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MENTAL HYGIENE SERVICES IN RURAL AREAS

The Program of the Mental Hygiene Division, Suffolk County Department of Health, New York

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Provision for Mental Hygiene services in rural areas has long been a pressing need. Some States and localities have made a variety of approaches to the problem.¹ It is necessary to draw a distinction between a scientific survey of a small county² and the operation of a clinic rendering public service in a widespread area of scattered population. This discussion refers to the experience of a child guidance or mental hygiene unit operating as a division of the Suffolk County Department of Health. It is believed that this is the first county health department in the United States to organize and finance such a clinical service. It represents a forward step in that it is a formal recognition of the importance of the conservation of emotional health as a definite part of a public health program.

Suffolk County.—Suffolk County has a population of 175,000, distributed irregularly in an area ranging up to 20 miles wide and about 80 miles long. It is located on the eastern end of Long Island. The eastern half of the county is made up of two peninsulas. The people are mostly the descendants of the original Yankee settlers, with a recent mixture of Polish and some other European nationalities. Industries are for the most part truck farming and fishing, with a few small manufacturing centers. Many localities have a large number of summer homes of people from the nearby metropolitan center.

Preliminary survey of needs.—The preliminary approach to the problem has been to seek out and meet as much as possible the special mental hygiene and psychiatric needs of the social agencies and communities. The impetus for the formation of the county's own clinic came from multiple sources. The Juvenile Court Judge felt that many cases coming before him should have had much earlier expert attention. A survey of guidance in Suffolk County was made in

¹ Psychiatric Clinics for Children (with special reference to State programs). Witmer, Helen L. Commonwealth Fund.

² Williamson County Child Guidance Study, Tennessee, operates as a unit of the State Department of Health, and was financed by the Rockefeller Foundation.

1938 by the New York State Committee on Mental Hygiene at the request of the County League of Women Voters. The County Council of Social Agencies had completed a study of the requirements (jobs, recreational facilities, and vocational and child guidance) and social service resources. A Directory of Social Agencies was published by the County Council. These surveys and our own investigations pointed out the need for more psychiatric consultation and child guidance services among the 35,000 school children and to the various social agencies and rural communities.

Social resources.—The county social agencies comprise the Board of Child Welfare, the Probation Department, and the various divisions of the Department of Public Welfare. The Board of Child Welfare alone has supervision of over 1,500 children, about 600 of whom are in foster homes. The Probation Department handles about 900 cases a year. Over one-third of these are new cases, of which about one-fifth are juveniles under the age of 16. The Department of Public Welfare encounters a variety of personality problems needing specialized consultation service. Multiple social agency functions are performed by the 29 public health nurses (23 full-time and 6 employed jointly with the American Red Cross) of the health department. In some of the more populous localities there are a few private social agencies. Some boys' clubs are available and Boy Scout organizations are widespread. A summer camp for undernourished children is provided by the welfare department. It can therefore be seen that the county has some social resources and is more fortunate in this respect than many rural areas.

Medical resources.—The medical facilities of the county are well organized and readily available. A close-working relationship has been worked out by the medical society and the welfare departments with the local physicians, who carry out all medical and surgical treatment. Practically every family in the county is able to have its own family physician, who is either paid privately or, in the case of relief families, by the Department of Public Welfare. The County Infirmary, the former Old Folks Home, has been placed on the status of a modern hospital. Six private general hospitals are so situated that they are within convenient reach of most areas. There are also a number of private sanitariums, two of which are for psychiatric cases. The county tuberculosis sanitarium, which is operated under the supervision of the health department, provides traveling tuberculosis clinics. Traveling orthopedic clinics are also held under the supervision of the health department. One public health nurse devotes her entire time to orthopedic cases. The health department has recently employed a full-time nutritionist, after a successful one-year demonstration of such community educational work.

Aims.—After due consideration of the local situation, with its existing resources and apparent needs, the following general aims were tentatively formulated: (1) Further searching out of local needs and devising of constructive ways of meeting them will tend to keep the Division's program flexible and practical. (2) Every effort should be made to conserve time for the essential corrective follow-up and treatment of remediable problems. (3) The development of close co-operation with the local medical profession, by consultation with them on clinic cases, results in more complete diagnoses and more adequate treatment facilities. (4) The primary aims, for the prevention of emotional maladjustment and the promotion of more integrated character formation, can be best accomplished by emphasizing work with children and school groups. (5) An adequate educational program in the principles of child guidance and mental hygiene should further preventive and corrective procedures.

Organization.—The Mental Hygiene Division of the health department was established November 1, 1940 and began operation on April 1 with the appointment of the Director on May 1, 1941. By the end of 4 months the preliminary organization period was completed. The clinical staff is composed of the typical child guidance unit, namely, a psychiatrist, a psychologist, two psychiatric social workers, and a secretary. The psychiatric social worker uncovers the life story leading up to the presenting problem behavior exhibited by the person to be examined. Not only the personal history but also a knowledge of the personalities and attitudes of the family or key associates usually are important in understanding the development of the difficulty. The physical condition, intelligence level, aptitudes, assets, liabilities, and character make-up, as determined by the psychologist and psychiatrist, are then seen in the setting in which they developed. The understanding thus gained furnishes leads as to the advisable corrective and treatment procedures.

Initial program.—A tentative program has been developing during the last year. Clinic service has been rendered on 250 cases. In addition, about 500 school children have been surveyed by group-testing methods as a demonstration project. Therefore, what follows is in the nature of a progress report. The unit was set up to serve the Juvenile Court, the county welfare agencies, and those schools and communities which did not have such services. The State mental hygiene traveling clinics of the three State mental hospitals, which are situated in the western end of the county, have for a number of years been giving the equivalent of more than a week's service a month. The health department unit is responsible for all Juvenile Court cases, while the State hospital clinics care for all school cases in the areas of their traveling clinic locations. This division of duties has

aided the health department clinic to emphasize also needed service to schools in the outlying rural districts. The cases are for the most part referred by a social agency worker or a school nurse, who usually prepares the preliminary history. When the case is brought in for examination, our psychiatric social workers interview the parents, teachers, and others who may accompany the child so that more detailed history material is obtainable. An evaluation of key persons in the environment is also possible. After the examination, a formal or informal conference is attended by those who will have to participate in the plans for treatment. A formulation of the problem is made and the responsibility for carrying out the definite parts of the program is allocated. It has been relatively easy, therefore, to accomplish an amount of follow-up advisory treatment.

First 200 cases.—The first 200 cases showed a proportionate even distribution of the clinical work among the various groups served by the Division. One-fourth were examined for the Juvenile Court and Probation Department. Another one-fourth were referred by the county social agencies. The other half were studied for the schools and family physicians. Roughly, two-thirds of the total were school children. Eleven and one-half percent were educational or learning disabilities, the correction of which is very important. Only 14½ percent were found to be mentally deficient. Psychotic cases uncovered amounted to 4½ percent. Six percent were neurotic. Five percent had evidences of major physical defect. Thirty-three percent were behavior and social problems.

Methods of rendering service in a rural area.—In a rural area many special conditions require solution. Adequate follow-up and provision for direct treatment of cases needing the same are two of the great problems. The main working center in the health department office is now geographically centrally located. Distances are great and traveling is often difficult to arrange. In order partially to meet this situation a series of traveling clinics to different parts of the county has been inaugurated. In this way traveling distances of clients are shortened and the possibilities for closer cooperation have been enhanced. Motor transportation for the staff is provided by the health department.

Modification of services to meet wider needs.—Those familiar with mental hygiene and child guidance clinics are acquainted with the difficulty of covering a large number of cases with adequate service. Modifications of the usual procedure have been and are being experimented with to meet wider local needs. A consultation service on individual problems and on social case work techniques is being developed by our psychiatric social workers and has been greatly appreciated by the local agency workers. A similar service on educational

problems is being rendered by the psychologist. The usual psychiatric consultations are furnished by the psychiatrist. These individual special services, given by the various staff members, are coordinated with the general program by the Director. Special problems are routinely discussed. The combined contributions of psychiatry, psychology, and social work can be applied to each case as needed. Managed in this manner, the handicaps encountered by each specialist when working entirely alone are avoided. There is no need of attempting the solution of problems beyond the individual's skill or training.

Clinical service is basis of preventive educational program.—In general the program has developed along both clinical and educational lines. A series of informative talks and locally published articles has been utilized as well as some agency staff instruction. The importance of a clinical service to act as a basis for the educational program cannot be overemphasized. Clinical service makes the educational program concrete and real. We have found that it has been possible to an unusual extent to utilize the clinical work as a very practical educational procedure. This has been accomplished by the use of the initial case conferences, which are attended by the referral agency workers, interested principals, teachers, physicians, nurses, clergy, and others. The visitors sit in with the psychiatrist, psychologist and the psychiatric social workers while the case findings are reviewed. The medical, psychological, and mental hygiene and child guidance principles illustrated by a particular case can be clearly and interestingly brought out. All then participate in the formation of a practical treatment program, and responsibility for its various elements are allocated. Usually the social agency worker carries out the recommendations. In some instances several departments need to cooperate in working out the treatment program. At times the clinic staff assists in treatment when especially difficult problems are encountered. Frequently relatives and even patients have been interviewed in the conference, thus providing demonstrations of some techniques for the benefit of the agency workers in attendance. The mental hygiene principles and techniques illustrated may be thus acquired by those key individuals in the community, who have the opportunity to do preventive and early corrective work while handling more constructively the larger groups under their care. In this way our Division is in some measure meeting the much talked of need for preventive mental hygiene activities.

Case example illustrating mental hygiene principles.—The study of one 7-year-old boy illustrated multiple unwisely parental influences and indicated the application of a variety of child guidance principles. He was failing in the first grade, was extremely childish, soiled, cried easily, and constantly demanded attention. Occasionally he was

enuretic and refused to eat. There was much fighting with his brothers and sisters. His physical development and nourishment were poor. He complained of stomach pains when forced to eat. The mother was found to have excessive anxieties, fears, and hidden adverse attitudes (unwanted pregnancy) toward this son. Her anxieties were increased by the death of her next-born and compelled her to exert multiple pressures on the child. The boy was extremely childish for his age and had become fearful and negativistic. Investigation revealed the following usual methods of mismanagement which tend toward the development of an emotional cripple: (1) He was dressed on school days; (2) he was kept in, (3) he was watched constantly, often with impatience, and was frequently spanked; (4) he was allowed to eat between meals, thus interfering with his natural appetite, and was then forced to eat at meal times; (5) a condition of chronic constipation was induced by the use of glycerine sticks; (6) he was compared adversely with his brothers and sisters in their presence; (7) the mother lay down with him "to get him to go to sleep at bed time"; (8) as a result of the impatience and spankings which accompanied the parents' tutoring, he developed a dislike for books.

The mother was led into a receptive frame of mind and helped to think through her problems. After being encouraged to express her opinions, she was able to say about the boy, if he was lonesome and wanted attention, "He plays sick. He does something to get in my way. He asks me questions. He asks me to undress him or play games with him. I promise to do it at a certain time." "Yes, it is possible he does not eat if he wants me to be with him. It makes me impatient." The mother could understand the value of paying attention to and playing with this boy when he was good, ignoring the undesirable behavior so as to discourage it. With nothing between meals and no urging to eat, his natural appetite would become an ally. Feeding and urging could be safely omitted. The teaching could be better left to the school. He could dress himself on school days as well as on holidays. There was much to indicate that the mother's patterns and attitudes were fixed, but she was receptive to authoritative advice.

