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EFFECTS OF THE INHALATION OF ASBESTOS DUST ON THE LUNGS OF ASBESTOS WORKERS

A Preliminary Study

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INTRODUCTION

In 1929 the Metropolitan Life Insurance Co. was approached by officials representing the asbestos industry in the United States, who were desirous of ascertaining whether asbestos dust was an occupational hazard in their establishments and, if so, what was the nature of this hazard and what should be done to prevent or control it.

About this time several articles had appeared in English medical journals describing a pneumoconiosis due to asbestos dust. While in one or two isolated instances the occurrence of this type of pneumoconiosis had been described in American journals, the industry itself appeared to be quite uninformed of the existence of any such occupational disease.

The hazard of silica dust, with special reference to the lungs, has long been appreciated, and a great deal of study and research has been applied to the problem (in the metal mining and certain other industries) in Great Britain, the United States, the British Dominions, and in other countries. The nature of the effects of silica dust expressed in the term "silicosis", with the resultant extraordinary predisposition to pulmonary tuberculosis, is well known. These effects have been associated with the inhalation of dust containing free silica in varying amounts. The effects upon the pulmonary tissue of dusts containing combined silica—silicates—are still a fertile field for investigation, but evidence is accumulating that certain of these dusts produce pathological results quite distinct from true silicosis.

The name "asbestosis" has been applied to the pneumoconiosis caused by asbestos dust and it will be so used in this report. Chemically, the asbestos of commerce is a hydrated magnesium silicate consisting primarily of silica (combined silica) 44.1 percent, magnesia 43 percent, and water 12.9 percent, while ferrous iron and nickel are present in small quantities. This commercial variety of

asbestos most commonly encountered is designated as chrysotile and is one of the four varieties of the mineral serpentine, in which it usually occurs in seams.

It should be borne in mind that silicosis (and presumably asbestosis) develops very slowly, taking from 5 to 15 and even 20 or 25 years to become established. This rate of progress is influenced mainly by the dosage of silica which the lungs receive, and this dosage, in turn, depends upon three variables—the amount of silica in the dust, the quantity of dust in the air, and the length of exposure. Individual idiosyncrasy might be included as a fourth variable; however, little is known of the variations in susceptibility in those exposed to dust. It might well be assumed that similar variables would influence the occurrence of asbestosis.

In places where asbestos is mined or fabricated in North America there does not appear to be present the clear-cut clinical picture which is so unescapable in communities with a true silicosis hazard, such as hard-rock mining communities. It may be that some of the asbestos plants are of too recent origin for the typical effects of a silicate dust to become manifest, but this would not apply to the older mines or to all of the fabricating plants.

The industrial health service of the Metropolitan Life Insurance Co. undertook the following investigation during the period from October 1929 to January 1931, which included:

1. A study of dust conditions in asbestos mines and mills in Canada and in fabricating plants along the Atlantic Seaboard in the United States.
2. Physical examinations of asbestos workers, including X-ray films.
3. A study of dust exhaust systems designed to eliminate asbestos dust.

Data on the fabricating plants only are included in this study and are designated in the report as plants A, B, C, D, and E. This is a preliminary report. A more extensive study of the asbestos industry is now under way.

DUST STUDIES

Apparatus and methods of sampling.—Both the impinger (1) and the electric precipitator (2) were used for the collection of air samples for dusts at the breathing levels and in close proximity to the workmen. Both of these forms of apparatus are adapted for this work, as they are transportable, easily set up and adjusted for the taking of the air samples at the proper level, and are extremely efficient.

The impinger collects the dust by aspirating the air and then impinging it onto a flat surface covered by a liquid in a container. The liquid used was distilled water, containing 50 percent alcohol to

prevent the solution of some of the dusts, particularly any silica which might be present. The impinger was actuated by an electrically driven rotary pump and the rate of air sampled was measured by means of a resistance type of flow meter with an inclined manometer for measuring the pressure difference. Each sample represents the dust collected from a volume of 100 cubic feet of air.

The electric precipitator is designed upon the Cottrell precipitator principle used for recovering dusts and fumes commercially. This principle depends on electrifying the dust particles by making them pass through an electrostatic field and thus causing them to settle out upon a sheet of celluloid. The electrostatic field is set up by means of a transformer operating from the lighting lines on 120 volts, alternating current. Air is drawn through the apparatus by a small rotary fan, run by a motor, the quantity being measured by a flow meter.

Samples of dust brushed from beams and pipe lines near the ceiling also were secured for chemical analysis. All samples were shipped to the industrial hygiene laboratory of the Metropolitan Co., and the dust counts were made according to the methods accepted by the United States Bureau of Mines and the United States Public Health Service (1). Particles in size up to 360 microns in the greatest diameter were counted.

Chemical analyses were made for total (free and combined) silica according to the accepted standard method of Hillebrand (3).

In the first plant studied (A) only particles 10 microns and under in size were counted. It has been demonstrated repeatedly that no silica particles exceeding 10 microns (a micron equals one-millionth part of a meter or one-thousandth part of a millimeter) in greatest diameter enter the lung tissu ; for this reason, the larger particles usually are not considered when determining dust counts. Later, as it appeared from some of the published articles (4) (English) that asbestos particles much larger in size were found in lung tissue, it was decided to count all particles and make differential counts of all those 10 microns and under.[1]

Total particles per cubic foot and the corresponding weight of the dust in milligrams were obtained. Since no relationship between the dust counts and the corresponding weights was found, the weights are not included in the tabulations in this report.

Table 1 shows by plants and by departments the maximum and minimum dust counts in million particles per cubic foot of air. Although the counts in plant A are of particles 10 microns and under,

[1] Samples collected by both the impinger and the electric precipitator were counted. In addition, microphotographs of these dust particles were enlarged by being projected upon a screen with a lantern-slide projector, the enlarged particles being measured with a ruler. Knowing the entire enlargement (by actual measurement), it was easy to calculate the original particle size (5). By the use of Hazen's (6) logarithmic probability paper, the logarithms of the function to be measured (in this case microns) are plotted as ordinates against the probability of occurrence as abscissae.

and in the other plants are for all particles, direct comparison is possible, as in no sample taken were the number of particles 10 microns and under less than 94 percent of the whole.

TABLE 1.—*Maximum and minimum dust counts in million particles per cubic foot of air, by plant and department*

Department	Plant A		Plant B		Plant C		Plant D		Plant E	
	Number of samples taken	Million particles under 10μ per cubic foot of air	Number of samples taken	Million particles per cubic foot of air	Number of samples taken	Million particles per cubic foot of air	Number of samples taken	Million particles per cubic foot of air	Number of samples per cubic foot of air	Million particles per cubic foot of air
Preparation	5	½–1½	9	½–8	8	2 –43			3	30 –82
Card room	3	½–1½	5	¾–4¾	6	3½–15½			3	26 –76
Ring frame spinning room	2	½– ¾								
Mule spinning	2	⅜–2½	5	½–1	3	1¼– 4½			3	5½–10
Twisting	10	½–1¾		(1)	8	[1] 1 – 3¾			3	[2] 6½– 7
Weaving	4	½o–2	4	½– ½	6	3¾–10	15	1 –7	3	10½–19¾
Felt department	6	½–44½								
Sheet insulating	3	½–4								
Molded brake band and clutch							2	½– ⅝		

[1] Included in spinning.

[2] Includes broad loom weaving.

Whereas the dust in the preparation room is practically all due to asbestos, the contrary is the case in the other departments. In the carding, spinning, and weaving rooms asbestos comprises about 25 percent of the material used. On special jobs the percentage of asbestos may be higher, but in general the figure quoted is approximately correct, the other material consisting principally of cotton. In the insulating departments of plant A, asbestos is but 5 percent of the total material used. In the molded brake-lining and clutch division of plant D, asbestos comprises about 25 percent of the total material. The actual exposure to asbestos dust, therefore, is considerably less than is indicated in the dust counts in table 1.

CONDITIONS IN THE PLANTS

The processes in these plants were very similar to those in cotton mills in general. For illustration, the process in the preparation room of plant B is here detailed at length:

Asbestos is received in bags. These are emptied upon the floor and the asbestos is shoveled into pug mills and run for about 5 minutes in order to crush and open the fibers. From there the asbestos is shoveled into trucks and wheeled to hoppers with either horizontal or vertical openers, similar to those used in textile mills. After passing through the opener, the material is discharged into trucks. Waste manufacturing material is first run through a garnet machine and

discharged into trucks, which are wheeled to the openers, and the material is fed into these in the same manner as is the new material. After being discharged from the opener, the material is put onto a vibrating or shaking screen, where the long fibers are picked off by a suction hood and blown into a bin to be used again in textiles. The short fibers falling through the screen are either sold as such or used in making an asbestos cement.

The cotton is received in bales, opened, and also run through vertical openers. It is discharged into trucks. The filled trucks from the vertical and horizontal openers containing either the asbestos fiber, the cotton, or the waste material are taken to separate storage bins. As needed, these materials are weighed and dumped onto the floor in proportion to the mixture desired, and the resulting mixed materials are then passed through a mixing picker. As this mixture is discharged from the picker, it is sprayed with a light mineral oil. The material is then taken by a mechanical conveyor to the storage bin in the card room. Two of these mixing pickers discharge onto this conveyor system, while a third machine is equipped with a suction device which conveys the material to a storage bin in the card room. The object of the two systems is to facilitate the handling of two grades of material at the same time. The third machine is not equipped with an oil spray. The object of the oil spray is primarily to entrap the small asbestos fibers and hold them enmeshed in the cotton fiber throughout the processes of carding, spinning, and weaving. Incidentally, it is apparent that it also diminishes the amount of dust. The material is saturated with about 4 percent of oil at this point; but by the time it reaches the looms, the oil had diminished to less than 1 percent.

