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EXPERIMENTAL CHEMOTHERAPY OF BURNS AND SHOCK. IV. PRODUCTION OF TRAUMATIC SHOCK IN MICE. V. THERAPY WITH MOUSE SERUM AND SODIUM SALTS¹

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IV. Production of Traumatic Shock in Mice

In previous studies (1) by exposure of mice to a standardized burn, a technique was developed whereby shock could be produced in a large number of animals in a short time. This permitted a degree of controlled experimentation not hitherto possible in this field, and when certain factors such as age, environmental temperature, and diet were kept uniform a satisfactory degree of reproducibility was obtained.

With this procedure the evaluation of local and systemic therapy on the mortality from shock was carried out. Of particular interest was the fact that more than 90 percent of animals could be saved from shock fatal to the controls by the administration of isotonic solutions of sodium salts in amounts equal to 10 to 15 percent of body weight.² That this was a sodium effect was shown in that all sodium salts behaved equally, that hypertonic solutions were less effective, that glucose solutions and water were ineffective, and that the curative action could be antagonized by potassium. Results with mouse blood serum and human serum albumin suggested that their effects could be correlated with their sodium content.

It was desired to test whether these findings would apply in traumatic shock. After trying several forms of trauma in mice, a technique was developed based upon the tourniquet method previously employed by other workers (2, 3, 4, 5). The changes which occur in the blood and circulation upon release of the tourniquet have been shown by these workers to be characteristic of the shock syndrome.

¹ From the Division of Chemotherapy, National Institute of Health.

² Among 706 burned mice treated within 5 hours with 2.2 to 3 cc. of 0.9 percent NaCl, the acute mortality was 6 percent as compared with 94.6 percent among 221 controls.

Allen (3) used this method in rats and reported some of the results which we subsequently found in burn shock and which are to be presented in this paper—the harmful effects of a hot and cold environment, the curative action of saline injections, the less beneficial effects of plasma. Detailed protocols were not given.

METHOD

With the aid of an assistant, the mouse is held ventral surface up, with the head in a test tube containing cotton saturated with ether. A stout thread (fishing line) is looped over the foot, and the free end, to which is fastened a small weight, is dropped through a thin-walled metal cylinder of a size that readily passes over the thigh. By traction on the thread with one hand the leg is pulled into the cylinder, which is pressed snugly against the body of the animal. With the thumb of the other hand a rubber band, which has been looped around the end of the cylinder, is pushed off, onto the thigh of the mouse. We have used a brass cork-boring tube of 1 cm. diameter, and No. 30 rubber bands (Eberhard Faber) which are approximately 11 cm. in circumference and 0.32 cm. in width. Previous dipping of the cylinder in water facilitates the ease with which the band may be pushed off.

The band was looped around the end of the cylinder six turns in all cases. The use of six turns gives a fairly wide and uniform constriction. The tension, as measured upon a thin-walled rubber tubing whose lumen was loosely filled with a glass rod, was over 425 mm. of mercury for all bands tested.

The bands were applied to both legs in all the following experiments, and it is convenient to have two cylinders wrapped with bands and two weighted threads at hand, so that only a few seconds of anesthesia are required to apply the tourniquets to both legs. Sixty mice can be treated in this manner within an hour.

No subsequent anesthesia is used; the numbing effects of the tourniquets are such that little evidence of pain is seen. Occasionally a mouse will chew upon its leg. If hemorrhage occurs upon release of the band, the animal is discarded. The bands are cut off at the desired time with fine scissors, as attempts to remove them intact require too much manipulation.

In all of the following experiments, for purposes of uniformity, female albino mice of 16 to 21 gm. were employed. The diet consisted of dog pellets (Ralston), and water was allowed at all times. They were kept in individual jars during the first few days of the experiments. The room temperature during the course of these experiments ranged from 24° to 30° C.

LENGTH OF APPLICATION OF THE TOURNIQUET AS RELATED TO THE MORTALITY FROM SHOCK

Other investigators have shown that shock does not develop until release of the tourniquet. In larger animals a 5- to 8-hour period has been used (2, 3, 4, 5). This must necessarily be influenced by the width and tension of the tourniquet, the species of animal, and site of application.

A systematic study of the mortality following release of the bands after varying intervals of time revealed that with this technique the



FIGURE 1.—The relation to mortality of length of application of the tourniquets. Experiment A represents 10 mice to each group while in B 15 each were used except at the 2-hour interval, which is a composite of several experiments with 127 mice.

maximum percentage of fatalities in mice occurred from an application of 2 to 3 hours (fig. 1). A striking feature of these experiments was the sharp reduction in mortality which occurred when the bands were applied longer than 5 hours. After 8 hours only 20 percent of the animals died during the shock period, while after 24 hours of application no evidence of shock was seen and no fatalities during the first two days occurred among 25 mice.

No difference in the degree of swelling could be observed between the 2- and 8-hour periods of application, although quantitative studies remain to be done. An inverse correlation was present between the mortality from shock and the degree of irreversible tissue damage. Where the mortality was highest (2-hour period) the swelling gradually subsided and after 1 to 3 weeks the appearance of the legs approached normal, except for some residual paralysis. After 8 hours of constriction the legs remained enormously swollen and gangrene developed in most instances. Application of the bands for 24 hours resulted in limbs that were dry and necrotic. There was little tendency to swelling, hemorrhage, or infection, and after several days only the neat stumps of the thighs remained. The relation of these changes to shock can best be explained on the degree of occlusion of the small vessels, and the subsequent impairment of circulation through the damaged tissues.

V. Therapy With Mouse Serum and Sodium Salts

For purposes of evaluating the effects of therapy, application of the tourniquets for 2 hours was chosen as the time interval. Upon removal



FIGURE 2-A. The curative action of 0.9 percent NaCl administered orally, intravenously, and intraperitoneally. Twenty mice to each group. B. Comparison of 0.9 percent saline orally and intravenously with mouse serum, intravenously. Twenty mice to each group. In all animals 0.8 cc. given on removal of the bands and repeated in 3 hours.

of the bands the development of shock is rapid. The average survival time in six groups of untreated mice was 3.2, 3.5, 3.35, 3.3, 5.4, and 4.8 hours. The mortality among 127 controls was 95.3 percent. Because the development of shock and death occurred earlier than in the burn experiments, therapy was administered shortly after removal of the bands and repeated in 3 hours. One to two minutes were taken for each intravenous injection.

Experiments carried out with 0.9 percent NaCl revealed an extent of curative action comparable to that obtained in burn shock (figs. 2 and 3). Of 80 mice receiving 0.8 cc. of saline orally on removal of the bands and 0.5 to 0.8 cc. 3 hours later, 13 died before the second dose of salt was administered; among the remaining 57, 47, or 85 percent, survived.³ With 40 mice receiving saline intravenously, 4

^{*} Similar results have been obtained with sodium lactate.

