	4	2	3	0	0	2	0	1
Indianapolis	358,819		3						
South Bend	80,091	2	1	0	0	0	0	0	1
Terre Haute	71,071	0	0	0	0	0	0	0	0
Illinois:									
Chicago	2,995,239	72	68	81	0	0	64	74	57
Springfield	63,923	5	0	2	1	1	0	0	0
Michigan:									
Detroit	1,245,824	35	38	37	2	1	7	18	14
Flint	130,316	7	2	0	0	0	19	0	1
Grand Rapids	153,693	2	2	1	0	0	21	0	3
Wisconsin:									
Kenosha	50,891	2	0	0	0	0	2	8	0
Madison	46,385	19	0	0	0	0	1	0	1
Milwaukee	509,192	57	11	9	0	0	185	37	8
Racine	67,707	7	0	2	0	0	0	1	3
Superior	39,671	0	0	0	0	0	0	0	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	7	0	0	0	0	4	0	2
Minneapolis	425,435	115	11	12	0	0	1	0	14
St. Paul	246,001	18	11	0	0	0	9	1	6
Iowa:									
Davenport	52,469	0	0	0	0		0	3	
Des Moines	141,441	0	1	0	0		0	0	
Sioux City	76,411	3	0	0	0		6	1	
Waterloo	36,771	3	0	0	0		2	1	
Missouri:									
Kansas City	367,481	4	3	3	0	0	17	6	8
St. Joseph	78,342	0	1	0	0	0	7	0	1
St. Louis	821,543	8	25	11	0	0	24	32	

¹ No estimate made.

City reports for week ended July 8, 1927—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			
WEST NORTH CENTRAL—continued									
North Dakota:									
Fargo.....	26,403	1	0	0	0	0	0	0	0
Grand Forks.....	14,811	1	0	0	0	0	2	0	0
South Dakota:									
Aberdeen.....	15,036	1	0	0	0	0	0	2	0
Sioux Falls.....	30,127	0	0	0	0	0	34	0	0
Nebraska:									
Lincoln.....	60,941	6	0	0	0	0	8	9	0
Omaha.....	211,768	3	2	2	0	0	8	4	2
Kansas:									
Topeka.....	55,411	3	1	0	1	1	21	5	1
Wichita.....	88,367	4	0	2	0	0	4	0	3
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	122,049	7	1	1	0	0	0	0	1
Maryland:									
Baltimore.....	796,296	35	12	54	1	2	14	1	10
Cumberland.....	33,741	0	0	0	0	0	0	0	0
Frederick.....	12,035	0	0	1	0	0	0	0	0
District of Columbia:									
Washington.....	497,906	4	6	11	0	0	2	0	4
Virginia:									
Lynchburg.....	30,395	2	0	1	0	0	3	3	2
Norfolk.....	(1)	1	0	0	0	0	11	1	0
Richmond.....	186,403	0	1	5	0	0	45	1	0
Roanoke.....	58,208	0	0	0	0	0	2	0	0
West Virginia:									
Charleston.....	49,019	0	0	0	1	1	3	0	3
Wheeling.....	56,208	0	0	0	0	0	2	0	2
North Carolina:									
Raleigh.....	30,371	0	0	0	0	0	22	0	0
Wilmington.....	37,061	0	0	0	0	0	25	0	1
Winston-Salem.....	69,031	3	0	2	0	0	56	8	3
South Carolina:									
Charleston.....	73,125	0	0	0	4	0	1	0	2
Columbia.....	41,225	2	0	0	0	0	39	0	2
Greenville.....	27,311	0	0	0	0	0	1	1	0
Georgia:									
Atlanta.....	(1)	0	1	2	4	0	3	1	2
Brunswick.....	16,809	0	0	0	0	0	0	3	0
Savannah.....	93,134	0	1	0	2	0	14	2	0
Florida:									
Miami.....	69,754	0	1	0	0	0	0	1	1
St. Petersburg.....	26,847	0	0	0	0	0	0	0	1
Tampa.....	94,743	0	0	2	0	0	4	0	1
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	58,369	0	1	0	0	0	0	0	1
Louisville.....	305,935	1	2	1	1	0	0	2	8
Tennessee:									
Memphis.....	174,533	0	1	0	0	0	9	0	4
Nashville.....	136,220	1	0	0	0	0	0	0	3
Alabama:									
Birmingham.....	205,670	0	1	3	3	0	7	2	3
Mobile.....	65,955	0	0	0	0	0	0	0	0
Montgomery.....	46,481	0	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	31,643	0	0	0	0	0	0	0	0
Little Rock.....	74,216	2	0	0	0	0	5	0	1
Louisiana:									
New Orleans.....	414,493	0	5	13	0	0	11	0	3
Shreveport.....	57,857	1	0	0	0	0	3	1	1
Oklahoma:									
Oklahoma City.....	(1)	1	0	0	0	0	3	0	2