While mineral oil was used in the preparation room of plant C, it apparently was not as efficacious as in plant B. In plant E oil was not used, nor was there any attempt at humidification or any system of dust exhausting. Carding machines were fed by hand. In plant A there was a humidifying, ventilating, and heating system, while plant B depended on natural humidity. In plant E the carding machines were equipped with a dust-exhaust system, but it was not efficiently used. In plant C carding was done in 2 buildings, 1 of which was equipped with an air-conditioning system, and in both buildings the machines had exhaust equipment.

Two plants, B and C, had artificial humidity installations in their spinning rooms. In the former the temperature was 76° F., relative humidity 78 percent. One plant, C, had a humidification system in the twisting department and also in the weaving department, where the relative humidity was 76 percent with a dry-bulb temperature of 69° F., as compared with a relative humidity of 44 percent in the weaving room of plant A.

Aside from plant E, it would appear that the dust hazard was not excessive except in the preparation rooms of plants B and C. The dust counts are interesting, too, when considered in the light of the permissible standard for granite dust, established by the United States Public Health Service (7), namely, about 10 million particles (10 microns and under) per cubic foot. However, we are not justified in assuming that because available information suggests that asbestosis is a milder disease clinically than silicosis, the threshold of permissible dust counts is higher. Asbestosis appears to be pathologically different from silicosis, and the experience so far does not warrant an attempt to define a standard of dustiness for asbestos dust.

DUST CONTROL

Various measures, such as oiling, humidification, and local exhausts, tended to reduce the dust. Nevertheless, it was evident that they were only partly successful. If it is expected to control dustiness in these plants, final reliance must rest upon properly constructed exhaust equipment. In plant C in one department an experimental installation was set up. In spite of some obvious faults, this equipment, on the basis of comparative dust counts, reduced the dust by 50 percent and with further alterations will probably be 75 percent effective. In this case such a reduction seemed quite satisfactory. It is neither practicable nor economically desirable to install such equipment as will make the air entirely dust free. The normal defensive mechanism of the body takes care of a fair amount of atmospheric pollution. It is when the body is exposed to an excessive amount of dust that this defense mechanism breaks down.

The application of exhaust equipment to textile machinery involves considerable difficulty, especially where the construction of the plant is such that it is not possible to apply down-draft suction to the looms.

It is desirable to install exhaust apparatus in any plant on an experimental basis first, and then check its efficiency by dust counts. This practice will result in saving a needless expenditure of money.

PHYSICAL EXAMINATIONS

X-ray films were made of 126 persons (108 men, 18 women) working in asbestos plants in the United States. All but five of these were given physical examination. The cases were selected more or less at random from among those having more than 3 years of employment in the industry. It was soon obvious that the early diagnosis of asbestosis must rest to a large extent on X-ray pictures of the chest. As in the early stages of silicosis, the clinical symptoms of the asbestos workers were usually indefinite and inconclusive. The interpretations of these films are based on the readings of one competent roentgenologist, but they have been reviewed by several

others experienced in this field. The differences of opinion were of a minor nature, and there was general agreement as to interpretation. The films were read conservatively, taking into account the physical examination and the age of the individual, and were classed as positive only when there was no major disagreement. All examiners were guided by their experience in silicosis and other types of pneumoconioses. The films classed as negative for asbestosis were further subdivided into doubtful and negative. Only time can tell whether the individuals classed as doubtful are progressing toward a definite asbestosis. Particular attention was focussed on the presence or absence of indications of tuberculosis, and in this respect all the reviewers of the films were in accord. With the unhappy experience of silicosis in mind, it was felt that a great deal of care should be devoted to ascertaining, if possible, whether or not asbestosis predisposes to tuberculous infection.

The cases of asbestosis were divided into two classes, first stage and second stage. The first stage embraces those who show by X-ray examination definite lung pathology sufficient in extent to warrant a diagnosis of pneumoconiosis, but who have no definite symptoms. The second-stage cases exhibit more extensive lung pathology and also definite symptoms.

All these individuals [2] were actively engaged in factory work, and it was not practicable to make any distinction on the basis of working ability or disability. Had any individuals been found who exhibited extensive pulmonary involvement and marked physical disability or total disability, they would have been classified as third stage, but no such cases were found.

Of the total of 126 X-ray examinations, 4 were diagnosed as second-degree asbestosis, 63 as first degree, 39 as doubtful, and 20 as negative.

There is a definite increase in the percentage diagnosed as positive in relation to the years of exposure, as shown in table 2. Small numbers make it impossible to determine how far the factor of age enters into this increase.

TABLE 2.—*Classification of cases by years of exposure*

Years of exposure	Percentage positive	Number		
		Positive	Doubtful	Negative
Over 15 years	87	13	[1] 1	[2] 3
10 to 15 years	58	7	3	2
5 to 10 years	50	30	25	3
Under 5 years	43	17	10	12
Total examined		67	39	20

[1] Part time. [2] 1 not continuous.

[3] One asbestos worker (second stage) retired of his own accord, because of old age, 10 years previous to this study, but is still active about his garden.

Of the 64 persons given physical examination and diagnosed as having positive asbestosis, only 8 were entirely free from symptoms, while 10 out of 37 with doubtful and 7 out of 20 with negative diagnoses were free from symptoms. Dyspnoea and cough were the symptoms most complained of, but none of these cases exhibited the urgent or evident type of "short wind" seen in true silicosis. Several of those classed as negative stated that they were "short winded" and were so recorded, but too much emphasis should not be placed on statements of subjective symptoms. During the progress of the study, physicians who were practicing in the communities where asbestos workers lived were questioned and stated that they did not find an unusual amount of tuberculosis among these workers. The contrast between this state of affairs and that found in a community with a silicosis hazard is noteworthy.

The incidence of tuberculosis (based upon X-ray films) is given in table 3; 40 of the 67 examined had less than 15 years of employment in the industry.

TABLE 3.—*Incidence of tuberculosis*

	Positive	Doubtful	Negative
Tuberculosis (healed)	7	1	2
Tuberculosis (active)	[1] 1	0	1
Total examined	67	39	20

[1] This case was diagnosed as probably active on the X-ray findings.

Table 4 gives information as to physical signs of chest trouble.

TABLE 4.—*Chest findings*

	Positive	Doubtful	Negative
Physical signs of chest trouble	[1] 33	[2] 9	[3] 7
No physical signs	31	28	13
Not examined	3	2	0
Total	67	39	20

[1] At least 6 of these showed no evidence associated with asbestosis.
[2] 2 of these not associated with usual signs found with asbestosis.
[3] 6 of these not associated with usual signs of asbestosis.

What significance, if any, can be attached to the presence of "asbestos corns" on the hands of workers appears doubtful, as 18 percent of the positives (12 out of 64) and 15 percent of the others (doubtful, 7 out of 37, negative, 2 out of 20) showed such corns.

Each roentgenologist who reviewed the X-ray films called attention to the fact that these films indicated a very unusual incidence of enlargement of the heart. It is probable that this is a compensatory enlargement due to the additional work put upon the heart in efforts

to pump blood through the fibrosed lungs. It is possible that not sufficient attention has been paid to the effects of the pneumoconioses upon the heart.

Many workers had changed from one department to another and from one plant to another during their years of employment in the asbestos industry. Since only the amounts of dust collected at the time of this survey in the various departments are known, there is no way of knowing the average amount of dust in the atmosphere inhaled by these people over the years of their employment. Consequently, it is not possible to correlate individual cases with definite amounts of dust exposure.

INSURANCE CLAIMS

To throw light on the relationship between asbestosis and pulmonary tuberculosis, an analysis of death claims and total and permanent disability claims was made in regard to companies carrying group insurance and having available figures.

There were 2,099 lives involved, with a total exposure of 7,019 life-years. The death claims are so small in number that reliable conclusions cannot be reached from any subdivision of the figures. The same is true of the sickness claims under health insurance. The number of claims for respiratory diseases is high in two of the plants studied but low for the others, as compared with the Metropolitan experience of 1927. However, during the latter part of 1928 and the first part of 1929 there was an epidemic of influenza.

The records of one establishment (plant B) showed that 6 of 36 death claims and 8 of 10 permanent and total disability claims were listed as due to pulmonary tuberculosis. This appeared to be an inordinate amount of tuberculosis from this plant. However, many of the employees were Negroes, and also tuberculosis claims are generally high in this section of the country. Realizing the difficulty in diagnosing pneumoconiosis and the tendency to confuse it with tuberculosis, these claims were studied individually. The physicians who had treated the individuals were interviewed, and the hospital and sanatorium records, including available X-ray films, were investigated, with the following results:

Death claims:

1. A typist, not exposed to dust; died of pulmonary and intestinal tuberculosis.
2. Colored male, age 27; worked in asbestos 1 year and 8 months; died of pulmonary tuberculosis following a hemorrhage; was in sanatorium 10 months. Also had a four plus Wassermann. No evidence of asbestosis.
3. Colored male, age 32; worked in asbestos plant 1 year and 7 months; died of pulmonary tuberculosis after 1 month in hospital. Cavitation both lungs; no evidence of asbestosis.

4. Colored male, age 34; worked in asbestos plant 2 years and 6 months. His physician believes this was a case of uncomplicated tuberculosis. Was not inmate of hospital or sanatorium.