September 24, 1945

died before the second dose, while 34 of the remaining 36 (91 percent) survived. Similar effects were obtained by intraperitoneal injection. These results are not maximum, as the experiments were designed to compare routes of administration, and the quantity of saline was kept within limits that could be given intravenously with safety. The studies in burn shock demonstrated that the optimum curative effects are obtained with 2 to 3 cc. of saline per 20 gm. mouse, given over a

No difference in routes of administration was noted, as compared to burn shock, where oral and intraperitoneal therapy were superior to

period of 5 hours.



FIGURE 3.—Two experiments comparing mouse serum orally and intravenously and 0.9 percent NaCl orally. 0.8 cc. given on removal of the bands and 0.5 cc. 3 hours later. Each curve represents 20 mice.

intravenous. This may be due in part to the fact that in the burn experiments intravenous therapy was limited to 1 hour following the burn, because swelling of the tail made later injections difficult. However, no advantage of intravenous over oral therapy was observed in any case, and it is believed that the large quantities of solution required cannot be given intravenously without certain disadvantages and hazards.

SERUM ADMINISTRATION

Mouse serum rather than plasma was used in order to avoid the presence of anticoagulants. The serum was processed according to the method of Goodner (6) and each batch tested for toxicity in normal mice by two intravenous injections of 1 cc., 3 hours apart. No evidence of toxicity was seen.

As in burn shock, serum intravenously proved to be slightly less effective than equal quantities of 0.9 percent NaCl. Of 80 mice In the experiments on burn shock (1) it was suggested that the effectiveness of serum might be due to its sodium content. In order to establish that the protein content of the serum, as such, is not



FIGURE 4.—Comparison of a protein-free ultrafiltrate of mouse serum with the original serum. Both given intravenously, 0.8 cc. on removal of the bands and 0.5 cc. 3 hours later. Twenty mice each in the treated groups, 22 controls.

effective in reducing the mortality from shock, a comparison was made between serum given orally and intravenously. It was demonstrated that serum was slightly more effective ⁴ when given orally than when given intravenously. Among 40 mice in each group the mortality with serum given orally was 35 percent as compared to 52 percent with intravenous injection, and 100 percent in the untreated controls (fig. 3).

Final evidence that the curative effects of serum are due to its electrolyte content was obtained by preparing a protein-free ultrafiltrate of serum and comparing it with the original serum. Blood from 350 mice was obtained and the serum processed as stated above.

⁴ Statistical analysis of these differences reveals that a larger series of animals is required to establish their significance.

Half of this was ultrafiltered through collodion bags (7) under a pressure of 110 mm. of mercury. The ultrafiltrate was collected under sterile mineral oil, following which it was placed in boiling water for 5 minutes, cooled, and centrifuged. The clear, protein-free ultrafiltrate gave essentially the same reduction in mortality in traumatic shock as the original serum, compared by intravenous injection (fig. 4). Both the serum and ultrafiltrate were tested for toxicity in normal mice, as described above, and found to be tolerated without symptoms.

COMMENT

The experiments with traumatic shock are comparable to burn shock in that they indicate an electrolyte disturbance as a dominant factor in the mortality. As stated previously, the role of potassium (8) and the underlying mechanism of this disturbance remain to be established. Recent experimental studies have shown the lack of reliability of changes in blood pressure and hemoconcentration as an index of mortality from shock (4, 5, 9, 10, 11), and it is believed that current methods of treatment of shock are directed toward these secondary manifestations rather than to a more profound disturbance in the tissues. Because of the harmlessness of the procedure, the evidence presented would seem to warrant the clinical trial of isotonic solutions of sodium salts, in part or entirely by mouth, in amounts of at least 10 percent of body weight during the first 24 hours of traumatic or burn shock.⁵ Because of the simplicity of administration it would seem suited to the emergency treatment of war casualties, where it is often necessary to wait several hours for the intravenous administration of plasma.

SUMMARY

A simplified procedure is described for the production of traumatic shock in mice under uniform conditions by the tourniquet method.

With this technique the maximum mortality results from 2 to 3 hours of application. Among 127 mice the mortality was 95.3 percent from 2 hours of application.

When the tourniquet is applied for longer than 5 hours a sharp reduction in mortality occurs; with 8 hours only 20 percent of the mice died, and when the bands remained on for 24 hours no deaths from shock occurred.

Isotonic solutions of sodium chloride or other sodium salts are highly effective in reducing the mortality from traumatic shock, whether given orally, intraperitoneally, or intravenously.

⁶ Dr. Charles L. Fox, Jr., of the College of Physicians and Surgeons, New York, has treated 35 burned patients at Harlem Hospital with isotonic sodium lactate orally in amounts up to 11 liters in the first 24 hours. He reports that this solution is palatable and well tolerated. No plasma was used. Twenty of the cases had third degree burns involving up to 40 percent of body surface, and no deaths have occurred in this series. (C.-L. Fox, Jr., in press.)

Mouse serum intravenously is slightly less active than equal quantities of saline.

Mouse serum by mouth is slightly more effective than mouse serum intravenously.

Final evidence that the effect of serum on mortality is due to its electrolyte content was obtained in that a protein-free ultrafiltrate of mouse serum was as active as the original serum in reducing the mortality from traumatic shock.

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NOTES ON THE PATHOLOGY OF EXPERIMENTAL **TRINITROTOLUENE POISONING**¹

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In the course of experimental studies on trinitrotoluene poisoning by Smith and his coworkers (1), a considerable amount of experimental pathologic material was submitted to the writer for study. Cats, rabbits, guinea pigs, and rats were included.

The pathologic alterations found were essentially similar in the four species and agreed well with those reported in dogs by Voegtlin. Hooper, and Johnson (2).

¹ From the Division of Pathology, National Institute of Health.

In five cats dying in 4 to 9 days after the administration of four to six subcutaneous doses of 50 mg. per kg., the liver showed slight to moderate centrolobular fine fat droplet deposit in liver cells, some centrolobular congestion and atrophy of cell cords, and slight to marked Kupffer cell hemosiderosis. The spleen showed slight to marked myelosis and slight to moderate pulp hemosiderosis. Erythrophagia was infrequent in both liver and spleen. One cat showed many hemoglobin casts in the renal collecting tubules. The rest showed only the normal fairly marked fatty infiltration of the cortical convoluted tubules.

Cats carried 10 to 30 days on daily subcutaneous injections of 20 mg. trinitrotoluene per kg. of body weight again showed a fairly marked hemosiderosis of the spleen pulp reticuloendothelium, of the hepatic Kupffer cells, especially toward the centers of the lobules, and of many scattered phagocytes in the interalveolar septa of the lung. Splenic myelosis was absent or slight. Occasionally some hemosiderin was seen in the epithelium or lumina of the renal convoluted tubules. The administration of vitamin C subcutaneously and the oral administration of methionin or cystine had little evident effect on these findings. Cats given trinitrotoluene in their food and later by stomach tube for 21 to 30 days showed similar findings.