1 No estimate made.

City reports for week ended July 2, 1927—Continued

Division, State, and city	Population July 1, 1926, 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			
WEST SOUTH CENTRAL—continued									
Texas:									
Dallas.....	194,450	0	2	3	0	1	15	0	5
Galveston.....	48,375	0	0	1	0	0	0	0	0
Houston.....	164,954	0	1	7	0	0	1	0	3
San Antonio.....	198,069	0	1	5	0	0	0	0	4
MOUNTAIN									
Montana:									
Billings.....	17,971	1	0	0	0	0	0	0	0
Great Falls.....	29,883	0	0	0	0	0	13	0	0
Helena.....	12,037	0	0	0	0	0	0	0	0
Missoula.....	12,668	0	0	0	0	0	4	0	0
Idaho:									
Boise.....	23,042	4	1	0	0	0	1	0	0
Colorado:									
Denver.....	280,911	16	9	12	1	24	2	3	3
Pueblo.....	43,737	0	1	0	0	11	0	3	0
New Mexico:									
Albuquerque.....	21,000	1	1	0	1	0	0	0	0
Utah:									
Salt Lake City.....	130,948	25	3	2	0	2	1	4	0
Nevada:									
Reno.....	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	(1)	9	4	3	0	219	8	0	0
Spokane.....	168,897	12	1	0	0	2	0	0	0
Tacoma.....	104,455	3	2	1	0	20	0	2	0
California:									
Los Angeles.....	(1)	28	35	19	6	34	9	17	0
Sacramento.....	72,260	11	2	0	0	1	1	0	0
San Francisco.....	557,530	25	15	6	0	20	20	1	1

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.....	1	2	0	0	0	0	1	1	0	3	12
New Hampshire:											
Concord.....	0	1	0	0	0	0	0	0	0	0	10
Vermont:											
Barre.....	0	0	0	0	0	0	0	0	0	0	1
Burlington.....	0	5	0	0	0	0	0	0	0	1	0
Massachusetts:											
Boston.....	29	55	0	0	0	13	2	0	0	27	178
Fall River.....	1	6	0	0	0	1	1	0	0	0	21
Springfield.....	3	2	0	0	0	1	0	0	0	3	25
Worcester.....	4	14	0	0	0	2	0	0	0	3	41
Rhode Island:											
Pawtucket.....	0	1	0	0	0	0	0	0	0	0	8
Providence.....	4	8	0	0	0	5	1	0	0	2	48
Connecticut:											
Bridgeport.....	4	1	0	0	0	1	0	0	0	0	27
Hartford.....	2	4	0	0	0	2	0	2	0	7	0
New Haven.....	2	1	0	0	0	1	1	0	0	0	37

¹ No estimate made.

City reports for week ended July 2, 1927—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		
MIDDLE ATLANTIC											
New York:											
Buffalo.....	13	9	0	0	0	8	0	0	0	11	113
New York.....	85	191	0	0	0	196	17	10	1	114	1,172
Rochester.....	8	5	0	0	0	3	0	0	0	3	76
Syracuse.....	4	1	0	0	0	1	1	0	0	2	40
New Jersey:											
Camden.....	2	3	0	0	0	3	0	0	0	2	28
Newark.....	11	15	0	0	0	4	1	1	0	65	86
Trenton.....	2	0	0	0	0	5	0	0	0	2	22
Pennsylvania:											
Philadelphia.....	43	63	1	0	0	33	5	1	0	31	424
Pittsburgh.....	15	13	1	0	0	7	1	0	0	19	
Reading.....	1	1	0	0	0	1	0	0	0	1	31
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	6	18	1	3	0	15	2	1	0	3	142
Cleveland.....	16	19	1	0	0	9	2	2	0	36	170
Columbus.....	3	3	1	0	0	5	0	0	0	16	86
Toledo.....	7	4	1	0	0	7	1	0	0	15	86
Indiana:											
Fort Wayne.....	1	1	1	0	0	1	0	0	0	4	28
Indianapolis.....	3		4				1				
South Bend.....	1	1	0	0	0	0	0	0	0	0	10
Terre Haute.....	1	0	0	0	0	2	0	0	0	1	22
Illinois:											
Chicago.....	51	73	1	0	0	45	4	2	0	102	655
Springfield.....	1	2	0	1	0	0	0	1	0	0	10
Michigan:											
Detroit.....	40	40	4	0	0	29	3	1	1	45	316
Flint.....	2	9	0	0	0	1	1	0	0	0	21
Grand Rapids.....	3	5	0	1	0	2	1	0	0	11	32
Wisconsin:											
Kenosha.....	1	1	1	0	0	0	0	0	0	0	6
Madison.....	0	1	0	0	0	0	0	1	0	0	8
Milwaukee.....	14	15	1	0	0	11	1	0	0	25	124
Racine.....	2	1	1	0	0	1	0	0	0	9	11
Superior.....	1	4	2	0	0	2	0	0	0	0	18
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	3	4	1	0	0	2	0	0	0	3	22
Minneapolis.....	15	21	4	1	0	3	1	0	0	0	97
St. Paul.....	10	4	2	0	0	7	0	0	0	2	62
Iowa:											
Davenport.....	1	0	1	0			0	0		0	
Des Moines.....	2	5	2	2			0	0		0	8
Sioux City.....	1	1	1	2			0	0		9	
Waterloo.....	1	0	1	0			0	0		0	
Missouri:											
Kansas City.....	2	1	0	1	0	6	1	2	1	23	86
St. Joseph.....	0	1	0	12	0	0	0	0	0	0	14
St. Louis.....	12	9	1	1	0	14	4	2	1	46	238
North Dakota:											
Fargo.....	0	3	0	0	0	0	0	0	0	0	6
Grand Forks.....	0	1	0	0			0	0		0	
South Dakota:											
Aberdeen.....	1	0	0	0			0	0		0	
Sioux Falls.....	1	1	0	0			0	0		0	
Nebraska:											
Lincoln.....	0	3	1	0	0	1	0	1	0	3	13
Omaha.....	2	1	4	1	0	2	0	0	0	2	48
Kansas:											
Topeka.....	0	0	0	1	0	0	1	0	0	29	14
Wichita.....	1	0	3	0	0	0	0	0	0	20	33