No information could be obtained on the other two cases.

Total and permanent disability claims:

1. Male, employed in asbestos plant 3 years. His physician states that he first came under his observation with an old established case of tuberculosis about 2 years after asbestos employment started. Also had tuberculosis of the kidney and cervical glands.

2. Male, employed in asbestos plant 8 months. His physician states finding of old fibroid tuberculosis with tubercle bacilli in sputum. No X-ray available; but according to physician, asbestos bodies were found in sputum.

3. Male, 10 years' employment. Two physicians who treated him at different times are now inclined to believe this man is not tuberculous, but has asbestosis.

4. White male, was reexamined at time of investigation. His physician reports well nourished, husky looking, good color, no cyanosis; no clubbing of fingers; diminished expansion; incessant cough; X-ray shows fine mottling disseminated through both lungs. No evidence of tuberculosis. Probably a second stage asbestosis.

5. White male, 13 years in asbestos plant. Is now in sanatorium. An interesting case. His physician states that he has extensive asbestosis and pulmonary tuberculosis; cavity in right lung; sputum loaded with tubercle bacilli and asbestos bodies; believes tuberculosis long antedated asbestosis. This patient is progressing in a satisfactory manner.

It was not possible to locate the other three cases of total and permanent disability who had been diagnosed as having pulmonary tuberculosis. On the basis of the information obtained, the deaths in death-claims cases appear to be due to uncomplicated tuberculosis; three of them were Negroes, who were probably tuberculous at the time their employment in the asbestos plant commenced.

Of the 8 disability claim cases, 1 was uncomplicated tuberculosis and 2 were uncomplicated asbestosis who were put on disability because of a mistaken diagnosis of tuberculosis. In this same community we know of one death due to uncomplicated asbestosis in an individual with many years' employment in the industry.[3]

CONCLUSIONS

1. Prolonged exposure to asbestos dust caused a pulmonary fibrosis of a type different from silicosis and demonstrable on X-ray films. Clinically, from this study, it appears to be of a type milder than silicosis.

2. Cases of definite cardiac enlargement were frequently found to be associated with asbestosis.

[3] Personal communication.

3. A predisposition to tuberculosis due to asbestos dust was not indicated in this study.

4. Asbestosis as observed in this series of cases had not resulted in marked disability in any case.

5. It is not known how much asbestosis may add to the mortality of pneumonia and acute nontuberculous pulmonary infections.

6. It is not practicable as yet to establish standards for the asbestos dust content of air.

7. The amount of dust in the air in the asbestos plants studied can be substantially reduced.

RECOMMENDATIONS

It is recommended—

1. That the industry seriously face the problem of dust control in asbestos plants.

2. That new employees be examined physically, including X-ray examination of the chest, and rejected for employment if they show tuberculosis or pneumoconiosis.

3. That employees be examined physically, preferably every year, but at least every 2 years, this examination to include an X-ray examination of the chest.

4. That the industry sponsor studies on known cases of asbestosis, as well as studies on effects of asbestosis on the heart and circulation.

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[4] Asbestosis bodies in sputum and lung. By Kenneth M. Lynch, M. D., and W. Atmar Smith, M. D. Jour. Am. Med. Assoc., Aug. 30, 1930, vol. 95, no. 9, pp. 659–661.

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ENDEMIC TYPHUS IN ALABAMA[1]

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I. INTRODUCTION

In a preliminary report made in June of this year before the Conference of State and Provincial Health Authorities, held in Washington, the authors discussed the epidemiological aspects of endemic typhus as it occurs in southern United States. In that report it was noted that there had been a rapid increase in this disease in certain Southern States, as is shown in table 1. That other countries have experienced a similar rise in incidence is evidenced by the figures in table 2.

The distinction between epidemic typhus and the endemic typhus of this country was first recognized in 1898 by Brill. He (1) found in the United States a type of fever which, resembling typhoid, gave a negative Widal reaction. In further studies he (2, 3) demonstrated its similarity to typhus, but showed that it was milder in character and less contagious, only one case as a rule being found in a household. Also he reported that it was most prevalent during the fall of the year instead of late winter or spring. In 1912 Anderson and Goldberger (4) proved that Brill's disease was immunologically identical with Mexican typhus, or tabardillo. Naturally this led to the belief that it was louse borne.

[1] Read before the laboratory section of the American Public Health Association, Pasadena, Calif., Sept. 3, 1934.

TABLE 1.—*Typhus fever incidence in Southern States, 1928–July 1, 1934*

State	1928	1929	1930	1931	1932	1933	1934
Florida	49	48	39	28	42	54	11
Georgia	48	57	134	127	308	625	156
Alabama	59	72	67	80	237	823	112
Louisiana	0	1	0	1	17	11	4
Texas	5	8	13	43	227	398	146

[1] 6 months only, to July 1.

TABLE 2.—*Incidence of typhus fever in certain countries*[1]

Country	1928	1929	1930	1931	1932	1933
Egypt	599	1,141	288	265	2,298	7,839
Union of South Africa	1,436	1,778	1,347	1,663	1,664	3,083
Mexico [2]	516	741	894	1,684	1,246	[3] 989
United States	196	239	510	374	892	1,668
Poland	2,401	1,988	1,640	2,154	2,283	2,842
Rumania	983	1,456	1,857	1,419	1,788	1,871

[1] From the Epidemiological Report, Health Section, League of Nations.
[2] Deaths.
[3] For 6 months.

Nevertheless, Maxcy (5) (1926), in an extensive epidemiological study of Brill's disease, or endemic typhus, was at a loss to explain its noncontagious character and its seasonal incidence if he assumed that the louse was the vector. Since he noticed that a larger number of cases appeared among persons handling foodstuffs, he was inclined to believe that rats and mice might be the reservoirs, and that the disease was carried to man by fleas, mites, or ticks. Furthermore, he emphasized the fact that Brill's disease shows no preference for the lower strata of society and bears no relation to lousiness. The next step was taken when Dyer, Rumreich, and Badger (6) (1931) were able to recover the virus of Brill's disease from rat fleas which had been found in typhus foci.

Rumreich (7) (1933) has pointed out that until 1931 "there was, in spite of Maxcy's fundamental work, much confusion in regard to the probable vector of endemic typhus, and a variety of insects and arachnids were suspected by different workers. Among these vectors were the tropical rat mite, common North American chigger, the body louse, the head louse, the *Anopheles* mosquito, the bedbug, and the tick. It is now obvious that much of this chaos was due to the fact that two distinct clinical entities were being confused, and for this reason Maxcy's observations were not more widely accepted." The work of Rumreich, Dyer, and Badger (8) (1931) definitely proved that there are in eastern and southern United States two diseases which are related both etiologically and serologically. One of these is endemic typhus, which is transmitted to man by the rat flea; the other is Rocky Mountain spotted fever, which is carried by the tick.

II. ENDEMIC TYPHUS IN ALABAMA

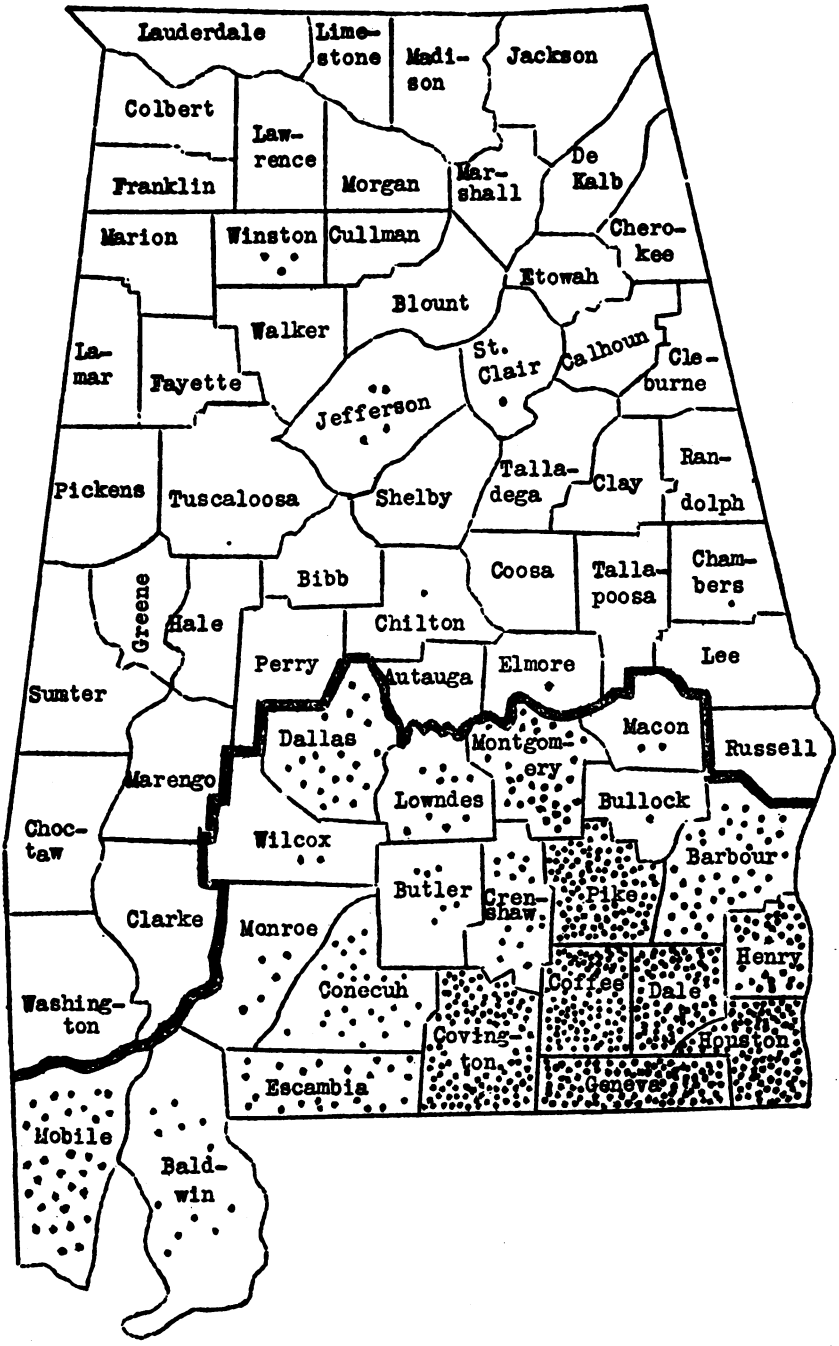
Typhus fever was first recognized in Alabama in 1922, when a series of cases giving a positive Weil-Felix reaction were reported by Maxcy and Havens (9). From that time until 1932, cases continued to be reported, with an average of 60 to 80 cases being recognized each year. The disease has been confined almost exclusively to south and southeast Alabama, with certain localities showing cases year after year. In 1932 there was a very sharp increase in incidence, there being 237 cases with 11 deaths as compared to 80 cases and 4 deaths in the preceding year. This increase continued during 1933, when the number of cases totaled 823 and the deaths 35. Figure 1 shows the location of the cases reported during 1933. From the urban centers the disease has spread until much of the incidence is now in purely rural areas and among people who could not have obtained their infection except at home. Rumreich (10) has reported evidence indicating that several species of rodents may be concerned in the problem of rural typhus. Association with food establishments is still an important factor in urban cases.