Rabbits given subcutaneous injections of 200 mg. per kg. every second day and surviving 17 to 57 days showed occasionally a slight to moderate centrolobular fatty degeneration of the liver. Pigmentation of Kupffer cells was not obvious by ordinary methods. The kidneys contained numerous hemoglobin casts in the collecting tubules in one rabbit, in another there was marked hemosiderosis of the cortical tubule epithelium. The rest showed no significant lesions. The spleen regularly showed a quite marked pulp hemosiderosis but little or no myelopoiesis. Vitamin C made little difference.

Guinea pigs on a low vitamin C diet, receiving trinitrotoluene orally at 200 mg. per kg. for 16 days and then 400 mg. per kg. daily, were given subcutaneously high and low vitamin C supplements. Animals dying in 30 to 40 days showed slight to marked centrolobular, fine to medium fat droplet deposit in liver cells and a moderate to marked Kupffer cell hemosiderosis. Hemoglobin casts were found in the renal collecting tubules in two guinea pigs. Slight to moderate fatty infiltration of the epithelium of the convoluted or loop tubules appeared in about half the animals, and there was often a slight to moderate hemosiderosis of the convoluted tubule epithelium. The spleen presented a moderate to marked pulp hemosiderosis and pulp myelosis.

Guinea pigs killed at 59 to 60 days, after 43 doses, showed little or no fatty changes in the renal epithelium, less fatty alteration of the liver cells, an essentially similar hemosiderosis of the hepatic Kupffer cells, the splenic pulp reticuloendothelium and the renal convoluted tubule epithelium, and a similar grade of splenic myelosis. The amount of vitamin C given produced little evident difference between the two groups.

In rats fed 0.3 percent TNT in various low and high protein diets. there were variable, usually slight fatty changes in liver cells and a well marked hemosiderosis of the spleen. The fatty changes in the liver were sometimes midzonal, sometimes periportal or centrolobular and of the fine droplet type, and in many rats were absent. Splenic hemosiderosis was often of very marked grade, chiefly in pulp reticuloendothelial cells, but also in follicle phagocytes. The Kupffer cells in the liver also often contained hemosiderin, but iron positive phagocytes were rarely found in the lung tissue. The renal convoluted tubules rarely showed traces of iron-positive pigment in their epithelium, in contrast to the findings with certain other hemolytic poisons. Splenic myelosis was relatively slight for rats.

The various diets employed appeared to exert little influence on the hemosiderosis. As might be expected, cystine enrichment of a low protein diet produced coarse globule fatty infiltration and some ceroid in the liver (3), and similar fatty infiltration with or without ceroid appeared in rats on the low protein diet without TNT. Such control rats showed only small amounts of hemosiderin in the spleen.

The foregoing picture of a dominant general hemosiderosis and minor fatty degeneration of liver and perhaps kidney agrees with the methemoglobinemia seen in man (4). The subacute yellow atrophy grading into cirrhosis described in man (5) appears to have been infrequent and is not dissimilar to the lesion of the so-called epidemic hepatitis seen during the present war. In this study 1 of the 46 cats showed a marginally organizing infarct in the liver; 1 of 25 guinea pigs showed a widespread recent coagulation necrosis of the liver in which faded nuclei were still visible in the strongly oxyphil and markedly fatty liver cells, and 3 of 21 rabbits showed focal areas of midzonal or centrolobular coagulation necrosis of the liver. However, no definite necrosis was found in the livers of 82 rats.

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DEATHS DURING WEEK ENDED SEPTEMBER 11, 1943

[From the Weekly Mortality Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Sept. 11, 1943	Correspond- ing week, 1942
Data for 89 large cities of the United States: Total deaths	6, 985 6, 796 305, 119 571 496 22, 348 65, 808, 740 7, 960 6, 3 9, 8	6, 748 278, 612 503 19, 199 65, 013, 474 8, 019 6, 4 9, 3

PROVISIONAL MORTALITY RATES FOR THE FIRST QUARTER OF 1943

The mortality rates in this report are based upon preliminary data from 38 States, the District of Columbia, Alaska, Hawaii, and the Canal Zone. Comparative data for the first quarter of 1942 and 1941 are presented also for 35 States and the District of Columbia.

This report is made possible through a cooperative arrangement with the respective States, which furnish provisional quarterly tabulations of current births and deaths to the United States Public Health Service. Because of some lack of uniformity in the method of classifying deaths according to cause, as well as some delay in filing certificates, these data are preliminary and some deviation from the final figures may be expected, especially for specific causes of death for individual States. Nevertheless, it is believed that the trend in mortality within each State is reasonably accurate; in the past these preliminary reports have accurately reflected mortality trends. Comparison of specific causes of death for different States, however, is subject to error because of the factors mentioned above.

Population estimates for the different States used in computing rates were as follows: 1943—official United States Census Bureau estimates of the civilian population as of March 1, 1943, based on registration for War Ration Book Two; 1942—official United States Census Bureau estimates of the civilian population as of May 1, 1942, based on registration for War Ration Book One; 1941—average of the Census enumerated population as of April 1, 1940, and the estimated civilian population as of May 1, 1942. Although deaths in the armed forces in the continental United States are presumably included in these provisional data, it was not possible to include soldiers in the 1941–43 populations; in 1940 the number of soldiers was a negligible percentage of the total population. The number of deaths of soldiers within the continental United States is also relatively small. The mortality rate from all causes during the first 3 months of 1943 was 11.7 per 1,000 population (annual basis), as compared with 10.9 and 11.8 for the corresponding periods in 1942 and 1941, respectively. The increase in the death rate was widespread; 24 of the 36 States for which data are available reported higher rates in 1943 than in 1942. The death rate from all causes among persons insured in the industrial department of the Metropolitan Life Insurance Co. for the first 3 months of the year was about 5 percent above the rate for the first 3 months of 1942.

The increase in the death rate resulted from some increase in all of the important causes of death except tuberculosis and accidents. For tuberculosis the rate for 1943 was lower than in either of the two preceding years. However, in 16 of the 36 States with available data. the rate for 1943 was higher than in 1942. The total accidental death rate stood at the level of the two preceding years, but deaths from automobile accidents declined almost 40 percent; the rate was lower than in 1942 in every one of the 36 States. In 29 of the 36 States the cancer death rate was higher than in 1942 and the death rate from heart diseases was higher in 27 of the 36 States in 1943 than in 1942. Twentyfive of the States contributed to the 7-percent increase in the cerebral hemorrhage death rate and 23 of the 36 States had higher pneumonia and diabetes rates in 1943 than in 1942. Whooping cough was the only one of the four common childhood diseases to have a higher rate in 1943 than in 1942.

