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EXPERIMENTAL TRANSMISSION OF THE SPOTTED FEVERS OF THE UNITED STATES, COLOMBIA, AND BRAZIL BY THE ARGASID TICK *ORNITHODOROS PARKERI* [1]

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In a preliminary paper (*1*) the transmission of the causative agent of Rocky Mountain spotted fever by *Ornithodoros parkeri* and the infectivity of the eggs from these ticks were reported. Inasmuch as this tick species is present in nine of the Western States in which spotted fever is endemic and especially since *O. parkeri* and the common vector to man, *Dermacentor andersoni*, have many hosts in common, further studies seemed warranted. Similar studies on the spotted fevers of Colombia and Brazil are also reported.

O. parkeri stock from Montana, Wyoming, California, Washington, Nevada, and Utah were employed, together with 7 human, 1 *Dermacentor andersoni*, and 1 rabbit tick (*Haemaphysalis leporis-palustris*) strain of spotted fever of the United States. Following preliminary experiments, several available strains of spotted fever (U. S. A.) were used for the immunity tests.

Larvae, first nymphs, or, rarely, second nymphs, were used for the infective feedings, as it has been found that ticks in the early developmental stages acquire and maintain the several infectious agents with which we have worked more regularly than the later developmental stages or adults.

SPOTTED FEVER OF THE UNITED STATES

Twelve experiments are reported with 6 to the F1 generation, 2 to the F2, and 1 to the F4 generation.

The two experiments already reported in part were begun in October 1937 and September 1938, respectively. Experiment 1 was terminated by the death or the injection of the ticks. One female caused a typical infection by feeding on a guinea pig 6 months following the infective feeding and a male of the same series by injection at 10 months.

[1] From the Rocky Mountain Laboratory of the Division of Infectious Diseases, National Institute of Health.

EXPERIMENT 2

On September 12, 1938, 34 second stage nymphs engorged on a guinea pig ill with spotted fever (fourth day of fever, scrotal swelling present). Following the first test feeding none of the 5 host guinea pigs became infected. At the second test feeding 7 guinea pigs were used and all showed typical spotted fever. At the first adult feeding 9 guinea pigs were used and 6 showed typical spotted fever. At the second adult feeding 18 females were tested individually, resulting in transmission by 7. These females survived to infect guinea pigs 249, 373, 429, 533, 809, and 994 days, respectively, following the infective feeding in the second nymphal stage. One female that failed to infect a guinea pig at 2 successive feedings produced eggs which proved infective when injected. Males effected transmission up to 414 days by feeding and conserved the organisms in their tissues for 1,119 days, as shown by the injection of 3 engorged ticks. Following the injection of these 3 males there were 2 days of normal temperature, 8 days of fever with scrotal involvement, and subsequent immunity.

Data on transmission by the F1 to F4 generation of ticks (experiment 2) are presented briefly in table 1 and representative thermic curves are shown in figures 1 to 3. In the successive developmental stages of each group of ticks tested there was an increase in the number of ticks shown to be infective, e. g., in the F3 generation, using 256 ticks, there were no infections following the first three test feedings. At the fourth, all 9 host guinea pigs became infected and 8 showed scrotal swelling. At the fifth, all 25 host guinea pigs became infected. Eighteen reacted with scrotal swelling, 2 died, and the remaining 23 were immune.

Ten additional transmission experiments (Nos. 3 to 12) were performed using, respectively, 48, 27, 13, 59, 20, 15, 10, 10, 21, and 21 ticks for the infective feedings. In two of these experiments it was

TABLE 1.—*Spotted fever of the United States: transmission by* Ornithodoros parkeri

[Experiment 2. F1 to F4 generations]

Generation	Number of ticks used	Guinea pigs infected		Remarks
		Larval feeding	At nymphal and adult feedings	
F1	84	None	40 of 70	At fifth test feeding all 11 guinea pig hosts became infected.
F2	127	None	26 of 79	At fifth test feeding 14 of the 20 guinea pig hosts became infected.
F3	256, series 1 124, series 2	None None	34 of 48 11 of 19	At fifth test feeding all of the 25 guinea pig hosts became infected.
F4	129	None	18 of 34	At fourth test feeding 11 of 13 guinea pig hosts became infected. Last test feeding 1,333 days following the infective feeding of the F4 generation in the second nymphal stage.

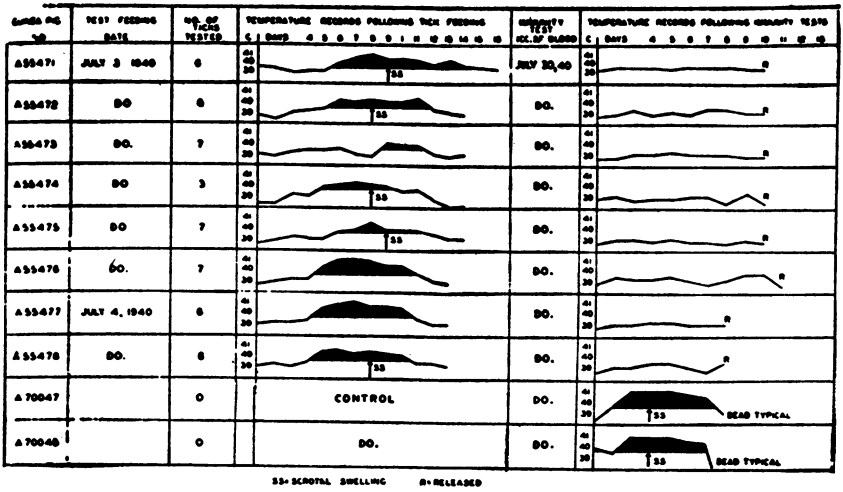

FIGURE 1.—Rocky Mountain spotted fever: experimental transmission by *Ornithodoros parkeri*, F1 generation, fifth test feeding.

shown that the ticks had not acquired the infective organisms. With the remaining groups transmission was effected throughout the several nymphal stages and as adults.

In the F1 generation 9,277 larvae, representing 8 of these experiments, were tested, and in the F2 generation 9,755 larvae representing 2 experiments. All surviving ticks were given at least 3 nymphal test feedings. Transmission through the egg was demonstrated in the F1 generation in 5 of the 8 experiments and in the F2 generation in the

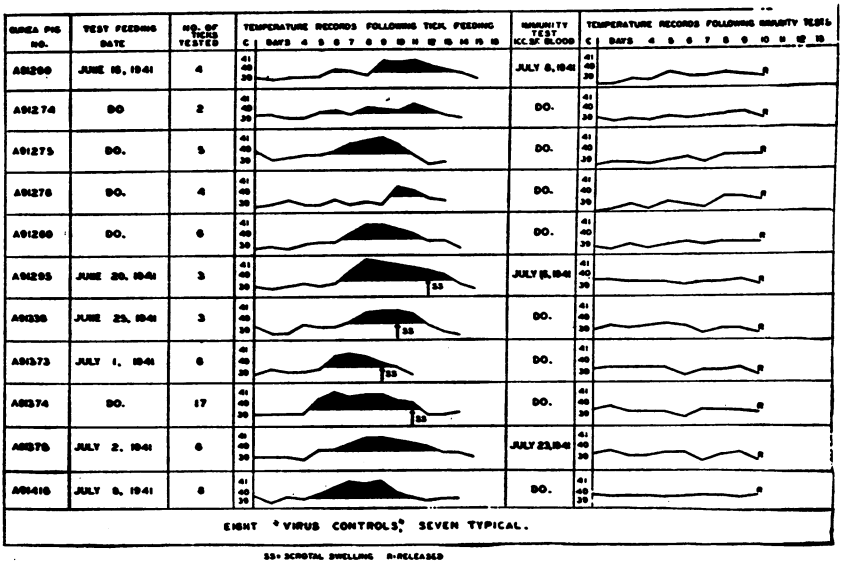

FIGURE 2.—Rocky Mountain spotted fever: experimental transmission by *Ornithodoros parkeri*, F2 generation, fifth test feeding.

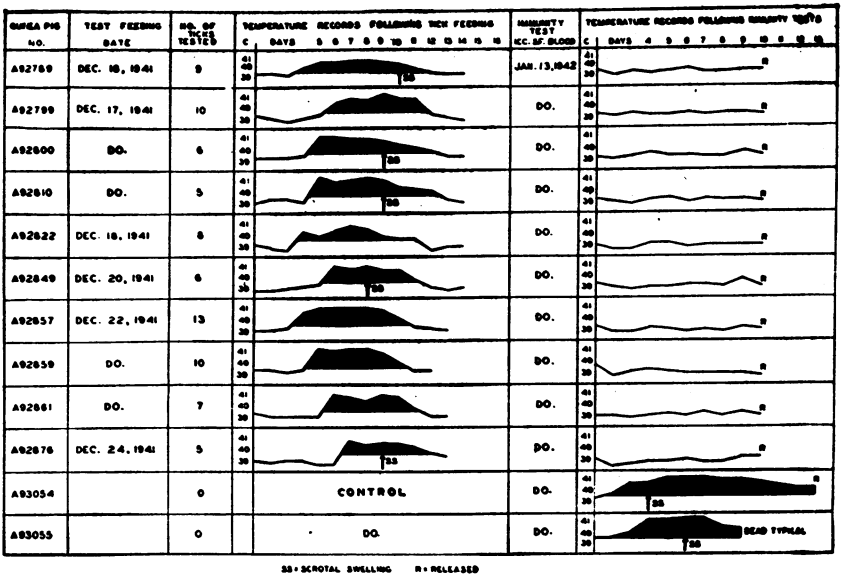

FIGURE 3.—Rocky Mountain spotted fever: experimental transmission by *Ornithodoros parkeri*, F3 generation, fifth test feeding.

2 experiments. As representative of the progressive number of infections in successive test feedings, the results obtained following 2 ovipositions in the F1 and F2 generations were as follows:

EXPERIMENT 7

F1 generation: Ticks were tested in 2 series following the first and second oviposition.