The seasonal occurrence has remained constant during all this time, with the summer and fall months accounting for most of the cases. This is, of course, contrary to the experience with the epidemic type of the disease. In table 3 the cases by months for 8½ years are given.

TABLE 3.—*Seasonal distribution of cases in Alabama, 1926–33 and January–July, 1934*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1926	4	1	1	2	3	3	1	5	7	7	4	10
1927	6	1	2	1	1	5	9	7	14	7	8	8
1928	1	2	1	0	0	7	9	12	13	2	4	8
1929	0	3	4	5	4	7	4	11	11	5	12	6
1930	1	2	1	0	6	5	3	11	19	10	6	3
1931	2	2	1	6	1	4	7	12	5	15	13	11
1932	6	3	5	12	9	29	17	26	51	48	17	14
1933	11	8	16	15	39	79	153	129	149	75	92	59
Total	32	22	31	41	63	139	203	213	267	169	156	119
1934	27	30	19	7	11	18	24					

Maxcy (5) called attention to the relative freedom of the Negro from the infection. This still holds true, but not to the same extent, since there have been 77 cases reported among the colored in the past 2 years. In the 21 counties most concerned, the Negro population is 45 percent of the total, so that the attack rate among them is only one-tenth that of the white. Males continue to predominate, particularly among the whites, and adults again are most affected. With the extension of the disease into rural areas, however, and with the infection being acquired at home, more women and children are being exposed. Table 4 shows the distribution of 1,029 cases reported during 1932 and 1933 in which race, sex, and age were given.



• Indicates case of Typhus Fever.

FIGURE 1.—Typhus fever in Alabama, 1933

TABLE 4.—*Distribution of 1,029 cases of typhus fever, by race, sex, and age, in Alabama, 1932–33*

Age (years)	White		Colored		Total	
	Male	Female	Male	Female	Male	Female
0–4	4	10	0	0	4	10
5–9	20	15	1	1	21	16
10–14	43	31	2	2	45	33
15–19	67	24	3	0	70	24
20–24	46	26	1	4	47	30
25–34	105	51	10	11	115	62
35–44	117	52	7	3	124	55
45–54	74	46	8	4	82	50
55–64	42	20	4	2	46	22
65–74	21	11	0	1	21	12
75 and over	3	2	0	0	3	2
Not stated	66	56	9	4	75	60
Total	608	344	45	32	653	376

During 1932 and 1933 there were reported 46 deaths from typhus fever. Based on 1,029 cases reported for these years, this is a case fatality rate of 4.4 percent, an annual death rate of 0.84 per 100,000 population. This fatality rate of 4.4 percent for the cases reported in 1932 and 1933 is lower than the rate for cases reported prior to this period. In the 498 cases reported since the recognition of the disease in 1922, through 1931, there were 38 deaths, or a fatality rate of 7.6. No doubt the morbidity from this disease was reported more completely during the last 2 years and is a partial explanation of the decrease in the fatality rate. It is apparent that there has been no increase in the fatality of the disease with its increased incidence.

Whereas 73 percent of the cases of typhus in Alabama in the last 2 years were under 45 years of age, only 35 percent of the deaths were less than 45 years of age. As shown in table 5, the fatality rate varied greatly with age, being less than 2 percent for cases under 45 years, 5 to 7 percent for cases occurring between the ages of 45 and 64 years, and approximately 30 percent for persons above 65 years of age.

TABLE 5.—*Case fatality of typhus fever in Alabama (based on 1,029 cases), 1932–33*

Age (years)	Cases [1]				Deaths				Deaths per 100 cases			
	White		Colored		White		Colored		White		Colored	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0–14	75	67	4	4	1	1	1	------	1.3	1.5	(2)	(2)
15–44	376	183	26	20	7	2	4	------	1.9	1.1	(2)	(2)
45–64	130	79	15	7	9	4	1	2	6.9	5.1	(2)	(2)
65 and over	27	15	0	1	8	5	1	------	29.6	33.3	(2)	(2)
All ages	608	344	45	32	25	12	7	2	4.1	3.5	15.5	6.3

[1] Unspecified ages distributed.
[2] Number of cases too small to make significant rates.

These conclusions are based on the fatality rate for white cases, since the number of colored cases, by age, was too small to warrant analysis. The fatality rate for the colored cases was 11.7 percent, as against a fatality rate of only 3.8 for whites. That the higher fatality rate for Negroes may be due, to a considerable extent, to less complete recognition and registration of cases for this group is quite possible.

It should be noted that, when two or more causes, including typhus, are stated on the death certificate, typhus fever is preferred over all other causes except cholera, plague, yellow fever, and deaths from violence. A study of the death certificates for these deaths reveals that on only 11 of them was typhus fever the only cause given. The most frequent contributory cause was pneumonia, in 14 instances, nephritis in 9, myocarditis in 6, apoplexy in 4, and all other causes, 8. In some instances more than one of these conditions were noted on the death certificate. A contributing factor to this higher fatality in persons of older ages is the fact that these persons were already suffering from a chronic heart or nephritic condition which would have made them poor risks for any infectious disease. In uncomplicated cases the case fatality rate for endemic typhus is low.

III. DIAGNOSIS

A. CLINICAL

These cases were seen by a wide variety of physicians, but the clinical appearance was sufficiently characteristic in most instances to be readily recognized.

The occurrence of cases with fever, usually lasting 2 weeks, and complaints of headache, dizziness, anorexia, and prostration, and accompanied by a rash, are very suggestive. The rash, which is the most characteristic finding, appears about the fifth day, usually on the chest and abdomen and on the medial surface of the arms. It may not extend further or may spread and involve the whole body; the face, palms, and soles are not usually involved. In character it usually consists of rose or dark red macules fading into the surrounding area. The macules do not disappear on pressure, but the whole rash lasts from 2 to 10 days, when it rapidly disappears.

The differential diagnosis must include typhoid fever, malaria, dengue, and Rocky Mountain spotted fever. Laboratory procedures will assist in removing the first three, but spotted fever can be eliminated only on clinical and epidemiological grounds. In Rocky Mountain spotted fever the clinical course is more severe and the rash more profuse. There often is also a history of tick bite and sometimes a small ulcer at the site of this bite.

B. LABORATORY

During 1933 the laboratories of the State health department examined 1,445 specimens, of which 461 were positive for the Weil-Felix reaction, while an additional 81 were classed as doubtful. This compares with 149 positive tests in 1932, 63 in 1931, and 61 in 1930.

The Weil-Felix reaction, or the agglutination of *proteus* X_{19} by the serum of the suspected case, has proved of inestimable value in the practical diagnosis of epidemic typhus. Numerous experiments have shown the high specificity of this test. In endemic typhus, Brill and Baehr (11) (1929) reported disappointing results from its use, but Dyer (12) (1933) states that "the blood serum contains agglutinins for *proteus* X_{19} in dilutions of 1:160 or more in nearly all cases. The highest titer is usually reached at the end of the second week and may reach a dilution of 1:40,000." Cases occurring in Alabama almost invariably show a strongly positive Weil-Felix reaction, most of them exhibiting a complete agglutination in the 1:640 dilution, which is the highest one used routinely. Sera which agglutinate only in the 1:80 are considered doubtful and second specimens are requested. Those which give reactions in the 1:160 or above are called positive. It has been stated that, in epidemic typhus, the agglutinins rapidly decline during convalescence and disappear almost entirely after 5 months. In a few cases of endemic typhus, which have been observed for long periods at this laboratory, the titers gradually declined but agglutinins were present in appreciable quantities even after 6 months.