1 Pulmonary tuberculosis only.

City reports for week ended July 2, 1927—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	0	0	0	2	0	0	1	0	0
North Carolina:									
Wilmington.....	0	0	0	0	0	1	0	0	0
Winston-Salem.....	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	1	0	0	0	0
Georgia:									
Atlanta.....	0	0	0	0	2	1	0	1	0
Savannah.....	0	0	0	0	2	1	0	0	0
Florida:									
Miami.....	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	0	0	0	0	1	2	0	0	0
Alabama:									
Birmingham.....	1	0	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	0	0	0	0	1	1	1	2	0
Shreveport.....	0	0	0	0	0	4	0	0	0
Oklahoma:									
Oklahoma City.....	0	0	0	1	0	0	0	0	0
Texas:									
Dallas ¹	0	0	0	0	2	2	1	0	0
MOUNTAIN									
Montana:									
Billings.....	1	0	0	0	0	0	0	0	0
Great Falls.....	1	1	0	0	0	0	0	0	0
PACIFIC									
California:									
Los Angeles.....	1	0	0	0	0	0	1	3	1
Sacramento.....	0	1	0	0	0	0	0	0	0
San Francisco.....	1	1	0	1	0	0	0	2	1

¹ Dengue: 1 case at Dallas, Tex.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended July 2, 1927, compared with those for a like period ended July 3, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,445,000 in 1926 and 30,966,000 in 1927. The 95 cities reporting deaths had nearly 29,785,000 estimated population in 1926 and nearly 30,296,000 in 1927. 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, May 29 to July 2, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926¹

DIPHTHERIA CASE RATES

	Week ended—									
	June 5, 1926	June 4, 1927	June 12, 1926	June 11, 1927	June 19, 1926	June 18, 1927	June 26, 1926	June 25, 1927	July 3, 1926	July 2, 1927
101 cities.....	117	158	136	162	118	151	130	162	122	142
New England.....	78	160	68	132	78	118	59	116	64	88
Middle Atlantic.....	135	235	156	248	125	217	152	270	164	212
East North Central.....	119	124	146	126	131	142	162	132	117	125
West North Central.....	210	81	234	81	169	79	192	46	125	60
South Atlantic.....	47	127	60	124	67	118	45	107	82	143
East South Central.....	16	61	28	20	16	41	10	36	22	21
West South Central.....	56	67	47	46	43	55	43	67	47	125
Mountain.....	109	180	128	369	146	207	118	153	155	129
Pacific.....	131	128	158	126	102	115	131	113	129	76

MEASLES CASE RATES

101 cities.....	1,005	448	930	426	749	361	619	302	461	276
New England.....	726	313	658	457	493	406	425	327	318	341
Middle Atlantic.....	752	282	708	299	586	281	477	247	314	201
East North Central.....	1,067	324	1,026	296	1,003	261	858	214	739	215
West North Central.....	2,231	461	2,051	373	1,294	248	942	216	605	204
South Atlantic.....	1,203	1,005	1,093	851	818	694	695	531	432	447
East South Central.....	1,655	382	1,391	158	693	132	610	132	428	85
West South Central.....	96	503	125	424	77	268	95	130	52	151
Mountain.....	1,249	620	921	566	702	342	793	450	437	505
Pacific.....	691	1,097	589	1,139	597	971	482	843	458	775

SCARLET FEVER CASE RATES

101 cities.....	230	220	260	241	233	198	212	190	170	130
New England.....	248	288	255	323	203	265	236	237	186	221
Middle Atlantic.....	209	256	195	287	222	224	210	223	188	149
East North Central.....	245	212	333	247	273	216	251	209	187	135
West North Central.....	419	236	627	195	494	163	357	159	270	89
South Atlantic.....	198	78	158	110	130	82	151	96	65	82
East South Central.....	124	102	78	66	47	71	47	82	66	59
West South Central.....	163	21	86	34	69	8	30	38	60	17
Mountain.....	219	782	118	719	128	665	118	441	91	294
Pacific.....	169	186	236	204	214	181	158	139	150	86

SMALLPOX CASE RATES

101 cities.....	15	22	16	20	11	19	16	16	11	13
New England.....	0	0	0	0	0	0	0	0	0	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	2	0
East North Central.....	9	33	12	21	10	21	14	12	10	4
West North Central.....	40	24	28	32	32	30	44	58	26	38
South Atlantic.....	34	33	37	20	30	36	26	29	11	18
East South Central.....	83	92	52	107	10	56	88	56	38	21
West South Central.....	43	17	34	8	26	13	17	13	21	13
Mountain.....	27	36	46	27	27	54	18	90	55	64
Pacific.....	24	60	54	92	24	65	32	21	19	73

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, 1926 and 1927, respectively.