Case conferences promote interagency cooperation.—It can also be readily seen that our conferences may become the focal point for the efficient correlation of case work procedures of the various social agencies, even including those departments which render relief aid. An illustration will bring this out clearly. An adult woman was being carried on relief. She was constantly complaining of exaggerated physical symptoms and sought admission to many different hospitals. Her emotional, unstable, and very annoying behavior made it difficult to provide for her care in a community home. She

was constantly taking up the time of staff members of the five social agencies which were involved in her care. She made unwarranted complaints and was litigious. She had been repeatedly seeking help from a number of physicians. The conference was attended by representatives of the Department of Public Welfare, the Division of the Blind, the County Infirmary, the Board of Child Welfare (who had to look after her children), and of the Probation Department (non-support case). After the various items of information in possession of each agency became the common knowledge of all, the nature of the problem became quite clear. She required hospitalization and psychiatric care. Curiously enough, the patient herself was very willing to accept such treatment.

Possibilities of prevention through child care agencies.—We have considered that portion of our program devoted to the foster home placement agency, the Board of Child Welfare, and the educational work with their staff members to have an especially important bearing on the avoidance of later maladjustments. Successful foster home placement demands understanding of the needs of children and of the important relationships which are inherent in any home setting. Consequently, our child guidance service can be of special assistance to such a children's agency, which has an opportunity to do so much preventive work. An example of such aid is worthy of mention. A 10-year-old girl, who had been an orphan since the age of 2, was showing problem behavior in the foster home where she had been placed. It was said that she was forgetful, untidy, tore her clothes, stole, and had shaky, nervous spells. The history revealed that she had been cared for in orphanages until 6½ years of age. There the youngster had been conformative, but timid, frail, and shy. Then for several years she lived unhappily with her grandparents, whom the neighbors felt neglected and mistreated the child. Study showed that the complaints were exaggerated by the foster mother, who had a well-ordered, nice home, but was rigidly neat, over-particular, fussy, and intolerant of ordinary childish behavior. The stealing was confined to taking cookies and sweets from the kitchen. Examination revealed an inhibited, tearful, attractive girl, who presented an over-conscientious, self-critical attitude with a great desire to please and be loved. When scolded she became tense and a little tremulous, the aftermath of an attack of St. Vitus' dance at the age of 6. This youngster needed a feeling of stabilizing security and could come happily out of her shell in a suitable placement in a warm, tolerant home. The character and attitude of the adults and the atmosphere in a prospective boarding foster home for children need skilled evaluation. The physical characteristics of the home, important as they are, are only one factor in selecting suitable abodes.

Prevention and correction through the schools.—Early in our program a decision was made to devote much time to school children, where by and large the most worthwhile corrective and preventive work is possible. Two-thirds of the cases have been school children with problems. They include personality and behavior disorders, which at this age are more often remedial, as well as poor progress in one or more school subjects.

Emotional disorder can interfere with educational achievement.—The diagnosis and treatment of an emotional disorder, which interfered with educational achievement, are illustrated by the case of a shy 9-year-old girl. In spite of good intelligence, normal vision, and adequate physical health, she had always been poor in spelling and reading, and failed the fourth grade. Shyness, crying easily, and timidity about reciting were also present. Formal tests indicated that her educational achievement in reading and other tool subjects was equal to her grade. Why, then, did she have trouble with reading? She was an only child whose parents had separated 3 years previously. The mother was stable, but said she had done too much for her daughter. The mother said the father had been unable to complete college and was very concerned about his daughter's education. When the girl first went to school he urged her to study and tutored her. He became impatient, derogatory, and punitive when she made a mistake. When the child was interviewed her spontaneous thoughts indicated that reading and association with authoritative adults gave rise to a feeling of vague, inhibiting fear. Her headaches occurred, "When I look at a book so hard. I put it close to my eyes when there are big hard words." "My father would whip me when he helped me with my school work. I read with him. I was very small and so I don't remember much about it." In answer to a question she said, "No, it is not hard to read, but I don't like it. I just don't know why." Concerning school she said, "I like it some. I don't like it, but I kinda' like it." Later, when she was asked what things scared her, she denied present fears, but added, "Sometimes when I read I get scared." She began to comprehend why books made her have a fearful feeling.

It was clear that the shyness, timidity, hesitancy and reading difficulty were emotional character handicaps. They arose at an early age when she was tutored by an impatient, severe father. Then she had been emotionally conditioned against reading and also against severe adults. The inhibiting fear she felt really came from the buried, almost forgotten, unpleasant tutoring experiences, not from books. Thus we see how one's reaction to present activities may really represent feeling tones associated with past, buried, forgotten experiences. After expressing her feelings and talking them over, the youngster realized why she was upset by attempts to read. The girl had needed to talk out

her feelings and understand them. Calm supportive and unemotional management could help her. This was especially so while reading.

Discovery of reading disabilities.—Many cases of unrecognized reading disability have been uncovered and steps taken to secure the necessary skilled remedial teaching. A 15-year-old boy took no interest in his studies, fought with younger boys, and was insolent to his teacher. He often walked out of school when corrected and stayed out all day. He was found to be of average intelligence, was usually polite outside of the school situation, and had no real delinquent tendencies. His poor attitude toward school was due at least in part to a reading disability. He was 3 years retarded in his reading. Because of this special disability, he had spent several years in a special class and had been considered mentally slow and likely to be led into trouble by other boys. If his reading disability had been recognized earlier and not mistaken for limited intelligence, his present attitude might not have developed and he might never have become a serious problem.

Delinquency control and prevention.—The prevention and control of delinquency is an important part of a well-rounded community program. All preventive and treatment efforts have a bearing on this topic. The more integrated, well-adjusted, and appropriately supervised the child, the less likely is he or she to become delinquent. The Probation Department works closely with our staff. Of the first 200 cases studied, 49, or one-quarter, have been referred by the Juvenile Court, the Probation Department, or a similar agency. In addition, another 34 cases have shown some overt delinquent trends. This makes a total of over 41 percent of our cases where a delinquent tendency has been observed. Slightly more than one-half of this number have been children under 16; one-fourth have been adolescents; and only one-fourth were adults (21 years of age or older).

Case example.—Some of the cases regarded adversely by the community were found not to be confirmed delinquents. One group of 3 boys, A, aged 15, B, aged 14, and C, aged 13, had been engaged in minor delinquencies. The police found out about them when C became so troubled that he not only told what he had done, but also the names of the other boys who had been with him during the various offenses. Destructive acts, such as breaking light bulbs with an air gun, taking food from houses, and minor thefts from stores and cars had occurred. When studied, none of the three boys showed signs of confirmed or dangerously antisocial delinquency. The authorities tended to blame the eldest, A, and felt he was the leader. However, he was found to be docile, easily led, and feeble-minded. The home background was so inadequate that he was finally placed under the protection of a school for the feeble-minded. The one who furnished

the most leadership, C, was emotionally and physically sick. After customarily being kept at home and protected, C suddenly found himself unsupervised on evenings when his mother went to work. Residence in a special school was advised for special treatment and educational training. B, who was childish, naive, and had been infantilized at home, joined C for only one night. He was given guiding supervision while remaining at home.

Community prevention program.—Some residents, the police, and the school had felt that they were dealing with a gang of bad boys. If routine procedures had been followed several might needlessly have been sent to correctional schools, the regime of which would not ordinarily be suited to their special needs. Some follow-up reporting work with the parents, teachers, and police was helpful in forwarding the development of a community preventive program.

Court action frequently not necessary.—Many delinquency problems have been solved by social case work methods and so did not require the authoritative action of the Children's Court. Every effort has been made to adjust children in their own homes in the community. When confinement has been unavoidable, a careful selection with the judge has been made of the institution or school which was most adapted to meet the child's particular needs. Many private or special schools have been utilized in addition to the State institutions. Of the 29 frankly feeble-minded cases uncovered, only 17 required institutionalization for training or protection. All child guidance activities may be properly grouped under the heading of prevention or control of delinquency.

The problem of mental illness.—The usual objective of all mental hygiene services to reduce the number of admissions to mental hospitals has been considered. Authorities¹ differ on the amount of preventive work that can be accomplished successfully. In the present state of our knowledge certain types of functional mental illness undoubtedly are not readily amenable to prevention. However, investigations in this field are worthwhile. Methods similar to the epidemiological approach to the control of infectious diseases would seem applicable to the problems of mental disease. Certainly the modern public health methods being used to limit the psychotic complications of syphilis should be productive in reducing the proportion of mental hospital admissions from this cause. The prevention of emotional problems in childhood could be expected to lessen the number of poorly-knit, inadequate personalities, who are so vulnerable to mental breakdowns. Last year there were 156 first admissions of Suffolk County residents to State hospitals. The rate was 427.7 per 100,000 of the population. About 840 cases of local residents were under such hospital treatment.

Special advantages of being a unit of the health department.—Child guidance and mental hygiene clinics have operated under various auspices. In Suffolk County there are multiple advantages in being an integral part of the health department. We have mentioned the Department's close cooperating working relationship with the medical profession. However, the most important asset involves the public health nurses, who occupy a unique position in the rural areas. They customarily deliver the birth certificate to the parents. This early contact enables them not only to be instrumental in furthering proper infant feeding and preventive medical care, but to know intimately the families of preschool children. The position of school nurse has customarily carried with it the functions of a visiting teacher and many social work duties. The mental hygiene unit of a health department therefore, in the nursing staff, has direct access to the local communities and an ideally situated cooperative resident worker.

SUMMARY

The adaptation of child guidance and mental hygiene techniques to the situation in this county has been productive and it is felt that surprising progress has been made. The selection of a centrally located main office, the conservation of time for follow-up treatment, and emphasis on the more profitable work with juveniles are universally accepted objectives. Based on the experience of the last year, the following tentative suggestions are made concerning services to rural areas:

(1) After a preliminary survey, the educational, clinical, and all other phases of the program should be kept flexible by continuing to determine local needs and formulating ways of meeting them.

(2) Medical treatment facilities may be obtained by working cooperatively and closely with the private physicians in the county.

(3) Some of the disadvantages of a traveling clinic service can be minimized in two ways;

(a) By the major use of a main working center and the judicious use of traveling clinics.

(b) By operating through local, cooperative, trained workers, resident in each locality served. This may be readily accomplished by organizing the clinical unit as a division of a health department, which has public health nurses living in various areas.

(4) The service potentialities of the staff can be widened by also utilizing each member as an expert consultant in a special field, the specialized aspects of social work, the application of clinical psychology in the public schools, and the usual psychiatric consultations to the medical profession. Inasmuch as the staff usually work as a team and consult frequently, no one need attempt the solution of problems beyond his or her skill or training.

(5) An effective educational procedure, to widen the use of preventive mental hygiene principles, can be carried out by the utilization of clinical case material in the teaching case conferences attended by the interested representatives of cooperating professional groups.

CONCLUSION

Mental hygiene and child guidance services, which are widely used in urban centers, should be extended to rural areas. There is a great demand for such work. In Suffolk County a mental hygiene unit has been organized in the county health department and serves the Juvenile Court, county welfare and social agencies, schools, and various scattered communities. This county has exceptionally good schools, progressive social agencies, and a growing health program. There are an active Council of Social Agencies, a Social Service Exchange, well-organized medical resources, and a well-informed public opinion. This is therefore a favorable rural area for the development of a sound practical mental hygiene program. There are multiple advantages in operating as a division of the health department, the staff of which, especially the public health nurses, have such a close tie-up with the various local schools and communities. County departments of health may well consider the advisability of including a mental hygiene unit in their organization to aid in the promotion of the wider aspects of public health. The emergencies of the war situation have only enhanced the need for such services, by participation in the organization and personnel training necessary for some specialized groups in the local civil mobilization plan. We are looking forward to making a more detailed report after an extended period of operation.

TRANSMISSION OF RUBELLA TO *MACACUS MULATTA* MONKEYS¹

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The clinical picture of rubella or German measles in man is usually that of a mild, self-limited disease consisting of moderate fever, malaise, slight respiratory symptoms, enlargement of the lymph nodes (posterior cervical), leukopenia with a relative lymphocytosis, and a light generalized macular rash. Complications have been considered uncommon and not serious in nature.