From the laboratory standpoint the differential diagnosis between spotted fever and endemic typhus is most difficult. Both diseases give the Weil-Felix reaction, although there are some variations with different strains of *proteus* X. Attempts have been made to use this as a means of separation, but as yet sufficient data have not been accumulated. The total leucocyte count is of some value, because in endemic typhus it usually falls within normal limits or there may be a leucopenia, while in Rocky Mountain spotted fever a leucocytosis is generally present. Several cases of endemic typhus occurring in Montgomery recently have exhibited increased white cell counts.

Dyer (12) has stated that "for the laboratory identification of a virus suspected of being either typhus or spotted fever the study of the effect of the virus on laboratory animals is essential. The points to be observed are (1) the clinical picture produced in guinea pigs, (2) the production of agglutinins to *proteus* X in rabbits or monkeys, (3) the presence of the typical histologic picture in the brains of animals, and (4) cross-immunity tests." Since this involves a large number of animals, and a great expenditure of labor and time, it is impracticable as a routine measure. This procedure has been described in detail by Badger (13) (1933).

A number of cases of typhoid fever which were confirmed by blood cultures were also found to have positive Weil-Felix reactions in fairly high dilutions which increased in titer as the disease progressed. In these patients there was no evidence of mixed infection. One explanation is the possibility of a previous attack of endemic typhus. The chance of wrong diagnosis in such cases on which the Weil-Felix reaction alone is requested is apparent. This observation has been made sufficiently often in our laboratories to justify the routine culture of all bloods submitted for the agglutination reaction in order to arrive at the proper diagnosis of undiagnosed fevers. Specimens of blood received at the laboratories from those sections of Alabama where endemic typhus is prevalent are routinely subjected to the Weil-Felix test, in addition to what other information might be requested by the physician in attendance.

IV. CONTROL

During the past 2 years the disease reached such proportions that it became a serious public health problem. The definite incrimination of the rat and rat-flea as the source of infection naturally pointed to rat destruction as the most feasible means of attack. The area of Alabama most seriously infected corresponds roughly to the peanut-growing area, so that the rat population was probably very high. During 1933 many of the towns in the area concerned inaugurated rat-control programs, combining poisoning and trapping in most instances. With the inauguration of the Civil Works Administration project a larger, more widespread program superseded the local efforts, and a serious attempt at rat destruction was undertaken in some 21 counties. It is estimated by the Biological Survey that almost 4,000,000 rats were destroyed in this project, which closed with the discontinuance of the Civil Works Administration program.

There has been a remarkable decrease in typhus cases in Alabama since the rat-control campaign. There were 81 cases in 1931, 237 cases in 1932, 823 cases in 1933, and 75 cases between January 1 and March 10, 1934, as compared with 24 cases for the same period of 1933. Thus, from 1931 to the time the rat campaign was conducted in January, February, and early March, 1934, there was an almost constant increase of 300 percent each year over the preceding year. From March 11 to July 28, 1934, there have been only 60 typhus cases as compared with 288 for the same period last year, or, since the campaign, a decrease of 79 percent in place of a 300-percent increase. The evidence is now strong that rat control is an important factor in the suppression of this disease.

V. CONCLUSIONS

Endemic typhus fever, or Brill's disease, has, during the past 2 years, become a serious problem in Alabama and some other southern States. From foci in certain cities the disease has spread to rural areas and is now widespread.

The original observations of Maxcy as to race, sex, age, and seasonal distribution have been largely confirmed.

The case fatality rate for uncomplicated endemic typhus is low. Much of the mortality is in the older age groups. There has not been an increase in case mortality rates with the increasing morbidity.

The work of Maxcy (5) and of Dyer, Rumreich, and Badger (6) has shown that the reservoir of infection is in the rat and that transmission is by the rat flea. The mild winter climate, plentiful food supply, and absence of ratproofing in buildings are all conducive to heavy rat infestation.

Rat eradication is evidently an important factor in the control of this disease.

The Weil-Felix reaction has proved to be of inestimable value in the diagnosis of endemic typhus.

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THE EDUCATOR'S VIEWPOINT OF PSYCHIATRIC SERVICE IN A PENAL INSTITUTION [1]

By R. A. McGee, *Supervisor of Education, United States Northeastern Penitentiary, Lewisburg, Pa.*

By way of introduction and orientation, a brief statement of the educator's relationship to the other elements contributing to a program such as that outlined by the Chillicothe staff [2] seems appropriate.

Criminal behavior is always a result of personal factors and a social situation. The psychiatrist and the psychologist are concerned chiefly with the personal or individual side of this problem. The social worker is interested in its situational aspects. The educator's task is that of bringing about certain changes in individuals in order that they may make more satisfactory adjustments to their particular socio-economic situations. Since his work is with individual men, he finds himself somewhat more closely related to the psychiatric service than to other departments in the institution. However, the formal educational unit is not the only agency attempting to bring about individual improvement. The majority of the entire staff is charged with this duty. The medical group, the disciplinary officers, the chaplains, and the industrial units should be equally interested. In view of the fact that all of these changes or improvements except the organic ones involve learning, the educator has more reason than idle curiosity for a professional interest in all of the activities of the institution. Aside from a mere segregation of incorrigibles, a prison in its last analysis is an educational institution. This implies a broader definition of education than the imparting of information and skill. Learning regular habits of work, to brush the teeth, and to take a daily bath are as truly educational as learning long division or plumbing, and in many cases are far more significant.

[1] Presented at the Conference on Medical and Psychiatric Services of the Federal Penal and Correctional System, held at Springfield, Mo., Sept. 13–15, 1934.

[2] The role, organization, and function of psychiatric service in a correctional institution. By Hagerman, Dyer, and Limburg. Pub. Health Rep., Nov. 9, 1934, p. 1325.

The prison educator therefore conceives of himself as a unit in a larger program of human regeneration. He cannot function except by complete cooperation and coordination with all other units. The means of promoting certain phases of this cooperative effort constitute the essence of this paper.

The cornerstone of cooperative enterprise is mutual understanding and a common objective. Workers in penal institutions tend to confine their activities to their respective specialties. Each department head jealously guards his own prerogatives and almost dares anyone else to claim any knowledge of his field. Each confuses the other by a polite barrage of technical terminology. Each is inclined to attach more importance to his own findings than to those of his associates. There often seems to be a lack of mutual understanding as to ultimate objectives which is essential to a proper balancing of values and the development of an integrated program.

As a first step in this direction it is suggested that we develop a common language—else how are we to understand one another? It seems entirely reasonable to believe that this could be accomplished if each of the members of the warden's official family would prepare a list of terms used by him in his official relationships, giving definitions and explanations, with the implications to be drawn from each. Then let us hold periodical meetings in each institution, at each of which some staff specialist would explain in laymans' language some phase of his work, with the proper development of terms and ideas. He should be frank to say in which instances his findings might be interpreted by nonspecialists, and in which action should be taken on a basis of expert interpretation only. The fact that one officer knows something of another's business need not result in his assuming the responsibilities of the other and such knowledge would certainly contribute to a closer cooperative relationship.

As a second step, it seems that some formal effort to balance conflicting values brought to light in the classification and assignment board meetings would be most beneficial. It is true that this is a matter of administrative policy, but careful and expert thought should contribute to the formulation thereof. How much weight should the deputy warden attach to a diagnosis of feeble-mindedness? How much to the educator's recommendation that vocational training is the most vital factor in rehabilitation in a given case? How much to the fact that a man's family is destitute? How much to a wide discrepancy between educational and mental ratings? How much to an inmate's criminal history? How much to the immediate needs of the institution? And so on. Each man's case must be decided on its own merits—that is the reason for the Classification and Assignment Board meetings. But, on the other hand, it is undoubtedly

true that a general formulation of policies would serve to expedite and clarify the individual problems of institutional treatment.

The development of the Classification and Assignment Board has been a longer step than many of us realize toward a cooperative administration. This device brings about an interplay of ideas which is of great value. However, it seems to me that the board has been given an inappropriate name. Classification does not harmonize with the concept of individual treatment, and the element of assignment is already overemphasized in comparison with other problems of adjustment. The name "case board" or "program committee" might be more in keeping with its functions.

Experience with this board at Lewisburg makes me fear that its work will degenerate into such a routinized procedure that it will lose its real values for no better reason than the fact of its having a greater volume of work to do than is possible if the staff members are to handle their other work efficiently. To meet on all new cases, to follow up on special cases, to advise on difficult disciplinary cases, and to administer a merit system would require a conscientious board to meet at least three half-days per week. Some speedier system must be devised. This necessarily involves the selection of special cases for intensive and individual work, and the handling of others in a more perfunctory manner.

A majority of inmates will derive what good can be obtained from the institutional program without much individual attention. Others should be tagged as problem cases as soon as they can be identified. These should be reconsidered by the board and by the individual staff members at regular intervals. Follow-up work, to be effective, must be organized and the cases initiated by the staff; otherwise the time available to devote to individual cases will be consumed to a large degree by the psycho-neurotics and other constitutional pests, with the result that many other deserving cases will go entirely without attention.

This necessity for selective handling of cases applies to the work of each member of the board as well as to the board as a whole. For the psychologist, or the social worker, or the educator to attempt to carry out a detailed study and course of treatment for each and every case cannot do otherwise than swamp him with routine and useless detail. The institutional social worker and the psychologist have most often been the victims of this difficulty. The result is a mass of records about which everybody does nothing. The remedy seems to be threefold: First, routine procedures to be followed in every case should be cut to a bare minimum, consuming not more than one-fifth to one-fourth of the time of the paid personnel. Second, cases needing special attention should be identified early in the

institutional history of the men and then given all the attention and study that seems desirable or profitable. Third, the idea that administrative officers or professional practitioners have a research function must be abandoned. Research and administration require different mind-sets. In the interests of efficiency and economy of effort they should not be mixed in the functions of a single officer.