Series 1.—908 larvae, 4 guinea pigs, one transmission; 732 first nymphs, 11 guinea pigs, no infections; 662 second nymphs, 10 guinea pigs, 2 transmissions; 619 third nymphs, 16 guinea pigs, 3 transmissions. At the fifth test feeding there were 25 guinea pigs with 5 transmissions.

Series 2.—1,197 larvae were used. One guinea pig on which 451 larvae engorged died on the seventeenth day following 7 days of fever, with scrotal reaction. At the second test feeding none of the 13 guinea pigs showed evidence of infection. At the third test 2 of 14 became infected and at the fourth test 23 of 27. In this group 9 showed scrotal swelling, 5 died, and the remaining 18 were immune.

F2 generation: 6,734 and 2,621 ticks were tested in 2 series following the first and second oviposition. All ticks were given 3 test feedings and a small group in series 1, 4. In series 1 the larvae failed in transmission. At the first nymphal feeding 16 guinea pigs were used and 6 became infected; at the second nymphal feeding 31 were used and 19 became infected; at the fourth test feeding 122 ticks and 9 guinea pigs were used and all hosts became infected. In series 2,

3 guinea pigs were used for the larval feeding. One on which 1,395 larvae engorged showed 7 days of fever with scrotal edema, terminating in death on the thirteenth day. The spleen and scrotal lesions were typical. Two guinea pigs remained afebrile. At the first nymphal feeding 19 guinea pigs were used, 15 of which showed febrile periods and 2 extensive scrotal sloughing. Four died and the remainder were immune. At the second nymphal feeding 50 guinea pigs were used with 24 transmissions. Five died and the remainder were immune.

COLOMBIAN SPOTTED FEVER

Ten experiments are reported with 4 to the F1 and 2 to the F2 generations.

One female sent to Colombia and given an infective feeding by Dr. Patiño-Camargo was given 3 test feedings over a period of 3 months with negative results. Progeny of this female, 71, 215, 332, and 99 ticks (first to fourth oviposition) given 4 test feedings resulted in infection with ticks of the second and fourth ovipositions but none from those of the first and third.

In the remaining 9 experiments 20, 20, 35, 32, 10, 11, 18, 25, and 15 ticks, respectively, were used for the infective feedings. Four successive test feedings of the first 2 groups failed to produce an infection. Ticks in experiments 4 to 10, tested in subgroups, produced typical infection throughout the nymphal and adult stages. Experiment 5 is presented in detail.

EXPERIMENT 5

On January 29, 1941, 82 first nymphs were given an infective feeding and subsequently 3 test feedings over a period of 9 months. The first infection occurred at the first test feeding terminating in death. At the second feeding all 4 host guinea pigs became infected, 3 died, and one was immune to spotted fever. At the third test 3 of 4 guinea pigs showed febrile periods of 4, 6, and 10 days, respectively, and were immune to spotted fever.

F1 generation: Eleven of the above ticks, as females, were tested individually and held for oviposition. Two failed in transmission and died without progeny. One was infective and died without progeny. Four failed in transmission and their progeny were noninfective. Progeny of these 4 were tested as follows: ♀3, 2 series, 118 and 176 ticks, respectively; ♀4, 2 series, 122 and 138 ticks; ♀5, 3 series, 63, 94, and 110 ticks; and ♀11, 2 series, 108 and 25 ticks. All ticks were given from 3 to 4 test feedings.

Female 2 was infective. Following the first oviposition 103 ticks were given 4 test feedings with negative results. In a second series 239 larvae failed in transmission. At the first nymphal feeding 1 of 2

guinea pigs became infected; at the second nymphal feeding 1 of 3, and at the fourth test all 5 hosts died. Four showed scrotal swelling and 1 extensive scrotal sloughing.

Two failed in transmission but gave rise to infective progeny.

Female 8 failed in transmission; 20 progeny also failed through 3 test feedings, but at the fourth caused 8 days of fever and the test guinea pig was subsequently immune.

Female 9 also failed in transmission at 3 successive feedings but gave rise to 3 series of infective progeny. In series one, 57 ticks were used and 50 of these were given 4 additional test feedings. Twenty-five guinea pigs were used in the second to fifth feedings, 11 of which showed febrile periods, and 6 scrotal swelling, 1 died, the remainder were immune. In series 2, 109 ticks were used. The first infection was following the third test feeding. Ten guinea pigs were used in the third to fifth feedings. Nine of these showed febrile periods, 4 scrotal swelling, and 1 extensive scrotal sloughing. Two died; the remainder were immune. In series 3, 86 ticks were used. Again the first infection occurred following the third test feeding. Four guinea pigs were used for the third and fourth test feedings. Three showed scrotal swelling, 2 died, and 2 were immune.

F2 generation: 244 larvae failed to produce an infection. At the second test feeding 1 of 3 guinea pigs died showing typical lesions and following the third test feeding 7 of 8 hosts became infected. Four showed scrotal swelling, 5 died, and 2 were immune.

Transmission through the ovum: In addition to the data on transmission through the egg in experiments 1 and 5, in experiment 9, 624, 95, and 561 ticks (first to third ovipositions) in the F1 generation were tested, resulting in infections at the *larval* and all subsequent feedings. In experiment 10, 683 F1 generation ticks were tested with an increasing number of infections at successive tests feedings. Following the fifth test, 27 of 42 guinea pigs showed febrile periods and 24 scrotal swelling. Eight died; the remainder were immune.

In the F2 generation the larvae from females in each of 10 vials were tested separately. The numbers varied from 31 to 756. All ticks were given 3 test feedings. The progeny of ticks from 6 of the 10 vials were infective.

BRAZILIAN SPOTTED FEVER

Four experiments are reported with two to the F1 generation.

Twenty-six, 17, 24, and 41 ticks, respectively, were used in the infective feedings. The lot of 24 was subsequently shown not to have acquired the infecting organism. All other groups produced typical infections at successive feedings.

Transmission through the ovum.—In experiment 1, 1,825 larvae from successive ovipositions failed to infect the several guinea pig hosts.

At the first nymphal feeding 1 of 19 guinea pigs became infected, at the second 6 of 36, and at the third 26 of 51. Nineteen of the total number of infected guinea pigs showed marked scrotal swelling and 2 that died showed extensive scrotal sloughing. In experiment 2, 1,521 larvae from 2 ovipositions were tested, resulting in infection at the *larval* and subsequent feedings. As in experiment 1, an increasing number of animals became infected at successive feedings.

INFECTIVITY OF FASTING TICKS

Ticks from United States, Colombian, and Brazilian spotted fever groups, shown to be infective, were allowed to fast for 1 year and retested on the anniversary of the last feeding. The prefebrile periods in the guinea pig hosts were not shortened nor were the infections of less severity. Progeny of these fasting ticks produced severe infections with marked scrotal reactions and death of the host.

DISCUSSION

The argasid tick *Ornithodoros parkeri* is present in nine of the Western States in which spotted fever is also present but is unknown in Colombia and Brazil. It has been collected in local areas in Wyoming, Colorado, Montana, and Oregon, in large numbers in Washington (*5*), and is widely distributed in Utah (*2*) and Nevada. Recently a heavy infestation was encountered in southern Idaho (*3*). In California, this tick appears along the San Joaquin Valley from Butte County toward the north to Kern County in the south (*4*).

Ornithodoros parkeri has numerous hosts in common with *Dermacentor andersoni*, a common vector to man.

Because of the multiple nymphal stages and longevity of *O. parkeri*, there are frequent feedings and consequently frequent potential transmissions.

In the above experiments transmission was effected by larvae, throughout the nymphal stages, by males and females, and through the egg to the fourth generation. One female was infective 994 days following the infective feeding in the second nymphal stage. The interval between the infective feeding in experiment 2 and the fourth test feeding in the F4 generation was 1,333 days. The invasiveness of the infective agent did not weaken over this period. The incubation periods in the last test feeding were 3 days in each of 3 guinea pigs, 4 in 4, and 5 in 4. The shortest febrile period was 5 days and the longest 8. There was scrotal edema in 7 of the 12 guinea pigs.

Transmission of the specific agents of the spotted fevers of Colombia and Brazil was obtained as regularly as for the spotted fever of the United States. The biologic relationship of these 3 immunologically identical infective agents to *Ornithodoros parkeri* may be considered as further evidence of their identity.

SUMMARY

The argasid tick *Ornithodoros parkeri* transmits the infectious agents of spotted fevers of the United States, Colombia, and Brazil with equal facility.

Transmission was effected by larvae, throughout the nymphal stages, and by the male and female.

Females that fail in transmission may give rise to infective progeny.

Transmission through the egg was observed in spotted fever of the United States to the F4 generation, in the spotted fever of Colombia to the F2 generation, and in the spotted fever of Brazil to the F1 generation.

The invasiveness of the infecting agent was not lessened by continuous tick passage.

Ticks that had fasted for 1 year produced typical infection and progeny of these fasting ticks produced infections resulting in the death of the host.

The data submitted suggest that this tick may be a factor in the maintenance of spotted fever in nature and, occasionally at least, a vector to man.

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A NOTE ON THE RICKETTSIOSES IN INDIA

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Megaw (*1*) in 1921 described a case of a typhus-like illness in India in which the tick was implicated as the vector. Since that time there have been many cases of typhus-like illness described throughout India. The vector of most of these cases could not be accurately determined and, since the cases were largely sporadic, epidemiological

investigations have not been particularly enlightening in this regard. Weil-Felix studies on some of these cases, using the three standard proteus antigens OX19, OX2, and OXK, have revealed no great uniformity in results.