Probably because of this mildness of the disease in man comparatively little experimental work has been concerned with rubella. Its resemblance clinically to rubeola has resulted in the assumption that the causative agent is a virus, but not until the experiments of Hiro and Tasaka (1) was this hypothesis proven. Nasal washings from 4 cases of rubella in the acute stage of the disease, just after the appearance of the rash, were filtered by these workers and injected

¹ From the Division of Infectious Diseases, National Institute of Health.

subcutaneously into 16 children between the ages of 7 months and 9 years. Six of the 16 developed a typical rubella, while 2 had all the usual symptoms but no rash. The incubation period varied from 5 to 17 days, being 7 to 11 days in 6 of the cases. At about the same time Steinmaurer (2) reported finding virus particles in nasal and throat washings, blood, and blister fluid from the skin of rubella patients by use of the fluorescent microscope.

There are but two available reports of attempts to transmit rubella to experimental animals. Hess (3) inoculated four monkeys intraperitoneally with blood taken within 24 hours of the appearance of the rash in human cases. Only one monkey developed a temperature elevation on the nineteenth day, but no rash was observed and no blood counts were taken. Slatineano et al. (4) tried to transmit the disease to man, rabbits, and guinea pigs with throat washings and defibrinated blood, with negative results.

Recent reports (5, 6, 7) have indicated an increase in the number of human cases showing complications, especially arthritis and neuritis, and have shown that encephalitis may occur following rubella. This, together with the relatively high incidence in adults, especially in camps with their concentration of military personnel, has made it seem worthwhile to apply to rubella some of the experimental work that has been performed with rubeola.

Opportunity for this study was afforded in the spring of 1941 by the occurrence of many cases of rubella in and near Washington, D. C., at a time when experimental work in rubeola was being attempted.

METHOD

Specimens from patients were obtained, usually within 12 hours after the appearance of the typical macular rash. Nasal washings were made with salt solution and blood was either defibrinated or oxalated.

Macacus mulatta (rhesus) monkeys weighing from 3 to 7 pounds received from 2 cc. to 5 cc. of blood subcutaneously, intraperitoneally, intranasally, or intravenously. Intranasal instillation of filtered or unfiltered washings was done under light ether anesthesia. All inoculations were performed on the same day the materials had been collected.

Temperatures were taken on all monkeys twice daily. Blood counts consisting of total white blood cells and differential white blood cell counts were done daily, the blood being obtained from a superficial vein of the leg early in the day, before the animals had been fed. Each monkey was also examined twice daily for signs of respiratory symptoms, lymph node enlargement, exanthem, and enanthem. These procedures were carried out for 21 days following inoculation.

Transfers were made by blood obtained by cardiac puncture of the etherized animal. A total of 41 monkeys was used in this study of materials from 9 patients.

CLINICAL PICTURE IN MONKEYS

Twelve monkeys developed a rash, 9 following inoculation with human material, 2 on monkey passage, and 1 after receiving chick embryo passage material. The following description of the symptoms and blood picture in monkeys is based on the findings in this group of 12 animals.

In general, the signs of infection were very mild. After an incubation of 8 or 9 days a leukopenia developed, followed in 1 or 2 days by a relative lymphocytosis, a slight fever, and rash.

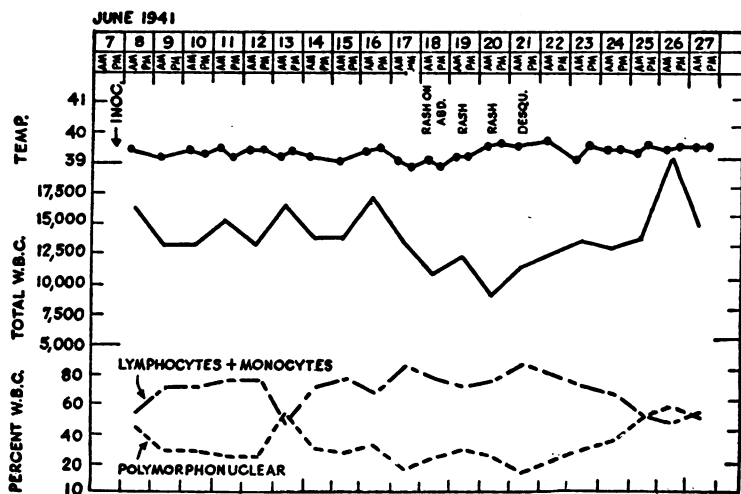


FIGURE 1.—Rubella in monkey with rash. Original isolation from human rubella blood. Monkey 778. Inoculated intravenously with 5 cc. defibrinated blood from case 18.

No evidence was observed of respiratory symptoms, lymph node enlargement, gastrointestinal, or nervous symptoms.

Fever: Six to 16 days following inoculation, 7 of the 12 monkeys had an elevation of temperature of at least 0.5°C . The highest elevation was 1° and the average 0.5° , while the average onset of the fever was 10.4 days. The duration of the fever extended from 2 to 9 days and the average was 5.1 days. An elevation of temperature was determined by a rise above the base line established in the first 5 days of the experiment for each monkey.

Leukopenia: It is well known that the white blood cell counts of monkeys vary and that it is impossible to state arbitrarily the normal count without having performed them for several days in the individual monkey. Daily blood counts were done on 6 monkeys for 7 days before inoculation intravenously with normal human and monkey

blood and continued for 21 days after inoculation. No changes were noted in the white cell counts as the result of the inoculation; therefore, in all monkeys used in these experiments the normal count for the individual was taken as the average during the first 5 days following the inoculation. The presence or absence of a leukopenia was determined by a drop in the total count of at least 2,000 cells per cu. mm. averaged over a period of at least 3 consecutive days.

All 12 monkeys exhibiting a rash had a leukopenia representing a drop in total white blood cell counts of from 2,000 to 6,500 cells per cu. mm. and the average drop was 3,500. The leukopenia developed from the fourth to the fourteenth day and averaged 8.7 days after

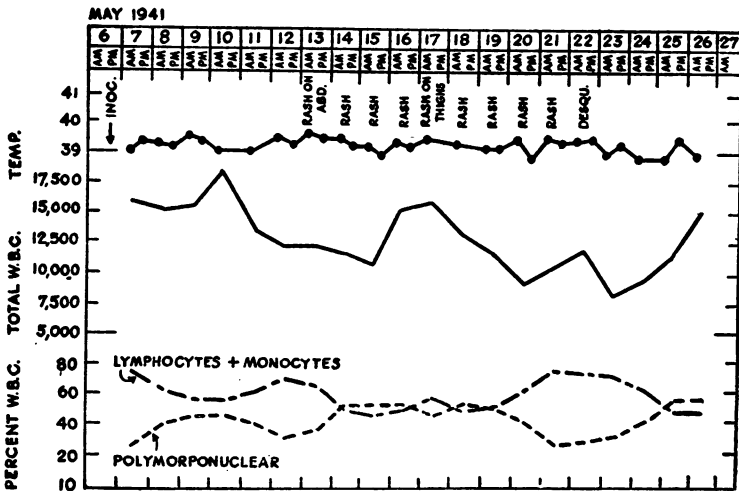


FIGURE 2.—Rubella in monkey with rash. Original isolation from human rubella nasal washings. Monkey 784. Inoculated intranasally with nasal washings from case 17.

inoculation. The time the leukopenia became apparent was within 3 days of the onset of the fever in all cases, 3 being before, 3 after, and 1 on the same day as the fever. The leukopenia lasted from 3 to 14 days and averaged 7.2 days.

Lymphocytosis: Eight of the monkeys had an increase in the number of lymphocytes plus monocytes, as compared to polymorphonuclear leucocytes on differential cell counts. In 6 cases the lymphocytosis occurred within 3 days of the onset of the leukopenia. Its onset varied from 6 to 14 days from inoculation and the average was 10.7 days. This lymphocytosis persisted for 2 to 7 days, the average duration being 4.7 days.

Exanthem: The rash consisted of a rather sparsely scattered, light pink, macular eruption similar to that occurring in man, but less distinct, being minimal in 4 and more marked in 8 animals. The most consistent location was on the lower abdomen, where it was found in

all 12 cases. Three monkeys also had a rash on the face and thighs, and 3 more on the thighs as well as on the abdomen. The onset of the rash varied from the seventh to the seventeenth day following inoculation and averaged 11.3 days. It lasted from 1 to 8 days, averaging 3.4, and was followed by a slight scaly desquamation in 7 cases, in one of which definite pigmentation was also noted. The rash appeared before the onset of either the fever or leukopenia in 1 case, at the same time in 2 cases, and later in 9 cases; it became apparent within 4 days of the time of onset of these symptoms in 9 instances. No lesions were noted on the oral mucus membranes either before or during the rash. This rash in monkeys with rubella was very sim-

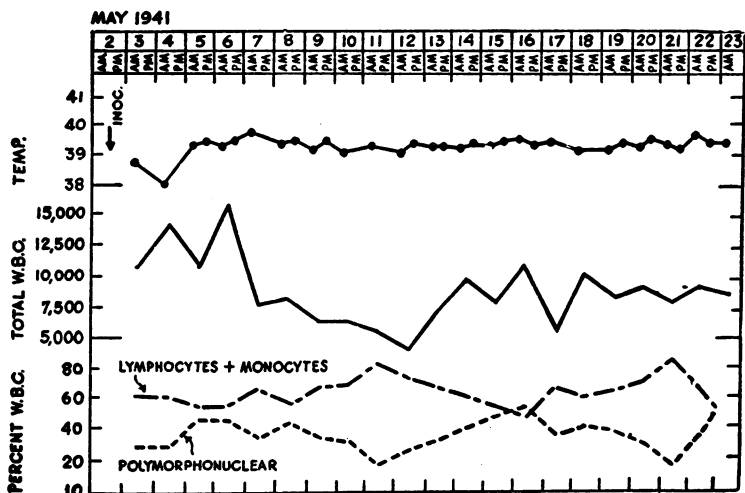


FIGURE 3.—Rubella in monkey without rash. Original isolation from human rubella blood. Monkey 700. Inoculated intravenously with 5 cc. oxalated blood from case 16.

ilar in appearance and degree to that seen in monkeys following inoculation with chick embryo passage rubeola virus (8).

In view of the fact that five of the monkeys having a rash developed no fever but all exhibited leukopenia it seemed possible that some of those monkeys in which no rash was detected might have suffered an infection with rubella, as indicated by the blood count change. Evidence that rubella infection without a rash is possible in man is found in the report of Hiro and Tasaka (1) in which six children inoculated experimentally with filtered nasal washings from cases of rubella developed a typical rash, while two others showed a lymphadenopathy and leukopenia, but no rash or fever. Flöystrup (9) also notes the development of mild catarrhal symptoms and lymphadenopathy but no rash in his own son after exposure to rubella, while a typical rubella with rash subsequently occurred in another son after exposure to the first child.

Because of this possibility and to further check on the blood count response of normal monkeys, a group of 6 monkeys was observed for 7 days, twice daily temperatures and daily blood counts being taken. Three then received 5 cc. of defibrinated normal human blood intravenously and three received defibrinated normal monkey blood. Temperature and blood count determinations were continued for another 21 days. Only two monkeys developed a drop in the total white blood cells of 2,000 or more per cu. mm., which occurred in both instances on the third day following inoculation and was not accompanied by fever. One had received human and one monkey blood.

