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## **PATHOLOGY OF ARTIFICIALLY INDUCED SCURVY IN THE MONKEY—WITH AND WITHOUT CHRONIC CALCIUM DEFICIENCY<sup>1</sup>**

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The methods of procedure and the clinical results obtained in their experiment have been outlined by Fraser (1) and Fraser and Topping (2). Reported briefly here are the results of the pathological examination, both gross and microscopic, of the 18 Rhesus monkeys, *Macaca mulatta*, sacrificed from their group. At the end of 11 months, 6 of their 12 control animals, 2 from stock diet and 4 from the group on the synthetic control diet, were killed, together with the 4 on the low vitamin C intake diet, 2 on the calcium deficient diet, and the 4 on the diet containing inadequate amounts of both vitamin C and calcium. At the end of 18 months, the 2 remaining monkeys on the low calcium intake were killed.

All animals were autopsied soon after death, and a careful dissection and gross study were made. All organs were weighed, and careful search was made for signs of old or recent hemorrhage. Since some of the animals had shown exophthalmos, the orbits were explored. Joints which showed any evidence of being involved during life or on superficial examination were carefully dissected. In all animals the minimum examination included both temporomandibular joints, one knee, and one shoulder joint. Where there was extensive involvement the bones were cut some distance on each side of the joint and the joint removed intact with the adjacent periosteum, tendons, and muscle undisturbed. Since this involvement in some cases was extreme, with separation of the head of the bone and elevation of the periosteum, the bones and joints were sufficiently hardened in formaldehyde to prevent tearing and distortion and then were sawed in half longitudinally.

<sup>1</sup> From the Division of Pathology, National Institute of Health.

For study of oral pathology, blocks of the alveolar processes and attached soft tissues were taken according to the method previously described (3). These, as well as the long bones, were decalcified in 10 percent formic acid until suitable for sectioning.

The long bones were all embedded in celloidin while the paraffin technique was used for the other tissues.

#### ORAL LESIONS

*Control animals.*—These six animals showed no significant gross changes. Microscopically, the gingiva showed moderate to marked lymphocyte and plasma cell infiltration of the corium of the free gingiva involving often the attachment region as well as the crevice area. In a few areas this infiltration extended into the epithelium. In one tooth socket there was focal destruction of the epithelium. There was no gingival hypertrophy, no abnormal lengthening of the free gingiva, and all sections showed a normal well collagenized corium. Rete pegs extend from the epithelial attachment in some areas. The occasional presence of rete pegs in the attachment epithelium and of focal round cell infiltration of the free gingival corium is probably to be regarded as within the limits of normal.

The narrow spaces of the alveolar process contained in varying amounts myeloid tissue, fat, and fibrous tissue, depending upon the proximity of the section to the tooth roots.

Bone showed slight to moderate focal resorption, mainly on the inner side of peridental plates and about the trabeculae marginating the tooth roots. A few scattered small masses of newly formed bone appeared in occasional areas.

Dentine, cementum, pulp, and enamel organs appeared normal.

*Vitamin C-deficient animals.*—Characteristically gross abnormalities of the gingivae were seen. There was marked hyperemia and hypertrophy with rolling and eversion of free gingival margin so that free gingiva sometimes covered the entire crown of the tooth. Patches of both old and recent hemorrhage occurred and in areas subperiosteal hemorrhage had lifted the soft tissues away from the alveolar bone. Occasionally subperiosteal hemorrhage extended well onto the surface of the hard palate and sometimes also over the ramus and body of the mandible. On sectioning, evidence of old hemorrhage in the form of brown pigmentation was seen about the tooth sockets. This hemorrhage and necrosis sometimes extended into adjacent structures with marked loosening of the teeth. Occasionally damage was so severe that on attempting to saw through the alveolar process, the teeth fell out and the entire alveolar bone collapsed under the saw. In such areas the separated soft tissues consisted of hemorrhagic skeletal muscle and an extremely thickened periosteum discolored by

old hemorrhage. The denuded bone was often brownish yellow in color and somewhat roughened.

