

Public Health Reports

Vol. 64 • DECEMBER 30, 1949 • No. 52

A Public Health Approach To Improving Community Mental Health Through the Schools

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The extension of public health methods to the field of mental health has reached a point where it is possible to demonstrate how our present and emerging knowledge of the conditions favoring sound mental health may be applied within the framework of existing community programs. This is a report of a project in which the goal of improved public health was approached through collaboration between the mental health clinic in a health department and a school system in providing better educational and general health services to children.

The primary function of this clinic is to develop methods by which communities may utilize resources within their grasp to improve the mental health of their members. Through offering service to children referred from the schools a need was discovered for the establishment in the community¹ of a remedial reading program for elementary school children. This field of education, in which the basic knowledge is relatively well known, appeared to be one in which particular application was needed. The project not only accomplished this tangible objective but set off a chain of events with desirable effects from a public mental health standpoint that extended beyond the immediate objective and created a pattern for coordinating activities of the clinic with those of other community agencies concerned with mental health. These activities are described in the final pages of this report.

The Reading Project

The reading project began when the principal of a public elementary school read in the newspaper about the establishment of the clinic and then asked the father of one of her pupils to apply for help for his boy. The father, a milk-routeman, telephoned the clinic for an appointment for his son. He was invited to come in alone first and discuss the problem, following which the boy would be seen.

Mr. B. was extremely concerned about his son's inability to read and expressed eagerness to do all he could to advance James. He and his wife had been aware of James' retardation in reading ever since the boy had been in the second grade—

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and he was now 12 years old and in the sixth grade. Mr. B. was critical of the school both for not teaching James to read and for promoting him to the sixth grade without being able to read. He was attempting to tutor James at home, but he disliked having to do this because it was upsetting to the family not to see results. He wanted assistance and had come to the clinic for it.

When James came to the clinic, he said almost at once that he could not read certain words. At school, the children and some of the teachers were annoyed with him because he could not read, and he said that sometimes the children laughed at him. When the children teased him about being unable to read, he fought with them and he did not have very many friends. He was willing to be helped in reading, but he showed no evidence of being convinced that anything could be done. He knew that other people thought that he was very stupid and sometimes he himself thought so too.

Examination showed that James, although somewhat below average, had sufficient mental ability to read better than he actually did. He was lacking in independence of study methods. When blocked, he immediately asked for help. When given a word in the course of the examination, he retained it. The over-all picture was that of a beginning reader with a small stock of words he recognized at sight but who had no genuine reading techniques. Since the diagnostic reading examination gave no evidence that James was lacking in the abilities needed in learning to read if he were given instruction at his actual level of skill, a visit was paid to his classroom. It was learned that he was one of 311 pupils in a nine-teacher school. Generally, his reading was heard by a more capable member of his class after this pupil had finished his own studies. The teacher felt that James needed more individualized attention than she could afford with a class of nearly 40 and explained that she hoped the clinic could provide assistance. She added that if the clinic were successful in devising ways to meet James' problem she had two other pupils she would like to refer.

Under the circumstances the temptation was great to undertake the remedial training of James at the clinic. But it was felt that simply helping James and demonstrating the value of remedial reading for him was not the important objective at this time. The demonstration to be undertaken must be truly preventive and deal with the situation in which James' problem occurred. The task of providing for an adequate number of teachers and buildings to accommodate the swollen population of the county was not within the scope of the clinic. But the prospect of vacant classrooms over the vacation period suggested the possibility of summer reading classes. The problem and the possibility were therefore brought to the superintendent of schools who was also on the advisory board of the clinic. He immediately acknowledged the responsibility of the school for providing such educational services and undertook to present the problem with a plan to his board of education.

As a result of joint planning, the elementary schools were to canvass their classrooms to find children who presented reading difficulties and refer them to the clinic for diagnostic study and treatment planning. (Junior high schools operated remedial programs during the regular school year.) The board of education engaged two elementary

teachers for the special summer project and sponsored their attendance at a brief workshop between the close of the school term and the opening of summer school. In less than 6 weeks from the submission of the clinic proposal to the superintendent of schools, summer classes for 32 pupils began. Because of the examinations conducted in the clinic prior to the opening of summer school, the teachers were ready on the first day of school to begin the type of work each child needed.

The change in the children's reading skills as a result of 20 days of summer instruction, while generally in the direction of improvement, was nominal and a prologue to further change during the following school year. However, the change in attitudes toward school and reading, on the part of many children and parents, was an important and dramatic outcome. Upon entering the classroom, children went with increasing frequency to the library to read or look at books. They read most of the time when they were not working with the teacher. They asked to take books home, or they told of reading newspapers or comics at home, things which they had not done before. Nervous mannerisms of some of the children appeared to subside. Parents of nearly half of the pupils came to school on their own initiative to observe the classes, and they were eager to learn how they as parents could help the children further. They told of the children's changed attitude and mentioned that the children insisted on coming to school even when they did not feel well.

In the school year following the summer session, the children were watched by the supervisor of the summer program through reports and conferences with principals and teachers who received the pupils. Classroom visits by the supervisor sought to conserve the gains of the summer by providing the new teacher with information and suggestions about further instruction of these children and by assuring the children of continued interest in their individual progress. A few children were again referred to the clinic for more thorough study than had been possible initially.

In addition to the direct benefits to the children involved, certain long-range benefits accrued from this enterprise, and these were perhaps the most important outcomes. Some parents, who previously had been critical of the schools as they witnessed their children's accumulating experience of failure, began to express appreciation for this manifest attempt to understand and deal with the reading problem. Teachers of the regular session were encouraged in their efforts to meet children's reading needs as a result of the activity by supervisory personnel in the establishment and conduct of the project. During the following school year teachers in five schools began special-help programs in reading, and the curriculum reflected a generally renewed interest in and emphasis upon basic instruction in reading.

The board of education made plans for a summer remedial reading program to become a regular feature, and in the following summer the program was not only tripled in size but lengthened by 2 weeks.

Finally, the project demonstrated how the mental health clinic in a health department can approach the objective of improving the mental health of a community, not by assuming the responsibilities normally borne by the established institutions, but by integrating its activities with theirs and finding ways to enlarge the mental health implications of their services.