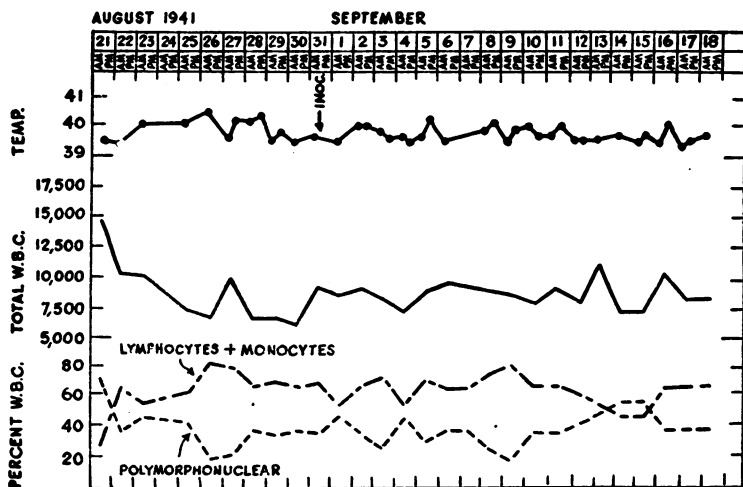


FIGURE 4.—Normal monkey response to intravenous inoculation of normal human blood. Monkey 867. Inoculated with 5 cc. defibrinated normal human blood intravenously.

Therefore, the diagnosis of *possible* rubella infection in inoculated monkeys was limited to those exhibiting a leukopenia of at least a 2,000 decrease in total count accompanied by an increase in the percentage of lymphocytes and monocytes, either with or without fever, provided that these blood count changes occurred between the fifth and fourteenth days.

On this basis, besides the 12 monkeys with a rash a further 15 monkeys were positive on inoculation. Of these, 8 were primary inoculations (6 with human blood and 2 with nasal washings), 6 were on subsequent passage, and 1 in a monkey inoculated with chick embryo passage material.

For accuracy throughout the remainder of this paper results of monkey inoculation will be expressed as negative or positive, with or without a rash.

PRIMARY ISOLATION OF VIRUS FROM HUMAN CASES OF RUBELLA

From blood:

- a. By intravenous inoculation, 4 of 6 monkeys developed rubella with a rash, 1 without a rash, and 1 was negative.
- b. By subcutaneous inoculation, of 2 monkeys both showed rubella with a rash.
- c. By intraperitoneal inoculation, 1 monkey was tested and was positive without any rash.
- d. Blood introduced intranasally in 1 monkey produced rubella without a rash.

From nasal washings:

Of 6 monkeys receiving nasal washings intranasally, 1 was negative, 3 positive with a rash, and 2 positive without a rash.

There were 6 human cases in which both blood and nasal washings were tested in monkeys. Five showed a positive result with both, and one a negative result with both. In 3 of these 5 positives the monkeys had a rash with both types of inocula.

The results in individual monkeys following these primary isolations are shown in table 1.

ROUTES OF ADMINISTRATION

Intravenous: Twelve monkeys received blood by the intravenous route, 6 being original isolations and 6 monkey blood passages. As noted previously, 5 of 6 of the former group were positive, while 4 of the latter group were positive, none with a rash. The average incubation period by this method of inoculation was 7.6 days.

Subcutaneous: Two original isolations, both positive, and one passage also positive but without a rash, were obtained by this method of inoculation. The average incubation time was 8.3 days.

Intraperitoneal: Only one original isolation was attempted by this method and that had an incubation period of 14 days.

Intranasal: As noted above, 7 monkeys were inoculated in this manner with original human material and 6 were positive. The average incubation period was 6.5 days.

MONKEY PASSAGE

One attempt was made to passage monkey nasal washings by the intranasal route but was unsuccessful.

Three human strains were transferred in monkeys by means of blood given intravenously and 2 were positive, 1 after one passage and 1 after five passages.

TABLE 1.—Primary isolation of rubella virus in monkeys.

Case No.	Number hours after rash material obtained	Symptoms present	Type of material	Route of inoculation	Monkey No.	Fever		Leukopenia			Lymphocytosis		Rash				
						De- gree (°)	Onset	Du- ra- tion	De- gree	Onset	Du- ra- tion	De- gree per- cent	Onset day	Du- ra- tion	Location	Dee- qua- ma- tion	
4	12	Fever, respiratory symptoms.	Blood	SC	753	0.5	16	2	6500	14	9	10	14th	12	4	Face, abdomen, thighs	+
12	48	Fever, lymphadenopathy.	{Blood {Nasal washings {Blood	IV IN IV	744 489 749							10	5th				
13	24	Fever, lymphadenopathy.	{Blood {Nasal washings {Blood	IV IN IV	745 649 763				5000	7	4	10	10th	10	2	Face, abdomen, thighs	-
14	6	Fever, leukopenia, lymphadenopathy, respiratory symptoms.	{Nasal washings {Blood {Nasal washings	IN IV IN	747 649 763	.5	11	7	2500 2000 3000	4 11 12	6 3 5	20 10 10	11th 13th 9th	8 17 14	4 1 1	Abdomen, thighs Abdomen, thighs Abdomen.	+ - -
15	6	Lymphadenopathy.	{Blood {Nasal washings {Blood	SC IN IV	768 796 796	.8 1.0	6 5	9	2500 2500 6500	8 13 5	9 4 6	15	6th	11	3	Abdomen	-
16	No rash 2d day of fever.	Fever, lymphadenopathy.	{Blood {Nasal washings {Blood	IV IN IV	796 696 764	.5	5	5	5000 5000 4000	8 11 5	8 10 11	10 12th 9th	10th	7		Abdomen	+
17	6	Fever, respiratory symptoms, lymphadenopathy.	{Blood {Nasal washings {Blood	IV IN IV	784				5000 4000	11 5	10 11	8 20	14th	7	8	Abdomen do	+
18	6	Fever, malaise.	{Blood {do. {do.	IV IN IP	778 777 852	.5	13	3	3000 2000 3000	11 11 4	8 7 4	5 10 10	10th 10th 4th	11	4	do	+
20	24	Lymphadenopathy.	{do. {do. {do.	IV IN IP	778 777 852	.5	10	4	3000 2000 3000	11 11 4	8 7 4	5 10 10	10th 10th 4th	11	4	do	+

Table 2 shows these passage strains and the results.

TABLE 2 (a).—*Monkey passage of rubella*

Case 4 Monkey 753 Monkey 746	Case 17 Monkey 764 Monkey 781 Monkey 774 Monkey 687 Monkey 776 Monkey 779 Monkey 795 Monkey 797	Case 14 Monkey 708 Monkey 767	Case 18 Monkey 777 Monkey 796
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TABLE 2(b).—*Monkey passage of rubella*

Passages	Material transferred	Time material obtained	Route of inoculation	Incubation period (days)	Fever	Leukopenia	Lymphocytosis	Rash
Case 4								
Monkey 753	Blood	12 hours rash	SC	12	+	+	+	+
Monkey 746	Nasal washings	5 days rash	IN		-	-	-	-
Case 17								
Monkey 764	Blood	6 hours rash	IV	7	-	+	+	+
Monkey 781	Blood	2 days rash, 2 days fever	IV	7	+	+	+	+
Monkey 774				8	-	+	+	-
Monkey 687	Blood	Lowest leukocyte count (11th day).	IV	8	+	+	+	-
	Blood	Highest temperature, lowest leukocyte count (11th day).	IV		+	+	+	-
Monkey 776				13(?)	+	-	-	-
Monkey 779				11	+	+	-	-
Monkey 795	Blood	3 days fever	IV	6	+	+	+	-
Monkey 797	Blood	4 days fever	IV		+	+	+	-
Case 14								
Monkey 703	Nasal washings	6 hours rash	IN	10	+	+	+	+
Monkey 767	Blood	1 day before rash	IV		-	+	+	-
Case 18								
Monkey 777	Blood	6 hours rash	IN	10	-	+	+	-
Monkey 796	Blood	3 days fever	IV		+	-	-	-

TEST OF IMMUNITY

Five monkeys that had developed rubella with a rash and two without a rash were retested after an interval of 4 to 11 weeks by reinoculation with either human rubella blood or monkey passage rubella blood. The test material for this second exposure was shown to contain virus by simultaneous inoculation of fresh monkeys which were positive.

Table 3 shows the results of both the original and second exposures and it is seen that only two were proven immune.

TABLE 3.—*Test of rubella immunity in monkeys*

Monkey	Source of virus	Date (1941)	Route of inoculation	Incubation period (days)	Fever	Leukopenia	Lymphocytosis	Rash
Monkey 649:								
1st inoculation.....	Case 14 blood.....	Apr. 19	IV	17	+	+	+	+
2d inoculation.....	Case 17 blood.....	May 6	IV	10	+	+	+	—
Monkey 703:								
1st inoculation.....	Case 14 washings.....	Apr. 16	IN	14	+	+	+	+
2d inoculation.....	Case 17 blood.....	May 6	IV	13	—	+	+	—
Monkey 747:								
1st inoculation.....	Case 13 washings.....	Mar. 22	IN	8	—	+	+	+
2d inoculation.....	Monkey 774 blood.....	May 27	IV	—	—	—	—	—
Monkey 749:								
1st inoculation.....	Case 13 blood.....	Mar. 24	IV	10	—	+	+	+
2d inoculation.....	Monkey 774 blood.....	May 27	IV	9	+	+	+	—
Monkey 766:								
1st inoculation.....	Case 15 washings.....	Apr. 15	IN	5	+	+	—	—
2d inoculation.....	Monkey 774 blood.....	May 27	IV	—	—	—	—	—
Monkey 767:								
1st inoculation.....	Monkey 703 blood.....	Apr. 25	IV	7	—	+	+	—
2d inoculation.....	Monkey 774 blood.....	May 27	IV	14	+	+	+	+
Monkey 768:								
1st inoculation.....	Case 15 blood.....	Apr. 20	SC	11	+	+	+	+
2d inoculation.....	Monkey 774 blood.....	May 27	IV	11	+	+	+	+

CROSS-IMMUNITY WITH RUBEOLA

Attempt to demonstrate lack of cross-immunity with rubeola was done in two ways, namely, injection of convalescent rubeola monkeys with rubella material and inoculation of rubeola virus into a previously rubella-positive monkey.

Monkeys 764, 766, and 768 had all developed a typical rubeola with a heavy rash following inoculation with either human or monkey passage virus. Monkey 764 received blood intravenously from case 17, monkey 766 nasal washings intranasally from case 15, and monkey 768 blood subcutaneously from case 15. Monkeys 764 and 768 both developed rubella with a rash, and 766 without a rash.

Monkey 606 had been inoculated with rubeola blood proven to contain active virus, but was insensitive. On subsequent exposure to rubella virus (nasal washings case 16) there was a rubella without a rash.

Monkey 755 developed a rubella with a rash after inoculation with chick embryo passage virus and was later exposed to rubeola by injection of monkey-passaged blood. The result was a typical rubeola with a heavy rash.

RUBEOLA IN MAN WITHOUT RASH

Case 16 was a 4-year-old boy in a physician's family. He was definitely exposed to rubella on April 9, 10, and 11, 1941. On April

28 he developed fever, malaise, and slight rhinitis, followed by posterior cervical lymphadenopathy. On May 2 he was bled and nasal washings were obtained in the belief that he was in the pre-eruptive stage of rubella. However, even with constant search, no sign of rash was subsequently noted.

Monkey 700 received 5 cc. of the oxalated blood intravenously and developed a marked leukopenia (drop of 6,500) on the fifth day, followed by an elevation of lymphocytes, but no fever or rash.

Monkey 606 was given the nasal washings intranasally and reacted with a fever, leukopenia and lymphocytosis on the eighth day.

G. H., the 22-month-old sister of case 16 was definitely exposed to case 16 at the time of his illness. One month later, on June 2, 1941, G. H. developed malaise, fever, posterior cervical lymphadenopathy, and a blood count at that time showed a leukopenia of 3,900 leucocytes per cu. mm. with 90 percent lymphocytes. No rash was noted and no specimens were obtained for monkey inoculation.

It is also interesting to note that another physician's 8-year-old son, who was definitely exposed to a case of rubella, developed a fever, malaise, posterior cervical adenopathy, but no rash, 18 days after the exposure.