Microscopically, the free gingiva was very short in areas and in others extremely thickened and elongated. In the more involved regions the epithelium of the entire tip and most of the crevice was completely destroyed. The surface of the tip was covered with oxyphilic debris, polymorphonuclears, and round cells while the crevice was lined by granulation tissue infiltrated by leucocytes and containing scattered epithelial islands. In the tip and subjacent areas, the corium was composed mainly of richly vascular and cellular fibroblastic tissue and contained a moderate number of inflammatory cells. Scattered in this tissue were several large pools of finely fibrillary or granular material resembling fibrin and practically cell-free. In the corium collagen stainable by the Van Gieson technique was restricted to a few fine fibers in rare areas and occasional scattered small balls and short strands. There were scattered old and recent hemorrhages with varying amounts of hemosiderin.

Some other regions showed no necrosis and little or no hemorrhage. Here there were patches of marked round cell infiltration with some phagocytosed hemosiderin, large fields composed of plump fibroblasts, and smaller cell-free patches of delicately fibrillary material not stainable with picrofuchsin. The number of fuchsinophilic fibers here varied from normal to very few. The remaining collagen was often arranged in a very disorderly pattern and the bundles not infrequently presented distinctly granular areas.

In the surviving free gingiva, the crevice and attachment epithelium was often disorganized and infiltrated by leucocytes. The attachment sometimes showed numerous thick irregular rete pegs. Frequently, however, no pegs were present.

The sections from the more severely damaged areas sometimes showed the hemorrhage and even necrosis extending for a short distance from the gingiva into the peridental membrane. Beneath this, the membrane was very loose, quite vascular, more cellular than normal, and moderately deficient in fuchsinophilic fibers. Across the base of the tooth and about the root tips it presents its normal, compact, relatively acellular, densely fibrous structure.

Secondary cementum appears to be focally increased in amount in some sections.

In some sections the marrow tissue either appeared edematous or contained an abnormal number of young fibroblasts. In either case fuchsinophilic fibers were absent or rare.

The bone changes were variable in the four animals. Since even in control animals physiological bone changes accompanying normal dentition are so prominent, the influence of experimental procedures on bone morphology is better studied in the more stable long bones.

In the more involved regions of the gingiva, the lateral alveolar bone plate sometimes was quite thin, showing moderate to marked resorption along the inner surface and across the crest; near the latter it was separated from the tooth by a wide zone of granulation tissue. Very rarely, elsewhere, usually near the tooth, were bone masses showing resorption and here the adjacent granulation tissue was sometimes slightly hemorrhagic. New bone formation was extremely variable. Trabeculae were sometimes quite small and twisted in appearance with peripheral basophilia of ground substance and condensation of cells. No frankly necrotic bone could be demonstrated in these areas.

*Calcium-deficient group.*—In these monkeys no significant gross changes were observed. There was no microscopic evidence of gingival ulceration or hypertrophy. A variable degree of round cell infiltration was present, but was no greater than that seen in control animals. The corium of the entire gingiva was well collagenized. Collagen was present in marrow tissue in normal proportions.

*Animals on combined vitamin C- and calcium-deficient diet.*—These showed gross changes essentially similar to those in C-deficient group. In two animals the lesions were possibly a little less marked as to necrosis and frank hemorrhage but marked gingival hypertrophy was present even in these two.

Microscopic changes in the gingiva likewise were essentially similar to those in the C-deficient group. In two animals such changes were less marked and very little hemorrhage was present.

#### LESIONS IN JOINTS, LONG BONES, AND ADJACENT TISSUES

• Sections of the ribs at the costochondral junction, sections of the skull, the hip, shoulder, and knee joints and longitudinal sections of the femur and humerus were studied.

*Control animals.*—These showed no lesions. Grossly, the bone cortex was thick and dense, the epiphyseal lines regular and of normal width, the joint cavities were smooth and there was no evidence of hemorrhage.

*Vitamin C-deficient monkeys.*—These showed grossly severe damage in and about the shoulder, temporomandibular, hip, knee, and elbow joints. The shoulder lesions were both the most extensive and the most frequent, being present on both sides in all four animals. It must be remembered that in caged monkeys, caught and handled at frequent intervals, the shoulder joints are the ones subjected to the most trauma and that the prominent joint lesions of scurvy appear under functional stress and trauma. Involvement of the temporomandibular joints and subperiosteal hemorrhage about the ramus of the mandible occurred in three of these animals.