Research is one of the greatest needs in penology at the present time, but why have everybody tinkering with it? Specially qualified research workers should be designated for the work in a few selected institutions. Let the rest of us cooperate with them in every way, but otherwise keep hands off.

The prison educator is in special need of the results of research belonging properly in the field of psychiatry. From centuries of experience, he has learned the techniques of imparting information and skills. He knows how to handle groups. He is skilled in the arts of dealing with others in the teacher-student relationship. However, he is usually devoid of any scientific knowledge of the means for developing the emotional spheres of his students. Here is to be found the very foundation of most problems of personal maladjustment. Here is the greatest need of the prison educator. He wants to know how to bring about changes of attitude through training; how to increase self-respect; how to develop the social viewpoint; and again, how to cure functional stuttering by training; how to train a man away from undesirable nervous tics; and how to increase emotional drives. He is willing to assume the duties of the daily task under the direction of the psychiatrist if the psychiatrist will but tell him how.

COURT DECISION ON PUBLIC HEALTH

Borough held to be without power to require certificate of inspection for grave.—(Pennsylvania Superior Court; *Commonwealth* v. *Dickey*, 175 A. 285; decided Nov. 19, 1934.) An ordinance of the borough of Collingdale regulating the depth of graves provided that the board of health or such persons as it nominated should be vested with the authority to inspect graves and to issue certificates of inspection upon payment of $2. For failure to obtain such certificate a fine was provided, with imprisonment in default of payment of the fine. Acting under statutory authority the State department of health had promulgated regulations to be observed by undertakers, sextons, and other persons in charge of the interment or disposition of dead bodies. These regulations contained requirements governing the depth of graves but nothing concerning a certificate of inspection. The defendant, a cemetery superintendent, was convicted of failing to obtain a certificate of inspection for a grave as required by the

above-mentioned borough ordinance. On appeal the superior court said that the sole question before it was whether the ordinance was invalid and, in holding that it was, stated in part as follows:

Although the general borough act authorized boroughs to regulate the depth of graves, it also provided that nothing contained in the act shall be construed so as to repeal the provisions of any law, the enforcement of which is vested in the department of health. The department of health having promulgated a rule or regulation covering the subject-matter of the ordinance relating to the depth of graves, the borough was powerless to require certificates of inspection relating to the matters already provided for by the department of health. Within its sphere, the department of health has control of the health of the State, and the borough authorities are without power to impose restrictions and limitations on such subjects as the department of health has already covered by its own rules and regulations. Under the guise of a certificate of inspection, the borough authorities are not authorized to impose regulations and demand fees, in reference to powers that have been delegated to and have been exercised by the general health body of the State. The certificate was an additional requirement not authorized by the department of health and consequently an invasion of its authority, and therefore the ordinance is invalid. * * *

DEATHS DURING WEEK ENDED DEC. 15, 1934

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

	Week ended Dec. 15, 1934	Corresponding week, 1933
Data from 86 large cities of the United States:		
Total deaths	8,422	8,545
Deaths per 1,000 population, annual basis	11.7	11.9
Deaths under 1 year of age	581	596
Deaths under 1 year of age per 1,000 estimated live births	54	[1] 51
Deaths per 1,000 population, annual basis, first 50 weeks of year	11.3	10.9
Data from industrial insurance companies:		
Policies in force	67,072,330	67,329,101
Number of death claims	12,544	14,271
Death claims per 1,000 policies in force, annual rate	9.8	11.1
Death claims per 1,000 policies, first 50 weeks of year, annual rate	9.8	9.8

[1] Data for 81 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Dec. 22, 1934, and Dec. 23, 1933

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Dec. 22, 1934, and Dec. 23, 1933

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933
New England States:								
Maine		2	1	9	21	2	1	0
New Hampshire	1			2	36	174	0	0
Vermont	1				1	55	0	0
Massachusetts	11	16			151	511	3	2
Rhode Island	6	3			3		0	0
Connecticut	2	2	8	5	316	5	0	3
Middle Atlantic States:								
New York	57	51	[1] 65	[1] 9	634	467	5	2
New Jersey	16	19	322	29	36	32	0	0
Pennsylvania	72	67			888	171	3	1
East North Central States:								
Ohio	69	38	3	16	238	80	1	1
Indiana	39	34	50	49	148	39	0	1
Illinois	68	49	57	10	1,212	43	7	3
Michigan	8	17	6	3	111	29	1	2
Wisconsin	3	12	17	32	452	155	3	0
West North Central States:								
Minnesota	1	5			728	20	1	1
Iowa [2]	6	9	7	4	541	10	2	2
Missouri	27	41	92	7	71	108	1	1
North Dakota	4	2	6		94	19	0	0
South Dakota	4	2			40	310	0	0
Nebraska	5	5			39	5	1	0
Kansas	12	34			350	25	2	0
South Atlantic States:								
Delaware			2	1	3	2	0	0
Maryland [2]	15	18	18	27	41	33	0	0
District of Columbia	10	15	9	4	1	15	0	2
Virginia	30	42			173	73	0	0
West Virginia	48	38	18	63	213	20	0	3
North Carolina [3] [4]	36	71	49	19	407	649	1	2
South Carolina [4]	6	19	738	433	9	97	0	0
Georgia [4] [5]	14	25				524	0	0
Florida [3] [4]	10	15	1		3		0	0

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Dec. 22, 1934, and Dec. 23, 1933—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933
East South Central States:								
Kentucky	30	49	34	4	116	14	3	0
Tennessee	37	44	64	54	12	173	1	2
Alabama [4]	20	28	264	27	70	48	1	0
Mississippi [2]	8	18	----	----	----	----	0	0
West South Central States:								
Arkansas	13	17	59	8	5	123	0	0
Louisiana	34	23	6	4	17	3	2	0
Oklahoma [6]	15	26	190	29	1	13	0	4
Texas [4]	83	163	239	145	39	140	2	0
Mountain States:								
Montana	17	1	----	15	78	----	1	0
Idaho	1	----	6	----	5	4	0	0
Wyoming	1	----	----	----	4	20	0	0
Colorado	2	6	----	37	342	4	1	0
New Mexico	3	10	10	1	23	51	0	3
Arizona	2	5	20	12	63	5	1	0
Utah [3]	----	----	3	----	24	260	0	0
Pacific States:								
Washington	----	3	----	----	79	219	2	0
Oregon	2	----	54	13	23	14	0	0
California	22	30	20	34	46	209	1	0
	871	1,074	2,438	1,105	7,907	4,973	47	35

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933
New England States:								
Maine	0	1	30	6	0	0	2	0
New Hampshire	0	0	29	22	0	0	0	0
Vermont	0	0	14	5	0	0	1	0
Massachusetts	0	1	148	200	0	0	3	2
Rhode Island	0	0	8	4	0	0	1	2
Connecticut	0	0	39	50	0	0	0	0
Middle Atlantic States:								
New York	2	2	433	456	0	0	7	11
New Jersey	0	0	123	121	0	0	1	3
Pennsylvania	2	2	469	452	0	0	8	20
East North Central States:								
Ohio	0	4	477	383	1	0	5	5
Indiana	4	0	181	142	1	3	3	2
Illinois	2	4	658	387	1	1	29	4
Michigan	2	0	288	345	0	1	7	4
Wisconsin	1	2	390	116	8	29	0	2
West North Central States:								
Minnesota	1	0	185	49	5	1	2	2
Iowa [3]	0	0	44	81	0	0	4	0
Missouri	0	0	68	71	3	7	3	4
North Dakota	0	0	27	20	5	0	0	0
South Dakota	0	0	23	4	4	0	1	0
Nebraska	0	1	40	18	15	1	0	0
Kansas	1	2	90	132	1	4	1	3
South Atlantic States:								
Delaware	0	1	4	6	0	0	0	1
Maryland [3]	0	0	103	70	0	0	1	4
District of Columbia	0	1	29	17	0	0	0	3
Virginia	1	0	97	79	8	0	5	3
West Virginia	1	2	126	115	0	3	10	10
North Carolina [3] [4]	1	0	75	111	0	0	5	3
South Carolina [4]	0	1	5	11	0	1	1	1
Georgia [4] [5]	0	0	11	20	0	0	5	10
Florida [3] [4]	0	0	7	7	0	0	9	2

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Dec. 22, 1934, and Dec. 23, 1933—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933	Week ended Dec. 22, 1934	Week ended Dec. 23, 1933
East South Central States:								
Kentucky	0	0	43	92	0	0	2	5
Tennessee	0	0	52	76	1	1	5	2
Alabama [4]	0	0	12	24	5	1	3	5
Mississippi [3]	0	0	14	17	0	0	4	0
West South Central States:								
Arkansas	0	0	7	17	7	2	8	2
Louisiana	1	2	25	26	1	3	17	6
Oklahoma [6]	0	0	25	20	1	0	7	2
Texas [4]	0	0	69	123	3	2	44	24
Mountain States:								
Montana	1	0	33	7	0	1	2	4
Idaho	0	2	4	5	1	2	0	0
Wyoming	0	0	19	5	4	0	1	0
Colorado	0	0	151	26	2	6	2	9
New Mexico	0	1	24	38	1	0	13	4
Arizona	0	3	25	15	0	0	2	1
Utah [3]	0	0	55	14	0	3	3	0
Pacific States:								
Washington	6	0	54	32	41	3	3	3
Oregon	1	0	46	32	3	13	2	4
California	6	1	135	157	0	4	4	33
Total	33	33	5,014	4,226	122	92	236	205