² Greenville, S. C., not included.

³ Covington, Ky., not included.

⁴ Indianapolis, Ind., Montgomery, Ala., Fort Smith, Ark., and Helena, Mont., not included.

⁵ Indianapolis, Ind., not included.

⁶ Montgomery, Ala., not included.

⁷ Fort Smith, Ark., not included.

⁸ Helena, Mont., not included.

Summary of weekly reports from cities, May 29 to July 2, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

TYPHOID FEVER CASE RATES

	Week ended—									
	June 5, 1926	June 4, 1927	June 12, 1926	June 11, 1927	June 19, 1926	June 18, 1927	June 26, 1926	June 25, 1927	July 3, 1926	July 2, 1927
101 cities.....	9	13	12	11	11	13	12	11	16	15
New England.....	0	9	17	5	19	12	9	2	12	7
Middle Atlantic.....	9	5	6	6	9	6	10	4	11	6
East North Central.....	5	7	4	7	3	8	4	6	5	5
West North Central.....	8	12	6	14	10	6	4	6	10	8
South Atlantic.....	32	29	26	18	28	27	30	40	35	22
East South Central.....	10	61	57	41	21	82	36	61	126	134
West South Central.....	9	38	52	34	30	38	30	21	13	78
Mountain.....	9	9	9	0	0	18	0	18	27	9
Pacific.....	8	26	13	21	8	8	16	8	21	16

INFLUENZA DEATH RATES

95 cities.....	8	7	10	6	7	6	5	7	6	3
New England.....	2	2	12	0	9	2	0	5	5	5
Middle Atlantic.....	6	9	9	5	9	5	6	6	7	2
East North Central.....	8	4	10	4	3	5	3	5	5	3
West North Central.....	8	6	4	4	4	2	6	10	8	2
South Atlantic.....	8	17	6	9	4	9	6	2	8	6
East South Central.....	36	5	36	10	16	5	5	25	0	0
West South Central.....	13	17	18	26	22	17	22	4	13	4
Mountain.....	18	0	9	9	0	9	0	27	9	9
Pacific.....	4	3	0	7	4	0	0	10	4	3

PNEUMONIA DEATH RATES

95 cities.....	105	93	95	94	87	87	73	74	75	73
New England.....	116	116	101	88	87	107	68	86	92	60
Middle Atlantic.....	131	108	110	112	95	95	83	85	96	71
East North Central.....	98	79	87	93	74	86	60	71	61	79
West North Central.....	51	58	59	50	74	48	44	52	38	77
South Atlantic.....	79	110	96	65	112	61	95	46	89	57
East South Central.....	124	51	124	112	98	71	124	56	121	102
West South Central.....	93	82	88	103	66	95	71	43	58	73
Mountain.....	146	72	82	90	100	153	109	54	46	92
Pacific.....	67	97	67	83	74	100	42	131	42	69

¹ Greenville, S. C., not included.

² Covington, Ky., not included.

³ Indianapolis, Ind., Montgomery, Ala., Fort Smith, Ark., and Helena, Mont., not included.

⁴ Indianapolis, Ind., not included.

⁵ Montgomery, Ala., not included.

⁶ Fort Smith, Ark., not included.

⁷ Helena, Mont., not included.

⁸ Indianapolis, Ind., Montgomery, Ala., and Helena, Mont., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, 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	
			1926	1927	1926	1927
Total.....	101	95	30,443,800	30,966,700	29,783,700	30,295,900
New England.....	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic.....	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central.....	16	16	7,650,200	7,810,600	7,650,200	7,810,600
West North Central.....	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic.....	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central.....	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central.....	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain.....	9	9	572,100	580,000	572,100	580,000
Pacific.....	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

CANADA

Communicable diseases—Week ended June 25, 1927.—The Canadian ministry of health reports cases of certain communicable diseases in seven Provinces of Canada for the week ended June 25, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever.....	-----	-----	-----	1	-----	-----	-----	1
Influenza.....	19	-----	-----	-----	1	-----	-----	20
Smallpox.....	-----	-----	-----	20	1	2	9	32
Typhoid fever.....	-----	4	91	8	-----	-----	1	104

Communicable diseases—Ontario—June, 1927 (Comparative).—During the month of June, 1927, communicable diseases were reported in the Province of Ontario as follows:

Disease	1927		1926	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis.....	3	-----	5	-----
Chicken pox.....	851	-----	454	-----
Diphtheria.....	202	8	188	12
Erysipelas.....	1	-----	1	-----
German measles.....	602	-----	433	-----
Gonorrhoea.....	149	-----	65	-----
Influenza.....	2	3	-----	20
Lethargic encephalitis.....	1	2	-----	-----
Measles.....	1,408	9	2,976	12
Mumps.....	151	-----	37	-----
Pneumonia.....	-----	25	-----	159
Puerperal septicemia.....	-----	1	-----	-----
Poliomyelitis (infantile paralysis).....	1	-----	2	-----
Scarlet fever.....	410	6	373	3
Septic sore throat.....	8	-----	-----	-----
Smallpox.....	70	-----	36	-----
Syphilis.....	136	-----	72	-----
Tuberculosis.....	111	57	164	77
Typhoid fever.....	52	2	33	-----
Whooping cough.....	143	4	290	6