The rickettsioses in India, therefore, are not clearly differentiated. Apparently there is endemic (murine) typhus for Webster (*2*) isolated strains from wild rats that produced proteus OX19 agglutinins. Thompson (*3*) reported a small outbreak, probably of epidemic (louse-borne) typhus, which consisted in seven cases with four deaths. Webster (*2*) also isolated in animals a strain of rickettsial virus from a patient who gave a high OXK agglutination. This leads one to suspect that cases of the mite-borne type, such as Malayan typhus (scrub typhus) or tsutsugamushi fever, may exist in India. Finally, there apparently are cases that cannot be classified readily by either the Weil-Felix test or by clinical or epidemiological considerations.

Two of us (R. H. and V. R. N.) have recently published studies on typhus fever in Mysore (*4* and *5*); the cases reported fall into the indeterminate group rather than into one of the more clearly defined groups. The clinical aspects of the disease suggest certain similarities to Rocky Mountain spotted fever in the United States. The location and other characteristics of the rash are quite similar to the Rocky Mountain spotted fever eruption; the duration of the fever is also similar. The Weil-Felix reactions in the cases were not consistent and in no reported instance were the results with OX19 comparable to the high titres seen consistently in cases of endemic typhus fever in the United States or of epidemic typhus fever elsewhere.

Bengtson has reported a technique for the preparation of rickettsial antigens to be used in complement-fixation tests (*6*) and has demonstrated the specificity of such tests (*7* and *8*). For some time the complement-fixation test has been employed at the National Institute of Health as a means of differentiating Rocky Mountain spotted fever from typhus. The test has been of decided advantage over the agglutination reaction in differentiating these ailments since both of these diseases produce a positive Weil-Felix. Neutralization tests may be employed but are more difficult to perform and require large numbers of animals, while cross protection tests entail the isolation of the causative agent which frequently is impossible.

To study further the cases of typhus occurring in India, serums from three of the most recent cases seen by R. H. and V. R. N. were shipped to the National Institute of Health for test by the complement-fixa-

tion method. The technique employed was that described by Bengtson (*6*). The following results were obtained:

Serum dilutions

	1:4	1:8	1:16	1:32	1:64	1:128	1:256	1:512
CASE 1								
Rocky Mt. spotted fever antigen	4+	4+	4+	4+	2+	1+	trace	0
Epidemic typhus antigen	1+	trace	0	0	0	0	0	0
Endemic typhus antigen	3+	1±	0	0	0	0	0	0
CASE 2								
Rocky Mt. spotted fever antigen	4+	4+	4+	4+	4+	4+	4+	2+
Epidemic typhus antigen	1+	trace	0	0	0	0	0	0
Endemic typhus antigen	4+	4±	4±	3+	2+	1+	1±	0
CASE 3								
Rocky Mt. spotted fever antigen	4+	4+	4+	4+	4+	4+	4+	1±
Epidemic typhus antigen	4+	4±	1+	0	0	0	0	0
Endemic typhus antigen	4+	4±	4±	1+	1±	0	0	0

These results indicate that the causative agent of these three cases is more closely related immunologically to the rickettsia of Rocky Mountain spotted fever than to the rickettsia of either endemic or epidemic typhus. We have no explanation for the cross-fixation at lower titres with endemic typhus antigens. We have, however, occasionally seen serums from cases of Rocky Mountain spotted fever and endemic typhus that gave cross-fixation with the other antigen, but this is not common.

From our results it would seem that there are cases of a rickettsial disease in India that produce in the patient's serum high titre complement-fixing antibodies against the rickettsial antigen of Rocky Mountain spotted fever. The exact determination of the identity of this disease will depend upon the isolation and identification of the etiological agent in laboratory animals.

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AN APPROACH TO THE MENTAL HYGIENE-PUBLIC HEALTH PROBLEM

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During the past few years many suggestions have been made for establishing mental hygiene activities in relation to public health, and a number of such programs have been started. This paper reports a new approach to the mental hygiene-public health problem.

A Division of Mental Hygiene was established under the Oregon State Board of Health in 1941 as a joint project with the University of Oregon Medical School. The entry of the United States into the war has hampered the progress of this venture, but sufficient experience has been gained to indicate a future line of endeavor which probably will be fruitful.

A common procedure, when first establishing a division of mental hygiene, is to center activities around a child guidance clinical program. The University of Oregon Medical School had already been conducting child guidance clinics in from 10 to 12 centers over the State. Since it seemed inadvisable to duplicate this work, arrangements were made to continue them as a cooperative venture.

Experience gained in conducting these clinics had made clear several things important for future development of the mental hygiene program. First, an attempt to deal with all children with behavior problems by means of such clinics, in a State with such a large area and small population as Oregon, would be very costly. Second, many of the problems which arose could have been dealt with much more easily if they had been recognized in their incipiency. Third, it was very difficult to interest physicians in such a program, and their lack of interest, or occasional antagonism, hampered progress. Fourth, this activity gave little aid in dealing with the problems of the adult.

Consideration of the first two points mentioned led to the belief that the emphasis in conducting the child guidance clinics should be on education rather than therapy. That is, each child should be considered as primarily a teaching case, from which every effort would be made to teach parents, public health nurses, teachers, physicians, and any other interested parties. It was felt that these persons would then be better able to recognize problems early and to deal more intelligently with them. Teaching was accomplished by special conferences with interested individuals and by presentation of cases before groups such as teachers' meetings. The results were promising, in that the case load has dropped in several communities with the explanation, "We know how to deal with some of these cases which we didn't understand before, so it is unnecessary to send

as many children to the clinic." To augment this program, courses dealing with child guidance were given to public health nurses in training. After the war an attempt will be made to establish required courses in the State colleges of education with demonstration clinics in connection with the training schools of these institutions.

Regarding the skeptical or indifferent attitude of physicians toward the child guidance program, it was felt that one should not be critical of the general practitioner's concept of this activity. Few of them had received more than a fragmentary training in psychiatry in medical school, and they were unable to visualize clearly the connection between child guidance service and the patients whom they saw in their private practices. Furthermore, few of them were dealing satisfactorily with their neurotic patients; many freely confessed that they had little interest in the field.

The University of Oregon Medical School had been developing a therapeutic approach to the handling of neurotic adults which appeared to be suitable for the general practitioner. Many recent graduates from the school and a number of internists who had come in contact with the work were successfully using a simple psychiatric approach. It was therefore suggested that one could "kill two birds with one stone" by the postgraduate education of physicians in psychiatry, which would enable them to deal more satisfactorily with their neurotic patients and which would also give them an understanding of the potential value of child guidance.

The onset of the war caused a marked redistribution of population in Oregon. This, combined with the withdrawal of physicians into the armed forces, made it difficult to find a community where physicians still had time for postgraduate work. In one city of about 20,000 population, it was found that the situation was still "normal" enough that this training plan for physicians could be demonstrated.

Even under normal circumstances it is difficult to induce physicians to take postgraduate work at some center away from their homes. It was therefore decided to bring the course to the physicians. As a preliminary step, the approval of the president of the State Medical Society was obtained for a postgraduate course in psychiatry to be sponsored jointly by the State Board of Health and the University of Oregon Medical School. Next, the approval of the president of the county medical society was obtained. Arrangements were then made to meet with the local medical society, where the problem of dealing with the neurotic patient was discussed, and the course to be offered locally, if sufficient physicians desired it, was outlined.

After the group evidenced interest, arrangements were made to meet with the physicians one evening a week for lecture and discussion. Since lectures alone are insufficient, arrangements were made to see patients with each physician at his office. In this way the doctor had

an opportunity to observe diagnostic procedures, demonstrations of interview work, etc., to augment what he had heard in the lectures and discussions.

The Director of Mental Hygiene spent 2 days a week for about 3 months in this demonstration community. Twelve physicians participated in the program, and eight received sufficient aid to enable them to diagnose and deal satisfactorily with minor mental hygiene problems, particularly the common anxiety-tension states.

It was found that the physician in general practice has unusual opportunities to deal with these conditions in their early stages. In several cases the patients had been suffering acutely for periods of only 1 to 4 weeks. Dealing with the problem in such an early stage often made it relatively easy to help a patient to understand his illness, whereas if he had continued over a long period with inadequate treatment, it would probably have developed into a much more difficult condition.

The physicians themselves became enthusiastic after they had improved their understanding of some of these patients and watched them improve under treatment. Several stated that their appreciation of psychosomatic relationships in the practice of medicine had been greatly improved. Toward the last of the course a number of the physicians asked for material on child guidance, for they had begun to see the connection between the patients with whom they were dealing and childhood problems.

A casual survey among physicians in Oregon indicates that in normal times about 20 percent of them would take advantage of postgraduate courses of this type. It also appears probable that, if the demonstration community were revisited after a time, there would be an additional number who would feel that they had missed something and would desire to participate. If, after such preparation, one proposed establishment of a child guidance clinic or other clinical mental hygiene service for a community, one could reasonably expect the help and support of members of the medical profession for the project.

The type of psychiatric approach which is offered to physicians will undoubtedly make considerable difference in the success of such a venture. Certainly one cannot expect to make full-fledged psychiatrists of them, nor do they wish this. The material presented must be of such a nature that they can easily see its immediate value to them in their practices. After they have obtained some usable concepts and experienced some success in applying them, more detailed and complicated material can be presented. The technique developed at the University of Oregon Medical School has proved to be valuable because of its stress on normal physiology, the absence of complicated vocabulary, and the fact that the presence of a third party in the interview does not seem to jeopardize the physician-patient relationship.

When it is possible, after the war, to resume this program actively, it is planned to carry on the course simultaneously in three or more adjacent communities. It is anticipated that within two years most of the physicians outside of Portland can be reached in this way. There are no psychiatrists in the State outside of Portland, except at the two State hospitals for the insane.

Whether or not traveling clinics for adults will be established subsequent to the training program for physicians will depend largely upon the apparent need at the time. It would seem that completion of this program would largely obviate the need for such clinics; on the other hand, the education of physicians would greatly augment the usefulness of clinics if they were established. At present, many physicians are clumsy at referring neurotic patients and often do so in a way which tends to scare the patient away from a psychiatrist. Certainly, physicians who have an understanding of the problem will not only be able to treat some simple cases but can prepare others for the psychiatrist in a way that will make his work easier and more effective.