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Rocky Mountain spotted fever, week ended Dec. 22, 1934, 3 cases, as follows: North Carolina, 1; Florida, 2.
[4] Typhus fever, week ended Dec. 22, 1934, 25 cases, as follows: North Carolina, 2; South Carolina, 1; Georgia, 2; Florida, 1; Alabama, 7; Texas, 12.
[5] Dengue, week ended Dec. 22, 1934, Georgia, 28 cases.
[6] Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
November 1934										
Illinois	14	354	85	10	1,343	1	11	2,248	2	99
Indiana	1	275	134	----	414	----	5	733	12	31
Michigan	3	71	24	8	221	----	16	1,005	0	39
Minnesota	1	32	4	----	693	----	14	448	39	6
Pennsylvania	8	231	----	2	1,979	1	12	1,670	0	90
Rhode Island	1	7	----	----	4	----	0	64	0	1
South Carolina	1	257	1,127	724	22	65	5	41	0	16
Texas	3	292	509	1,840	81	39	20	204	8	173
West Virginia	5	277	155	----	720	----	4	760	1	71

November 1934

	Cases
Actinomycosis:	
Illinois	1
Chicken pox:	
Illinois	1,500
Indiana	438
Michigan	1,782
Minnesota	943
Pennsylvania	3,277
Rhode Island	111
South Carolina	12
Texas	52
West Virginia	268
Dengue:	
South Carolina	14
Texas	65
Diarrhea:	
South Carolina	198
Dysentery:	
Illinois (amoebic)	23
Illinois (amoebic carriers)	85
Illinois (bacillary)	16
Michigan	30
Minnesota (amoebic)	8
Minnesota (bacillary)	2
Pennsylvania	6
Texas	251
German measles:	
Illinois	137
Michigan	30
Pennsylvania	50
Hookworm disease:	
South Carolina	38
Jaundice, epidemic:	
Minnesota	4
Lead poisoning:	
Illinois	6
Pennsylvania	1
Lethargic encephalitis:	
Illinois	13
Indiana	5
Minnesota	1

November 1934—Continued

	Cases
Lethargic encephalitis—Continued.	
Pennsylvania	5
South Carolina	1
Texas	3
Mumps:	
Illinois	214
Indiana	14
Michigan	219
Pennsylvania	1,229
Rhode Island	17
South Carolina	69
Texas	35
West Virginia	17
Ophthalmia neonatorum:	
Illinois	9
Pennsylvania	10
South Carolina	11
Paratyphoid fever:	
Illinois	2
Michigan	1
South Carolina	1
Texas	4
Puerperal septicemia:	
Illinois	4
Rabies in animals:	
Illinois	28
Indiana	40
South Carolina	52
Rabies in man:	
Pennsylvania	1
West Virginia	2
Rocky Mountain spotted fever:	
Illinois	1
Septic sore throat:	
Illinois	13
Michigan	53
Minnesota	1
Rhode Island	1
West Virginia	1

November 1934—Continued

	Cases
Tetanus:	
Illinois	7
Michigan	1
Trachoma:	
Illinois	3
Michigan	1
Minnesota	1
Pennsylvania	2
Trichinosis:	
Illinois	1
Michigan	1
Tularaemia:	
Illinois	16
Michigan	3
Minnesota	5
West Virginia	2
Typhus fever:	
South Carolina	6
Texas	16
Undulant fever:	
Illinois	9
Indiana	4
Michigan	7
Minnesota	9
Pennsylvania	3
South Carolina	1
Texas	1
Vincent's infection:	
Illinois	36
Michigan	26
Whooping cough:	
Illinois	857
Indiana	264
Michigan	697
Minnesota	229
Pennsylvania	1,751
Rhode Island	32
South Carolina	101
Texas	247
West Virginia	276

CASES OF VENEREAL DISEASES REPORTED FOR OCTOBER 1934

This statement is published monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The figures are taken from reports received from State health officers. They are preliminary and are, therefore, subject to correction. It is hoped that the publication of these reports will stimulate more complete reporting of these diseases.

State	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Alabama [1]				
Arizona	35	0.77	187	4.13
Arkansas [2]	411	2.20	348	1.86
California	1,444	2.38	1,488	2.45
Colorado [1]				
Connecticut	217	1.32	183	1.11
Delaware	244	10.12	36	1.49
District of Columbia	160	3.23	111	2.24
Florida	491	3.16	72	.46
Georgia	728	2.50	440	1.51
Idaho	0		0	
Illinois	1,500	1.92	1,354	1.73
Indiana	177	.54	80	.24
Iowa [2]	115	.46	173	.70
Kansas	162	.85	93	.49
Kentucky	292	1.10	334	1.26
Louisiana	194	.90	82	.38
Maine	41	.51	37	.46
Maryland	620	3.73	259	1.56
Massachusetts	404	.94	626	1.45
Michigan	666	1.32	771	1.53
Minnesota	392	1.51	397	1.53
Mississippi	1,141	5.57	1,698	8.30
Missouri	300	.82	323	.88
Montana [2]	13	.24	39	.72
Nebraska	42	.30	88	.63

See footnotes at end of table.

CASES OF VENEREAL DISEASES REPORTED FOR OCTOBER 1934—Con.

State	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Nevada [1]				
New Hampshire	34	.72	16	.34
New Jersey	591	1.41	356	.85
New Mexico [3]				
New York	5,958	4.60	1,855	1.43
North Carolina	1,378	4.21	463	1.41
North Dakota	33	.48	68	.99
Ohio [3]	688	1.01	347	.51
Oklahoma [3]	126	.60	114	.55
Oregon	35	.36	61	.62
Pennsylvania	325	.33	280	.29
Rhode Island	84	1.20	60	.85
South Carolina [3]	242	1.38	343	1.96
South Dakota	13	.19	51	.73
Tennessee	988	3.71	589	2.21
Texas	538	.89	163	.27
Utah [1]				
Vermont	31	.86	46	1.27
Virginia	352	1.44	280	1.15
Washington	188	1.18	279	1.74
West Virginia [3]				
Wisconsin [4]	29	.10	228	.76
Wyoming [1]				
Total	21,422	1.81	14,818	1.25

[1] Not reporting.
[3] Incomplete.
[3] Have been reporting regularly but no report received for current month.
[4] Only cases of syphilis in the infectious stage are reported.

NOTE.—Surveys in which all medical sources have been contacted in representative communities throughout the United States have revealed that the monthly rate per 10,000 population is 6.6 for syphilis and 10.2 for gonorrhea.

WEEKLY REPORTS FROM CITIES

City reports for week ended Dec. 15, 1934

[This table summarizes the reports received regularly from a selected list of 121 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference]

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		0	0	3	5	0	0	0	1	19
New Hampshire:											
Concord	0		0	0	0	0	0	0	0	0	8
Nashua	0		0	0	0	2	0	0	0	0	
Vermont:											
Barre											
Burlington	1		0	2	0	5	0	0	1	0	5
Massachusetts:											
Boston	6		2	3	18	32	0	6	0	31	204
Fall River	0		0	29	1	0	0	2	0	2	25
Springfield	0		0	9	0	4	0	3	0	6	31
Worcester	0		0	4	4	15	0	2	0	17	44
Rhode Island:											
Pawtucket	0		0	0	1	0	0	0	0	0	17
Providence	3		0	2	5	7	0	2	0	9	51
Connecticut:											
Bridgeport	0		0	0	0	1	0	2	0	0	26
Hartford	0		1	98	4	4	0	1	0	0	28
New Haven	0	1	0	7	0	2	0	1	0	2	32
New York:											
Buffalo											
New York	28	61	23	31	140	132	0	90	8	242	1,524
Rochester	0		0	196	6	21	0	1	0	5	56
Syracuse	0		0	3	3	5	0	0	0	19	41