CULTURE OF RUBELLA VIRUS ON CHORIO-ALLANTOIC MEMBRANE OF DEVELOPING CHICK EMBRYO

Eggs incubated 11 to 13 days were opened by the Burnet technique and 0.15 cc. of human rubella blood inoculated directly on the chorio-allantoic membrane. After 4 or 5 days' further incubation at 36° C., the membranes were removed and ground in a mortar with sterile sand and 3 cc. of broth added for each membrane. Next passage embryo membranes were inoculated with 0.15 cc. of the supernatant of this emulsion. Four strains were carried for 5 egg passages, then 5 cc. of the supernatant inoculated into monkeys.

Monkey 755 was inoculated subcutaneously with fifth egg passage material from case 4. The original human blood used to inoculate the chick membranes had been shown positive in monkey 753. Monkey 755 showed a leukopenia on the fifth day, continuing for 10 days, and developed a rash on the fourteenth day.

Blood from case 13 had been positive on inoculation of monkey 749 and after 5 egg passages was injected subcutaneously into monkey 780, with negative results.

Monkey 778 had reacted positively with a rash to inoculation with case 18 blood. The fifth egg passage of this blood, when given to monkey 856, intravenously, resulted in a fever, leukopenia, and lymphocytosis on the fourteenth day, but no detectable rash.

Blood from case 20, when inoculated intraperitoneally in monkey 852, had been positive without a rash. Monkey 858, after receiving the fifth egg passage material, intravenously, was negative.

No specific pathological lesions were found either grossly or histologically in the inoculated membranes or the embryo organs.

DISCUSSION

The important question concerning the experiments here reported is whether the symptom complex produced in the monkeys was really rubella.

The first point to consider is the accuracy of the diagnosis in the human cases supplying material for monkey inoculation. There was no question as to the clinical diagnosis in all cases except case 16, this being the only instance in which a typical rash did not appear. All cases had been exposed to rubella at the proper interval before the appearance of symptoms, and all had a definite history of previous rubeola. All but two individuals were past the age of 15 years.

Final proof of the specificity of the monkey reaction is lacking insofar as monkey-passage material was not inoculated back into susceptible human beings.

Further evidence of the specificity of the disease in monkeys would be the demonstration of immunity to reinfection after the monkey had once reacted. The results of these immunity tests at first seemed quite irregular. Two monkeys having rubella with a rash were retested 5 weeks later and were again positive, but without any rash. One monkey with a rash on the initial exposure again had infection with a rash 6 weeks later. Two monkeys were retested 7 weeks after the first response. One that had had no rash originally was negative and the other had a rash on both exposures. Two monkeys that had developed a rash when first exposed were retested 11 weeks later; one was negative, the other had rubella but no rash. Therefore, of seven attempts to demonstrate immunity only two were successful, one when retest was at an interval of 7 weeks and one at 11 weeks. Three having a rash on first exposure were positive without a rash on retest, and two developed a rash after both inoculations.

However, these results do not seem so contradictory in view of reports in the literature concerning so-called relapses of rubella in human cases. Humphrey and Eckermeyer (10) report an epidemic in a children's home involving 316 cases in which there were 19 relapses occurring from 12 to 43 days after the first attack. Geiger (11) reports 15 relapses in 173 cases in an area adjacent to an army cantonment, the relapses occurring 3 to 5 weeks after the first attack. In 5 cases he reports three attacks and notes that in one of these the third attack came at the proper incubation period after another ex-

posure. Although Humphrey and Eckermeyer call their cases relapses, actually they were being constantly reexposed in an institution following discharge from isolation with their first attack.

We feel that there is no doubt that those monkeys exhibiting a rash with concomitant leukopenia and fever after a proper incubation period were suffering from rubella. Demonstration of immunity to reinoculation after a sufficient lapse of time is further evidence of the specificity of this monkey reaction. On the other hand, it seems that there is more basis for question of the diagnosis of rubella in those monkeys developing fever, leukopenia, and lymphocytosis after the proper incubation period, but without any demonstrable rash. Fifteen of the total of 27 monkeys diagnosed as positive in these experiments were reactions of this type. Evidence of this being an actual infection is:

1. All 12 monkeys exhibiting rash had a leukopenia and lymphocytosis between the fourth and fourteenth days.
2. With several specimens of human rubella blood inoculated simultaneously into several monkeys, some developed the complete picture, including a rash, and others only the blood cell changes after a similar incubation period.
3. Normal monkeys inoculated with normal human and monkey blood did not show the same picture.
4. Monkeys inoculated intranasally with rubella nasal washings, as well as those receiving blood intravenously, or subcutaneously, reacted with this same type of "inapparent" infection.
5. Subsequent monkey passage from these monkeys having rubella without a rash also resulted in the production of the same type of reaction.
6. Evidence is presented in the literature showing that in man we may have an "inapparent" infection after either artificial or natural exposures.

Realizing the limitations discussed above as to the specificity of the disease produced in our monkeys, we may summarize our experiments as follows:

Macacus mulatta monkeys are susceptible to rubella and when inoculated with virus-containing material respond with a mild infection characterized by the development of a leukopenia after an incubation averaging 8 days, a fever and lymphocytosis about the tenth day, followed by a very light scattered macular rash on the face, chest, abdomen, and thighs starting about the eleventh day and followed by desquamation.

The monkeys appear equally susceptible to virus introduced intranasally, subcutaneously, intraperitoneally, and intravenously.

The development of rubella with rash seems to occur in a larger proportion of the monkeys receiving the original human material than on subsequent monkey-to-monkey passage.

Viable virus was demonstrated in the blood of all 5 patients bled within 12 hours after the onset of their rash. Two patients bled between 24 and 30 hours after they had first noticed their rash were

positive. One patient was bled on the third day of rash and the monkey remained negative.

Nasal washings obtained within 12 hours of the appearance of the rash were positive from all of three patients. One case supplied nasal washings at the end of 24 hours' rash and was positive. The monkey receiving washings taken on the third day of rash was negative.

Virus also seemed to be present in the blood of infected monkeys at the time of the appearance of the rash and early in the period of leukopenia and fever in those monkeys not exhibiting a rash.

Further evidence that rubella can occur in man without the presence of a rash is presented with the production of infection in monkeys from blood and nasal washings obtained during the fever and lymphadenopathy of such a human case. Two further human cases of "inapparent" infection are added to that reported by Flöystrup.

It is suggested that immunity following rubella may be slow in developing. It was planned to retest our positive monkeys after a longer interval but human material was no longer available and stored frozen virus has proven inactive.

Culture of the infective agent of rubella on the chorio-allantoic membrane of the developing chick embryo was successful in two of four attempts.

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INCIDENCE OF HOSPITALIZATION, JUNE 1942

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	June	
	1942	1941
1. Number of plans supplying data.....	65	37
2. Number of persons eligible for hospital care.....	8,659,649	4,999,308
3. Number of persons admitted for hospital care.....	86,363	48,516
4. Incidence per 1,000 persons, annual rate, during current month (daily rate x 365).....	121.2	118.0
5. Simple average of annual rates for the twelve months ended June 30.....	107.2	-----

DEATHS DURING WEEK ENDED JULY 18, 1942

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

	Week ended July 18, 1942	Correspond- ing week 1941
Data from 86 large cities of the United States:		
Total deaths.....	7,787	7,139
Average for 3 prior years.....	7,212	-----
Total deaths, first 28 weeks of year.....	238,071	241,497
Deaths per 1,000 population, first 28 weeks of year, annual rate.....	12.0	12.2
Deaths under 1 year of age.....	544	457
Average for 3 prior years.....	466	-----
Deaths under 1 year of age, first 28 weeks of year.....	15,420	14,328
Data from industrial insurance companies:		
Policies in force.....	64,948,767	64,382,355
Number of death claims.....	10,229	11,973
Death claims per 1,000 policies in force, annual rate.....	8.1	9.7
Death claims per 1,000 policies, first 28 weeks of year, annual rate.....	9.6	10.0

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 25, 1942

Summary

There was a sharp increase in the incidence of poliomyelitis during the week—a total of 124 cases was reported, as compared with 83 for the preceding week, 303 for the corresponding week last year, and a 5-year (1937–41) median of 139. The South Atlantic, South Central and East North Central States reported 98 cases, or approximately 80 percent of the current total. The States in these areas reporting the largest numbers of cases are as follows (last week's figures in parentheses): Kentucky 20 (17), Arkansas 15 (11), Illinois 12 (6), Tennessee 11 (5), and Michigan 7 (4). No other State reported more than 5 cases for the week.

The number of cases of meningococcus meningitis declined from 63 last week to 45 for the current week. The largest numbers of cases occurred in New York (9) and Virginia (7). Only one other State (Maryland, 4) reported more than 3 cases.

A total of 138 cases of endemic typhus fever was reported, as compared with 58 for the preceding week. Of the current total, 69 cases occurred in Texas and 27 in Georgia. Increasing numbers of cases of typhus are being reported weekly from the lower Gulf Coast area of Texas.

Only 3 cases of smallpox were reported, all in the North Central States. Of 298 cases of typhoid fever, 197, or 66 percent, occurred in the South Atlantic and South Central States.

Other diseases reported during the current week include 1 case of anthrax in New Jersey, 341 cases of bacillary dysentery (241 in Texas), 31 cases of amebic dysentery, 238 cases of unspecified dysentery (209 in Virginia), 12 cases of infectious encephalitis (all in the Middle Atlantic and North Central States), 33 cases of Rocky Mountain spotted fever (of which only 2 occurred in the Mountain and Pacific States), and 21 cases of tularemia.

The death rate for the current week in 88 large cities in the United States is 11.8 (annual basis) per 1,000 population, as compared with 11.0 for the preceding week and with a 3-year (1939–41) average of 11.0 for the corresponding week. The current rise in the death rate corresponds to a similar rise about the same time last year and is probably attributable, in part at least, to prevailing excessive temperatures.