Superficial examination frequently disclosed extensive subcutaneous hemorrhage overlying these joints as well as external deformity about

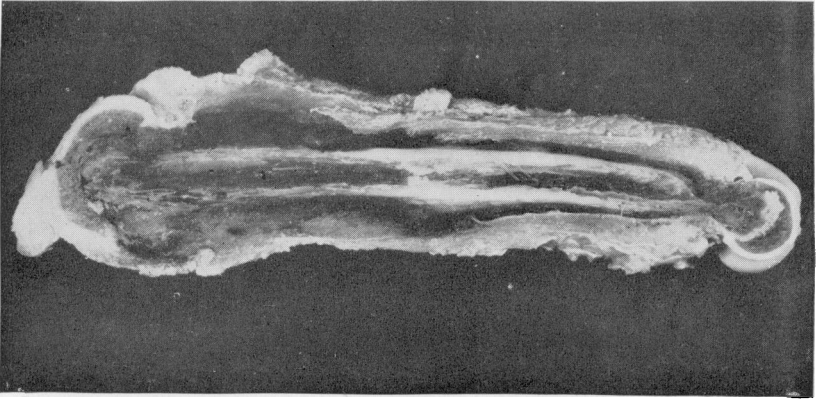


FIGURE 1.—Vitamin C deficiency. Humerus—longitudinal section showing massive subperiosteal hemorrhage, destruction of epiphyseal line and impaction of head.

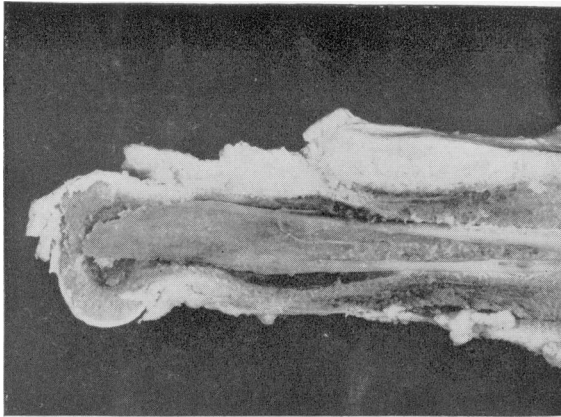


FIGURE 2.—Combined vitamin C and calcium deficiency. Humerus—longitudinal section. Similar to figure 1 but showing less extensive hemorrhage.

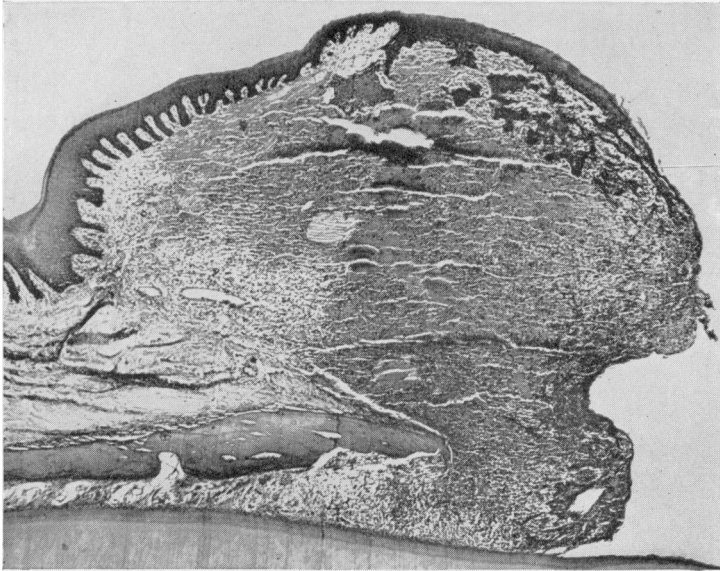


FIGURE 3.—Vitamin C deficiency. Hypertrophied and everted gingiva showing hemorrhage, inflammatory infiltration, pools of fibrinoid material and epithelial islands. (X40.)