FELLOWSHIPS IN HEALTH EDUCATION FOR 1943

Through a training grant made available by the W. K. Kellogg Foundation, the Public Health Service has 17 trainees in health education attending the School of Public Health of the University of North Carolina. For the school year beginning the fall of 1943, the W. K. Kellogg Foundation has made available to the Public Health Service another grant for the establishment of 16 more such fellowships leading to a master's degree in public health with a major in health education.

The experience of those organizations in which health education has been effective has demonstrated that the health educator must have a complete mastery of education and must also be professionally trained in community health education. In the past, scientific training of this nature has been limited. The present shortage of such highly trained personnel, as well as a contemplated demand growing out of future expansion of health education activities, both in this country and in foreign lands, is the chief concern of the sponsors of the fellowships. For this reason, the stipends of $100 per month plus tuition not only provide for a year's training (9 months of intramural work and 3 months of supervised field experience) but also anticipate trainee employment following successful completion of the basic training. Due to the increasing demand for manpower for military service, men will not be considered for fellowships. Arrangements have been completed for the training to be given at the University of North Carolina, Yale University, and the University of Michigan.

A candidate for the position of health educator should have not only sound scientific training but good personal health and a pleasing appearance. There is great need for the health educator to have creative ability, leadership qualities, sound judgment, common sense, and adaptability. Since the success of the person in this field depends upon these qualifications, the awarding of fellowships will be made accordingly.

In view of the fact that the field of community public health education is new, standardized and specific training as a qualification for the fellowships could not fairly be requested. However, it is considered pertinent and important that the candidate be able to present a background which includes some or all of the following fields of knowledge and skill:

1. Basic cultural education, including the development of appreciations and skills in the use of the English language.
2. Basic science education, including physics, chemistry, biology, physiology, and bacteriology.
3. Training in education and educational psychology.
4. Social science education to provide an appreciation of the importance of respect for human personality and government.

Fellowships are open to women between the ages of 19 and 40, inclusive, who are American citizens. Women who are interested and qualified may obtain application blanks from the Surgeon General, United States Public Health Service, Washington (Bethesda Station) 14, D. C. Final application forms must be in the office of the Surgeon General not later than September 4, 1943.

PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

June 20–July 17, 1943

The accompanying table summarizes the prevalence of nine important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State are published in the PUBLIC HEALTH REPORTS under the section "Prevalence of disease." The table gives the number of cases of these diseases for the 4-week period ended July 17, 1943, the number reported for the corresponding period in 1942, and the median number for the years 1938–42.

DISEASES ABOVE MEDIAN PREVALENCE

Meningococcus meningitis.—The number of cases of meningococcus meningitis dropped from 1,582 during the preceding 4 weeks to 1,111 during the 4 weeks ended July 17. For the country as a whole the

incidence was the highest on record for this period. The number of cases was almost 4 times the number reported for the corresponding period in 1942 and more than 7 times the 1938–42 median. The nearest approach to the current figure was in 1929, when 610 cases were reported for the corresponding 4 weeks.

Meningococcus meningitis cases reported by weeks during 1943 with comparative data for the corresponding period in 1942, 1941, and 1929 [1]

Division	1943, week ended—												
	May 1	May 8	May 15	May 22	May 29	June 5	June 12	June 19	June 26	July 3	July 10	July 17	July 24
All regions: [2]													
1943	592	604	481	544	427	444	384	327	335	245	267	264	237
1942	80	89	86	81	81	68	75	64	112	52	61	63	45
1941	33	53	33	49	38	34	31	48	37	28	38	26	27
1929	283	298	309	235	258	229	197	199	151	137	123	131	98
New England:													
1943	64	62	52	50	37	37	40	50	39	26	33	30	25
1942	13	14	10	11	10	9	7	3	16	4	11	10	5
1941	2	7	0	3	2	4	5	4	5	0	2	0	2
1929	5	7	7	8	5	4	2	7	9	5	3	6	6
Middle Atlantic:													
1943	159	156	146	169	157	135	113	86	82	81	55	62	59
1942	25	23	21	28	18	38	26	21	26	14	17	17	12
1941	9	9	6	18	9	7	7	7	8	6	14	6	6
1929	52	38	56	46	54	39	42	30	16	30	37	30	30
East North Central:													
1943	96	74	63	80	53	57	70	57	69	33	33	41	42
1942	3	4	2	3	1	1	5	4	3	2	4	2	2
1941	5	7	6	9	2	4	6	5	1	2	4	3	4
1929	105	145	132	97	121	127	105	93	79	51	40	55	26
West North Central:													
1943	39	26	38	23	19	32	27	17	23	13	16	24	14
1942	2	3	3	3	6	3	4	4	1	4	3	8	2
1941	2	2	2	5	2	0	0	1	0	2	3	1	1
1929	31	27	32	21	29	22	18	20	16	15	9	6	7
South Atlantic:													
1943	103	111	75	87	70	92	48	47	40	43	64	47	32
1942	17	22	18	17	17	7	15	17	23	8	11	9	13
1941	9	12	6	10	5	5	5	21	11	11	4	6	6
1929	7	14	15	8	3	6	6	5	2	6	6	4	1
East South Central:													
1943	38	61	46	60	24	15	15	13	18	5	10	15	14
1942	10	6	4	5	6	5	7	4	5	3	5	8	4
1941	5	8	10	1	6	2	3	2	4	2	6	5	4
1929	4	1	6	3	5	2	3	6	2	4	2	4	0
West South Central:													
1943	26	24	21	19	13	14	11	20	17	11	13	15	14
1942	6	12	13	3	8	2	4	6	4	7	6	4	1
1941	0	4	2	2	9	6	2	2	2	2	4	3	1
1929	11	10	6	9	6	5	3	7	9	3	5	3	5
Mountain: [2]													
1943	16	13	14	10	17	21	24	6	14	11	8	5	3
1942	0	0	4	0	4	0	0	1	1	1	2	3	1
1941	0	1	0	0	1	0	0	0	2	1	1	1	1
1929	32	25	27	21	13	7	6	11	9	7	14	7	5
Pacific:													
1943	51	77	26	46	37	41	36	31	33	22	35	25	34
1942	4	5	11	11	11	3	7	4	33	9	2	2	3
1941	1	3	1	1	2	6	3	6	4	2	0	0	2
1929	36	31	28	22	22	17	12	20	9	16	7	16	18

[1] Similar tables appeared in Public Health Reports for Mar. 19, 1943, p. 494, Apr. 16, 1943, p. 648, May 14, 1943, p. 777, and June 11, 1943, p. 919.
[2] Exclusive of Nevada.

The table shows, by geographic areas, the number of cases reported in recent weeks of 1943, the number for the corresponding period in 1942 and 1941, and also that in the peak year 1929. While each region of the country showed a decline from the preceding 4-week period, the numbers of cases in each region were considerably above the 1938–42 median. In the New England region the number of cases (128) was more than 25 times the median; in the Pacific region the number (115) was more than 14 times the median; and in the East North Central region the number (176) was almost 12 times the median. In other regions the excesses ranged from 3.4 times the median in the East South Central region to 9.5 times the median in the Mountain region.

While the disease has been most prevalent in regions along the Atlantic coast, each section of the country has contributed to the high incidence that has prevailed since the latter part of 1942. Since the lowest level of this disease is normally reached during the summer months, it is quite probable that the number of cases will continue on a relatively high level throughout the remainder of the year. Since the beginning of the current year, there have been 12,542 cases reported, as compared with a median of 1,255 cases for the corresponding period in 1938–42. For this period in 1929 there were approximately 7,000 cases reported.

Influenza.—While the incidence of influenza dropped considerably during the current 4-week period, the number of cases was more than 60 percent above the 1938–42 median for this period. More than 75 percent of the total cases were reported from six States, viz, Texas (1,098), South Carolina (451), Virginia (162), Arizona (159), and California (145 cases); in other places the incidence was about normal for this season of the year.

Measles.—For the current period there were 38,549 cases of this disease reported, as compared with a preceding 5-year median of approximately 24,000 cases. The disease was most prevalent in the North Atlantic and North Central regions, the numbers of cases in each region being about twice the median incidence for the region. There was a slight excess in the number of cases in the Pacific region, but in the South Atlantic, South Central, and Mountain regions the incidence was slightly below the estimated expectancy.

Whooping cough.—For the country as a whole the number of cases (16,276) of whooping cough was slightly above the 1938–42 median incidence for the corresponding period. In the North Atlantic and East North Central regions the incidence was relatively low, but all other regions reported excesses over the 1938–42 median.

Diphtheria.—During the 4 weeks ended July 17, there were 624 cases of diphtheria reported, as compared with 558 for the corresponding period in 1942 and a 1938–42 median of 637 cases. The Pacific region reported an excess of more than 40 percent over the median, but in other regions the incidence either closely approximated the median or fell considerably below it.

Poliomyelitis.—The number of cases (297) of poliomyelitis reported during the current period was about 25 percent above the incidence during the same weeks in 1942, but it was slightly below the 1938–42 median. The increase was largely due to a sharp rise in the number of cases in Oklahoma (39), Texas (102), and California (90). No other region or State reported more than the normal increase that might be expected at this season of the year.