Communicable diseases—Quebec—Week ended July 2, 1927.—The bureau of health of the Province of Quebec reports cases of certain communicable diseases for the week ended July 2, 1927, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	1	Scarlet fever.....	49
Chicken pox.....	7	Tuberculosis.....	14
Diphtheria.....	38	Typhoid fever.....	75
German measles.....	2	Whooping cough.....	5
Measles.....	44		

Typhoid fever—Montreal—January 2–July 9, 1927.—The following table gives the cases of typhoid fever and deaths from this disease reported at Montreal, Quebec, Canada, since January 1, 1927:

Week ended—	Cases	Deaths	Week ended—	Cases	Deaths
Jan. 8, 1927	3	1	Apr. 16, 1927	175	38
Jan. 15, 1927	4	3	Apr. 23, 1927	125	43
Jan. 22, 1927	1	2	Apr. 30, 1927	105	23
Jan. 29, 1927	3	1	May 7, 1927	166	19
Feb. 5, 1927	1	0	May 14, 1927	367	16
Feb. 12, 1927	0	0	May 21, 1927	770	26
Feb. 19, 1927	1	2	May 28, 1927	353	38
Feb. 26, 1927	1	1	June 4, 1927	239	37
Mar. 5, 1927	9	1	June 11, 1927	128	36
Mar. 12, 1927	203	4	June 18, 1927	86	—
Mar. 19, 1927	358	14	June 25, 1927	75	23
Mar. 26, 1927	658	22	July 2, 1927	66	21
Apr. 2, 1927	649	48	July 9, 1927	52	10
Apr. 9, 1927	386	40			

CANARY ISLANDS

Plague—Laguna—June 15, 1927.—A case of plague was reported at Tejina, district of Laguna, Canary Islands, June 15, 1927.

EGYPT

Communicable diseases—May 7–27, 1927.—During the period May 7–27, 1927, communicable diseases were reported in Egypt as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	5	—	Typhoid fever	119	—
Influenza	203	—	Typhus fever	166	27
Smallpox	12	2			

GREAT BRITAIN

Marriages, 1926, England and Wales—Correction.—The number of marriages and the marriage rate for England and Wales for the year 1926, as given in the Public Health Reports, Volume 42, No. 22, June 3, 1927, page 1543, are incorrect. The assistant registrar general states that the number of marriages was 279,321, and the marriage rate 7.1 per 1,000 population.

JAMAICA

Smallpox (alastrim)—May 29–June 25, 1927.—During the four weeks ended June 25, 1927, 9 cases of smallpox (reported as alastrim) were notified in the island of Jamaica, occurring at localities other than Kingston.

Other communicable diseases.—During the same period other communicable diseases were reported as follows:

Disease	Cases		Disease	Cases	
	Kings-ton	Other lo-calities		Kings-ton	Other lo-calities
Chicken pox.....	21	37	Lethargic encephalitis.....		1
Diphtheria.....		1	Puerperal fever.....		2
Dysentery.....	9		Tuberculosis.....	21	39
Erysipelas.....		1	Enteric fever.....	24	79

Chicken pox.—Reports of occurrence of chicken pox in the island of Jamaica for the period under report were as follows: Week ended June 4, 3 cases; week ended June 11, 23 cases; week ended June 18, 2 cases; week ended June 25, 9 cases.

MALTA

Communicable diseases—May, 1927.—During the month of May, 1927, communicable diseases were reported from the island of Malta as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia.....	6	Pneumonia.....	3
Chicken pox.....	7	Poliomyelitis.....	1
Diphtheria.....	2	Scarlet fever.....	6
Erysipelas.....	7	Trachoma.....	46
Influenza.....	4	Tuberculosis.....	18
Lethargic encephalitis.....	1	Typhoid fever.....	27
Malta fever.....	61	Whooping cough.....	118

MADAGASCAR

Plague—April 1-15, 1927.—During the period April 1 to 15, 1927, 88 cases of plague with 82 deaths were reported in the island of Madagascar. The distribution of occurrence by Provinces was as follows: Ambositra—cases, 17; deaths, 17. Antsirabe—cases, 5; deaths, 5. Miarinarivo (Itasy)—cases, 5; deaths, 5. Moramanga—cases, 2; deaths, 2. Tananarive—cases, 57; deaths, 51. Tananarive Town—cases, 2; deaths, 2. Distribution according to type of disease was as follows: Bubonic, 42 cases; pneumonic, 17 cases; septicemic, 29.

SENEGAL

Plague—June 13-19, 1927.—During the week ended June 19, 1927, 21 cases of plague with 10 deaths were reported in Senegal, West Africa. The distribution of occurrence according to locality was as follows: Baol region—cases, 3; deaths, 1. Denkou and Guindeul, suburbs of Rufisque—cases, 5; deaths, 2. Medina, suburb of Dakar—cases, 2; deaths, 2. Thies—cases, 5; deaths, 2. Tivaouane district—cases, 6; deaths, 3.