During the latter part of 1942 the most severe epidemic of meningococcus meningitis included in this series of records started in States along the Atlantic coast and spread into all sections of the country, reaching its peak during April of the current year. The death rate for the first 3 months of 1943 was 2.3 per 100,000 population, as compared with rates of 0.7 and 0.6 for the corresponding periods in 1942 and 1941, respectively.

Both the infant and maternal mortality rates continued to decline; the decrease in the maternal mortality was widespread, 24 out of 34 States with available data reporting a lower rate in 1943 than in 1942.

An increase in the birth rate was reported by 32 of the 34 States with available data; the rate, 21.9 per 1,000 population, was more than 20 percent above that for 1942. Provisional mortality from certain causes in the first 3 months of 1948, with comparative provisional data for the corresponding period in preceding

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	ath rai	Cerebrospinal (menin- gococcus) meningitis (6)	33 4	3.4	3322 1133	1.9	3.1 3.9	3.1 3.6	1.00
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year		Whooping cough (9)	9.0 7.5	444 400	172 6178	8008 9199	.9 5.6 1.9	3.8 6.5	1000 1111
		Diphtheria (10)	e.e		172	1.66	° €€	3. <mark>9</mark> .1	1.1
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		Diarrhea and enteritis Diarrhea 2 years (119)	ৰ ৰ ৰ তৰ ত	5.8 10.4 7.1	7.9	4000	13.8 6.5 10.4	66 ₁	3.1
		Dysentery (27)	EEE	EEE	321	3.2.7	°.CE	CC	
		Typhoid and paraty- phoid fever (1-3)	EEE	£Е.	416		E.8.9.	<u></u>	0,0,0
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See footnotes at end of table.

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ling		Automobile accidents (170a, b, c)	21.4	824	12.0 15.2 2.51	80 80 80 80 80 80 80 80 80 80 80 80 80 8	40 M	81.4 80.7	128
reced		(168-136) automobile accidents All accidents	288	<u> 5</u> 88	388	352	862	283	222
l in p		Nephritis, all forms (130-132)	583 5	***	76 r	288	324	887	868
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ding 1		Intracranial lesions of Vascular origin (83)	1989 1989	4 48	232	1288	372	1138	8118
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or the	basis)	Pneumonia, all forms (107–109)	382	98 115 90	222	282	484	222	282
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September 24, 1948

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September 24, 1943

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

REPORTS FROM STATES FOR WEEK ENDED SEPTEMBER 18, 1943 Summary

Following a decline during the preceding week from 956 to 906 cases, the incidence of poliomyelitis increased to 1,020 cases during the current week. This is the largest weekly total since the week ended August 21, 1935, when 1,088 cases were reported. The total reported for that entire year was 10,732 cases. A total of 7,812 cases has been reported to date this year. The following States reported 18 or more cases currently (last week's figures in parentheses): *Increases* (and contributing most to the current rise)—Massachusetts 35 (23), Rhode Island 20 (10), Connecticut 32 (25), Pennsylvania 18 (8), Illinois 208 (189), Wisconsin 18 (14), Iowa 29 (23), Kansas 77 (47), Texas 57 (50), Utah 41 (40), Washington 27 (7), and California 150 (111); decreases—New York 65 (68), Michigan 29 (34), and Oklahoma 26 (36); no change—Ohio 20 and Colorado 35.

The incidence of meningococcus meningitis declined during the week from 173 to 135 cases, as compared with 30 for the 5-year (1938-42) median. The largest number of cases was reported in New York (12 cases, as compared with 23 last week). The cumulative total to date is 14,153, as compared with 2,584 for the same period last year and a 5-year median of 1,544.

Of the seven other common communicable diseases included in the following table, the current incidence of only influenza, measles, and scarlet fever and the accumulated totals for the first 37 weeks of the year for only measles and whooping cough are above the corresponding 5-year medians.

A total of 525 cases of infectious encephalitis has been reported to date this year as compared with 402 for the same period last year. States reporting the largest numbers this year are as follows: California 131, Texas 60, New York 55, Illinois 46, Kansas 25, and Massachusetts 24.

Deaths recorded for the week in 90 large cities of the United States aggregated 7,927, as compared with 7,558 for the preceding week and a 3-year (1940-42) average of 7,628. The accumulated total for these cities for the first 37 weeks of the year is 338,980, as compared with 311,115 for the same period last year.

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Telegraphic morbidity reports from State health officers for the week ended September 18, 1943, and comparison with corresponding week of 1942 and 5-year median

In these tables a zero indicates a definite report, while leaders imply that, although none were reported, cases may have occurred.

	Diphtheria		ria	1	influen	L8	:	Measles		Meningitis, meningococcus		
Division and State	Wende	eek ed	Me-	Wende	eelk ed—	Me	We end	eek ed	Me-	We	ek ed—	Me-
	Sept. 18, 1943	Sept. 19, 1942	1938- 42	Sept. 18, 1943	Sept. 19, 1942	1938- 42	Sept. 18, 1943	Sept. 19, 1942	1938- 42	Sept. 18, 1943	Sept. 19, 1942	1938- 42
NEW ENGLAND												
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Vermont	ĭ	ŏ	ŏ				l i	30	2	Ŏ	Ó	Ó
Massachusetts	2	2	2				31	28	28	10		6
Connecticut	i	Ô	ŏ	5		1	9	5	5	8	ŏ	Ŏ
MIDDLE ATLANTIC												
New York	7	3	8		13	14	70	32	60	12	8	7
New Jersey	1	5	3	4	5	4	86	21	21	5	2	0
Pennsylvania	4	5	12				12	20	33	10	0	
EAST NORTH CENTRAL						_						
Ohio	5	3	10	1	18	7	40	12	13	0	3	ŏ
Tilinois	8	13	17	6	4	4	15	20	20	8	Ģ	ĺĺĺ
Michigan 2	4	3	3	.2	15	2	151	11	44	9		
Wisconsin	U	1	"	11	10	10	15	- 10	43		Ű	Ů
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North Dakota	2	0	1		3	2	14	0	0	0	0	
South Dakota		5	3				1	26	2	ŏ	ŏ	ŏ
Kansas	3	4	5		Ī	1	4	5	.8	1	0	0
SOUTH ATLANTIC												
Delaware	0	0	0				1	1	1	0	0	0
Maryland 3	0	1	2			2	6	5	5			
District of Columbia	7	18	18	74	90	47	19	5	9	4	i	ľ
West Virginia	6	11	10	1	3	9	5	<u> </u>	3	4	0	2
North Carolina	47	40	40	122	169	137	6	4	7	1	l å	l ô
Georgia	32	21	24	36	27	7	Ĭ	Ĩ	1	0	Ó	0
Florida	3	5	5	5	1	1	3	6	3	2	U	U
EAST SOUTH CENTRAL												
Kentucky	8	19	13	1		<u>`</u>	3	10	12	2		0
Tennessee	17	14	14	17	10	7	13	4	4	6	ŏ	i
Mississippi *	12	9	12							1	0	0
WEST SOUTH CENTRAL												
Arkansas	5	17	17	5	7	6	11	4	5	1	0	0
Louisiana	7	<u>o</u>	6	7		2	1	0	1	2		1
UKIADOMA	26	30	30	284	156	83	28	11	22	2	Ŏ	ī
MOINTAIN												
Montena		6	0				12	0	3	0	0	1
Idaho	ō	ŏ	ŏ	1			Ō	1	2	0	0	0
Wyoming	0	0	0		9		1	3		0		
New Mexico	3	2	2		21 	1	ō	ō	i	Ŏ	ĺ	Ő
Arizona	ļį	Ī	Ō	34	55	23	3	3	3	2		
Utah 3			0		3		13	30 0	0	1	ŏ	
1104919	ľ	ľ					"					
PACIFIC		-					12	43	9	2	1	1
vv asnington				4	11	9	15	16	10	3	Ô	Ô
California	16	12	15	14	28	13	42	49	49	9	5	1
Total	302	349	349	657	700	444	780	492	561	135	43	
27 weeks	8.312	8.541	9, 707	84. 051	83. 065	153, 176	540, 807	468, 877	468, 877	14, 153	2, 584	1, 544