Number of reported cases of 9 communicable diseases in the United States during the 4-week period June 20–July 17, 1943, the number for the corresponding period in 1942, and the median number of cases reported for the corresponding period 1938–1942

Division	Current period	1942	5-year median	Current period	1942	5-year median	Current period	1942	5-year median
	Diphtheria			Influenza [1]			Measles [2]		
United States	624	558	637	2,616	1,690	1,599	38,549	23,046	23,946
New England	13	24	17	5	1	7	4,320	3,160	3,929
Middle Atlantic	102	75	103	23	22	22	12,572	4,581	6,666
East North Central	100	99	117	102	135	135	12,634	4,007	5,810
West North Central	38	34	57	53	26	42	2,496	1,263	1,263
South Atlantic	75	88	119	770	537	546	1,717	1,193	1,741
East South Central	45	56	56	65	70	82	503	186	547
West South Central	111	102	102	1,178	493	493	850	644	1,035
Mountain	30	31	66	264	297	130	1,071	1,898	1,129
Pacific	110	49	77	156	109	109	2,386	6,114	1,942
	Meningococcus meningitis			Poliomyelitis			Scarlet fever		
United States	1,111	288	150	297	237	301	4,446	3,866	5,053
New England	128	41	5	6	8	5	862	507	507
Middle Atlantic	280	74	34	14	13	18	849	984	1,506
East North Central	176	11	15	4	35	33	1,059	1,106	1,612
West North Central	76	16	11	15	17	17	284	321	366
South Atlantic	194	51	35	6	22	27	265	279	275
East South Central	48	21	14	5	60	41	108	162	162
West South Central	56	21	10	148	56	31	154	108	124
Mountain	38	7	4	9	13	9	363	109	132
Pacific	115	46	8	90	13	31	502	290	356
	Smallpox			Typhoid and paratyphoid fever			Whooping cough [2]		
United States	26	51	158	618	789	857	16,276	13,933	15,178
New England	0	0	0	27	24	21	606	1,483	990
Middle Atlantic	0	0	0	56	74	74	2,841	3,628	3,628
East North Central	5	15	36	98	67	100	3,710	3,757	3,757
West North Central	10	11	71	20	40	56	1,160	665	725
South Atlantic	0	1	3	138	196	196	3,120	1,391	2,298
East South Central	6	12	11	99	133	133	721	528	581
West South Central	0	6	21	149	204	256	2,035	965	1,453
Mountain	1	5	10	12	33	33	769	525	625
Pacific	4	1	11	19	18	42	1,314	991	1,276

[1] Mississippi, New York, and Pennsylvania excluded; New York City included.
[2] Mississippi excluded.

Scarlet fever.—For the current 4-week period there were 4,446 cases of scarlet fever reported, as compared with 3,866, 5,053, and 5,703 cases for the corresponding period in 1942, 1941, and 1940, respectively. The New England, West South Central, Mountain, and Pacific regions reported more cases than normally occur during this period, but in other regions the incidence was relatively low.

Smallpox.—The incidence of smallpox was the lowest on record for this period. The number of cases (26) was considerably below even the preceding year when only 51 cases were reported for this period. The 1938–42 median was 158 cases and the average number during the corresponding weeks in the years 1933–42 approximated 350 cases.

Typhoid and paratyphoid fever.—The number of cases of these diseases was also relatively low, 618 as compared with 784 in 1942, and a median of 857 cases for the corresponding period in 1938–42. With one exception, the New England region, the incidence was comparatively low in all sections of the country. The most significant decline was, however, reported from the West South Central region, 149 cases being reported from that region, as compared with a 5-year median of 256 cases.

MORTALITY, ALL CAUSES

For the 4 weeks ended July 17, there were approximately 34,000 deaths from all causes reported to the Bureau of the Census for the group of large cities. The number was almost 10 percent more than the average number reported for the corresponding period in the 3 preceding years. So much internal migration has taken place since 1940 that no accurate population estimates have been made, so it is uncertain as to how much of the current increase is due to increased population and how much represents an increased death rate.

The monthly death rate from all causes among persons insured in the industrial department of the Metropolitan Life Insurance Co. has been above the corresponding month of the preceding year for every month from October 1942 to May 1943, the last available data. The average of the excesses in the rates for these 8 months over rates for the corresponding month of the preceding year was 8.8 percent.

INCIDENCE OF HOSPITALIZATION, JUNE 1943

Through the cooperation of the Hospital Service Plan Commission of the American Hospital Association, data on hospital admissions among about 8,000,000 members of Blue Cross Hospital Service Plans are presented monthly. These plans provide prepaid hospital service. The data cover about 60 hospital service plans scattered throughout the country, mostly in large cities.

Item	1942	1943
1. Number of plans supplying data	65	68
2. Number of persons eligible for hospital care	8,659,649	10,784,904
3. Number of persons admitted for hospital care	86,363	103,880
4. Incidence per 1,000 persons, annual rate, during current month (daily rate ×365)	121.2	117.2
5. Incidence per 1,000 persons, annual rate for the 12 months ended June 30	107.2	106.1

DEATHS DURING WEEK ENDED JULY 24, 1943

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

	Week ended July 24, 1943	Corresponding week, 1942
Data from 88 large cities of the United States:		
Total deaths	7,532	7,780
Average for 3 prior years	7,568	
Total deaths, first 29 weeks of year	253,067	229,645
Deaths under 1 year of age	573	580
Average for 3 prior years	542	
Deaths under 1 year of age, first 29 weeks of year	18,005	15,267
Data from industrial insurance companies:		
Policies in force	65,649,886	64,952,205
Number of death claims	11,736	10,766
Death claims per 1,000 policies in force, annual rate	9.3	8.6
Death claims per 1,000 policies, first 29 weeks of year, annual rate	10.2	9.6

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 JULY 31, 1943

Summary

A total of 361 cases of poliomyelitis was reported for the current week, as compared with 329 for the preceding week and a 5-year (1938–42) median of 146. The current excess incidence of the disease continues to be confined to a few States, 75 percent, 269 cases, of the total number being reported in 4 States, as follows (last week's figures in parentheses): Texas, 105 (96); California, 104 (111); Oklahoma, 30 (42); and Kansas, 30 (7). No other State reported more than 11 cases. The cumulative total for the first 30 weeks of the year is 2,316, more than for the corresponding period of any other year since 1934, when 3,180 cases, only 44 percent of the year's total, had been reported, although the peak of weekly incidence had been reached with a report of 376 cases in the third week of June. The peak of the 1938–42 weekly medians, 501 cases, occurred during the 3rd week of September.

A further reduction in the incidence of meningococcus meningitis was recorded for the week, although the total of 203 cases reported, as compared with 237 for the preceding week and a median of 31, is nearly three and one-half times the average for the corresponding weeks of the past 15 years. The cumulative total for the first 30 weeks of the year is 12,981, as compared with 7,720 in 1929, the largest number recorded for the corresponding period of any prior year.

Of the 7 other common communicable diseases included in the table, and for which prior comparable data are available, the incidence of only influenza increased as compared with the preceding week, and the totals of only influenza, measles, and whooping cough were above the corresponding median figures.

Deaths recorded for the week in 90 large cities of the United States totaled 8,305, as compared with 8,217 for the preceding week and a 3-year (1940–42) average of 8,289. The accumulated number for the first 30 weeks of the year is 284,120, as compared with 258,770 for the same period of last year.

Telegraphic morbidity reports from State health officers for the week ended July 31, 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.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended		Median 1938–42	Week ended		Median 1938–42	Week ended		Median 1938–42	Week ended		Median 1938–42
	July 31, 1943	Aug. 1, 1942		July 31, 1943	Aug. 1, 1942		July 31, 1943	Aug. 1, 1942		July 31, 1943	Aug. 1, 1942	
NEW ENGLAND												
Maine	1	0	0				11	20	23	3	3	0
New Hampshire	0	0	0				4	18	3	1	0	0
Vermont	0	0	0				20	47	32	2	0	0
Massachusetts	0	4	2				191	164	164	10	2	2
Rhode Island	0	1	0				79	42	27	1	0	0
Connecticut	0	1	1		1	1	44	51	46	0	3	0
MIDDLE ATLANTIC												
New York	3	11	10		[1] 4	[1] 4	438	211	355	36	10	5
New Jersey	1	3	6	2	2	2	345	53	56	5	4	0
Pennsylvania	7	7	8	2			57	74	83	16	2	2
EAST NORTH CENTRAL												
Ohio	3	1	4	4	8	2	210	43	43	11	1	0
Indiana	1	4	4	3		3	30	4	8	3	1	0
Illinois	8	8	17	7	5	6	168	33	36	14	2	1
Michigan [2]	6	1	1	1			351	31	133	7	1	1
Wisconsin	5	7	1	7	8	8	323	196	253	1	0	0
WEST NORTH CENTRAL												
Minnesota	4	2	0	2	1	1	77	24	19	1	0	0
Iowa	0	0	1				17	18	28	3	0	0
Missouri	2	0	2				29	5	8	10	0	1
North Dakota	1	0	3		1		79	4	4	1	0	0
South Dakota	0	1	1				21	2	2	0	0	0
Nebraska	3	1	1	1	2		7	31	8	0	0	0
Kansas	2	1	1			2	29	10	15	2	1	1
SOUTH ATLANTIC												
Delaware	1	0	0				1	0	2	2	0	0
Maryland	0	0	1	2	2	2	43	27	12	7	3	0
District of Columbia	1	0	2	1			20	2	3	4	0	0
Virginia	3	3	4	86	45	27	39	9	57	5	2	1
West Virginia	3	6	4	2		5	5	2	7	4	2	2
North Carolina	6	4	8				22	13	21	8	1	0
South Carolina	5	4	3	131	63	69	15	12	9	3	0	1
Georgia	5	11	11	8	2	7	7	6	6	2	0	0
Florida	2	3	3	5	3	2	12	11	11	5	0	0
EAST SOUTH CENTRAL												
Kentucky	0	5	5				2	10	15	1	2	1
Tennessee	2	2	2	1	11	11	1	5	16	3	0	0
Alabama	3	3	5	39	23	3	19	2	32	2	0	3
Mississippi [3]	3	3	3							3	0	0
WEST SOUTH CENTRAL												
Arkansas	0	5	3	2	15	15	3	17	17	3	0	0
Louisiana	5	3	4	7	3	3	1	4	3	3	1	0
Oklahoma	6	2	2	6	4	7	5	2	13	0	0	0
Texas	15	27	24	187	83	83	52	36	37	3	2	1
MOUNTAIN												
Montana	2	0	0		2		49	18	16	1	0	0
Idaho	0	0	0				5	12	4	0	0	0
Wyoming	2	1	1	10	11	1	10	14	5	0	0	0
Colorado	4	2	10	15	20	5	17	16	16	0	0	0
New Mexico	1	2	2	2			3	9	9	0	1	0
Arizona	1	0	0	34	17	17	24	25	26	0	0	0
Utah [3]	0	0	0	1			19	101	31	5	0	0
Nevada	0	0					3	4		2	1	
PACIFIC												
Washington	3	1	1				41	84	16	0	3	0
Oregon	0	0	0	4	9	8	49	49	33	1	0	0
California	8	10	16	24	24	12	201	292	275	9	6	2
Total	128	150	179	596	369	369	3,201	1,863	2,342	203	54	31
30 weeks	6,743	6,915	8,371	80,073	79,691	150,757	531,495	463,284	463,284	12,982	2,242	1,330