City reports for week ended Dec. 15, 1934—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
New Jersey:											
Camden	1		0	1	6	0	0	1	1	8	35
Newark	0	44	3	5	13	19	0	4	0	24	107
Trenton	0	1	0	2	2	6	0	3	0	4	34
Pennsylvania:											
Philadelphia	11	16	4	6	29	55	0	23	3	149	484
Pittsburgh	6	2	1	35	18	45	0	9	3	20	156
Reading	1		0	0	2	1	0	0	0	5	29
Scranton	0			25		3	0		0	5	
Ohio:											
Cincinnati	15		0	2	12	36	0	9	0	0	156
Cleveland	11	53	0	12	15	31	0	13	1	35	170
Columbus	3		0	15	4	25	0	9	0	7	86
Toledo	1		0	31	3	13	0	3	0	9	72
Indiana:											
Fort Wayne											
Indianapolis	10		0	1	12	27	0	8	0	37	
South Bend	0		0	29	2	3	0	0	0	0	16
Terre Haute	0		0	1	1	0	0	0	0	0	16
Illinois:											
Chicago	10	5	5	69	63	277	0	31	1	38	726
Springfield	1		0	1	4	5	0	1	0	1	20
Michigan:											
Detroit	6	6	1	64	12	75	0	12	2	45	238
Flint	2		0	2	1	17	0	0	1	3	19
Grand Rapids	0		1	0	1	15	0	0	0	4	27
Wisconsin:											
Kenosha	0		0	2	1	7	0	0	0	14	8
Milwaukee	0		0	43	6	245	0	2	0	56	123
Racine	0		0	2	0	10	0	2	0	4	13
Superior	0		0	1	4	1	0	0	0	0	14
Minnesota:											
Duluth	9		0	217	2	0	0	3	0	0	33
Minneapolis	4		0	539	12	26	0	1	0	5	110
St. Paul	0		0	13	10	16	0	1	0	17	70
Iowa:											
Davenport	0			12		2	0		0	0	
Des Moines	0			0		7	0		0	0	35
Sioux City	1			5		0	0		0	5	
Waterloo	2			253		3	0		0	0	
Missouri:											
Kansas City	3		1	0	15	9	0	4	1	0	92
St. Joseph	3		0	2	4	1	0	1	0	0	22
St. Louis	22	2	2	2	9	15	0	6	2	7	182
North Dakota:											
Fargo	0		0	0	3	2	0	0	0	7	9
Grand Forks	0			0		8	0		0	0	
South Dakota:											
Aberdeen	0			7		0	1		0	5	
Nebraska:											
Omaha	4		0	10	7	13	5	1	0	0	48
Kansas:											
Topeka	0		0	0	3	1	0	0	0	3	24
Wichita	0		0	0	2	0	0	1	0	0	33
Delaware:											
Wilmington	1		0	0	3	10	0	2	0	4	47
Maryland:											
Baltimore	5	7	1	1	10	40	0	17	0	34	210
Cumberland	0		0	4	0	3	0	0	0	0	10
Frederick	0		0	0	0	0	0	0	0	2	1
District of Columbia:											
Washington	9	1	0	5	8	17	0	11	0	6	162
Virginia:											
Lynchburg	1		0	5	1	3	0	0	0	1	10
Norfolk		1	0	0	5	4	0	1	1	5	41
Richmond	2		2	4	2	3	0	3	0	0	44
Roanoke	0		0	0	1	9	0	1	0	0	17
West Virginia:											
Charleston	2	1	0	17	1	2	0	0	0	1	21
Huntington	2			0		9	0		0	0	
Wheeling	0		0	13	1	8	0	2	0	14	17
North Carolina:											
Raleigh	2		0	2	3	2	0	3	0	3	19
Wilmington	1		0	0	0	0	0	1	0	0	9
Winston-Salem	1		0	0	3	1	0	3	0	24	21

City reports for week ended Dec. 15, 1934—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
South Carolina:											
Charleston	0	19	0	0	1	0	0	2	0	0	30
Columbia	0	----	0	0	1	0	0	0	0	0	16
Greenville	0	----	0	0	2	0	0	0	0	2	12
Georgia:											
Atlanta	6	25	1	0	10	7	0	6	0	3	87
Brunswick	0	----	0	2	0	2	0	0	0	0	4
Savannah	2	3	0	0	8	1	0	2	0	0	41
Florida:											
Miami	3	----	0	1	6	0	0	2	1	0	----
Tampa	0	----	0	0	2	2	0	0	0	1	22
Kentucky:											
Ashland	----	----	----	----	----	----	----	----	----	----	----
Lexington	2	----	0	0	1	1	0	2	0	0	----
Louisville	7	3	2	3	8	17	0	5	0	0	89
Tennessee:											
Memphis	----	----	----	----	----	----	----	----	----	----	----
Nashville	1	----	0	1	5	6	0	1	0	6	56
Alabama:											
Birmingham	4	3	0	0	10	6	0	5	4	2	70
Mobile	2	2	0	0	0	0	0	4	0	0	24
Montgomery	2	----	----	0	----	2	0	----	0	0	----
Arkansas:											
Fort Smith	----	----	----	----	----	----	----	----	----	----	----
Little Rock	0	----	0	1	3	1	0	3	0	0	----
Louisiana:											
New Orleans	22	7	2	1	23	6	0	21	0	0	198
Shreveport	1	----	0	3	3	3	0	5	3	0	37
Oklahoma:											
Oklahoma City	0	2	0	2	8	3	0	1	1	0	44
Texas:											
Dallas	10	----	0	0	8	3	0	2	1	1	63
Fort Worth	3	----	0	0	5	5	0	5	1	1	46
Galveston	2	----	1	0	1	1	0	0	0	0	15
Houston	8	----	0	1	10	1	1	4	0	0	73
San Antonio	2	----	2	2	3	1	0	9	1	0	74
Montana:											
Billings	2	----	0	15	0	0	0	0	0	0	4
Great Falls	0	----	0	0	3	0	0	0	0	0	18
Helena	0	----	0	18	0	0	0	0	0	0	4
Missoula	0	----	----	0	----	0	0	----	0	0	1
Idaho:											
Boise	----	----	----	----	----	----	----	----	----	----	----
Colorado:											
Denver	2	47	1	208	6	133	0	7	0	4	81
Pueblo	0	----	1	0	2	5	0	1	0	0	12
Utah:											
Salt Lake City	1	----	1	6	9	33	0	1	1	22	45
Nevada:											
Reno	0	----	0	0	1	0	0	0	0	0	4
Washington:											
Seattle	0	----	0	0	4	1	4	5	0	2	105
Spokane	0	----	0	13	3	7	0	0	0	0	36
Tacoma	0	----	0	2	3	1	9	0	0	0	37
Oregon:											
Portland	0	1	0	3	5	12	0	2	0	0	91
Salem	0	2	----	0	----	0	0	----	0	1	----
California:											
Los Angeles	22	29	0	5	13	69	15	15	0	5	324
Sacramento	6	----	0	0	4	4	0	1	0	0	32
San Francisco	2	4	2	12	13	14	0	10	0	15	168

City reports for week ended Dec. 15, 1934—Continued

State and city	Meningococcus meningitis		Poliomyelitis cases	State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				Minnesota:			
Boston	0	1	0	St. Paul	1	0	0
Springfield	1	1	0	Nebraska:			
Worcester	1	1	0	Omaha	0	1	0
Rhode Island:				Georgia:			
Providence	1	0	0	Atlanta	1	0	0
New York:				Alabama:			
New York	2	4	1	Mobile	1	0	0
Ohio:				Oklahoma:			
Cincinnati	1	2	0	Oklahoma City	1	1	0
Cleveland	0	1	0	Washington:			
Illinois:				Seattle	0	0	1
Chicago	1	0	0	California:			
Michigan:				Los Angeles	0	0	1
Detroit	1	0	1	Sacramento	0	0	2
Wisconsin:							
Milwaukee	0	0	1				

Dengue.—Cases: Atlanta, 3; Savannah, 25; Miami, 1.
Lethargic encephalitis.—Cases: Springfield, Mass., 1; New York, 1.
Pellagra.—Cases: Baltimore, 2; Charleston, S. C., 1; Tampa, 1; Birmingham, 1; New Orleans, 1.
Typhus fever.—Cases: Boston, 1; New York, 1; Baltimore, 1; Charleston, S. C., 1; Savannah, 1; Montgomery, 2.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended December 1, 1934.—During the 2 weeks ended December 1, 1934, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis								1		1
Chicken pox		96	12	462	916	145	235	58	156	2,080
Diphtheria		5	8	62	26	48	3	1	4	157
Dysentery				3						3
Erysipelas		1		11	4	4	1	4	1	26
Influenza		12	1	3	16	1			12	45
Lethargic encephalitis				1						1
Measles		388	1	1,055	110	222	197	4	21	1,998
Mumps					242	19	8	1	84	354
Paratyphoid fever					1					1
Pneumonia					4		2		6	12
Poliomyelitis				1	2			1	1	5
Scarlet fever	6	30	62	284	334	96	14	10	83	919
Smallpox								1		1
Trachoma									1	1
Tuberculosis		3	12	110	81	4	15	5	37	267
Typhoid fever		1		55	18	5	2	4		85
Undulant fever				1	3		9			13
Whooping cough	1	28	4	371	259	28	25	8	32	756

CEYLON

Malaria.—According to a report dated December 17, 1934, an epidemic of malaria is spreading in Ceylon, with about 500,000 cases reported. Not many deaths have occurred.

ITALY

Communicable diseases—4 weeks ended May 27, 1934.—During the 4 weeks ended May 27, 1934, certain communicable diseases were reported in Italy, as follows:

Disease	Apr. 30–May 6		May 7–13		May 14–20		May 21–27	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	17	15	11	11	18	15	10	10
Cerebrospinal meningitis	15	13	13	12	18	16	13	9
Chicken pox	408	126	299	119	399	139	331	133
Diphtheria and croup	371	208	338	195	374	205	332	177
Dysentery	11	5	7	3	9	5	20	15
Lethargic encephalitis	1	1			4	4	3	3
Measles	2,681	402	2,535	405	2,773	444	2,588	431
Poliomyelitis	10	10	14	14	16	12	21	17
Scarlet fever	221	95	183	84	260	108	187	84
Typhoid fever	202	145	217	132	232	138	314	192

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

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for Dec. 28, 1934, pp. 1585-1599. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued Jan. 25, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Plague

Brazil—Alagoas State.—According to a report dated December 12, 1934, 5 cases of bubonic plague with 2 deaths were reported in Alagoas State, Brazil.

Typhus Fever

Egypt—Aswan.—During the week ended November 24, 1934, two cases of typhus fever were reported in Aswan, Egypt.

Yellow Fever

Ivory Coast—Toumodi.—On December 10, 1934, four suspected cases of yellow fever were reported in Toumodi, Ivory Coast.