See footnotes at end of table.

.

	P	oliomy	eli tis	8	carlet :	lever		Sm al lp	X	Ty pe	Typhoid and paratyphoid fever ³		
Division and State	V en	Veek ded—	Me	W end	'eek led	Me-	W end	Week ended—		en	leek ded	Me	
	Sept 18, 1943	. Sept 19, 1942	- dian 1938 - 42	Sept. 18, 1943	Sept 19, 1942	- dian 1938- 42	Sept. 18, 1943	Sept. 19, 1942	1938- 42	Sept 18, 1943	. Sept 19, 1942	dian 1938- 42	
NEW ENGLAND													
Maine. New Hampshire Vermont. Massachusetts. Rhode Island. Connecticut.	32	2 0 2 5 0 2	0 0 2 6 0 6	0 0 1 4 7 1 3 1	8 1 2 0 7 6 1	6 0 1 1 3 3 3 3 2 1 5 11					0 1 0 8 1	0 3 0 0 4 1 6 5 1 0 1 3	
MIDDLE ATLANTIC New York New Jersey	6	5 2	7 2	7 7	2 7	8 72 2 18						7 21	
Fennsylvania	·	5 1	5 I	0 0		6 61			ין		5 2	0 22	
Ohio Indiana Illinois Wichigan ³ Wisconsin	20 1 200 21		9 1: 4 (2 2: 3 2: 5 2:	3 64 5 21 5 54 0 39		7 58 1 21 9 52 7 55 3 43		0 1 0 2				7 · 14 1 8 0 12 1 7 2 2	
WEST NOBTH CENTRAL													
Minnesota Iowa. Missouri North Dakota South Dakota Nebraska Kansas	10 24 13 4 15 77					4 16 3 19 3 18 4 4 0 8 7 8 2 32	000000000000000000000000000000000000000	0 0 0 0 0				L 2 L 2 L 10 L 10 0 0	
SOUTH ATLANTIC												}	
Delaware. Maryland ³ District of Columbia Virginia. West Virginia. North Carolina South Carolina Georgia. Florida	0 22 6 1 1 1 1 4 6		0 1 3 0 3 2 2	0 15 4 27 74 69 8 24 7	4 18 28 28 30 18 23 5	4 13 8 20 28 46 9 12	0 0 0 0 0 0 0 0	0 0 0 1 0 0 0 0	0 0 0 0 0 0 0 0 0	0 4 1 8 1 7 3 8 1		0 4 14 12 13 13 13 11 4	
EAST SOUTH CENTRAL			1										
Kentucky Tennessee Alabama Mississippi ³	5 0 2	5 3 0 3	9 3 1 3	24 28 25 8	29 27 32 2	29 27 18 6	00000	0 3 0 0	0 2 0 0	9 10 2 5	14 14 8 8	23 14 9 8	
WEST SOUTH CENTRAL Arkansas Louisiana Oklahoma Texas	2 4 26 57	8 0 0 2	1 0 2 3	4 5 0 18	4 2 6 16	4 2 10 25	0 0 0 1	1 1 0 0	1 0 1 0	6 12 2 8	8 6 5 28	15 13 12 47	
MOUNTAIN													
Montana. Idaho	4 1 35 8 2 41 0	0 0 4 2 0 0 0	0 1 0 4 2 0 3	9 11 3 18 2 1 10 2	9 3 1 9 0 1 4 0	10 3 1 13 2 1 7	000000000000000000000000000000000000000	0 0 0 0 0 0	0 0 0 0 0 0	0 0 1 3 3 0 0	0 0 4 5 0 1	2 3 0 4 3 3 0	
Washington	27	1	1	21	12	12	o	o	0	1	1	2	
Oregon. California	14 150	0 10	2 10	11 77	8 32	8 55	0	Ô	0	0 5	2 10	2 10	
Total	1, 020	229	501	1, 119	949	949	1	9	14	159	219	389	
37 weeks	7.812	2, 398	8, 946	101, 240	92, 221	119, 962	619	634	2,002	4,008	4, 919	6, 636	

Telegraphic morbidity reports from State health officers for the week ended September 18, 1943, and comparison with corresponding week of 1943 and 5-year median—Con.

See footnotes at end of table.