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended July 31, 1943 and comparison with corresponding week of 1942 and 5-year median—Continued

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever [3]		
	Week ended		Median 1938–42	Week ended		Median 1938–42	Week ended		Median 1938–42	Week ended		Median 1938–42
	July 31, 1943	Aug. 1, 1942		July 31, 1943	Aug. 1, 1942		July 31, 1943	Aug. 1, 1942		July 31, 1943	Aug 1, 1942	
NEW ENGLAND												
Maine	0	8	0	7	9	4	0	0	0	1	1	2
New Hampshire	0	0	0	0	0	1	0	0	0	0	0	1
Vermont	2	0	0	0	1	1	0	0	0	1	1	1
Massachusetts	1	0	2	78	48	48	0	0	0	5	1	1
Rhode Island	1	0	0	1	1	1	0	0	0	0	0	0
Connecticut	7	1	1	16	10	9	0	0	0	0	0	1
MIDDLE ATLANTIC												
New York	10	7	7	73	66	70	0	0	0	7	10	10
New Jersey	3	10	3	13	15	23	0	0	0	3	5	5
Pennsylvania	0	5	4	36	55	55	0	0	0	7	6	9
EAST NORTH CENTRAL												
Ohio	5	5	5	50	51	51	0	0	1	24	16	7
Indiana	2	2	2	11	6	15	0	0	0	8	0	4
Illinois	6	12	4	27	41	64	0	1	1	7	13	15
Michigan [2]	8	4	7	23	35	53	0	0	0	5	5	5
Wisconsin	0	1	0	26	31	33	0	2	0	0	0	0
WEST NORTH CENTRAL												
Minnesota	2	1	1	20	18	18	0	0	4	0	0	0
Iowa	0	2	2	8	11	13	1	0	3	0	6	4
Missouri	8	2	1	8	3	13	0	0	0	3	4	11
North Dakota	0	0	0	3	3	2	0	2	1	0	0	0
South Dakota	0	0	0	2	6	6	0	0	1	0	0	0
Nebraska	0	2	2	3	1	1	0	0	0	0	0	0
Kansas	30	0	1	14	23	23	0	0	0	1	3	3
SOUTH ATLANTIC												
Delaware	0	0	0	1	2	2	0	0	0	0	0	0
Maryland	1	0	0	9	9	9	0	0	0	3	6	5
District of Columbia	0	0	0	3	6	3	0	0	0	1	0	0
Virginia	3	3	3	16	10	11	0	0	0	10	10	10
West Virginia	1	3	1	13	10	10	0	0	0	3	5	10
North Carolina	1	3	3	20	14	14	0	0	0	13	7	7
South Carolina	0	2	2	0	3	3	0	0	0	10	1	12
Georgia	1	4	4	11	14	7	0	0	0	16	18	38
Florida	0	1	1	4	3	3	0	0	0	3	4	3
EAST SOUTH CENTRAL												
Kentucky	11	16	4	16	16	11	0	0	0	15	23	23
Tennessee	0	15	2	2	11	12	0	1	1	7	11	17
Alabama	2	6	6	8	13	11	0	0	0	17	5	9
Mississippi [2]	1	4	1	3	6	4	0	0	0	4	12	11
WEST SOUTH CENTRAL												
Arkansas	6	10	2	1	5	5	0	0	0	8	11	30
Louisiana	0	3	3	0	3	4	0	0	0	6	13	23
Oklahoma	30	4	3	6	5	6	0	0	0	4	9	20
Texas	105	5	5	20	14	14	0	0	0	27	29	43
MOUNTAIN												
Montana	0	0	0	4	2	5	1	0	0	2	0	0
Idaho	0	0	0	3	1	2	0	0	0	0	2	1
Wyoming	0	0	0	10	2	2	0	0	0	0	0	0
Colorado	0	1	0	15	12	12	0	0	1	5	0	3
New Mexico	1	2	1	0	3	3	0	0	0	4	3	4
Arizona	0	0	0	5	1	1	0	0	1	3	3	3
Utah [2]	3	0	1	4	1	4	0	0	0	0	0	2
Nevada	0	0	-----	1	0	-----	0	0	-----	0	1	-----
PACIFIC												
Washington	2	0	0	6	4	9	0	0	0	0	0	1
Oregon	4	0	0	6	1	4	0	0	0	2	1	4
California	104	2	9	71	34	45	0	0	0	2	1	8
Total	361	146	146	677	639	746	2	6	21	237	246	385
30 weeks	2,316	1,021	1,206	95,462	87,281	114,282	598	602	1,893	2,661	3,362	3,829

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended July 31, 1943 and comparison with corresponding week of 1942 and 5-year median—Continued

Division and State	Whooping cough			Week ended July 31, 1943								
	Week ended		Median 1938–42	Anthrax	Dysentery			Encephalitis, infectious	Leprosy	Rocky Mt. spotted fever	Tularemia	Typhus fever
	July 31, 1943	Aug. 1, 1942			Amebic	Bacillary	Unspecified					
NEW ENGLAND												
Maine	18	54	31	0	0	0	0	0	0	0	0	0
New Hampshire	2	0	0	0	0	0	0	0	0	0	0	0
Vermont	23	64	31	0	0	0	0	0	0	0	0	0
Massachusetts	92	217	126	0	0	1	0	0	0	0	0	0
Rhode Island	32	6	6	0	0	0	0	0	0	0	0	0
Connecticut	25	95	63	0	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC												
New York	260	442	420	0	2	34	0	0	0	0	0	2
New Jersey	169	257	254	0	0	0	0	0	0	2	0	0
Pennsylvania	254	293	322	0	0	0	0	0	0	0	0	0
EAST NORTH CENTRAL												
Ohio	267	227	313	0	0	2	0	0	0	1	0	0
Indiana	48	56	27	0	0	0	0	0	0	0	0	0
Illinois	179	408	389	0	0	0	0	1	0	1	1	0
Michigan [3]	293	262	262	0	0	2	0	0	0	0	0	0
Wisconsin	313	291	212	0	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL												
Minnesota	76	53	46	0	1	0	0	0	0	0	0	0
Iowa	45	33	25	0	1	0	0	0	0	2	0	0
Missouri	46	16	22	0	0	0	0	0	0	0	0	0
North Dakota	57	5	17	0	0	0	0	2	0	0	1	0
South Dakota	5	1	5	0	0	0	0	1	0	0	0	0
Nebraska	28	6	16	0	0	0	0	0	0	0	0	0
Kansas	92	66	66	0	0	0	1	1	0	0	0	0
SOUTH ATLANTIC												
Delaware	0	2	3	0	0	0	0	0	0	1	0	0
Maryland	100	46	55	0	0	0	2	0	0	2	0	0
Dist. of Col.	24	12	12	0	0	0	0	0	0	0	0	0
Virginia	124	68	68	0	0	0	383	0	0	4	0	1
West Virginia	52	16	16	0	0	0	0	0	0	0	0	1
North Carolina	117	77	172	0	0	24	0	0	0	2	0	1
South Carolina	127	18	31	0	0	35	0	0	0	0	0	5
Georgia	16	25	25	0	2	19	2	0	0	0	1	42
Florida	19	22	9	0	7	0	0	0	0	0	0	11
EAST SOUTH CENTRAL												
Kentucky	28	76	72	0	0	0	3	0	0	0	2	0
Tennessee	32	40	65	0	0	0	2	0	0	5	0	1
Alabama	64	17	26	0	0	0	0	0	0	0	0	6
Mississippi [2]	----	----	----	0	0	0	0	0	0	0	1	1
WEST SOUTH CENTRAL												
Arkansas	27	16	17	0	1	27	0	0	0	0	2	0
Louisiana	5	6	6	0	0	3	0	0	0	0	0	13
Oklahoma	16	2	17	0	0	0	0	0	0	0	0	0
Texas	245	99	126	0	53	391	0	2	0	0	1	45
MOUNTAIN												
Montana	34	24	11	0	0	0	0	0	0	1	1	0
Idaho	0	6	8	0	0	0	0	0	0	0	0	0
Wyoming	0	8	8	0	0	0	0	0	0	0	1	0
Colorado	28	29	48	0	0	4	0	0	0	0	0	0
New Mexico	7	9	19	0	0	1	5	0	0	0	0	0
Arizona	10	10	10	0	1	0	29	0	0	0	0	0
Utah [2]	85	37	71	0	0	0	0	0	0	0	3	0
Nevada	3	0	----	0	0	0	0	0	0	0	0	0
PACIFIC												
Washington	53	22	36	0	0	0	0	0	0	0	0	0
Oregon	36	10	15	0	0	0	0	0	0	0	0	0
California	231	144	228	0	3	15	0	11	0	0	0	1
Total	3,807	3,693	3,759	0	71	558	427	18	0	21	14	130
30 weeks	121,874	112,867	117,164	37	1,225	8,686	3,516	354	17	279	544	1,768
30 weeks, 1942	----	----	----	54	625	4,669	3,320	266	32	305	591	1,391

[1] New York City only. [2] Period ended earlier than Saturday.
[3] Including paratyphoid fever cases reported separately as follows: Maine, 1; Massachusetts, 4; New York, 1; Illinois, 1; Michigan, 2; South Carolina, 1; Georgia, 2; Tennessee, 2; Texas, 1; Colorado, 2; California, 1.