Coordinated Activities

This section describes the activities developed within the framework of the foregoing principle. One of these was a study of the problem presented by slow-learning children in the schools. The referral of such children to the clinic by visiting teachers led to frequent recommendations in the reports sent out by the clinic that a special educational program be established to meet the needs of exceptionally slow learners. A small facility was in existence in one school, but this was most inadequate to fill the apparent need in the system as a whole. When the clinic made a general proposal to the superintendent of schools that the facilities be increased, he expressed an interest in undertaking a survey of the numbers and areas of greatest concentration of children who might require special educational provisions and he requested the assistance of the clinic in conducting such a survey. The clinic developed a survey blank for obtaining evidence from teachers on the characteristics and needs of each slow-learning child. Before the survey was completed, fiscal considerations indicated that the provision of special facilities for exceptionally slow learners would have to be delayed. It was decided, nevertheless, to use the results of the survey both as a means of inquiry into other needs of children, especially those needs that might be met without an increase in financial outlay, and as a possible means of direct service to the individual children surveyed.

In studying the survey blanks and in follow-up with teachers, it was observed in one school, for example, that although 25 percent of the children nominated as slow-learners were considered by their teachers to suffer from malnutrition, and although defects of vision, hearing, and speech were also ascribed to members of the slow-learning group, no teacher included correction of physical health factors as a primary recommendation in dealing with the slow-learning group. On closer study, wide variations were seen in the teachers' capacity to observe and provide for the physical and mental characteristics of children in their classes. Efforts by classroom teachers and principals to eliminate barriers to learning revealed diverse practices,

ranging from expert use of the school program and environment and an eager seeking of additional resources, to failure to utilize available knowledge of health status in promoting classroom learning, and display of mistaken understanding of the respective roles of the classroom teacher and of personnel providing specialized services. The observation of perhaps widest significance was this apparent failure on the part of classroom teachers to realize fully their role in providing for the flow of specialized services to children, such as those provided by the school-lunch supervisor, the nurses, and the visiting teachers. Even teachers who were reaching out for help appeared to be without knowledge of the procedures for meeting the needs of children with health problems. It appeared important therefore to undertake a clarification of the health obligations and opportunities of the classroom teacher and to restate her relationship to the various specialized services available to her.

Following discussion with a group which included the school health education supervisor and the supervising nurse in the county health department (which gave school-nursing services), a proposal was submitted to the superintendent of schools for the establishment of a committee composed of school instructional and supervisory personnel concerned with health, and of personnel from the health department, including the mental health clinic, for the purpose of developing a statement of the responsibilities, activities, and resources for the teacher and others concerned with the functioning of a health program. This statement was designed to cover such matters as health observation, maintenance of health records, prevention and correction of maladjustments through use of the school program and environment, and use of specialized services. Such a statement was regarded as a useful element in the orientation of new teachers and the in-service training of the present teaching staff, as well as in supervision and in the integration of the health education and health-services programs. The formation of such a committee was promptly authorized and its organization is under way.

This health project led to an increased awareness of the importance of eliminating the physical, intellectual, and emotional barriers to learning as part of any program of child guidance in the schools. When the time for planning the second summer of remedial reading arrived, it was used as a means not only of providing direct psychological services for some children on an individual basis as in the first summer, but for demonstrating a case conference procedure which integrated the efforts of the various specialists concerned with the health and welfare of the child in school.

Again a survey blank was devised, in this instance calling for information relating to pupils' reading, such as present reading ability,

characteristic mode of attack on unfamiliar words, visual and auditory symptoms, nutritional status, characteristic behavior, presence of special talents, learning difficulties of siblings, teacher's opinion of cause of reading deficiency, and teacher's recommendation for remedial action. One completed blank was submitted by the classroom teacher for each child whom she nominated for the remedial program. The data thus obtained, together with information available in the cumulative record folder and any data available in the records of the visiting teacher and public health nurse, formed the basis of a discussion of the child as a learner by a committee composed of the supervisor of elementary education, the principal, a public health nurse, a visiting teacher, the psychologist from the mental health clinic, and, when opportunity permitted, the classroom teacher concerned. A conference was held in each of the 30 schools where children were nominated and, in all, 367 children were considered.

Out of these discussions, various actions resulted: acceptance of children for the remedial reading program; conditional acceptance or deferral of decision pending further study by the principal, visiting teacher, public health nurse, mental health clinic and/or family physician; rejection for reading program together with suggestions for achieving adjustment through other resources.

This pooling of efforts not only brought together all available information about a child at a critical point in his education, but also provided a laboratory for working out some of the problems of professional relationship and for clarifying the roles of the teaching personnel and the specialists. The health education supervisor participated in a number of the discussions and the superintendent of schools, the assistant superintendent, the county health officer and the education supervisor of nurses also visited. Eight public health nurses, each of whom felt a responsibility for the health program of the schools in her territory, found a new means of reaching their objectives. Principals acquired a fuller appreciation of the nature of some problems which had been presented initially in terms of reading and they learned to make a discriminating use of the mental health clinic. Teachers found that their cumulative records took on a new importance and they later expressed themselves as disposed to make an even more effective contribution to the conferences in subsequent years. As channels for communication developed, new mental health problems in the schools were uncovered, particularly a need to study the various teaching and administrative devices for dealing with pupil "failure," and a pattern emerged whereby mental health values might be attained through enabling existing community services to do their work "the mental health way."

Rat-bite Fever in Montana

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A clinical case of rat-bite fever in Montana, the first reported case in the Rocky Mountain region, and the demonstration of infection in a population of house mice with which the patient had contact are reported here.

Rat-bite fever is a widely distributed, infectious disease of rodents. It is most frequently communicated to man by the bite of rats, *Rattus* spp., occasionally by the bite of other rodents, and rarely by the bite of dogs, cats, or ferrets which presumably have become contaminated by eating infected rodents. The causative agent is *Spirillum minus* (Carter).

The clinical symptoms of rat-bite fever resemble in some respects another disease which follows the bite of rats and is called Haverhill fever, the infectious agent of which is *Streptobacillus moniliformis* Levaditi, Nicolau and Poincloux. No doubt many cases diagnosed clinically as rat-bite fever have, in fact, been Haverhill fever. Demonstration of the etiological agent is desirable for differential diagnosis of the two diseases.