Yellow fever.—During the same period one fatal case of yellow fever, occurring in a European, was reported at M'Bour.

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

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

Reports Received During Week Ended July 22, 1927¹**CHOLERA**

Place	Date	Cases	Deaths	Remarks
China:				
Amoy.....	May 22-28.....	1	1	
India:				
Calcutta.....	May 22-June 4.....	104	70	
Karachi.....	May 29-June 4.....	1	1	
Rangoon.....	do.....	1	1	
Indo-China (French):				
Saigon.....	May 7-27.....	70	53	
Siam:				
Bangkok.....	May 22-28.....	19	10	
Bangkok.....	do.....	5	1	

PLAGUE

Azores:					
St. Michaels Island.....	May 15-June 3.....	2			
Canary Islands:					
Laguna District—					
Tejina.....	June 17.....	1			
Ceylon:					
Colombo.....	May 22-June 4.....	5	3		
Egypt:					
Alexandria.....	June 4-10.....	1			
Beni-Souef.....	do.....	1			
India:					
Madras.....	May 15-21.....	11	2		
Rangoon.....	May 29-June 4.....	3	2		
Java:					
Batavia.....	May 22-28.....	12	12		
Madagascar:					
Apr. 1-15.....	Apr. 1-15.....	83	83		
Ambositra.....	do.....	17	17		
Antsirabe.....	do.....	5	5		
Miarinarivo (Itasy).....	do.....	5	5		
Moramanga.....	do.....	2	2		
Tananarive.....	do.....	59	53		
Tananarive town.....	do.....	2	2		
Peru:					
Libertad.....	May 1-31.....				Cases, 7; deaths, 3.
do.....	do.....	1	1		
Lima.....	do.....	6	2		
Senegal:					
June 13-19.....	June 13-19.....	21	10		

SMALLPOX

Algeria:					
Oran.....	June 11-20.....	16			
Brazil:					
Rio de Janeiro.....	May 29-June 11.....	2	2		Cases, 32.
Canada:					
June 19-25.....	June 19-25.....				
Alberta.....	do.....	9			
Manitoba.....	do.....	1			
Winnipeg.....	June 24-July 7.....	4			
Ontario.....	June 19-25.....	20			
Ottawa.....	June 26-July 9.....	18			
Toronto.....	June 19-25.....	4			
Saskatchewan.....	do.....	2			
China:					
Amoy.....	May 22-28.....				Prevalent.
Hong Kong.....	May 22-June 4.....	7	9		
Manchuria—					
Fushun.....	May 29-June 4.....	3			
Tientsin.....	May 22-28.....	4			
Chosen:					
Chinnampo.....	May 1-31.....	1			
Gensan.....	do.....	1			
Egypt:					
May 7-27.....	May 7-27.....				Cases, 12; deaths, 2.
France:					
Paris.....	June 1-10.....	4			

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 July 22, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Great Britain:				
England and Wales—				
Cardiff.....	June 19-25.....	2		
Liverpool.....	do.....	1		
London.....	June 12-18.....	1		
Sheffield.....	June 12-25.....	12		
Scotland—				
Dundee.....	June 19-25.....	1		
India:				
Calcutta.....	May 22-June 4.....	75	59	
Karachi.....	May 29-June 4.....	3	2	
Madras.....	June 5-11.....	3	1	
Rangoon.....	May 22-June 4.....	36	10	
Indo-China (French):				
Saigon.....	May 14-20.....	1	1	
Jamaica				
May 29-June 25.....				
Japan:				
Nagasaki City.....	Reported July 9.....	20		Reported as alastrim.
Java:				
Batavia.....	May 22-28.....	1		
Mexico:				
Durango.....	June 1-30.....		1	
San Luis Potosi.....	June 26-July 2.....		1	
Persia:				
Teheran.....	Mar. 21-Apr 20.....		4	
Portugal:				
Lisbon.....	June 12-25.....	5		
Siam				
Bangkok.....	May 22-28.....	4	2	
Straits Settlements:				
Singapore.....	May 15-21.....	1		

TYPHUS FEVER

Algeria:				
Oran.....	June 11-20.....	4		
Chile:				
Concepcion.....	May 29-June 4.....		1	
China:				
Manchuria—				
Mukden.....	do.....	1		
Chosen:				
Chemulpo.....	May 1-31.....	4		
Gensan.....	do.....	1		
Seoul.....	do.....	8		
Egypt:				
Alexandria.....	May 7-27.....	166	27	
Mexico:				
Mexico City.....	May 13-18.....	3		Including municipalities in Federal District.
Palestine:				
Safad.....	June 7-13.....	1		
Peru:				
Arequipa.....	Apr. 1-30.....		1	
Union of South Africa:				
Cape Province.....				
Natal.....	May 15-28.....			Outbreak.
Orange Free State.....	May 15-21.....			Do.
May 15-28.....				
Do.....				