WEEKLY REPORTS FROM CITIES

City reports for week ended July 17, 1943

This table lists the reports from 85 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.

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
NEW ENGLAND												
Maine:												
Portland	1	0	--	0	33	2	0	0	1	0	0	2
New Hampshire:												
Concord	0	0	------	0	0	0	0	0	0	0	0	0
Vermont:												
Barre	0	0	------	0	0	0	0	0	0	0	0	0
Massachusetts:												
Boston	1	0	------	1	41	5	9	0	28	0	1	12
Fall River	2	0	------	0	9	0	0	0	0	0	0	1
Springfield	0	0	------	0	14	1	2	0	3	0	0	2
Worcester	0	0	------	0	5	2	8	0	4	0	0	3
Rhode Island:												
Providence	0	0	------	0	56	0	0	1	5	0	1	19
Connecticut:												
Bridgeport	0	0	1	1	2	1	1	0	2	0	0	2
Hartford	0	0	------	0	1	0	0	0	2	0	0	2
New Haven	0	0	------	0	8	1	0	2	1	0	0	5
MIDDLE ATLANTIC												
New York:												
Buffalo	0	0	------	0	2	3	2	0	4	0	0	8
New York	6	0	4	1	399	19	40	8	33	0	3	90
Rochester	0	0	------	0	14	2	4	0	2	0	0	16
Syracuse	0	0	------	0	19	1	5	0	0	0	0	25
New Jersey:												
Camden	0	0	------	0	0	0	0	0	0	0	0	1
Newark	0	0	------	0	65	3	1	0	3	0	0	34
Trenton	0	0	------	0	0	0	2	0	0	0	0	1
Pennsylvania:												
Philadelphia	1	0	------	0	95	5	6	0	13	0	0	109
Pittsburgh	3	0	1	1	0	1	9	0	7	0	1	37
Reading	0	0	------	0	0	0	1	0	1	0	0	2
EAST NORTH CENTRAL												
Ohio:												
Cincinnati	0	0	------	0	8	2	0	0	1	0	1	8
Cleveland	5	0	2	1	6	5	10	1	18	0	1	76
Columbus	0	0	------	0	18	0	0	0	2	0	0	1
Indiana:												
Fort Wayne	0	0	------	0	0	0	0	0	0	0	0	2
Indianapolis	0	0	------	0	13	1	9	0	5	0	0	20
South Bend	0	0	------	0	6	0	0	1	2	0	0	0
Terre Haute	0	0	------	0	0	0	0	0	0	0	0	0
Illinois:												
Chicago	7	0	1	0	139	8	7	3	24	0	1	80
Springfield	0	0	------	0	0	0	2	0	1	0	0	0
Michigan:												
Detroit	1	0	------	0	187	6	9	0	8	0	0	51
Flint	0	0	------	0	2	0	0	0	0	0	0	6
Grand Rapids	0	0	------	0	49	0	0	0	1	0	0	5
Wisconsin:												
Kenosha	0	0	------	0	1	0	0	0	1	0	0	4
Milwaukee	0	0	------	0	89	1	2	0	11	0	0	49
Racine	0	0	------	0	2	0	0	0	2	0	0	3
Superior	0	0	------	0	19	0	0	0	0	0	0	0
WEST NORTH CENTRAL												
Minnesota:												
Duluth	0	0	------	0	118	0	3	0	4	0	0	12
Minneapolis	0	0	------	0	3	1	3	2	9	0	0	2
St. Paul	0	0	------	0	23	0	5	0	0	0	0	31
Missouri:												
Kansas City	0	1	------	0	9	1	6	1	2	0	0	13
St. Joseph	0	0	------	0	0	0	0	0	0	0	0	1
St. Louis	0	0	------	0	16	4	11	0	2	0	0	31
North Dakota:												
Fargo	0	0	------	0	6	1	3	0	0	0	0	1
Nebraska:												
Omaha	0	0	------	0	0	0	0	0	0	0	0	5
Kansas:												
Topeka	0	0	------	0	7	1	0	0	0	0	0	12
Wichita	0	0	------	0	0	1	1	1	0	0	0	11

See footnotes at end of table.

City reports for week ended July 17, 1943

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
SOUTH ATLANTIC												
Delaware:												
Wilmington	1	0	------	0	5	1	2	0	0	0	0	0
Maryland:												
Baltimore	0	0	------	0	35	5	5	0	7	0	0	77
Cumberland	0	0	------	0	0	0	0	0	0	0	0	0
Frederick	0	0	------	0	0	0	0	0	0	0	0	0
District of Columbia:												
Washington	2	0	------	0	33	2	9	0	4	0	2	32
Virginia:												
Lynchburg	0	0	------	0	8	0	0	0	1	0	0	12
Richmond	0	0	------	0	24	2	1	1	0	0	0	14
Roanoke	0	0	------	0	1	0	0	0	0	0	0	3
West Virginia:												
Wheeling	0	0	------	0	0	0	1	0	0	0	0	16
North Carolina:												
Winston-Salem	0	0	------	0	2	0	1	0	0	0	0	21
South Carolina:												
Charleston	0	0	2	0	1	1	0	0	1	0	0	1
Georgia:												
Atlanta	0	0	3	0	3	0	2	0	3	0	0	4
Brunswick	0	0	------	0	0	0	1	0	0	0	0	0
Savannah	0	0	1	1	1	0	0	0	0	0	0	0
Florida:												
Tampa	0	0	------	0	0	0	0	0	0	0	1	0
EAST SOUTH CENTRAL												
Tennessee:												
Memphis	0	0	------	1	4	0	3	0	2	0	1	14
Nashville	0	0	------	0	1	0	2	0	0	0	0	7
Alabama:												
Birmingham	0	0	------	0	5	1	1	0	4	0	1	1
Mobile	1	0	------	0	0	0	2	1	0	0	0	0
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock	0	0	------	0	1	0	1	0	0	0	0	5
Louisiana:												
New Orleans	0	0	3	1	3	1	10	0	0	0	2	4
Shreveport	0	0	------	0	0	0	3	2	0	0	0	0
Texas:												
Dallas	0	0	------	0	1	0	1	10	0	0	0	4
Galveston	0	0	------	0	0	0	0	1	1	0	0	0
Houston	1	0	------	0	2	2	2	4	1	0	1	13
San Antonio	1	0	------	0	0	0	3	0	2	0	0	7
MOUNTAIN												
Montana:												
Billings	0	0	------	0	2	0	2	0	0	0	1	0
Great Falls	0	0	------	0	5	0	0	0	0	0	0	1
Missoula	0	0	------	0	0	0	0	0	0	0	0	0
Colorado:												
Denver	1	0	------	0	5	0	3	0	2	0	1	18
Pueblo	0	0	------	0	2	0	0	0	0	0	0	8
Utah:												
Salt Lake City	0	0	------	0	5	1	0	0	3	0	0	47
PACIFIC												
Washington:												
Seattle	1	0	------	0	41	3	1	0	0	0	0	13
Spokane	0	0	------	0	5	0	1	0	5	0	0	3
Tacoma	0	0	------	0	0	1	0	0	0	0	0	4
California:												
Los Angeles	4	0	9	0	49	3	7	11	7	0	0	29
Sacramento	0	0	------	0	0	0	4	5	0	0	0	4
San Francisco	1	0	2	1	21	0	6	4	7	0	0	12
Total	40	1	29	9	1,749	101	235	59	252	0	19	1,169
Corresponding week, 1942	31	4	41	12	1,029	19	270	13	318	0	33	1,266
Average, 1938–42	59	------	27	[1] 9	[2] 1,202	------	[1] 232	------	338	3	36	1,316

[1] 3-year average, 1940–42. [2] 5-year median.

Anthrax.—Cases: Philadelphia, 2.

Dysentery, amebic.—Cases: Boston, 1; Kansas City, 1; Los Angeles, 2.

Dysentery, bacillary.—Cases: New York, 1; Detroit, 2; Baltimore, 3; Charleston, S. C., 10; Atlanta, 8; Nashville, 6; Los Angeles, 5.

Dysentery, unspecified.—Cases: Richmond, 2; San Antonio, 9; Sacramento, 1.

Typhus fever.—Cases: Pittsburgh, 1; Brunswick, 4; Savannah, 2; Tampa, 1; Mobile, 1; Dallas, 1; Houston, 2; San Antonio, 1.