Human infection is most frequently reported in India and Japan, but is also known in Europe, Canada, the United States, and other countries. In a review by Bayne-Jones (1) of the 81 cases that had been reported in the United States up to 1931, only 5 cases in which the diagnosis was confirmed by demonstration of the organism, *S. minus*, are recorded. All other cases were diagnosed on clinical evidence. Larson (2) cited 19 cases in which *S. minus* had been isolated and he reported the 20th case. Hull (3) states that only 110 cases had been reported in the United States up to 1941. These were scattered over 28 States. He also states, "The only large area from which no cases were reported was the sparsely populated Rocky Mountain region."

In none of the published literature available do the authors find a report of human infection attributed to the bite of a house mouse (*Mus musculus*). Spontaneous infection in the conspecific laboratory white mouse is cited by Francis (4) for the United States and by Hull (3) for India.

Case Report

On October 5, 1948, S. S., a white girl, aged 9, was bitten on a finger by a mouse which she found sick or injured in the yard at her

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farm home about 10 miles north of Bozeman, Mont. On October 12 her finger became swollen and painful; there were malaise and chilly sensations. She was first seen by a physician October 21. At that time her oral temperature was 103° F. Physical examination was negative except for a series of macules extending up the right arm to the axilla. The finger showed no ulceration or swelling. The macules varied in size from 0.5 to 2 centimeters in diameter and were not tender on pressure. She was given one dose of 300,000 units of penicillin aluminum monostearate intramuscularly, and 5 grains of sulfadiazine four times daily was prescribed.

The child was hospitalized for observation October 25. Her oral temperature was 101° F., pulse rate 110, red blood cells 3,790,000, white blood cells 6,400, hemoglobin 77 percent. A differential count showed 28 percent small lymphocytes, 3 percent monocytes, 68 percent polymorphonuclear leukocytes, and 1 percent stab cells. Macules were still present on the arm at this time. Urinalysis was negative. A blood specimen was sent to the Montana State Hygienic Laboratory for agglutination tests, including that for tularemia; the report on this specimen was negative. Sulfadiazine was discontinued, and she was given 5 grains of phenacetin every 4 hours and was discharged October 26.

During the next few days her oral temperature varied from 102° F. to 105° F. She had, however, no particular complaints except malaise.

She was again admitted to the hospital November 1. She did not appear acutely ill, and the macules were hardly noticeable. Temperature on admission was 104.4° F. (rectal) and laboratory studies showed red blood cells 3,630,000, white blood cells 11,650, hemoglobin 70 percent. A differential count showed 12 percent lymphocytes, 2 percent monocytes, and 86 percent polymorphonuclear leukocytes. Urinalysis was negative. A second blood specimen was taken and reported negative for tularemia by the State Hygienic Laboratory.

Because of a clinical diagnosis of tularemia, streptomycin therapy was started immediately with a dosage of 0.2 gram every 4 hours, parenterally. The first injection was given at 3 p. m. November 1. At 6 p. m. the rectal temperature was 103.4° F., at 10 p. m., 103.6° F., and at 2 a. m. it was 98° F. It did not thereafter rise above 99.4° F. rectally while the patient was in the hospital or during convalescence at home. After six doses of streptomycin, the interval between doses was increased to 6 hours. Treatment was continued for 4 days. The patient was discharged November 6.

A third blood specimen was taken March 30, 1949. This was reported negative for tularemia by both the State Hygienic Laboratory and the Rocky Mountain Laboratory. The former also reported

a negative Wassermann test. This reaction is reported by some workers to be positive in cases of rat-bite fever. Another portion of this specimen of serum was submitted April 1, 1949, through the National Institutes of Health to the Veterans' Administration Hospital, Washington, D. C., where an agglutination test was made for *Streptobacillus moniliformis*, the causative agent of Haverhill fever. This test was reported as negative.

In this case, the following clinical symptoms are more characteristic of rat-bite fever than of Haverhill fever: early induration of the initial lesion; adjacent lymphadenitis; absence of arthritis; and absence of petechial rash.

Field and Laboratory Study

On a suspicion that this illness might be rat-bite fever, one of us (Jellison) visited the farm home of the patient on March 10, 1949. The farm is located in a cultivated area of the Gallatin Valley 10 miles north of Bozeman on the Spring Hill road. Seventy-two snap traps were set in the barn and granary in the late afternoon and yielded 40 mice the following morning. All were the common house mouse, *Mus musculus* L. These were refrigerated to be taken to the Rocky Mountain Laboratory, part in dry ice and part in snow, since it was not known whether rat-bite fever infection in animal tissues would survive dry ice refrigeration.

Blood smears and impression smears of the liver, spleen, and heart muscle of 16 of the mice were stained¹ and examined. The heart-muscle smears of all 16 mice contained numerous organisms typical of *S. minus*, the spirilla appearing to be in the heart muscle and not in the blood. The other tissue smears were all negative.

The spleens of the remaining 24 mice were divided into 6 pools of 4 spleens each. Each pool was triturated in sterile saline, and the resulting suspension was injected into one white rat, one guinea pig, and four white mice. There was no febrile reaction in the guinea pigs during 22 days. Blood smears and heart-muscle impression smears made on the 60th day were negative. Blood smears from the white mice were examined on the 3d, 5th, 7th, 10th, and 18th days after injection. All smears were negative on the 3d, 5th, and 7th days. The four mice in one lot were positive on the 10th day, and one or more mice in three additional lots were positive on the 18th day. Two lots remained negative. No sign of illness was exhibited by these mice up to the 30th day. Organisms were found in the blood smear of

¹ The staining technique used was one employed routinely at this laboratory for blood and tissue smears. One drop of Giemsa spirochaete stain (Hynson, Westcott, and Dunning, Inc.) is added to 1 cc. of distilled water; the slides are flooded with this diluted stain and after 20 minutes are drained and rinsed with pure acetone. This technique has proved very satisfactory for thin films, thick films, and for tissue impression smears.

only one of the six white rats when they were bled and discarded on the 18th day.

A second visit was made to this farm March 23-25, 1949, to obtain live house mice for experimental work and also to sample the wild mouse population near the farm buildings and in adjacent fields. The following animals were also taken in kill-traps, and heart impression smears were examined for *S. minus*: from the farm buildings and adjacent yard, 3 *M. musculus*, 11 *Peromyscus*, 9 *Microtus*; from an isolated granary one-fourth mile north of farm buildings, 3 *M. musculus*, 9 *Peromyscus*, 4 *Microtus*; and along the highway two miles south of the farm buildings, 2 *Peromyscus*, 6 *Microtus*. Organisms were demonstrated in two of the three house mice trapped in the farm buildings, but none were found in *Peromyscus* or *Microtus* from the immediate area. Organisms typical of *S. minus* were found in heart-muscle impression smears of one of four specimens of *Microtus* trapped at the isolated granary.