YELLOW FEVER

Liberia:				
Monrovia.....	June 1-July 8.....		4	
Senegal:				
M'Bour.....	June 13-19.....	1	1	

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

Reports Received from June 25 to July 15, 1927¹

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Swatow.....	May 15-28.....	7	8	
India:				
Boimbay.....	Apr. 17-May 14.....			Cases, 14,805; deaths, 7,207.
Calcutta.....	May 8-14.....	1		
Rangoon.....	May 8-21.....	215	134	
.....	May 8-28.....	7	4	
.....	Mar. 30-Apr. 30.....	4	2	
India, French Settlements in.....			
Indo-China (French):				
Saigon.....	Apr. 30-May 6.....	54	37	Including Cholera. Cases 62; deaths, 33.
Siam:				
Bangkok.....	May 1-21.....		5	
.....	do.....	18		

PLAGUE

Argentina:				
Formosa.....	Reported July 6.....	3		
British East Africa:				
Kenya.....	Apr. 24-May 7.....	7	14	
Tanganyika.....	Mar. 29-May 7.....		36	
Uganda.....	Jan. 1-Feb. 28.....	138	121	
Do.....	Mar. 27-May 14.....	72	57	
Ceylon:				
Colombo.....	May 1-21.....	6	4	Plague rats, 4.
Egypt:				
Tanta District.....	May 21-27.....			Cases, 1. Total from Jan. 1-May 27, 1927: Cases, 40; corresponding period, 1926: Cases, 43.
.....	do.....	1		
Greece:				
Patras.....	May 30-June 11.....	4		
India:				
Bombay.....	Apr. 17-May 14.....			Cases, 5,584; deaths, 4,121.
Madras.....	May 8-28.....	54	51	
Rangoon.....	May 1-14.....	10	7	
.....	May 8-28.....	10	9	
Indo-China (French).....	Apr. 1-May 10.....	7		
Iraq:				
Baghdad.....	Apr. 8-16.....	3	1	
Java:				
Batavia.....	May 1-21.....	43	49	Province.
East Java and Madura— Paseroean Residency.....	May 9.....			Outbreak reported at Ngadilwono.
Surabaya.....	Apr. 17-May 7.....	24	24	
Madagascar:				
Province—				
Ambositra.....	Mar. 16-31.....	15	10	Bubonic, 11; pneumonic, 1; septicemic, 3.
Antsirabe.....	do.....	1	1	Septicemic.
Miarinarivo (Itasy).....	do.....	27	27	Bubonic, 3; pneumonic, 9, septicemic, 15.
Moramanga.....	do.....	6	6	Bubonic, 3; septicemic, 3.
Tananarive.....	do.....	43	38	Bubonic, 24; pneumonic, 11; septicemic, 8.
Tananarive Town.....	do.....	4	4	Bubonic, 1; septicemic, 3.
Peru:				
Departments—				
Ica.....	do.....	1		Cases, 15; deaths, 5.
Lambayeque.....	do.....	1		
Libertad.....	do.....	6	3	
Lima.....	do.....	7	2	
Lima City.....	do.....	5	1	
Senegal:				
Baol.....	May 23-June 8.....			Cases, 39; deaths, 10.
Guindel.....	June 2-8.....	2		
Rufisque.....	do.....	6		
Thies District.....	May 23-29.....	23	10	
Tivaouane.....	May 23-June 8.....	7		
Siam:				
Bangkok.....	June 2-8.....	1		
.....	Apr. 1-May 21.....			Cases, 8; deaths, 7.
.....	May 8-14.....	1	1	
Tunisia.....	Reported May 20.....	15		In districts of Sfax and Susa.
Turkey:				
Constantinople.....	May 13-19.....	1		
Union of South Africa:				
Cape Province— Maraisburg district.....	May 1-14.....	2	2	Native.

¹ From medical officers of the Public Health Service, American consuls, and other sources. For reports received from January 2 to June 24, 1927, see Public Health Reports for June 24, 1927. The tables of epidemic diseases are terminated semiannually and new tables begun.