Telegraphic morbidity reports from State health officers for the week ended July 26, 1942, and comparison with corresponding week of 1941 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 1937-41	Week ended—		Median 1937-41	Week ended—		Median 1937-41	Week ended—		Median 1937-41
	July 25, 1942	July 26, 1941		July 25, 1942	July 26, 1941		July 25, 1942	July 26, 1941		July 25, 1942	July 26, 1941	
NEW ENG.												
Maine.....	0	0	1	-----	-----	-----	26	29	25	2	0	0
New Hampshire.....	0	0	0	-----	-----	-----	0	3	3	0	0	0
Vermont.....	0	0	0	-----	-----	-----	57	32	23	1	0	0
Massachusetts.....	2	2	2	-----	-----	-----	185	178	178	2	2	1
Rhode Island.....	0	3	0	-----	-----	-----	38	10	19	0	0	0
Connecticut.....	0	0	1	1	-----	1	83	72	17	0	0	0
MID. ATL.												
New York.....	4	7	10	14	14	14	184	355	491	9	5	5
New Jersey.....	2	0	3	2	2	2	122	183	183	0	0	0
Pennsylvania.....	9	2	10	-----	-----	-----	98	364	275	3	1	2
E. NO. CEN.												
Ohio.....	2	5	6	8	1	2	73	195	58	0	1	0
Indiana.....	4	2	2	-----	8	8	14	27	16	1	0	1
Illinois.....	9	17	18	4	-----	6	44	77	77	1	0	1
Michigan.....	2	1	5	1	-----	-----	105	133	133	0	0	1
Wisconsin.....	3	0	2	12	6	6	280	280	280	0	3	0
W. NO. CEN.												
Minnesota.....	1	0	0	2	2	1	40	10	13	0	0	0
Iowa.....	0	1	1	-----	1	-----	57	34	34	1	0	0
Missouri.....	2	2	5	1	2	1	8	32	8	0	0	0
North Dakota.....	4	3	3	2	-----	-----	10	14	3	0	0	0
South Dakota.....	1	1	0	-----	-----	-----	10	2	2	0	0	0
Nebraska.....	1	1	1	4	-----	-----	6	11	8	1	0	0
Kansas.....	2	4	2	1	2	3	23	28	21	0	1	1
SO. ATL.												
Delaware.....	0	0	0	-----	-----	-----	1	2	2	0	0	0
Maryland.....	6	1	1	1	1	1	15	147	13	4	2	2
Dist. of Col.....	0	0	2	-----	-----	-----	8	14	14	0	0	0
Virginia.....	11	6	8	24	52	20	13	142	54	7	1	1
West Virginia.....	1	2	2	-----	6	9	5	24	11	0	1	1
North Carolina.....	1	7	11	-----	-----	-----	19	18	32	0	0	1
South Carolina.....	0	1	3	92	92	87	16	76	13	0	2	1
Georgia.....	1	4	8	8	11	11	7	36	4	2	0	1
Florida.....	3	6	4	4	16	1	11	17	7	0	0	0
E. SO. CEN.												
Kentucky.....	1	3	2	-----	-----	-----	3	45	45	1	1	1
Tennessee.....	3	1	2	8	16	14	27	48	33	0	0	1
Alabama.....	4	5	7	11	3	7	9	32	26	3	3	3
Mississippi.....	8	3	7	-----	-----	-----	-----	-----	-----	0	0	0
W. SO. CEN.												
Arkansas.....	3	0	3	5	5	10	31	27	8	0	0	0
Louisiana.....	1	2	7	1	-----	6	8	0	3	0	1	1
Oklahoma.....	2	2	2	4	7	7	6	20	9	0	0	0
Texas.....	27	27	23	79	345	74	94	101	90	3	1	1
MOUNTAIN												
Montana.....	0	0	0	9	-----	-----	25	3	11	0	0	0
Idaho.....	0	0	0	-----	-----	-----	34	2	4	0	0	0
Wyoming.....	0	2	0	15	5	-----	13	2	4	0	1	0
Colorado.....	2	13	10	13	14	2	39	30	20	1	0	0
New Mexico.....	1	0	0	2	1	-----	0	31	16	0	0	0
Arizona.....	5	3	1	1	23	13	7	69	36	0	0	0
Utah.....	0	0	0	-----	1	-----	102	6	31	0	0	0
Nevada.....	0	0	-----	-----	-----	-----	9	2	-----	0	0	-----
PACIFIC												
Washington.....	1	1	1	-----	1	-----	177	5	11	0	0	0
Oregon.....	1	1	2	5	1	6	47	18	18	1	0	0
California.....	7	4	18	3	179	11	550	333	277	2	2	2
Total.....	137	145	213	327	807	318	2,739	3,319	2,999	45	28	34
29 weeks.....	6,756	6,818	10,879	79,322	487,389	158,339	461,421	817,274	344,403	2,188	1,299	1,299

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended July 25, 1942, and comparison with corresponding week of 1941 and 5-year median—Continued.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended—		Median 1937-41	Week ended—		Median 1937-41	Week ended—		Median 1937-41	Week ended—		Median 1937-41
	July 25, 1942	July 26, 1941		July 25, 1942	July 26, 1941		July 25, 1942	July 26, 1941		July 25, 1942	July 26, 1941	
NEW ENG.												
Maine.....	1	0	0	1	4	4	0	0	0	0	2	2
New Hampshire.....	0	0	0	0	2	1	0	0	0	0	1	0
Vermont.....	2	0	0	0	0	0	0	0	0	1	3	1
Massachusetts.....	3	2	1	64	49	38	0	0	0	1	1	2
Rhode Island.....	0	0	0	0	3	3	0	0	0	0	0	0
Connecticut.....	0	2	1	4	7	7	0	0	0	0	1	1
MID. ATL.												
New York.....	2	11	7	74	70	75	0	0	0	9	12	10
New Jersey.....	4	2	1	16	25	24	0	0	0	2	3	5
Pennsylvania.....	3	8	1	42	38	77	0	0	0	10	10	15
E. NO. CEN.												
Ohio.....	1	11	7	79	49	39	0	1	1	13	4	6
Indiana.....	4	8	7	5	15	17	0	0	4	2	2	6
Illinois.....	12	4	4	43	55	87	0	0	4	3	15	15
Michigan.....	7	7	7	39	53	76	1	0	1	1	2	2
Wisconsin.....	0	0	0	34	33	36	1	0	1	0	0	0
W. NO. CEN.												
Minnesota.....	0	5	1	42	12	19	0	0	6	1	0	1
Iowa.....	1	3	2	7	14	13	0	0	8	0	2	3
Missouri.....	2	0	0	15	55	18	0	0	0	2	5	21
North Dakota.....	1	0	0	2	1	1	0	0	4	0	0	0
South Dakota.....	0	0	0	11	1	2	0	0	1	1	0	0
Nebraska.....	0	2	1	1	6	3	1	0	0	1	1	0
Kansas.....	2	0	0	10	20	18	0	1	1	5	2	5
SO. ATL.												
Delaware.....	0	0	0	3	4	2	0	0	0	0	0	0
Maryland.....	0	3	0	13	9	8	0	0	0	3	0	6
Dist. of Col.....	0	1	0	7	3	3	0	0	0	0	0	2
Virginia.....	3	3	2	4	10	11	0	0	0	10	8	16
West Virginia.....	2	1	1	21	12	11	0	0	0	14	1	11
North Carolina.....	2	5	3	10	3	8	0	0	0	12	7	25
South Carolina.....	3	5	1	1	3	3	0	1	0	5	12	12
Georgia.....	4	79	3	7	3	7	0	0	0	26	13	38
Florida.....	1	16	1	0	3	3	0	0	0	1	13	5
E. SO. CEN.												
Kentucky.....	20	11	1	20	20	13	0	0	0	17	8	30
Tennessee.....	11	24	2	14	17	12	0	0	0	23	21	28
Alabama.....	3	58	1	5	10	8	0	0	0	8	9	9
Mississippi.....	5	10	3	8	1	6	0	0	0	5	7	11
W. SO. CEN.												
Arkansas.....	15	2	1	1	1	1	0	0	0	19	14	26
Louisiana.....	3	2	3	3	7	5	0	0	0	14	14	33
Oklahoma.....	0	1	1	9	6	12	0	0	0	12	9	24
Texas.....	2	4	7	17	14	15	0	0	0	28	42	52
MOUNTAIN												
Montana.....	0	1	1	2	10	5	0	0	0	2	0	0
Idaho.....	0	0	0	4	4	3	0	0	0	1	0	0
Wyoming.....	0	1	1	0	1	1	0	0	0	0	0	1
Colorado.....	0	0	0	9	4	12	0	1	1	3	5	5
New Mexico.....	1	1	1	1	0	5	0	0	0	32	3	3
Arizona.....	0	0	0	1	1	2	0	1	1	1	1	2
Utah.....	0	1	0	4	1	7	0	0	0	3	9	1
Nevada.....	0	0	---	0	0	---	0	0	---	1	0	---
PACIFIC												
Washington.....	0	0	0	4	8	10	0	0	0	3	1	2
Oregon.....	3	0	0	1	4	4	0	0	2	0	1	2
California.....	1	9	18	34	35	57	0	0	0	3	8	8
Total.....	124	303	139	692	706	814	3	5	46	298	272	464
29 weeks.....	875	1,489	1,163	86,642	87,381	113,489	596	1,127	7,693	3,144	3,473	5,065

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended July 25, 1942, and comparison with corresponding week of 1941—Continued

Division and State	Whooping cough		Week ended July 25, 1942								
	Week ended—		Anthrax	Dysentery			Encephalitis, infectious	Leprosy	Rocky Mt. spotted fever	Typhus fever	
	July 25, 1942	July 26, 1941		Amebic	Bacillary	Unspecified					
NEW ENG.											
Maine	22	30	0	0	0	0	0	0	0	0	0
New Hampshire	4	7	0	0	0	0	0	0	0	0	0
Vermont	50	1	0	0	0	0	0	0	0	0	0
Massachusetts	141	131	0	0	0	0	0	0	0	0	0
Rhode Island	22	44	0	0	0	0	0	0	0	0	0
Connecticut	67	57	0	0	1	0	0	0	0	0	0
MID. ATL.											
New York	341	279	0	5	5	0	5	0	0	0	1
New Jersey	254	115	1	3	0	0	0	0	1	0	0
Pennsylvania	274	322	0	0	0	0	1	0	0	0	0
E. NO. CEN.											
Ohio	183	326	0	0	0	0	0	0	2	0	0
Indiana	49	27	0	0	0	0	0	0	2	0	0
Illinois	415	146	0	4	26	0	2	0	1	0	0
Michigan ²	170	234	0	0	4	0	1	0	0	0	0
Wisconsin	243	186	0	0	0	0	0	0	0	0	0
W. NO. CEN.											
Minnesota	39	40	0	0	0	0	0	0	0	1	0
Iowa	30	25	0	0	0	0	2	0	4	0	0
Missouri	38	22	0	0	0	1	0	0	3	1	0
North Dakota	4	17	0	0	0	0	1	0	0	0	0
South Dakota	0	11	0	0	0	0	0	0	0	0	0
Nebraska	8	19	0	0	0	0	0	0	0	0	0
Kansas	47	117	0	1	1	0	0	0	0	0	0
SO. ATL.											
Delaware	2	1	0	0	0	0	0	0	0	0	0
Maryland ²	46	76	0	0	0	5	0	0	6	0	0
Dist. of Col.	21	12	0	0	0	0	0	0	0	0	0
Virginia	46	46	0	0	0	209	0	0	7	0	0
West Virginia	20	13	0	0	0	0	0	0	0	0	0
North Carolina	146	184	0	0	0	0	0	0	2	0	3
South Carolina	49	100	0	0	0	0	0	0	0	1	4
Georgia	28	44	0	5	5	0	0	0	0	1	27
Florida	19	28	0	1	2	0	0	0	0	1	11
E. SO. CEN.											
Kentucky	84	72	0	0	5	0	0	0	1	1	0
Tennessee	34	76	0	1	0	14	0	0	2	1	0
Alabama	27	26	0	0	0	0	0	0	0	0	14
Mississippi ²			0	0	0	0	0	0	0	0	1
W. SO. CEN.											
Arkansas	32	4	0	2	27	0	0	0	0	3	0
Louisiana	11	4	0	0	19	0	0	0	0	0	6
Oklahoma	4	18	0	0	0	0	0	0	0	0	0
Texas	164	232	0	7	241	0	0	0	0	1	69
MOUNTAIN											
Montana	27	6	0	0	0	0	0	0	0	2	0
Idaho	6	10	0	0	0	0	0	0	0	0	0
Wyoming	6	14	0	0	0	0	0	0	1	3	0
Colorado	15	113	0	0	0	0	0	0	0	0	0
New Mexico	13	19	0	0	2	0	0	0	0	0	0
Arizona	3	25	0	0	0	9	0	0	0	0	0
Utah ²	19	82	0	0	0	0	0	0	0	3	0
Nevada	4	1	0	0	0	0	0	0	0	0	0
PACIFIC											
Washington	49	84	0	0	0	0	0	0	0	0	0
Oregon	17	34	0	0	0	0	0	0	1	0	0
California	146	435	0	2	3	0	0	0	0	2	2
Total	3,439	3,915	1	31	341	238	12	0	33	21	138
29 weeks	109,174	132,317									

¹ New York City only.² Period ended earlier than Saturday.

PLAGUE INFECTION IN CALIFORNIA AND OREGON

Plague infection has been reported in specimens collected in California and Oregon as follows:

CALIFORNIA

Kern County: May 6, in a pool of 268 fleas from burrows of *C. beecheyi* ground squirrels on the El Tejon Ranch, 1 mile east of Lebec, Castac Lake area.

Lassen County: June 25 and 27, in tissue from 3 ground squirrels, *C. oregonus*, taken from Willow Creek Ranch, 7 miles north and 4½ miles east of Susanville.