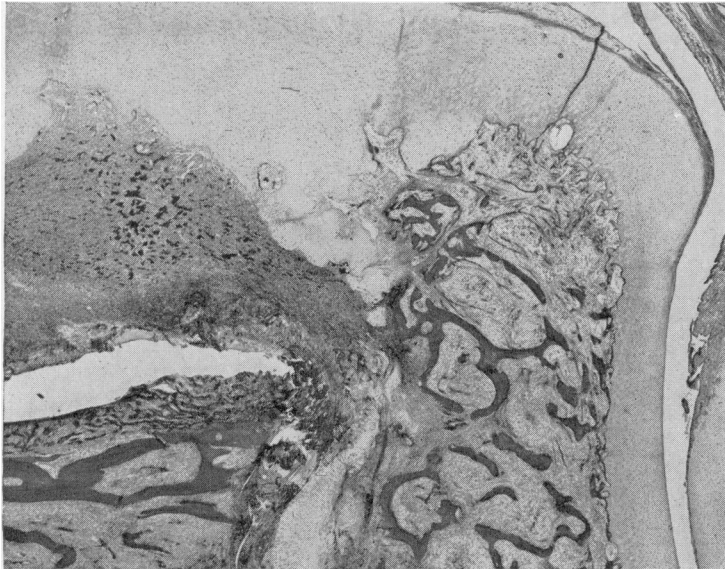


FIGURE 4.—Vitamin C deficiency. Humerus showing impaction of head, partial necrosis of epiphyseal line, hemorrhage, pigmentation and fibrinosis. (X11.)

the damaged shoulder joints. Dissection revealed extensive hemorrhage throughout the muscle with a markedly thickened periosteum frequently discolored by blood pigment and large subperiosteal hematomas, sometimes 2 cm. in thickness, which had denuded the underlying bone, leaving, not infrequently, a very rough discolored bone surface. Usually in the badly damaged shoulder joints, the humeral epiphysis was separated and occasionally dislocated downward and inward to become embedded in hemorrhagic muscle or granulation tissue. The epiphyseal line had almost disappeared and there was gross hemorrhage into the cancellous bone. The upper end of the shaft was often markedly eroded or necrotic, and was often displaced upward to within a short distance of the overlying skin. What remained of the joint cavity was filled with bloody granulation tissue. The process sometimes extended one-half to two-thirds of the distance down the shaft of the humerus. In the less severely injured joints, the shaft was driven through the epiphyseal line into the head. The cortex of the shaft was of normal to moderately reduced thickness. Its external surface was roughened, slightly pitted, denuded of periosteum, and stained brownish yellow.

The grossly visible changes about the mandibular ramus were essentially similar while the changes about the less damaged joints varied greatly. A very slight or quite early involvement may be indicated by small hemorrhages beneath the synovial membrane and periosteum with no evidence of reaction or with only slight thickening of the overlying periosteum. In one hip joint a small hemorrhagic mass about 1 mm. in thickness was seen in an otherwise normal-appearing joint cavity.

The ribs showed a prominent nodular enlargement at the costochondral junction, measuring frequently from 5 to 8 mm. in diameter and often discolored by yellowish or brownish pigment deposits.

*Calcium-deficient animals.*—These show no significant gross changes in the joints. However, the bone substance of skull, long bones, and ribs was definitely softer and more fragile than normal. The skull of one animal showed a very thin translucent cortex with circinate areas of erosion on the inner surface. The bones of the two animals which were kept on the calcium deficient regime for 18 instead of 11 months were so soft that they could be cut readily with a stout knife.

*Combined vitamin C- and calcium-deficient animals.*—These animals showed changes which in type were essentially similar to those seen in the vitamin C-deficient group. However, the individual animal showed lesions in fewer joints and the damage in an individual joint was rarely as severe. Hemorrhage did not occur quite so frequently and when present was not usually as widespread. There was only occasionally actual destruction of bone although it was markedly softened. The costochondral junctions showed some irregular en-

largement. The most extensive involvement in these animals occurred on the external surface of the skulls where widespread subperiosteal hematomas lifted the soft tissues. On the inner surface their skulls not infrequently presented slightly raised mossy plaques of soft dark red tissue.