	-			-					_				
	Wbo	oping c	ough	Week ended Sept. 18, 1943									
Division and State	Week	bebae			D	ysente	ry	En-		Rocky		<i>m</i> -	
	Sept. 18, 1943	Sept. 19, 1942	Me- dian 1938-42	An- thrax	Ame- bic	Bacil- lary	Un- speci- ned	alitis, infec- tious	Lep- rosy	spot- ted fever	Tula- remia	phus fever	
NEW ENGLAND													
Maine New Hampshire Vermont Massachusetts Rhode Island Connecticut	24 2 15 95 153 21	35 0 43 215 23 61	27 0 27 134 23 50	000000000000000000000000000000000000000	0 0 0 0 1	0 0 4 0 11	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0		
MIDDLE ATLANTIC			227										
New Jersey Pennsylvania	150 196	183 241	183 241	0	0 0	0 100	0	0 1	Ŭ 0	Ô	Ŏ		
EAST NORTH CENTRAL Ohio Indiana Illinois Michigan ² Wisconsin	147 - 25 139 188 249	139 48 298 256 204	162 31 275 285 204	00000	0 0 0 0	6 0 1 16 0	0 0 0 0	0 0 1 0 1	0 0 0 0	0 0 0 0	0 0 0 1		
west NORTH CENTRAL Minnesota Iowa Missouri North Dakota South Dakota Nebraska Kansas	60 11 18 7 11 6 21	55 6 1 4 0 9 39	55 17 19 5 4 8 37	0 0 0 0 0 0 0	0 0 0 0 0 0	1 0 0 0 0 0 0	0 0 2 0 0 0 0	0 1 0 1 1 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 1 0 0 0		
SOUTH ATLANTIC Delaware	0 81 14 63 50 77 95 10 12	2 46 23 47 17 52 26 9 5	8 39 23 44 31 83 26 9 8	000000000000000000000000000000000000000	0 0 0 0 0 0 0 0 0 0 0 3	0 0 0 0 4 1 0	17 0 1 43 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 2 5 3 0 0 0	0 0 4 0 0 0 1 0	6	
EAST SOUTH CENTRAL Kentucky Tennessee Alabama Mississippi ³	63 47 2	24 28 42	41 29 15	0 0 0	0 0 0 0	1 0 0 0	0 11 0 0	0 0 0	0 0 0	1 0 2 0	0 1 0 0	2	
WEST SOUTH CENTRAL Arkansas Louisiana Oklahoma Téxas	13 2 6 107	28 2 4 99	5 6 8 88	0 0 0 0	2 0 0 29	5 11 0 108	0 0 0 0	0 0 2	0 0 0 0	0 0 0 0	1 0 0 1	(11 (4)	
MOUNTAIN Montans	222 5 13 9 2 19 54 0	34 4 17 14 7 14 3	34 3 7 17 15 7 30	0 0 0 0 0 0 0	000100000000000000000000000000000000000	0 0 1 4 0 0	0 0 5 36 0	0 0 1 0 1 0	000000000000000000000000000000000000000	0 1 0 0 0 0 0	0 0 0 0 0 0		
PACIFIC Washington Oregon California	66 19 179	16 15 187	20 16 187	0 0 0	0 0 1	0 0 13	000	0 0 11	000	0 0 0	1 9 0		
Total	2, 772	3, 003	3, 003	0	41	401	214	22	0	15	11	168	
37 weeks	142, 692	133, 994	137, 038	47	1, 536	11, 979	2, 824	525	19	406	636	2,796	

Telegraphic morbidity reports from State health officers for the week ended September, 18, 1943, and comparison with corresponding week of 1942 and 5-year median—Con.

¹ New York City only. ¹ New York City only. ¹ New York City only. ¹ Including paratyphoid fever cases reported separately as follows: Massachusetts, 7; New York, 2; Illinois, 1; Michigan, 2; South Carolina, 1; Georgia, 4; Tennessee, 4; Louisiana, 1; New Mexico, 1; Cali-fornia, 2.

WEEKLY REPORTS FROM CITIES

City reports for week ended September 4, 1943

This table lists the reports from 86 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

		Blec	Infl	lenza			2	8	8		Ara-	Callees
	Diphtheria cases	Encephalitis, fi tious, cases	Cases	Deaths	Measles cases	Meningitis, meni coccus, case	Pneumonia deat	Poliomyelitis cas	Scarlet fever cas	Bmallpox cases	Typhoid and I typhoid fever o	Wheeping cough
NEW ENGLAND												
Maine: Portland	0	0		0	1	0	0	0	2	0	0	
New Hampshire: Concord	0	0		0	0	0	1	0	0	0	0	0
Vermont: Barre	0	0		0	0	0	0	0	0	0	0	0
Massachusetts: Boston	0	0		0	3	1	8	11.	18	0	0	21
Fall River	0	0		1	0	0	02	1	1	0	0	0
Worcester	Ŏ	Ŏ		Ō	Ō	Ŏ	6	Ŏ	5	Ō	Ó	4
Providence	0	0		0	6	0	1	5	3	0	0	6
Bridgeport	0	0		0	0	0	0	2	0	0	0	2
New Haven	ŏ	ŏ		ō	ŏ	ĭ	ľ	9	Ŏ	ŏ	ŏ	2
MIDDLE ATLANTIC												
New York: Buffalo New York. Rochester Syracuse	1 5 0 0	0 1 0 0	2	1 0 0 0	0 45 0 1	0 12 0 1	4 36 3 0.	4 43 0 1	2 28 1 2	0 0 0 0	0 8 0 0	4 71 5 13
New Jersey: Camden Newark Trenton	0 0 0	0 0 0	 	000	0 6 0	0 0 0	2 2 0	1 2 0	0 4 0	0000	0 1 0	1 11 0
Pennsylvania: Philadelphia Pittsburgh Reading	1 0 0	1 0 0	2	0 2 0	5 5 1	4 3 0	9 9 0	1 0 0	8 4 0	0 0 .0	2 3 0	36 17 12
EAST NORTH CENTRAL												
Ohio: Cincinnati Columbus	1 3	0 0	2	0 2	2 6	1 0	0 0	2 0	7 2	0	0	8 5
Fort Wayne Indianapolis South Bend Terre Haute	0 0 0 0	0 0 0 0		0 0 0 0	0 2 1 0	0 1 0 0	2 4 0 2	0 0 1 0	0 1 1 0	0 0 0 0	0 1 0 0	0 29 0 0
Illinois: Chicago	5 0	0 0		1 0	5 1	3 0	12 0	150 0	14 1	0	1 0	75 0
Detroit. Flint. Grand Rapids	1 0 0	0 0 0		0 0 0	14 0 4	3 0 0	11 0 1	3 1 0	9 3 1	0 0 0	5 0 0	45 1 27
Wisconsin: Kenosha Milwaukee Racine Superior	0 0 0	0 0 0 0		0 0 0 0	0 5 1 7	0 0 0 0	0 5 1 0	0 4 0 0	0 9 1 2	0 0 0	0 0 0	2 75 15 1