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

Reports Received from June 25 to July 15, 1927—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria.....	Apr. 21-May 10	168		
Algiers.....	May 11-20	4		
Oran.....	May 21-31	15		
Brazil:				
Rio de Janeiro.....	May 22-28	1		
British East Africa:				
Kenya.....	Apr. 24-May 14	7	14	
Tanganyika.....	Mar. 29-May 7		22	
British South Africa:				
Northern Rhodesia.....	Apr. 30-May 6	1		Native Cases, 68.
Canada.....	June 5-18			
Alberta.....	June 12-18	15		
Calgary.....	June 12-25	5		
British Columbia—				
Vancouver.....	May 23-29	2		
Manitoba.....	June 5-18			Cases, 6.
Winnipeg.....	June 12-24	5		
Ontario.....	June 5-18			Cases, 34.
Ottawa.....	June 12-25	10		
Quebec.....	June 19-25	1		
Saskatchewan.....	June 12-18	13		
Ceylon.....	May 1-7			Cases, 3; deaths, 1.
China:				
Amoy.....	May 9-14	1		
Chefoo.....	do.			Present.
Foochow.....	do.			Do.
Hong Kong.....	do.	4	2	
Manchuria—				
Anshan.....	May 22-28	1		
Changchun.....	May 15-28	2		
Dairen.....	May 2-8	3	3	
Fuehun.....	May 15-28	5		
Mukden.....	May 22-28	2		
Ssuningkal.....	May 8-14	1		
Tientsin.....	May 8-21	7		
Chosen.....	Feb. 1-Apr. 30	254	84	
Chinnampo.....	Apr. 1-30	1		
Fusan.....	do.	1		
Seishin.....	do.	1		
Curacao.....	May 29-June 4	1		Alastrim.
Egypt:				
Alexandria.....	May 21-27	3	1	
France.....	Apr. 1-30			Cases, 66.
Gold Coast.....	Mar. 1-30	18	4	
Great Britain:				
England and Wales.....	May 22-June 18			Cases, 982.
Bradford.....	May 29-June 11	2		
London.....	May 15-21	1		
Newcastle on Tyne.....	June 12-18	1		
Scotland—				
Dundee.....	May 29-June 4	3		
India.....				Apr. 17-May 14, 1927: Cases, 32,626; deaths, 7,741.
Bombay.....	May 8-28	156	97	
Calcutta.....	May 8-21	119	88	
Karachi.....	May 15-28	4	3	
Madras.....	May 22-June 4	3	1	
Rangoon.....	May 8-28	44	12	
India, French Settlements in.....	Mar. 20-Apr. 30	96	59	
Indo-China (French).....	Mar. 21-Apr. 10	190		
Iraq:				
Baghdad.....	Apr. 10-16	2		
Basra.....	do.	1		
Italy.....	Apr. 10-May 7	5		
Japan.....	Apr. 3-May 7	19		
Java:				
Batavia.....	do.	1		
East Java and Madura.....	Apr. 24-30	1		
Latvia.....	Apr. 1-30	1		
Mexico:				
San Luis Potosi.....	May 29-June 18		5	
Tampico.....	June 1-10	1	1	
Morocco.....	Apr. 1-30	55		
Netherlands India:				
Borneo—				
Holoe Soengei.....	Apr. 21			Epidemic in two localities.
Persia:				
Teheran.....	Feb. 21-Mar. 21		1	
Poland.....	Apr. 10-23	3		

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

Reports Received from June 25 to July 15, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Portugal:				
Lisbon.....	May 29-June 11....	5		
Siam.....	May 1-21.....			Cases, 6; deaths, 5.
Bangkok.....	May 15-21.....	1	1	
Spain:				
Valencia.....	May 29-June 4....	2		
Straits Settlements:				
Singapore.....	Apr. 1-May 10....	2	1	
Tunisia.....do.....	5		
Tunis.....	June 1-10.....	1		
Union of South Africa:				
Transvaal—				
Barberton District.....	May 1-7.....			Outbreaks.

TYPHUS FEVER

Algeria.....	Apr. 21-May 10....	109	16	
Algiers.....	May 11-June 10....	21		
Oran.....	May 21-June 10....	10		
Bulgaria.....	Mar. 1-31.....	58	6	
Sofia.....	June 4-10.....	1		
Chile:				
Ligua.....	Mar. 16-31.....	2		
Chosen.....	Feb. 1-Apr. 30....			Cases, 330; deaths, 30.
Seoul.....	Apr. 1-30.....	1		
Czechoslovakia.....				Apr. 1-30, 1927: Cases, 21.
Egypt:				
Alexandria.....	May 21-27.....	1		
Estonia.....				Apr. 1-30, 1927: Case, 1.
Iraq:				
Baghdad.....	Apr. 24-30.....	1		
Latvia.....	Apr. 1-30.....	12		
Mexico.....	Feb. 1-28.....			Deaths, 26.
Mexico City.....	May 29-June 11....	4		Including municipalities in Federal District.
Morocco.....	Apr. 1-May 7.....	249		
Palestine.....	May 24-June 6.....			Cases, 3.
Haifa.....	do.....	2		
Mahnaim.....	May 17-23.....	1		In Safad District.
Safad.....	May 17-30.....	2		
Poland.....	Apr. 10-30.....	308	33	
Portugal:				
Lisbon.....	May 29-June 4.....	1		
Rumania.....	Apr. 3-May 7.....	583	41	
Tunisia.....	Apr. 21-May 10....	78		
Turkey:				
Constantinople.....	May 13-19.....		2	
Union of South Africa.....	Apr. 1-30.....			Cases, 55; deaths, 8. Native. In
Cape Province.....	do.....	42	5	Europeans, cases, 2.
East London.....	May 22-28.....	1		
Glen Grey District.....	May 1-7.....			Outbreaks.
Qumbu District.....	do.....			Do.
Natal.....	Apr. 1-30.....	7	3	
Orange Free State.....	do.....	5		
Transvaal.....	do.....	1		
Yugoslavia.....	May 1-31.....			Cases, 4.

YELLOW FEVER

Liberia:				
Monrovia.....	May 29-June 4.....	1	1	
Senegal.....	May 27.....			Cases, 3.
M' Bour.....	May 27-June 8....	2	2	
Ouakam.....	June 2-8.....	1	1	
Tivaouane.....	May 27-June 8....	5	5	