Two monkeys on the low vitamin C intake regime and 3 on the combined vitamin C and calcium deficiency showed slight to quite prominent exophthalmos, usually bilateral. Examination proved this to be due to subperiosteal hemorrhage within the orbits, usually in the roof but occasionally in the floor as well. The hematoma in the fixed tissue sometimes measured 4 to 6 mm. in thickness.

#### VISCERAL LESIONS

A moderate to marked hemosiderosis of the spleen and lymph nodes was generally noted in the vitamin C deficient animals with or without calcium deprivation. Otherwise no changes were observed in the viscera of the entire group of monkeys which could be attributed with certainty to the experimentally produced nutritional deficiencies. Staining with Sudan III showed no definite abnormality in lipid content of liver, kidney, or adrenal. Parathyroids and thyroids showed no lesions.

All animals showed slight to marked pulmonary changes due to the presence of acarids, probably *Pneumonyssus foxi*, and many showed sarcosporidiosis of skeletal muscle.

Otherwise various incidental conditions were encountered in both control and deficient animals, usually only in one case. Among these were a parasitic abscess of the mesocolon, a multilocular renal cyst, a chronic cholecystitis with focal hepatitis, a chronic prostatitis with a nematode enclosed in the prostatic urethra, a granulomatous axillary lymphadenitis, a parasitic abdominal lymphadenitis, a multilocular liver abscess, a marked subacute pancarditis with granulomata in spleen and lymph nodes. Four of the seven female monkeys presented focal squamous metaplasia of the endocervical mucosa with more or less accompanying endocervicitis.

#### SUMMARY

1. Recurrent artificially induced scurvy produced in the Rhesus monkey, *Macaca mulatta*, a hemorrhagic and necrosing gingivitis, hemorrhages into the joints, beneath the periosteum, into the muscles and beneath the skin, epiphyseal separation in some of the long bones with necrosis of bone substance, and an exophthalmos caused by subperiosteal hemorrhage within the orbits.

2. A chronic calcium deficiency produced a marked osteoporosis and softening of all bones.



3. In this experiment neither scurvy, chronic calcium deficiency, nor a combination of the two produced significant visceral lesions which could be attributed to the experimental procedures employed.

4. Recurrent scurvy superimposed upon calcium deficiency produced in such animals marked softening of bone in addition to severe lesions characteristic of uncomplicated scurvy. However, the results here obtained suggest that such lesions may perhaps be somewhat less severe when calcium is withheld.

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- (3) Tomlinson, T. H., Jr.: Oral pathology in monkeys in various experimental dietary deficiencies. *Pub. Health Rep.*, 54: 431-439 (March 17, 1939).

## AN EPIDEMIC OF ACUTE RESPIRATORY INFECTION OF UNUSUAL TYPE<sup>1</sup>

By J. W. OLIPHANT, *Passed Assistant Surgeon*, and T. R. DAWBER, *Passed Assistant Surgeon, United States Public Health Service*

During April and May 1942, more than 200 cases of a peculiar type of acute febrile respiratory illness occurred among the personnel of the Coast Guard Training Station at Manhattan Beach, Long Island, N. Y. About 170 cases were hospitalized in the United States Marine Hospitals at Staten Island, N. Y. and at Ellis Island, N. Y., between April 30 and May 18. There were no deaths.

#### EPIDEMIOLOGY

It was impossible to form any conclusion about the mode of spread because of conditions in the station where the epidemic occurred. Opportunities for close contact of the men were numerous. The barracks in use were small and crowded. Contact was frequent at work and at meals. The personnel was fluctuating during the course of the epidemic, with men being transferred away from the station and new men arriving constantly.

Possibly the best information as to the incubation period was furnished by a secondary epidemic at another small Coast Guard station at Southampton, Long Island. On April 23, three men were transferred from Manhattan Beach to Southampton. One of these, C., had had a bronchitis for about 4 weeks previously and was coughing when he arrived at Southampton. He was seen by the medical officer on April 24 and was put to bed for several days. Five or six days after

<sup>1</sup> From the Division of Infectious Diseases, National Institute of Health, and the Hospital Division.

his arrival at Southampton, he noticed streaks of blood in his sputum on two or three occasions.