City reports	for \cdot	week	ended	S	eptemb	er 4	, 1	94	3 —(Conti	inued	l
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								4				
	-	nfec-	Influ	enza		e ngo	A	2	2		08.18- 1866	Calles
	Diphtheria cases	Encephalitis, fi tious, cases	Cases	Deaths	Measles cases	Meningitis, men coccus, case	Pneumonia deat	Poliomyelitis cer	Scarlet fever case	Smallpox cases	Typhoid and F typhoid fever of	Whooping cough
WEST NORTH CENTRAL								•				
Minneeote												
Duluth	0	0		0	2	0	0	0	4	0	0	10
Minneapolis	1	<u> </u>		0	5	2	3	4				3
St. Paul.	U	U U		U			1	-	3	l v		
Kansas City	0	1		0	3	1	6	9	4	0	1	3
St. Louis	0	0		0	5	3	9	2	1	0	1	10
North Dakota: Fargo	0	0		0	4	0	1	0	0	0	0	0
Nebraska:												4200
Omaha	2	0		0	0	0	0	15	2	0	0	1420 S 10
Topeka	0	0		0	0	0	0	0	0	0	0	2
Wichita	0	0		0	0	0	1	6	2	0	0	2
SOUTH ATLANTIC												ļ
Delaware:												Ι.
Wilmington	1	0	•••••	U	U		U	1				1 1
Baltimore	0	0	1	0	9	3	10	0	5	0	ļ	49
Cumberland	0	0		0	0	0	0	0	0			
District of Columbia:	U	U V			U	, v	v	U	v	, v	, v	ľ
Washington	0	0	1	0	• 3	2	2	0	2	0	3	24
Virginia:	•			•	10		0	0	0	0	0	1 11
Richmond	ŏ	ŏ	1	ŏ	Ő	2	ž	ĭ	Ŏ	Ŏ	i	1
Roanoke	0	0		0	0	0	0	0	0	0	0	0
Charleston	0	0		0	2	0	0	0	0	0	0	0
Wheeling	Ŏ	Ŏ		Ō	Ō	1	0	0	0	0	0	13
North Carolina:				•	1	6	,	0	2	0	0	6
South Carolina:	•	v		v	•	ľ	-	· ·	-			
Charleston	0	0		0	2	0	0	0	1	0	0	1
Georgia:	0	6		0	0	0	5	0	0	0	0	2
Brunswick	ŏ	Ŏ		Ŏ	Ŏ	Ŏ	Ō	Ō	Ó	0	0	0
Savannah	0	0		0	0	0	0	0	6	U	0	0
Tampa	0	0		0	0	0	0	0	0	0	0	0
EAST SOUTH CENTRAL												
Tennessee												
Memphis	0	0		1	0	0	Ģ	Q	1	0	ļ	5
Nashville	0	0		0	C	0	4	0	1	0	3	1 11
Alabama: Birmingham	0	0	2	1	2	0	4	0	1	0	0	1
Mobile	ž	Ŏ		0	Ō	0	2	0	0	0	0	0
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock	0	0		0	0	0	2	0	0	0	0	0
Louisiana: New Orleans	n	0	3	1	0	2	6	1	0	0	1	5
Shreveport	ŏ	ŏ		Ô	ŏ	ō	2	Ō	Ō	Ó	0	Ó
Texas:	,			•	6		1	5	6	0	6	. 4
Galveston	3 1	Ő		0	ŏ	ŏ	Ó	ű	ŏ	ŏ	Ŏ	2
Houston	2	Ĭ		Ō	1	2	5	1	0	0		
San Antonio	2	0	1 1	1		I 01	्डा	1		i U	· •	ι V

City	reports	for	week	ended	September	4	. 1943(Continued	
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	Cases	a cases Lis, infeo- cases		ufluenza		menin-	mentn- cases deaths		er cabes	5	d para-	cough
	Diphtheria	Encephalitie tious, ce	Cases	Deaths	Measles case	Meningitis, 1 gococcus,	Pneamonia	Poliom yelit i	Bcarlet fever	Smallpox ca	Typhoid an typhoid fev	Whooping cases
MOUNTAIN												
Montana: Billings Great Falls Helena Missoula Idaho: Boise Colorado: Denver Pueblo Utah: Salt Lake City PACIPIC	• 0 0 0 0 10 1 0	0 0 0 0 0 0 0 0		0 0 9 0 0 0 0 0	0 5 0 0 0 2 0 1	0 0 0 0 0 0 0 0	0 0 0 0 2 2 2 0	0 2 0 0 7 5 13	1 2 0 0 0 6 2 2	0 0 0 0 0 0 0 0 0	0 0 0 0 1 0	0 9 0 0 21 1 1 24
Washington: Seattle	0 0 3 0 0	0 0 0 2 1	1 4	0 1 0 0 0 0	2 1 0 11 4	0 0 0 5 0	4 1 1 8 1 9	3 1 2 23 7 6	1 2 0 5 0 10		000000000000000000000000000000000000000	13 5 1 29 2 9
'I'otal Correspondingfweek, 1942. Average, 1938–42	46 39 54	7 	20 26 27	13 10 1 7	208 121 145	19	226 227 1 204	<u> </u>	198 194 199	02	33 32 51	795 1, 091 1, 143

¹ 3-year average, 1940-42.
¹ 5-year median. Anthraz.—Cases: Philadelphia, 1. Dysentery, amebic.—Cases: Boston, 1; New York, 2. Dysentery, bacillary.—Cases: Buffalo, 9; New York, 2; Rochester, 3; Chicago, 1; Detroit, 7; Charleston, 8. C., 15; Nashville, 2; Los Angeles, 9. Dysentery, unspecified.—Cases: Buffalo, 9; New York, 2; Rochester, 3; Chicago, 1; Detroit, 7; Charleston, 8. C., 15; Nashville, 2; Los Angeles, 9. Dysentery, unspecified.—Cases: Baltimore, 10; Richmond, 6; San Antonio, 6; Sacramento, 1. Rocky Mountain spotted feer.—Cases: New York, 1. Typhus fever.—Cases: Charleston, 8. C., 2; Atlanta, 1; New Orleans, 1; Dallas, 6; Galveston, 2; Houston, 7.

Rates	(annual bas	sis) per	100,000	populatio	n, by	geographi	c groups,	for the	86 cities
	in the	precedin	g table (estimated	populo	ation, 194	2, 33,72 7,	,100)	

	l	1.	1		T	<u> </u>	1 -	10	1.0	1	1.0	
	ate	e,	Influ	ienza	8	tes	ath	CBS	CBS	ŝ	C B S	u g l
	Diphtheria case r	Encephalitis, in tious, case rate	Case rate	Death rates	Measles case rate	Meningitis, me gococcus, case ra	Pneumonia de rates	Poliomyelitis or rates	Scarlet fever (rates	Smallpox case rat	Typhoid and p typhoid fever rates	Whooping con case rates
NEW ENGLAND MIDDLE ATLANTIC EAST NORTH CENTRAL SOUTH ATLANTIC EAST BOUTH CENTRAL WEST SOUTH CENTRAL WOINTAIN PACIFIC	0.0 3.1 6.5 6.0 3.5 11.9 23.5 88.4 5.2	0.0 0.9 0.0 2.0 0.0 0.0 2.9 0.0 5.2	0.0 1.8 1.3 0.0 5.2 11.9 11.7 0.0 8.7	5.0 1.3 1.9 0.0 0.0 11.9 5.9 0.0 1.7	27. 3 28. 1 31. 1 42. 1 62. 5 11. 9 2. 9 64. 3 31. 5	5.0 8.9 5.2 12.0 15.6 0.0 11.7 0.0 8.7	47. 2 29. 0 24. 6 42. 1 34. 7 95. 0 55. 7 32. 2 41. 9	72. 1 23. 2 104. 4 76. 2 3. 5 0. 0 26. 4 217. 1 73. 4	74. 5 21. 9 33. 1 36. 1 27. 8 17. 8 0. 0 104. 5 31. 5	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 6.2 4.5 4.0 6.9 17.8 5.9 8.0 0.0	92 76 183 118 187 101 35 402 103
TOTAL	7.1	1.1	3.1	2. 0	32. 2	8.3	34. 9	55.7	30. 6	0.0	5.1	123