Discussion

A human case of rat-bite fever in California caused by the bite of a wild field mouse was reported by Reitzel, Haim, and Prindle (5). The diagnosis was confirmed by demonstration of *Spirillum minus* in inoculated animals. No identification of the mouse other than "wild field mouse" was given, and this may include any one of several genera of native mice. Another case diagnosed by clinical evidence of human infection from a mouse bite was reported by Jenkinson and Jordan (6). The kind of mouse was not designated.

In 1946, F. A. Humphreys² of the Laboratory of Hygiene, Kamloops, British Columbia, established a strain of infection in laboratory animals injected with the tissues of two house mice, *Mus musculus*. These mice were collected at Ladner, near Vancouver, British Columbia. The infection was identified as rat-bite fever and *Spirillum minus* was demonstrated in the blood of test animals by one of the authors of this paper (Hughes).

A case of rat-bite fever in southern Idaho in September 1937 has been reported to the writers by Dr. L. J. Peterson.² Infection was attributed to the bite of a wild mouse, and spirilla were observed in blood smears from the patient. The case report has not been published.

In the case reported here, the diagnosis of rat-bite fever was made too late to demonstrate the infectious agent in the patient's blood, lymph nodes, or initial lesion. The clinical history is consistent with rat-bite fever. The patient was bitten by a mouse (domestic rats, *Rattus* spp., are entirely absent from this section of Montana) near her home where at least three genera of mice, *Microtus*, *Mus*, and

² Information by correspondence.

Peromyscus, were present in and about the farm buildings. On the morning of August 4 the patient was shown three freshly trapped mice, representing these three genera, and without hesitation picked the specimen of *Mus* as resembling the mouse that had bitten her. *Spirillum minus* was demonstrated in heart-tissue smears of each of the 16 house mice, *M. musculus*, examined that were trapped in these buildings March 10, 1949. *S. minus* was also demonstrated in one field mouse, *Microtus* sp., which was trapped about one-fourth mile from the residence March 25, 1949. Numerous other local specimens of *Microtus* and *Peromyscus* were examined but were not found infected.

Summary

A case of rat-bite fever that occurred in the fall of 1948 in a 9-year-old girl living on a farm near Bozeman, Montana, is reported. Streptomycin therapy was initiated 19 days after onset; the patient's temperature became normal within 24 hours, and convalescence was uneventful. Infection apparently resulted from the bite of a mouse, probably a house mouse. *Spirillum minus* was demonstrated in heart-tissue smears of 16 house mice trapped in the farm buildings and in those of one field mouse trapped in a field one-fourth mile away.

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Defects in the Sanitary Environment on Vessels

By RALPH C. GRABER, M. S., and ARTHUR P. MILLER, C. E.*

Prior to the inception of the present program of the Division of Sanitation on May 26, 1945, the active interest of the Public Health Service in sanitation aboard vessels was limited; many environmental factors capable of having a serious impact on health were not receiving the emphasis they merited. After that date, the objectives were broadened (1) to aid in the exclusion of communicable diseases from the United States, (2) to assist in the elimination of the transmission of disease from one State to another, and (3) to help protect and promote the health and welfare of passengers and seamen by the production and maintenance of an environment aboard vessels free of defects detrimental to health.

The phases of sanitation receiving attention in the present program are those pertaining to the potable, wash, and sanitary water systems; plumbing and plumbing fixtures; disposal of solid and liquid wastes; food stowage, handling, preparation, and serving; insect and rodent control; swimming pools; heating, lighting, and ventilation; rat-proofing; and general sanitation.

Inspections of operating vessels are made at piers by field personnel working under the supervision of the regional offices of the Public Health Service. Experience has shown that a minimum of two inspections a year of each operating vessel is required to maintain a reasonably satisfactory environment, because the physical condition of ships, and often their operating personnel, are constantly changing. The philosophy pervading this program is similar to that of any other sound public health program. It is based, for the most part, upon voluntary participation of vessel owners, operators, and crew members in an educational approach to removing defects and improving the environment on any United States flag vessel.

In 1947, an evaluation was made of the character and number of detected infringements upon good sanitary practice that might contribute to the incidence of disease. This study was accomplished during October 1947 by reviewing the original inspection reports on file in the regional office, New York. These inspections had been completed between August 17, 1945, and October 24, 1947, at the ports of New York, Boston, and Philadelphia. Each inspection

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report was carefully studied and all infringements noted were tabulated. A record was also made of the type of vessel involved in each inspection, because the vessel type and its normal method of operation tend to bear upon the occurrence of certain items of non-conformance with accepted sanitary practices.

Because the present vessel sanitation program was in its infancy at the time of this study, many factors inherent in such a new activity tended to influence its accomplishments. The guiding materials or standards, for example, were in the early stages of development and therefore subject to frequent revision. In the main, personnel engaged in this program's field work were new, and difficulty was experienced in obtaining uniform interpretation of the standards. Relationships between the regional supervising personnel and the responsible officials within the maritime industry had not been firmly established. As the majority of the vessel companies during that time were operating ships leased to them by the United States Maritime Commission and had little responsibility for making permanent improvements on them, there were problems in arousing interest among the operators to act to remove any defects found in a vessel's sanitary environment.