Monterey County: June 18, in a pool of 151 fleas from 18 ground squirrels, *C. beecheyi*, taken from Fort Ord Military Reservation 12 miles southwest of Salinas; June 19, in a pool of 9 fleas from burrows of ground squirrels, *C. beecheyi*, in the same locality; July 2, in a pool of 80 fleas and 2 ticks from 39 pack rats, *Neotoma fuscipes*, taken on the Hunter Liggett Military Reservation, Coyote Road.

San Bernardino County: April 15, in a pool of 8 fleas from 5 "fuzz tail" ground squirrels, *C. leucurus* (?), taken from the Klinefelter Springs area, 7 miles west and 3 miles north of Needles.

San Luis Obispo County: In pools of fleas from ground squirrels, *C. beecheyi*, collected as follows: June 2, 143 fleas from 4 squirrels taken 12 miles east and 13 miles south of Arroyo Grande and 147 fleas from 14 squirrels taken 12 miles east and 5 miles south of Arroyo Grande; May 21 to June 12, 725 fleas from 64 squirrels taken on the Newhall Land and Farming Co. property, 2½ miles north and 8 miles east of Santa Maria; June 4, 77 fleas from 14 squirrels taken 12 miles east and 6 miles south of Arroyo Grande.

San Mateo County: June 9, in a pool of 7 fleas from 1 ground squirrel, *C. beecheyi*, taken from Skyland Boulevard, Alpine district; June 11, in a pool of 63 lice from 1 ground squirrel, same species, taken ½ mile east of Atherton.

Santa Barbara County: June 4, in a pool of 6 fleas from 1 ground squirrel, *C. beecheyi*, taken on the Newhall Land and Farming Co. property, 12 miles east and 2 miles north of Santa Maria, and a pool of 87 fleas from 6 ground squirrels of the same species taken in the same locality.

Santa Clara County: April 7, in a pool of 200 fleas from 46 ground squirrels, *C. beecheyi*, taken ½ mile north of Calero Dam; April 10, in a pool of 185 fleas from 14 ground squirrels, same species, taken in the same locality.

Ventura County: June 22, in a pool of 331 lice from 20 ground squirrels, *C. beecheyi*, taken from Padre Juan Canyon, 5 miles west and 1 mile north of Ventura; June 24, in a pool of 40 ticks from 3 cottontail rabbits, *Sylvilagus*, sp., taken 2 miles north of Somis and in a pool of 50 ticks from 2 rabbits, same species, taken 4 miles east of Somis.

OREGON

Malheur County: June 9, in a pool of 2 ticks from 1 badger, *Taxidea taxus neglecta*, taken 48 miles southwest of Jordan Valley on Highway No. 95.

WEEKLY REPORTS FROM CITIES

City reports for week ended July 11, 1942

This table lists the reports from 90 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	Etiophallitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Polymyositis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Atlanta, Ga.	0	0	1	0	1	0	2	0	0	0	0	1
Baltimore, Md.	0	0	1	0	16	3	11	0	14	0	1	35
Barre, Vt.	0	0	0	0	5	0	0	0	0	0	0	20
Billings, Mont.	1	0	0	0	14	0	4	0	0	0	0	7
Birmingham, Ala.	0	0	2	0	1	0	3	1	1	0	0	8
Boise, Idaho	0	0	0	0	5	0	0	0	0	0	0	0
Boston, Mass.	0	0	0	0	103	3	3	0	23	0	0	48
Bridgeport, Conn.	0	0	0	0	3	0	0	0	0	0	0	1
Brunswick, Ga.	0	0	0	0	0	0	0	0	0	0	0	0
Buffalo, N. Y.	0	0	0	0	8	0	5	0	2	0	0	10
Camden, N. J.	1	0	0	0	0	0	0	0	2	0	0	1
Charleston, S. C.	0	1	0	0	2	0	0	0	0	0	0	0
Charleston, W. Va.	0	0	0	0	0	0	0	0	0	0	0	0
Chicago, Ill.	9	0	1	1	17	0	16	3	28	0	1	175
Cincinnati, Ohio	0	0	0	0	0	0	0	0	12	0	0	9
Cleveland, Ohio	0	0	0	0	5	0	2	0	15	0	0	41
Columbus, Ohio	0	0	0	0	9	0	1	0	1	0	0	20
Concord, N. H.	0	0	0	0	1	0	0	0	0	0	0	2
Cumberland, Md.	0	0	0	0	0	0	0	0	0	0	0	0
Dallas, Tex.	0	0	0	0	0	0	0	0	1	0	1	10
Denver, Colo.	2	0	5	0	20	0	3	0	1	0	0	8
Detroit, Mich.	2	0	1	0	17	1	6	0	21	0	0	97
Duluth, Minn.	0	0	0	0	3	0	3	0	1	0	0	4
Fall River, Mass.	8	0	0	0	6	0	2	0	5	0	0	3
Fargo, N. Dak.	0	0	0	0	1	0	1	0	0	0	0	1
Flint, Mich.	0	0	0	0	0	0	3	0	1	0	1	5
Fort Wayne, Ind.	0	0	0	0	0	0	1	0	0	0	2	5
Frederick, Md.	0	0	0	0	0	0	0	0	0	0	0	0
Galveston, Tex.	0	0	0	0	0	0	0	0	0	0	0	8
Grand Rapids, Mich.	0	0	0	0	3	0	0	0	1	0	0	13
Great Falls, Mont.	0	0	0	0	2	0	1	0	0	0	0	1
Hartford, Conn.	0	0	0	0	25	0	1	0	2	0	0	14
Helena, Mont.	0	0	0	0	1	0	0	0	0	0	0	0
Houston, Tex.	1	0	0	0	3	0	4	0	0	0	0	1
Indianapolis, Ind.	0	0	0	0	15	0	0	2	0	0	0	16
Kansas City, Mo.	0	0	0	0	7	0	8	0	6	0	0	2
Kenosha, Wis.	0	0	0	0	4	0	0	0	1	0	0	4
Little Rock, Ark.	0	0	0	0	0	0	5	0	1	0	0	2
Los Angeles, Calif.	4	0	3	2	59	1	10	1	6	0	0	10
Lynchburg, Va.	0	0	0	0	0	0	1	0	0	0	0	15
Memphis, Tenn.	0	0	0	0	3	0	4	0	2	0	1	25
Milwaukee, Wis.	0	0	0	0	213	0	3	0	12	0	0	30
Minneapolis, Minn.	4	1	0	0	22	0	6	0	7	0	1	9
Missoula, Mont.	0	0	0	0	0	0	0	0	0	0	0	0
Mobile, Ala.	0	0	1	0	0	0	0	0	1	0	0	4
Nashville, Tenn.	0	0	0	0	0	0	1	0	1	0	0	4
Newark, N. J.	0	0	1	0	42	1	0	1	5	0	0	58
New Haven, Conn.	1	0	0	0	11	0	2	0	3	0	0	3
New Orleans, La.	1	0	0	0	6	1	7	1	2	0	1	3
New York, N. Y.	5	1	1	1	27	8	37	2	46	0	2	144
Omaha, Nebr.	0	0	0	0	5	0	0	0	4	0	0	4
Philadelphia, Pa.	0	0	0	0	21	1	13	0	28	0	1	75
Pittsburgh, Pa.	0	0	0	0	4	0	12	1	5	0	2	21
Portland, Maine	0	0	0	0	25	4	0	0	0	0	0	5
Providence, R. I.	0	0	0	0	49	0	1	0	1	0	0	23
Pueblo, Colo.	0	0	0	0	0	0	0	0	0	0	0	3
Racine, Wis.	0	0	0	0	20	0	0	0	1	0	0	10
Raleigh, N. C.	0	0	0	0	0	0	0	0	0	0	0	6
Reading, Pa.	0	0	0	0	1	0	0	0	0	0	0	17
Richmond, Va.	0	0	0	0	6	0	2	0	0	0	0	4

City reports for week ended July 11, 1942—Continued

	Diphtheria cases	Erysipelas, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Polymyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Roanoke, Va.	0	0	—	0	0	0	0	0	0	0	0	0
Rochester, N. Y.	0	0	—	0	4	1	0	3	0	0	0	6
Sacramento, Calif.	3	0	—	0	11	0	3	0	1	0	0	10
Saint Joseph, Mo.	0	0	—	0	0	0	0	0	0	0	0	0
Saint Louis, Mo.	0	0	1	0	5	1	4	2	2	0	1	8
Saint Paul, Minn.	0	0	—	0	15	0	2	0	2	0	2	17
Salt Lake City, Utah	0	0	—	0	22	0	2	0	1	0	0	10
San Antonio, Tex.	0	0	—	0	2	0	3	0	3	0	0	3
San Francisco, Calif.	0	0	1	0	133	0	5	0	6	0	0	9
Savannah, Ga.	0	0	—	0	0	0	0	0	0	0	0	6
Seattle, Wash.	1	0	—	0	128	0	3	0	0	0	0	5
Shreveport, La.	2	0	—	0	0	3	3	2	0	0	3	0
South Bend, Ind.	0	0	—	0	1	0	0	0	2	0	0	7
Spokane, Wash.	0	0	—	0	52	0	0	0	3	0	0	3
Springfield, Ill.	0	0	—	0	0	0	1	0	1	0	0	0
Springfield, Mass.	0	0	—	0	13	0	2	0	3	0	0	2
Superior, Wis.	0	0	—	0	6	0	0	0	0	0	0	1
Syracuse, N. Y.	0	0	—	0	146	0	1	0	0	0	0	31
Tacoma, Wash.	0	0	—	0	22	0	0	0	0	0	0	4
Tampa, Fla.	0	0	—	0	2	0	3	0	0	0	0	1
Terre Haute, Ind.	0	0	—	0	0	0	2	0	0	0	0	0
Topeka, Kans.	0	0	—	0	3	0	0	0	2	0	0	11
Trenton, N. J.	0	0	—	0	1	0	4	0	0	0	0	0
Washington, D. C.	2	0	—	0	11	0	11	0	11	0	0	22
Wheeling, W. Va.	0	0	—	0	2	0	0	0	0	0	0	3
Wichita, Kans.	0	0	—	0	15	0	2	0	1	0	0	3
Wilmington, Del.	0	0	—	0	1	1	1	0	1	0	1	2
Wilmington, N. C.	0	0	—	0	0	0	1	0	0	0	0	10
Winston-Salem, N. C.	0	0	—	0	0	0	0	0	0	0	0	3
Worcester, Mass.	0	0	—	0	2	1	3	0	4	0	1	87

Anthrax.—Cases: Wilmington, Del., 1.

Dysentery, amebic.—Cases: Newark, 1; New York, 1.

Dysentery, bacillary.—Cases: Detroit, 4; Los Angeles, 3; Nashville, 3; New York, 2; Philadelphia, 1; Richmond, 15.

Tularemia.—Cases: Minneapolis, 1.

Typhus fever.—Cases: Charleston, S. C., 2; New Orleans, 2; Savannah, 2.

Rates (annual basis) per 100,000 population, for the group of 90 cities in the preceding table (estimated population, 1942, 34,134,198)

Period	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
		Cases	Deaths						
Week ended July 11, 1942...	7.18	2.90	0.61	215.08	36.81	47.20	0.00	3.36	200.27
Average for week 1937-41....	11.12	4.01	1.70	228.03	40.60	72.41	.62	6.02	203.94

¹ Median.

TERRITORIES AND POSSESSIONS

Puerto Rico

Poliomyelitis.—According to information dated July 27, 1942, 26 cases of poliomyelitis have been reported in Puerto Rico for the period June 22 to July 23, 1942, with 11 cases reported in the San Juan area. Three adults have been affected over the entire island.