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended August 21, 1943.— During the week ended August 21, 1943, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Bruns- wick	Que- bec	On- tario	Mani- toba	Sas- katch- ewan	Al- berta	British Colum- bia	Total
Chickenpox. Diphtheria Dysentery (bedilary)		12 4	5 1	20 14 1	34 1	5 8 1	12	93	19 2	116 33 2
Encephalitis, infectious German measles Influenza Measles Maningitte meningoono		5	2	2 43	7 4 67	1 21	3 10	8 65	3 21	1 23 6 232
cus. Mumpe. Poliomyelitis. Scarlet fever	 	7 1 13	 1	3 5 6 27	1 54 2 20	7	4	14 1 13	13 15	4 104 10 100
Tuberculosis (all forms). Typhoid and para- typhoid fever Whooping cough	3 	85	6 2	103 29 65	43 2 123	13 2 27		40 21	26 1 24	234 36 314

JAMAICA

Notifiable diseases—4 weeks ended August 28, 1943.—During the 4 weeks ended August 28, 1943, cases of certain notifiable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other lo- calities	Disease	Kingston	Other lo- calities
Chiekenpox Diphtheria Dysentery Erysipelas	5 2 5 1	70 4 1 1	Leprosy. Tuberculosis Typhoid fever Typhus fever	26 11 3	2 73 59

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WORLD DISTRIBUTION OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Health, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases]

NOTE.-Since many of the figures in the following tables are from weekly reports, the accumulated totals are for approximate dates.

	January-		Augu	ıst 1 943	-week en	ded-
Place	June 1943	July 1943	7	14	21	28
ASIA CeylonC IndiaC Bombay.C Galcutta.C Chittagong.C Cochin.C Madras.C Negapatam.C Vizagapatam.C Vizagapatam.C Vizagapatam.C Chandernagor.C Chandernagor.C Chandernagor.C Chandernagor.C Chandernagor.C Chandernagor.C Chandernagor.C C Madras.C C Negapatam.C C Vizagapatam.C C Chandernagor.C C Chandernagor.C C Cochichery.C C C Cochichery.C C C C C C C C C C C C C C C C C C C	50 100, 918 3 2, 036 16 964 6 4 4 99 4 28 17	35, 989 1, 310 19 99 10 16 9 				

PLAGUE

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

AFRICA O Belgian Congo—Plague-infected ratsO British East Africa: C UgandaC UgandaC MadagascarC Morocco (French)	11 P 11 13 	 3 1 3 	 4 1		 1	
Uakar	18	9		3	1	
Union of South Africa	53					
ASIA C IndochinaC PalestineC SOUTH AMERICA Peril:	1, 254 15 11	236 4 1				
Lambayeque DepartmentC	2					
Libertad DepartmentC	15					
Lima DepartmentC	3					
LimaC	1					
Plague-infected rats	Р					
Piura Department	2					
VenezuelaC		10				
OCEANIA Hawaii Territory: Hamakua DistrictD Plague-infected rats	4 2 66	3				i 3

¹ For the period June 12-30, 1943, pneumonic plague occurred in a village near Mafeteng, Basutoland, all cases being fatal. ³ Includes 3 plague-infected mice.

SMALLPOX

[O indicates cases; D, deaths]

Diese	January- June 1943	7- July 1948	Aug	August 1943-week ended-				
P1800	June 1943	JULY 1990	7	14	21	28		
AFRICA Angola C	721 570	107		72				
Basutoland C Belgian Congo C British East Africa:	38 1, 487	511	88	83				
Kenya	20 8 11 139							
EgyptC French GuinesC Gold CoastC	1,086 235 5	571 2 10	100 					
Mauritania	1 707 1	6 1						
Nigeria C Niger Territory C Senegal C Sigra Leone C	3, 563 160 57 3	472 2 1						
Sudan (French) C Union of South Africa. C	2, 084 224	572 1						
ArabiaC CeylonC IndiaC	2 18, 932	1 5, 254	1					
India (French)	10 3, 676 473 186	301 23 6						
Palestine	101 796 17	102						
EUROPE C France	1							
Germany	1 1 84 184	8	1	1				
Switzerland C Turkey	6, 344	283		1 283				
NORTH AMERICA Canada	1 5 170	3 21 41	2	 				
SOUTH AMERICA Brazil	41 1 182							
Control Contro	10 9 86	2 17						

¹ For 2 weeks.

TYPHUS FEVER

[C indicates cases]

AFRICA Algería	c	7, 454	350			
Belgian Congo	C	2	6		12	
British East Africa:	С	6				
Mamhasa	ŏ	l i				
Ilranda	č	i i				
Egynt	Č	34, 469	3, 717	415		
Gold Coast	. C	6	1			
Momeon (French)	Č	12.837				
Momoro (Spanish)	ŏ	64				
winteres ("human						

TYPHUS FEVER-Continued

[O indicates cases]

Place	January- June 1943	July 1943	August 1943-week ended-			
			7	14	21	28
A PRICAOntinued						
Nigeria	7	1				
Rhodesia, northern	4	4				
Senegal.	2				·····	
				3	0	
Tunisia		50				
Union of South Africa C	779	• 2				
4.07.4					1	
Afghanistan C	520					
China: Shanghai	12					
IndiaC	1,052	9				
Iran.	8,357	20				
Iraq	1, 373	30		2	4	
Svria and Lebanon	48	25			.	
Trans-Jordan C	12					
						1
Bulgaria C	11.250					
France-Seine Department	1,000					
Germany	° 800					
HungaryC	658	34	6	10		
Irish Free State	19	•••••••				
Rumania C	6.262	403	69		84	
Slovakia	325	41	22	19		
SpainC	493	36				
Turkey C	3, 334	206		* 206		
NORTH AMERICA						
Guatemala	537	106				-
Jamaica	12	1	1	1	• • • • • • • • •	1
Mexico	716	69				
Puerto Rico	2					
SOUTH AMERICA			_			
ChileC	153	12	3	1		
EcuadorC	183					
Veneruele C	10					
V CHOLUCIA	10					
OCEANIA			_			
Australia	62	9	1	6		
Hawan Territory	11					

¹ For the period Jan. 1 to July 14, 1943. ² For the first 7 weeks of 1943. ³ For 2 week₃.

YELLOW FEVER

[C indicates cases; D, deaths]

AFRICA				
BondoD KinzaoD	1	1	 	
LeopoldvilleC StanleyvilleD	1		 	
Sierra Leone: Freetown	' 1		 	
SOUTH AMERICA		1		
Colombia: Cundinamarca DepartmentD Intendencia of MetaD	3 2		 	

¹ Suspected.