Table 1

Type of vessel	Number of inspections	Number of defects detected		
		Structural (built-in)	Operational	Totals
Cargo—Liberty.....	740	2,919	11,414	14,333
Cargo—Victory.....	363	912	4,638	5,550
Cargo—C-1.....	200	437	2,272	2,709
Cargo—C-2.....	232	503	2,434	2,937
Cargo—C-3.....	89	210	938	1,148
All cargo vessels.....	1,624	4,981	21,696	26,677
Tankers—T-2 and T-3.....	245	794	2,675	3,469
All vessels.....	1,869	5,775	24,371	30,146

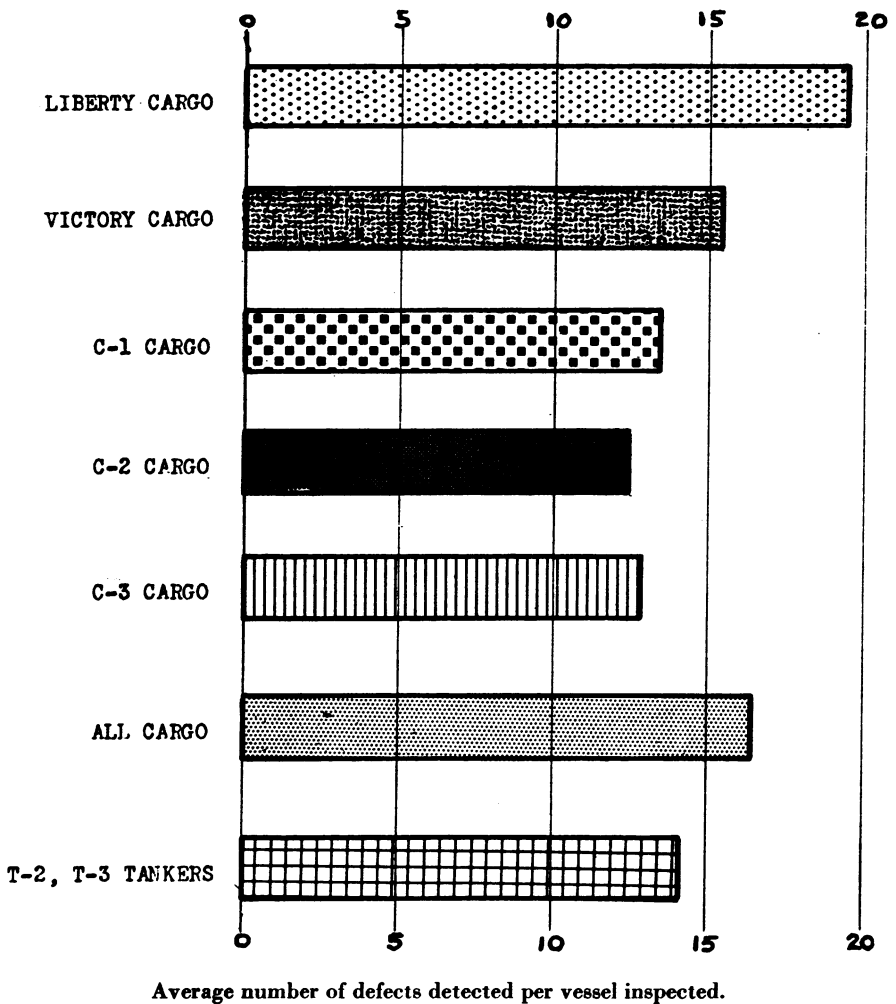
Table 2

Type of vessel	Average number of defects detected per vessel inspected		
	Structural (built-in)	Operational	Both
Cargo—Liberty.....	4.0	15.4	19.4
Cargo—Victory.....	2.5	12.8	15.3
Cargo—C-1.....	2.2	11.4	13.5
Cargo—C-2.....	2.2	10.5	12.7
Cargo—C-3.....	2.4	10.5	12.9
All cargo vessels.....	3.1	13.4	16.4
Tankers—T-2 and T-3.....	3.2	10.9	14.2

The detected infringements found by this study have been divided into (1) those that were built into vessels during their construction, and (2) those resulting from imperfect operation and maintenance. The data have also been summarized according to the type of vessel inspected. Table 1 shows the gross number of defects or infringements detected.

Another comparison is made in table 2 to show the average number of detected defects per vessel inspected.

The chart illustrates the comparative averages of the numbers of detected defects on the various types of cargo vessels and compares the weighted average number found on all cargo vessels and the average number found on tanker vessels. The additional 2.2 defects



found on cargo vessels when compared to tankers may be due to the fact that the construction of cargo vessels necessarily includes many more potential rat harborages with a corresponding increase in the number of possible ratproofing defects.

Table 3 contains data on the occurrence of a selected but representative group of items of nonconformance with recommended sanitary practices. These data were also divided to indicate the difference of item occurrence with relation to the type of vessel.

Table 3

Nature of defect	Percent of indicated type of vessel on which selected defects were detected					
	Cargo					Tankers
	Liberty	Victory	C-1	C-2	C-3	T-2 and T-3
<i>Structural (built-in)</i>						
Absence of approvable drinking fountains.....	15.1	8.8	4.5	7.8	6.7	33.0
Charcoal filter used on distilled water discharge line.....	67.5	0	0	0	0	5.3
Nonpotable water improperly piped into hospital space.....	51.4	1.9	0.5	0.4	4.5	24.1
Nonpotable water piped to improper location in galley.....	21.0	12.7	10.0	19.0	15.7	39.1
Absence of multiple-vat sink for utensil washing.....	4.2	39.1	23.5	11.2	36.0	47.7
No indicating thermometer for utensil rinse water.....	84.9	83.1	88.5	85.0	88.6	46.1
Potable water outlets without air gaps.....	11.4	14.9	24.5	13.8	12.5	11.5
Deck storage boxes not ratproofed.....	21.0	9.1	9.5	10.8	4.5	5.3
<i>Operational</i>						
Potable water system not identified.....	84.3	56.7	65.0	55.6	48.3	64.0
Cross connection at potable water pump suction.....	15.4	11.3	17.0	14.2	10.1	0
Cross connection at distilled water discharge.....	63.0	49.3	44.0	18.1	21.4	35.9
Garbage improperly stowed in galley.....	61.8	63.6	58.0	55.1	61.8	69.4
Garbage improperly stowed on deck.....	67.2	66.7	49.5	50.4	55.1	26.1
No baskets available for bactericidal treatment of dishes.....	91.2	88.8	84.5	84.9	81.9	82.0
Rinse water for utensils not maintained at 170° F.....	90.6	89.5	85.0	84.0	84.3	81.6
No signs warning food handlers to wash hands.....	89.6	85.1	83.0	78.9	87.6	81.2
Potable water distribution system cross-connected.....	57.5	37.5	41.5	27.6	24.7	37.6
Decks in food spaces not clean.....	36.1	28.1	21.5	23.3	15.7	21.
Breaks or holes in bulkheads or deckheads (ratproofing).....	13.7	10.2	3.0	3.4	2.2	4.1

With exceptions, there is some consistency in the percentages of various types of vessels showing the presence of the selected, representative defects. This is more applicable to those items related to human error, i. e., operational, than to those of a structural nature. An example of this consistency is the improper stowage of garbage in the galley, a defect readily remedied by an improvement in house-keeping procedures. The more extreme variations in percentages may be attributable to differences in the construction of certain features on the types of inspected vessels. For example, multiple-vat sinks for utensil washing were more consistently built into the Liberty and C-2 types than the other types of cargo carriers. On the other hand, even though comparatively few Liberty type vessels were not satisfactorily

equipped to accomplish the bactericidal treatment of multi-use eating and drinking utensils, it is evident from table 3 that such treatment was not being provided adequately.