FOREIGN REPORTS

CANADA

Provinces—Communicable diseases—Week ended June 27, 1942.—During the week ended June 27, 1942, 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
Cerebrospinal meningitis.	2	1	2	—	5	—	2	—	3	15
Chickenpox.	—	2	21	102	270	18	84	11	77	585
Diphtheria.	—	1	2	21	3	2	8	1	—	38
Dysentery.	—	—	—	6	—	—	—	—	—	6
Encephalomyelitis.	—	—	—	—	—	—	1	—	—	1
German measles.	—	—	—	—	23	—	3	8	9	43
Influenza.	—	3	—	—	2	—	2	—	3	10
Lethargic encephalitis.	—	—	—	—	—	—	2	—	—	2
Measles.	—	10	1	160	193	50	19	1	18	452
Mumps.	1	25	—	65	286	18	97	27	275	794
Pneumonia.	—	2	—	—	7	—	—	—	3	12
Polomyelitis.	—	—	—	—	1	—	—	—	—	1
Scarlet fever.	—	14	13	44	130	12	29	51	27	320
Trachoma.	—	—	—	—	—	—	—	—	1	1
Tuberculosis.	2	8	13	59	53	—	23	3	—	161
Typhoid and paratyphoid fever.	—	—	1	6	1	—	—	—	—	8
Undulant fever.	—	—	—	1	3	—	—	—	1	5
Whooping cough.	—	4	36	178	60	3	1	—	64	346
Other communicable diseases.	—	6	—	3	215	3	1	1	3	232

COSTA RICA

Communicable diseases—May 1942.—During the month of May 1942, certain communicable diseases were reported in Costa Rica as follows:

Disease	Cases	Deaths
Diphtheria.	24	—
Measles.	453	4
Typhoid and paratyphoid fever.	13	1
Whooping cough.	50	—

CUBA

Habana—Communicable diseases—4 weeks ended June 28, 1942.—During the 4 weeks ended June 28, 1942, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria.	13	—	Scarlet fever.	1	—
Malaria.	7	—	Tuberculosis.	7	1
Measles.	22	1	Typhoid fever.	39	11
Polomyelitis.	10	—			

FINLAND

Communicable diseases—April 1942.—During the month of April 1942, cases of certain communicable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Diphtheria.....	112	Pollomyelitis.....	1
Dysentery.....	6	Scarlet fever.....	482
Influenza.....	1,230	Typhoid fever.....	116
Paratyphoid fever.....	171		

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.

Place	Janu- ary- April 1942	May 1942	June 1942—week ended—			
			6	13	20	27
ASIA						
Ceylon.....	C	61	11	3		
India.....	C	23,420	4,661			
Calcutta.....	C	346	344	57	75	
Chittagong.....	C	36	15		4	
Rangoon.....	C	1				
India (French).....	C	10				

PLAGUE

[C indicates cases; P, present]

AFRICA						
Basutoland.....	C	10				
Belgian Congo.....	C		2			
British East Africa:						
Kenya.....	C	363				
Nairobi.....	C	62				
Uganda.....	C	178				
Egypt: Port Said.....	C				1	
Madagascar.....	C	78	6			
Morocco.....	C	139	93	20	25	
Union of South Africa.....	C	50	5			
ASIA						
China ¹						
India.....	C	385				
Indochina (French).....	C	67	3			
Palestine: Haifa.....	C	4				
SOUTH AMERICA						
Argentina: Cordoba Province.....	C	7				
Brazil:						
Alagoas State.....	C	3				
Pernambuco State.....	C	6				
Chile: Valparaiso.....	C	1				
Peru:						
Ancash Department.....	C	6				
Lambayeque Department.....	C	3				
Libertad Department.....	C	6				
Salaverry—Plague infected rats.....	P					
Lima Department.....	C	36	13			
Lima.....	C		12			
Piura Department.....	C	13	1			
OCEANIA						
Hawaii Territory: Plague-infected rats.....		17	2	1	2	

¹ Plague has been reported in China as follows: Chekiang Province, Apr. 1-10, 1942, 4 cases; Fukien Province, Jan. 1-Apr. 5, 1942, plague appeared in 11 localities; Hunan Province, week ended Apr. 18, 1942, 2 cases; Suiyuan Province, pneumonic plague appeared in epidemic form during the period Jan. 1-Apr. 4, in the northwestern area.

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

SMALLPOX

[C indicates cases]

Place		Janu- ary- April 1942	May 1942	June 1942—week ended—			
				6	13	20	27
AFRICA							
Algeria.....	C	394	56				
Belgian Congo.....	C	249					
British East Africa: Tanganyika.....	C	11					
Dahomey.....	C	52	1				
French Guinea.....	C	67	1		2	5	
Gold Coast.....	C	1,075					
Ivory Coast.....	C	50					
Morocco.....	C	1,050	101	15	27		
Nigeria.....	C	872	344	26	14	9	
Niger Territory.....	C	437	29		17	26	
Senegal.....	C	9	5				
Sudan (French).....	C	4	28		18	94	
Tunisia.....	C	1					
Union of South Africa.....	C	556	4	7			
Zanzibar.....	C	12					
ASIA							
Ceylon.....	C	4	2	1			
China.....	C	7	1				
India.....	C	12,652	3,237				
Indochina (French).....	C	1,907	494		87		
Iran.....	C	28					
Iraq.....	C	180	23				
Trans-Jordan.....	C	2					
EUROPE							
France:							
Seine Department.....	C	41	3				
Unoccupied zone.....	C	13					
Great Britain:							
England and Wales. ¹							
Scotland. ²	C			1	12		
Portugal.....	C	27	8	1			
Spain.....	C	122	33	8			
NORTH AMERICA							
Canada.....	C	2					
Mexico.....	C	24					
SOUTH AMERICA							
Brazil.....	C			1			
British Guiana.....	C	1					
Colombia.....	C	197					
Venezuela (alastrim).....	C	84	4				

¹ Imported.

² Smallpox was also reported in Great Britain as follows: Week ended July 4, 1942, 3 cases in Swindon, South, Central England. Information dated July 2, 1942, states that a total of 26 cases of smallpox with 3 deaths has occurred in Glasgow, and 1 case in Ardrossan, Ayrshire, Scotland.

TYPHUS FEVER

[C indicates cases; P, present]

AFRICA						
Algeria.....	C	23,328	5,975			
Basutoland.....	C	15				
British East Africa: Kenya.....	C	4				
Egypt.....	C	12,633	4,270	662	639	
Ivory Coast.....	C	4				
Morocco.....	C	14,962	5,070	854	832	820
Niger Territory.....	C	1				
Senegal.....	C		13			
Sierra Leone.....	C	5	2			
Tunisia.....	C	10,100	2,844	725		
Union of South Africa.....	C	472	35			
ASIA						
China.....	C	52				
India.....	C	6				
Iran.....	C	260	60			
Iraq.....	C	15	51	8		
Palestine.....	C	19	3			
Syria.....	C	22				
Trans-Jordan.....	C	5				

¹ Suspected.

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

TYPHUS FEVER—Continued

[C indicates cases; P, present]

Place		Janu- ary- April 1942	May 1942	June 1942—week ended—			
				6	13	20	27
EUROPE							
Bulgaria.....	C	495	157		7	10	
Czechoslovakia.....	C	5					
France:							
Seine Department.....	C	1					
Unoccupied zone.....	C	216	10				
Germany.....	C	85					
Hungary.....	C	501	86	29	22		
Irish Free State.....	C	3	5	1			
Portugal.....	C	1					
Rumania.....	C	2,502	575	72	78	52	22
Spain.....	C	3,614	196	13			
Canary Islands.....	C	1					
Turkey.....	C	P	P	P	27	10	8
Union of Soviet Socialist Republics.....	C	67					
NORTH AMERICA							
Guatemala.....	C	44	50				
Jamaica.....	C	15	8				
Mexico.....	C	253	1				
Panama Canal Zone.....	C	1					
Puerto Rico.....	C	3					
SOUTH AMERICA							
Chile.....	C	23	13				
Ecuador.....	C	14					
Venezuela.....	C	7					
OCEANIA							
Australia.....	C	13	5				
Hawaii Territory.....	C	21	3		1		

YELLOW FEVER

[C indicates cases; D, deaths]

AFRICA						
Belgian Congo: Libenge.....	D	1				
British East Africa: Kenya.....	C		1			
French West Africa.....	C	1				
Gold Coast.....	C	1		1		
Ivory Coast.....	C	1	1			
Senegal. ¹						
Sierra Leone: Free'own.....	C	2				
Sudan (French).....	D	1				
Togo: Hohoe.....	C	1				
SOUTH AMERICA²						
Brazil: Acre Territory.....	D	4				
Colombia:						
Boyaca Department.....	D	2				
Intendencia of Meta.....	D	1				
Santander Department.....	D	1	1			

¹ Suspected.² According to information dated Feb. 9, 1942, 15 deaths from yellow fever among Europeans have occurred in Senegal.

All yellow fever in South America is of the jungle type unless otherwise specified

COURT DECISION ON PUBLIC HEALTH

Garbage-collection—granting of exclusive right by city upheld.—(Washington Supreme Court; *City Sanitary Service Co. v. Rausch et ux.*, 117 P.2d 225; decided September 22, 1941.) The city of Wenatchee passed a garbage ordinance and a few days later entered into a contract with the plaintiff corporation wherein the city granted to the plaintiff the exclusive right to collect garbage within the city for a period of nearly 10 years. The ordinance contained a provision making it unlawful for any person, firm, or corporation to haul or carry garbage on any public street except on those authorized by the city. After the ordinance was passed and the contract executed the defendants continued to collect garbage in the city as they had done prior thereto, and the plaintiff company brought an action to restrain them from so doing. The Supreme Court of Washington affirmed the decree of the lower court permanently enjoining the defendants from doing the thing of which the plaintiff complained.

Among other things, the supreme court held (a) that the ordinance did not grant a franchise, (b) that the city had the right, in the interest of the public health and welfare, to provide by ordinance for the collection and disposition of garbage, even though some things that are classified as garbage have elements of value, and that the ordinance was not invalid under certain provisions of the Federal and State constitutions, and (c) that under certain statutory provisions conferring power upon cities of the second class, of which Wenatchee was one, the city clearly was given power to pass an ordinance and make a contract for the collection and disposition of garbage.

Sewage disposal—stream pollution—liability of city.—(Washington Supreme Court; *Snavely et ux. v. City of Goldendale et al.*, 117 P.2d 221; decided September 22, 1941.) The plaintiffs, who were riparian owners, sought to recover damages resulting from the pollution of a stream. The defendants were the city of Goldendale and certain persons who operated a slaughterhouse on the bank of the stream within the city. The plaintiffs alleged, with respect to the city, that the latter had discharged raw sewage into the stream so as to pollute the water and render it unfit for domestic use and deleterious to health. The trial court sustained demurrers to the complaint and the plaintiffs appealed to the Supreme Court of Washington. One of the grounds on which the demurrers were based was that the complaint did not state facts sufficient to constitute a cause of action against the defendant city.

In considering this ground the supreme court said that whether the complaint stated a cause of action against the city depended upon the character of the cause of action set up. If the action sounded in

tort, said the court, the complaint was defective because it contained no allegation that a claim had been presented to the city council in compliance with a statutory requirement, but, if, however, the cause of action sprang from the constitutional guaranty that no private property should be taken or damaged for public or private use without just compensation having been first made, such an allegation was not essential in the statement of the cause of action. The court held that the complaint stated a cause of action against the city under the constitutional provision mentioned and quoted from a Connecticut case wherein it was said:

"The right to pour into the river surface drainage does not include the right to mix with that drainage noxious substances in such quantities that the river cannot dilute them, nor safely carry them off without injury to the property of others. The latter act is in effect an appropriation of the bed of the river as an open sewer, and the proposition that it may become lawful by reason of necessity is inconsistent with undoubted axioms of jurisprudence. The appropriation of the river to carry such substances to the property of another is an invasion of his right of property. When done for a private purpose, it is an unjustifiable wrong. When done for a public purpose, it may become justifiable, but only upon payment of compensation for the property thus taken. Public necessity may justify the taking, but cannot justify the taking without compensation. * * * But, however great the necessity may be, it can have no effect on the right to compensation for property taken. * * *"