Rates (annual basis) per 100,000 population, by geographic groups, for the 85 cities in the preceding table (estimated population, 1942, 34,576,700)

	Diphtheria case rates	Encephalitis, infectious, case rates	Influenza		Measles case rates	Meningitis, meningococcus, case rates	Pneumonia death rates	Poliomyelitis case rates	Scarlet fever case rates	Smallpox case rates	Typhoid and paratyphoid fever case rates	Whooping cough case rates
			Case rates	Death rates								
NEW ENGLAND	9.9	0	2.5	5.0	420	20.8	49.7	7.5	114.3	0	5.0	119
MIDDLE ATLANTIC	4.5	0	2.2	.9	265	15.2	31.2	3.6	28.1	0	1.8	144
EAST NORTH CENTRAL	7.6	0	1.8	.6	315	13.4	22.8	2.9	44.4	0	1.8	178
WEST NORTH CENTRAL	0.0	2.0	0	0	356	17.6	62.5	7.8	33.2	0	0	233
SOUTH ATLANTIC	5.3	0	10.6	1.8	200	19.5	39.0	1.8	28.4	0	5.3	319
EAST SOUTH CENTRAL	5.9	0	0	5.9	59	5.9	47.5	5.9	35.6	0	11.9	131
WEST SOUTH CENTRAL	5.9	0	8.8	2.9	21	8.8	58.7	49.9	11.7	0	8.8	97
MOUNTAIN	8.5	0	0	0	162	8.5	42.7	0.0	42.7	0	17.1	632
PACIFIC	10.5	0	19.2	1.7	203	12.2	33.2	35.0	33.2	0	0	114
Total	6.0	.2	4.4	1.4	264	15.2	35.4	8.9	38.0	0	2.9	176

TERRITORIES AND POSSESSIONS

Panama Canal Zone

Notifiable diseases—May 1943.—During the month of May 1943, certain notifiable diseases were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Panama		Colon		Canal Zone		Outside the Zone and terminal cities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox	10		3		7		1		21	
Diphtheria	7	2	3				4		[1] 14	2
Dysentery (amebic)	2		2		1		3		8	
Dysentery (bacillary)					1	1	1		2	1
Leprosy			1					1	1	1
Malaria [2]	17		11		247		91	1	366	1
Measles	1				15		1		17	
Meningitis, meningococcus	1		1						2	
Mumps	70		4		36		4		114	
Paratyphoid fever							11		11	
Pneumonia		16		5	30			1	[3] 30	22
Tuberculosis		25		14	4	2		12	[3] 4	53
Typhoid fever							2	1	2	1
Whooping cough		1								1

[1] Exclusive of carriers. [2] 90 recurrent cases. [3] In the Canal Zone only.

Virgin Islands of the United States

Notifiable diseases—April–June 1943.—During the months of April, May, and June 1943, cases of certain notifiable diseases were reported in the Virgin Islands as follows:

Disease	April	May	June	Disease	April	May	June
Chickenpox	1			Pellagra	1		
Filariasis	2	2	6	Schistosomiasis	3	1	
Gonorrhea	31	21	10	Syphilis	31	19	24
Hookworm disease	2	3	3	Tuberculosis			1
Malaria		1		Typhus fever			1
Mumps	1	2	3	Whooping cough	25	51	37

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended July 3, 1943.—During the week ended July 3, 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 Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Chickenpox	2	23	1	57	236	21	55	24	100	519
Diphtheria	1	9	1	10		2			2	25
Dysentery (bacillary)				2						2
Encephalitis, infectious					1					1
German measles		32		9	69	5	17	19	38	189
Influenza					17	2	1		93	113
Measles	3	24	1	103	1,198	93	57	279	198	1,956
Meningitis, meningococcus				1	1				3	5
Mumps		42		12	220	49	17	68	68	476
Scarlet fever	11	10	2	48	78	29	65	33	20	296
Tuberculosis (all forms)	5	1	4	103	72	5		24	15	229
Typhoid and paratyphoid fever				14	1		1	1		17
Undulant fever				4	3					7
Whooping cough			1	130	190	19	9	19	47	415

CUBA

Habana—Communicable diseases—4 weeks ended June 26, 1943.—During the 4 weeks ended June 26, 1943, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	30	3	Scarlet fever	1	
Leprosy	1		Tuberculosis	3	1
Malaria	6		Typhoid fever	45	3
Measles	24				

Provinces—Notifiable diseases—4 weeks ended June 19, 1943.—During the 4 weeks ended June 19, 1943, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana[1]	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer	2	1	3	16	3	9	34
Chickenpox						3	3
Diphtheria		36	1	1	1		39
Dysentery	10						10
Hookworm disease		49				1	50
Leprosy		4	1				5
Malaria	31	3	7	18	8	596	663
Measles		32	5	2	1		40
Poliomyelitis	1	1			2		4
Rabies				1			1
Scarlet fever		1					1
Tuberculosis	30	29	26	53	16	47	201
Typhoid fever	11	67	14	78	19	25	214
Whooping cough				5			5

[1] Includes the city of Habana.

REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—Except in cases of unusual prevalence, only those places are included which had not previously reported any of the above-mentioned diseases, except yellow fever, during the current year. All reports of yellow fever are published currently.

A cumulative table showing the reported prevalence of these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

(Few reports are available from the invaded countries of Europe and other nations in war zones.)

Cholera

India—Madras Presidency.—According to information dated June 29, 1943, it is reported that cholera is present in epidemic form in certain coastal sections of the Malabar coast, Madras Presidency, India. The epidemic is of the virulent form in several wards of Calicut, and has spread to nearby districts. Up to June 26, 1943, there were 918 cases with 624 deaths reported in South Malabar.

Plague

Indochina—Cochinchina.—During the period June 11–20, 1943, 3 cases of plague were reported in Cochinchina, Indochina.

Senegal.—For the period June 20–30, 1943, 29 cases of plague with 24 deaths were reported in Louga District and 30 cases of plague with 28 deaths were reported in Thies District, Senegal. For the period June 30–July 4, 1943, 6 cases of plague were reported in Dakar District.

Smallpox

Belgian Congo.—For the week ended April 10, 1943, 460 cases of smallpox were reported in Belgian Congo.

Indochina.—For the period June 11–20, 1943, 79 cases of smallpox were reported in Indochina as follows: Annam, 12 cases; Cambodia, 24 cases; Cochinchina, 39 cases; Tonkin, 4 cases.

Turkey.—During the month of May 1943, 650 cases of smallpox were reported in Turkey.

Typhus Fever

Algeria.—For the period June 11–20, 1943, 164 cases of typhus fever were reported in Algeria.

Hungary.—For the week ended July 10, 1943, 7 cases of typhus fever were reported in Hungary.

Rumania.—For the week ended July 17, 1943, 116 cases of typhus fever were reported in Rumania.

Slovakia.—For the week ended June 26, 1943, 32 cases of typhus fever were reported in Slovakia.

Turkey.—For the month of May 1943, 935 cases of typhus fever were reported in Turkey, including 295 cases in Istanbul.

Yellow Fever

Colombia—Cundinamarca Department.—Yellow fever has been reported in Cundinamarca Department, Colombia. as follows: June 6, 1943, 1 death; June 16, 1943, 1 death.

COURT DECISIONS ON PUBLIC HEALTH

Safe drinking water at State institution—liability of State officials for failure to furnish.—(United States Circuit Court of Appeals, 7th Circuit; *People of State of Illinois, for use of Trust Co. of Chicago et al.* v. *Maryland Casualty Co. et al., Maryland Casualty Co. et al.* v. *Bowen et al.*, 132 F.2d 850; decided December 9, 1942.) Actions were brought against the sureties to recover upon the official bonds of certain officers of the State of Illinois for the death of and injuries to certain persons from typhoid fever alleged to have resulted from contaminated water at an Illinois mental hospital. The deceased and injured persons were not inmates of the hospital but were employed at construction work on the premises. The State officers concerned were the director and assistant director of the department of public welfare, the director of the department of public health, and the managing officer of the particular State hospital involved. Neither the said officers nor the departments were sued but the defendant-sureties as third party plaintiffs filed their petitions against such officers as third party defendants, seeking to hold the officers personally liable if their official bonds had been breached. The officers moved to dismiss both the original complaint and the third party complaint, and the trial court entered an order dismissing both complaints. On appeal to the United States Circuit Court of Appeals the question was presented whether such officers were liable for their alleged negligent, wanton, and willful failure to furnish safe drinking water at the hospital.

It was the contention of the plaintiffs that it was the officers' duty "to cause safe water to be furnished" at the hospital and that this duty stemmed from the statutes of Illinois creating the departments of public health and public welfare and providing for the powers and duties of the departments and their officers. No specific duty to furnish safe drinking water at the hospital was provided by statute. According to the appellate court the State, when it by statute defined the powers and described the duties of the said officers, was not creating duties which the officers owed to the individuals who might constitute the general public of the State; it was merely outlining the State's assumed public duty. In such a situation, said the court, the law seemed to be clear that "if the duty discharged is a public duty and not a duty which the individuals owe to any particular person, then for their negligence or wanton or willful omission in the performance of this public duty, the officers are not liable, except to the State." Since the officers were discharging a public duty and not a duty which they owed the individuals in the instant case, the court held that there could be no liability on the part of the officers to such parties. Furthermore, since the officers were not liable to the plain-

tiffs for their conduct, it was also held that there could be no action by the plaintiffs upon the officers' official bonds.

Death certificates—statements as to cause of death.—(Pennsylvania Superior Court; *Stauffer* v. *Hubley Mfg. Co. et al.*, 30 A.2d 370; decided January 28, 1943.) In a workmen's occupational disease compensation case the Superior Court of Pennsylvania referred to a statute which prescribed that a certificate of death should contain, among other things, the following information: "Cause of death, including the primary and immediate causes, and contributory causes or complications, if any, and duration of each." After pointing out that a distinction was made between primary and immediate causes on the one hand and contributory causes or complications on the other, the court proceeded to define the terms by stating (*a*) that primary cause meant the main, chief, principal, or predominate cause of death—not some serious disease which would probably have caused death in the future but was not the principal cause of death at the time—and (*b*) that immediate cause meant the direct, present, instant, or proximate cause of death—that which produced the result without any intervening agency. In many cases, perhaps in the majority, continued the court, the primary cause and the immediate cause are the same, and in such event any other cause or disease which contributed to or accelerated the death was a secondary, contributing or complicating cause. "Where the primary cause and the immediate cause are not the same, in order to be the primary cause of the death, it must have produced or brought about the immediate cause which resulted in the death." The court illustrated its definitions by the following examples: (1) If a diabetic man was severely crushed about his chest in an accident and traumatic pneumonia set in resulting in his death from pneumonia, the immediate cause of death was the traumatic pneumonia, the primary cause was the crushing of the chest which produced or brought about the pneumonia, and diabetes may have been a contributory, secondary, or complicating cause; (2) if a man suffered an accident which merely lowered his vitality and in his weakened condition he fell a victim to a germ disease which was not produced or brought about by the accident, the primary and immediate cause of death was the germ disease and the accident was a "passive ally" or at the most only a contributory, secondary, or accelerating cause.

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