Much remains to be done by all concerned and interested to produce a sanitary environment on many vessels. Not only must adequate facilities be provided by building them into a ship during construction or major repair, but, of greater significance, the proper and satisfactory use of the adequate facilities must be obtained. The maritime industry is showing a greater awareness of the need to provide good and adequate facilities and to bring about their use to the greatest advantage. As the human element is involved, particularly in the satisfactory use of appropriate equipment when it is supplied, accomplishment must depend largely upon education. But through cooperation and education, the objectives of the program will be attained and thereby benefits of a permanent nature will accrue to the vessels of our merchant marine.

INCIDENCE 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 DECEMBER 10, 1949

The decline in reported cases of poliomyelitis has been almost as steep as the increase. The low week of the calendar year was April 9 when 41 cases were reported. The rise in cases reported since then has been steady, passing 100 cases on May 21, and reaching the peak 19 weeks later on August 20, when 3,420 cases were reported. For the current week ended December 10, 322 cases of poliomyelitis were reported. This is the sixteenth consecutive weekly decline in poliomyelitis since the peak. However, in spite of this continuous increase, the week's total is higher than the 5-year median (1944-48) of 168 cases. The cumulative total for 49 weeks of 1949 is 41,783, as compared with 27,016 for the same period of the preceding year and 19,021 for the 5-year median.

The geographic distribution of cases for the 49-week period with percentages for the current year and the preceding year is as follows:

	1949, 49 weeks		1948, 49 weeks	
	Number	Percent of total	Number	Percent of total
New England.....	3,406	8.2	401	1.5
Middle Atlantic.....	7,875	18.9	2,997	11.1
East North Central.....	9,752	23.3	4,053	15.0
West North Central.....	6,662	15.9	4,950	18.3
South Atlantic.....	1,978	4.7	4,516	16.7
East South Central.....	1,813	4.3	949	3.5
West South Central.....	4,827	11.6	2,400	8.9
Mountain.....	2,043	4.9	830	3.1
Pacific.....	3,427	8.2	5,920	21.9

All other notifiable diseases showed little change from the preceding week. The reported incidence for the following diseases increased over the preceding week but remained below the 5-year (1944-48) median.

Disease	Current week	Last week	Median
Influenza.....	2,554	2,142	2,813
Measles.....	2,009	1,619	2,787
Scarlet fever.....	1,461	1,340	2,161
Tularemia.....	22	15	35
Whooping cough.....	2,227	2,026	2,252

Diphtheria decreased from 211 cases last week to 209 for the current week and meningococcal meningitis dropped from 79 to 56 cases for the current week. One case of smallpox was reported in Arizona.

Telegraphic case reports from State health officers, for the week ended December 10, 1949

[Leaders indicate that no cases were reported]

Division and State	Diphtheria	Encephalitis, infectious	Influenza	Measles	Meningitis-meningococcal	Pneumonia	Polio-myelitis	Rocky Mt. spotted fever	Scarlet fever	Smallpox	Tularemia	Typhoid and paratyphoid fever	Whooping cough	Rabies in animals
NEW ENGLAND														
Maine.....				56		11			6			1	9	
New Hampshire.....			1	2		2			2				4	
Vermont.....				1										
Massachusetts.....	1			44		8			64				133	
Rhode Island.....						6			11				26	
Connecticut.....	1			27	1	60	10		12				82	
MIDDLE ATLANTIC														
New York.....	16		3	97	4	232	40		86		1		301	9
New Jersey.....	2		3	111	1	80	11		19				206	
Pennsylvania.....	3			55	4	64	9		58		1		197	2
EAST NORTH CENTRAL														
Ohio.....	11		3	26		47	6		184		2		160	6
Indiana.....	7	1		25		8	11		57		3		20	15
Illinois.....	1	5		44	4	90	11		42		6		118	
Michigan.....	3	2		424	3	34	32		130				222	9
Wisconsin.....	1		3	48	3	7	12		38				176	1
WEST NORTH CENTRAL														
Minnesota.....	8			95	2	30	7		24				6	
Iowa.....	3			67		2	13		28				7	2
Missouri.....	3		80	5	2	33	3		21		3		23	
North Dakota.....	1		20	33										
South Dakota.....						1	2		3				3	
Nebraska.....	1		31	17		8	7		11				2	
Kansas.....			2	6		32	2		16			1	19	2
SOUTH ATLANTIC														
Delaware.....				6	1				5					8
Maryland.....			6	11		42	3		16			1	62	
District of Columbia.....	2			33		9			3			1	14	
Virginia.....	7			16		66	3		36			1	32	1
West Virginia.....	2		237	49		20	2		23		3		18	12
North Carolina.....	12			56	2		2		88				36	
South Carolina.....	13		25	9	1	12	4		4				1	7
Georgia.....	14			5	1	10	4		16				16	8
Florida.....	7		17	5		13			15			1	2	

EAST SOUTH CENTRAL		7	23	7	4	15	5	51	1	8	15
Kentucky.....	20	9	53	9	1	47	1	2	2	26	5
Tennessee.....	8	19	75	3	1	22	3	22	1	6	9
Alabama.....	5	15	17	4	2	13	4	13	2	3	.....
Mississippi.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WEST SOUTH CENTRAL		7	62	2	1	53	4	3	.....	5	.....
Arkansas.....	3	2	33	5	2	5	4	5	2	1	.....
Louisiana.....	4	81	35	3	2	24	5	24	4	12	2
Oklahoma.....	24	1,666	281	40	5	37	16	37	4	86	22
Texas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
MOUNTAIN		1	9	92	.....	.....	1	8	.....	1	.....
Montana.....	.....	6	4	4	.....	.....	4	9	.....	.....	.....
Idaho.....	.....	1	14	2	1	6	2	3	.....	.....	.....
Wyoming.....	.....	42	18	4	1	13	7	13	.....	.....	.....
Colorado.....	.....	43	106	43	2	1	1	18	2	17	.....
New Mexico.....	.....	52	2	1	1	1	1	16	.....	.....	.....
Arizona.....	.....	2	2	88	1	3	3	14	.....	.....	.....
Utah.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
PACIFIC		2	8	138	1	2	7	77	.....	24	.....
Washington.....	.....	7	7	19	.....	28	4	16	.....	12	.....
Oregon.....	.....	8	8	78	.....	35	56	100	.....	12	.....
California.....	.....	1	.....	.....	.....	.....	.....	.....	9	80	.....
Total.....	209	2,554	2,009	2,009	56	1,582	322	1,461	1	47	2,227
Median, 1944-48.....	415	2,813	2,787	2,787	77	1,688	168	2,161	4	52	2,252
Year to date, 49 weeks.....	7,697	99,047	601,088	601,088	3,225	73,049	41,783	71,269	48	3,507	63,556
Median, 1944-48.....	13,018	214,299	584,626	584,626	5,465	19,021	19,021	106,895	327	3,876	93,756
Seasonal low week ends.....	July 9	July 30	Sept 3	Sept 3	Sept. 17	Mar. 19	(11th)	Aug. 13	(35th)	(11th)	(39th)
Since seasonal low week.....	3,829	23,180	12,570	12,570	709	40,868	40,868	13,009	3	3,047	16,964
Median, 1944-45 to 1948-49.....	6,550	25,204	18,238	18,238	799	18,758	18,758	20,990	7	3,401	17,890

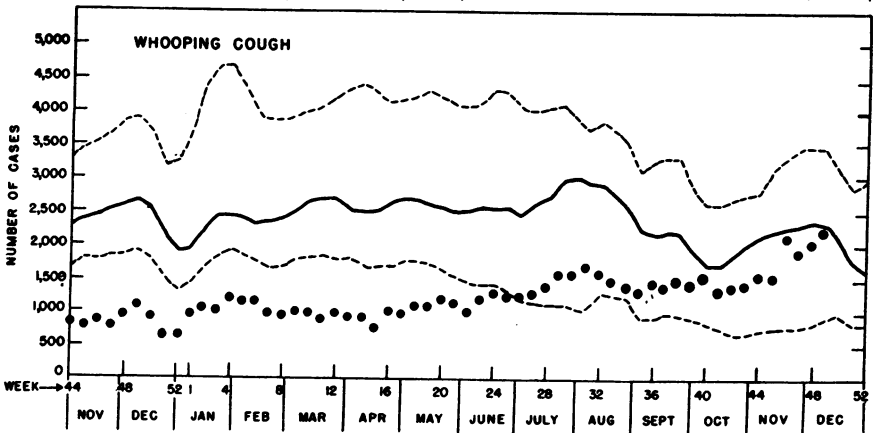
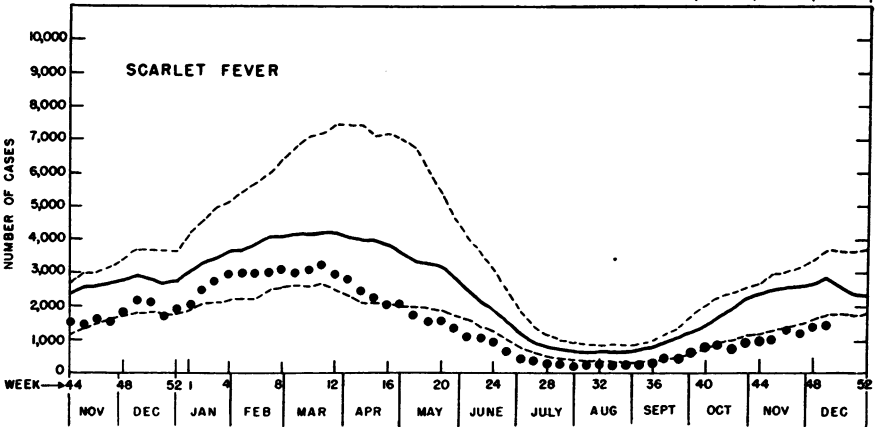
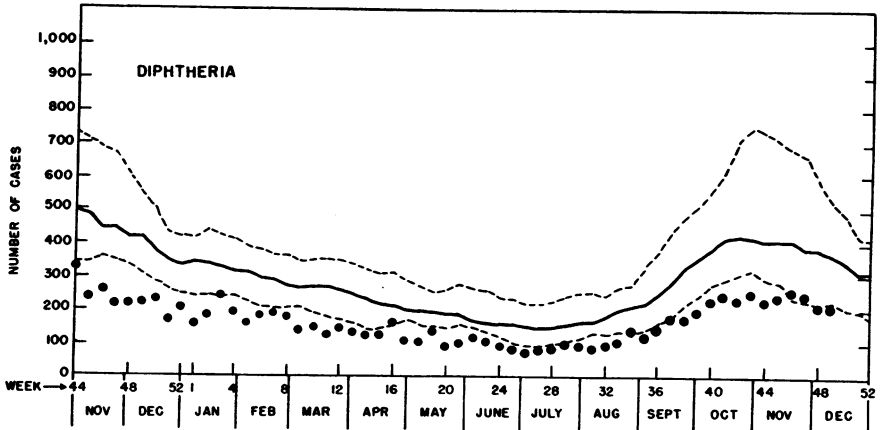
! Including paratyphoid fever currently reported separately as follows: Ohio 1, Indiana 1, Texas 1, Colorado 1, California 9. Cases reported as salmonella infection not included in the table were as follows: Massachusetts 2, New York 2.

! New York City only.
 ! Including cases reported as streptococcal sore throat.
 ! Period ended earlier than Saturday.
 ! Correction for week ended December 3; Florida, 2 cases of typhoid fever instead of tularemia.
 ! The median of the 5 preceding corresponding periods (1944-45 to 1948-49).

! *Leptospira*: California, week ended Nov. 26, 1 case.
 ! Alaska: Measles 44, pneumonia 1.
 ! Hawaii: Influenza 299, measles 2.

Communicable Disease Charts

All reporting States, November 1948 through December 10, 1949



The upper and lower broken lines represent the highest and lowest figures recorded for the corresponding weeks in the 7 preceding years. The solid line is the median figure for the 7 preceding years. All three lines have been smoothed by a 3-week moving average. The dots represent numbers of cases reported for the weeks of 1949.

TERRITORIES AND POSSESSIONS

Hawaii Territory

Plague (rodent).—Under date of December 7, 1949, plague infection was reported proved in 6 rats collected in District 6A, Honokaa Area, Hamakua District, Island of Hawaii, T. H. Three of these rats were killed, 2 found dead, on November 16, 1949, and 1 found dead on November 23.

Panama Canal Zone

Notifiable diseases—October 1949.—During the month of October 1949, certain notifiable diseases were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Residence ¹									
	Panama City		Colon		Canal Zone		Outside the Zone and terminal cities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox.....	5		5		8		1		19	
Diphtheria.....		1					1		1	1
Dysentery:										
Amebic.....	1						2		3	
Bacillary.....	1		1		1		1	1	3	1
Hepatitis, infectious.....					2		3		5	
Malaria ²	1	1			3		76	1	80	2
Measles.....			1		8				9	
Meningitis, meningococcal.....							1		1	
Mumps.....	2				8				10	
Paratyphoid fever.....			1		3				4	
Pneumonia.....		5		6	25	3		7	25	21
Poliomyelitis.....					1			4	1	4
Tetanus.....							1		1	
Tuberculosis.....		16		8				8	(³) 10	32
Undulant fever.....	1								1	
Whooping cough.....		2		3	10				10	5
Yaws.....							5		5	

¹ If place of infection is known, cases are so listed instead of by residence.

² 5 recurrent cases.

³ Reported in the Canal Zone only.

⁴ Death from case reported in July 1949.

DEATHS DURING WEEK ENDED DECEMBER 10, 1949

	Week ended Dec. 10, 1949	Corresponding week, 1948
Data for 94 large cities of the United States:		
Total deaths.....	9,535	9,453
Median for 3 prior years.....	9,649	
Total deaths, first 49 weeks of year.....	449,379	449,669
Deaths under 1 year of age.....	701	682
Median for 3 prior years.....	700	
Deaths under 1 year of age, first 49 weeks of year.....	32,066	32,669
Data from industrial insurance companies:		
Policies in force.....	69,968,453	70,772,413
Number of death claims.....	13,244	13,035
Death claims per 1,000 policies in force, annual rate.....	9.9	9.6
Deaths claims per 1,000 policies, first 49 weeks of year, annual rate.....	9.1	9.2

FOREIGN REPORTS

FINLAND

Notifiable diseases—October 1949.—During the month of October 1949, cases of certain notifiable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis.....	9	Poliomyelitis.....	54
Diphtheria.....	102	Scarlet fever.....	497
Dysentery.....	3	Syphilis.....	73
Gonorrhea.....	757	Typhoid fever.....	15
Paratyphoid fever.....	91		

JAPAN

Notifiable diseases—5 weeks ended October 29, 1949, and accumulated totals for the year to date.—For the 5 weeks ended October 29, 1949, and for the year to date, certain notifiable diseases were reported in Japan as follows:

Disease	5 weeks ended October 29, 1949		Total reported for the year to date	
	Cases	Deaths	Cases	Deaths
Anthrax.....			10	
Dengue fever.....			5	
Diarrhea, infectious.....	6		528	
Diphtheria.....	1, 284	81	11, 732	1, 122
Dysentery, unspecified.....	3, 001	973	22, 984	6, 549
Encephalitis, Japanese "B".....	428	193	1, 336	485
Gonorrhea.....	16, 712		154, 725	
Influenza.....	29		1, 900	
Leprosy.....	50		3, 658	
Malaria.....	211	9	3, 562	55
Measles.....	2, 197		159, 146	
Meningitis, epidemic.....	141	52	1, 342	398
Paratyphoid fever.....	175	17	1, 964	96
Pneumonia.....	6, 332		115, 353	
Poliomyelitis.....	352		2, 762	
Puerperal infection.....	106		815	
Rabies.....	11		61	
Scarlet fever.....	316	3	3, 706	54
Smallpox.....			120	12
Syphilis.....	17, 027		163, 305	
Tetanus.....	222		1, 843	
Trachoma.....	13, 367		156, 549	
Tuberculosis.....	46, 842		401, 291	
Typhoid fever.....	684	106	5, 624	705
Typhus fever.....	5		97	6
Whooping cough.....	9, 541		111, 082	

NOTE.—The above figures have been adjusted to include delayed and corrected reports.

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

NOTE.—The following reports include only items of unusual incidence or of special interest and the occurrence of these diseases, except yellow fever, in localities which had not recently reported cases. All reports of yellow fever are published currently.

A table showing the accumulated figures for these diseases for the year to date is published in the **PUBLIC HEALTH REPORTS** for the last Friday in each month.

Plague

Ecuador—Loja Province.—During the period October 16–31, 1949, plague was reported in Loja Province, Ecuador, as follows: In Jujal, Sozoranga, Macara County, 1 case; in Las Huertas, Celica County, 1 case.

Netherlands Indies—Java—Jogjakarta.—During the week ended October 29, 1949, 71 fatal cases of plague were reported in Jogjakarta Residency, Java, including 6 cases in Jogjakarta City; for the week ended November 5, 53 cases, all fatal, were reported, including 6 cases in Jogjakarta City.

Peru—Tumbes Province.—During the month of November 1949, 1 case of plague was reported in Tumbes Province, Peru.

Smallpox

Argentina.—Smallpox (alastrim) has been reported in Argentina as follows: September 1–30, 1949, 95 cases, including 17 cases in Buenos Aires; October 1–31, 44 cases (11 of these in Buenos Aires).

Burma—Bassein and Rangoon.—During the week ended November 26, 1949, 24 cases of smallpox were reported in Bassein, Burma, and 25 cases in Rangoon.

Colombia.—For the month of October 1949, 135 cases of smallpox (alastrim) were reported in Colombia.

Pakistan—Chittagong.—During the week ended December 3, 1949, 10 cases of smallpox were reported in Chittagong, Pakistan.

Typhus Fever

Colombia.—During the period October 1–31, 1949, 171 cases of typhus fever (including cases of murine type) were reported in Colombia. The city of Medellin reported 29 cases, all murine type, for this period.