A report from the medical officer of the Southampton station on May 22, 1942 stated there were 27 men at the station, of whom 10 were radiomen who did not sleep or eat at the station. These 10 remained well. Of the 17 men who ate and slept on the station, all except one developed, 11 or more days after the arrival of C., illness characterized by fever, general malaise, cough, sore throat, and pharyngitis. One man besides C. had bloody sputum during illness.

C. stated that he went home on leave on May 6 and stayed until May 8. After his return to duty he learned that his sweetheart had become ill with sore throat on May 11 and had been confined to her bed for several days. She had no cough.

#### SYMPTOMATOLOGY AND CLINICAL COURSE

There was often a history of a "cold" for 1 week or longer, with slight nasal discharge, tired feeling, sweating, and slight malaise. This was followed by the onset of a sore throat and cough with slight expectoration along with a feeling of chilliness or frank chill followed by a feeling of feverishness. The throat became quite sore, the cough rapidly increased in severity and productiveness, with mucoid sputum. Symptoms became maximal in about 2 days. At that time there was a severe sore throat; cough was marked and hacking in character. There was soreness "deep in the chest" in the retrosternal area. The soreness was most prominent in those with severe cough. Sputum was frequently blood-tinged and in some was frankly bloody. Hoarseness was almost universal and varied from mild to so severe as to produce aphonia. The temperature at the peak of the disease was about 40° C. In spite of the high fever there was relatively little prostration.

Physical examination showed a febrile patient. The skin was hot and dry. There was frequently injection of the conjunctivae. In many patients a moderate nasal discharge, sometimes blood-streaked, was noted. Examination of the throat showed a fiery red pharynx with hypertrophy and edema of the pharyngeal lymphoid tissue. Occasionally a bleeding point could be seen on the posterior pharyngeal wall. The injection extended over the tonsillar pillars and involved the tonsils when present. Some exudate could be seen on the tonsils. The injection usually extended over the soft palate. The remainder of the mouth was usually normal. Adenopathy of the anterior cervical chain was common with slight tenderness on palpation. Examination of the chest failed to disclose any evidence of disease except an occasional sibilant rale. X-rays of the lungs were almost uniformly negative. Two patients each had a small area of questionable bronchopneumonia. The pulse was usually 80 to 90 even in the presence

of high fever. The remainder of the physical examination was essentially negative. No splenomegaly, generalized adenopathy, or skin rash was noted. Under symptomatic treatment recovery was usually rapid. After hospitalization the temperature often dropped to normal in 24 to 72 hours, cough decreased, and the pharyngitis declined in severity. Frequently the cough persisted for 7 to 8 days and the bloody sputum could be noted several days after the subsidence of fever. The pharyngeal injection usually persisted for about one week. The patient was left with a feeling of slight fatigue but otherwise had no untoward symptoms after recovery.

#### LABORATORY FINDINGS

The total white blood cell counts were either normal or were moderately elevated.

Cultures<sup>2</sup> of the sputum revealed a variety of organisms. Among these were *Hemophilus influenzae*, various types of pneumococci, and occasional  $\beta$  hemolytic streptococci, none of which were of Group A (Lancefield).

Attempts at isolation of influenza viruses have so far been unsuccessful. Serological tests against influenza A and B viruses have so far shown no evidence of the development of serum antibodies against either agent.<sup>3</sup>

A tabulation of the principal findings was made from the hospital charts of 101 patients in the United States Marine Hospitals at Stapleton and Staten Island, N. Y. These are shown in order of frequency, in table 1.

TABLE 1.—Principal findings in 101 cases of acute respiratory infection at the United States Marine hospitals, Stapleton and Staten Island, N. Y.

Finding:	Number cases
Cough.....	98
Pharyngitis.....	92
Sore throat.....	73
Conjunctivitis.....	42
Chill.....	40
Aching of body and/or extremities.....	27
Hoarseness.....	22
Blood in sputum.....	20

Such a tabulation would naturally reveal many omissions. For instance several patients probably had mild soreness of the throat and did not complain of it specifically. Many of these patients did not enter the hospital until 2 to 4 days after onset and for that reason some of their symptoms had subsided before examination.

To arrive at an estimate of the total duration of fever, the interval

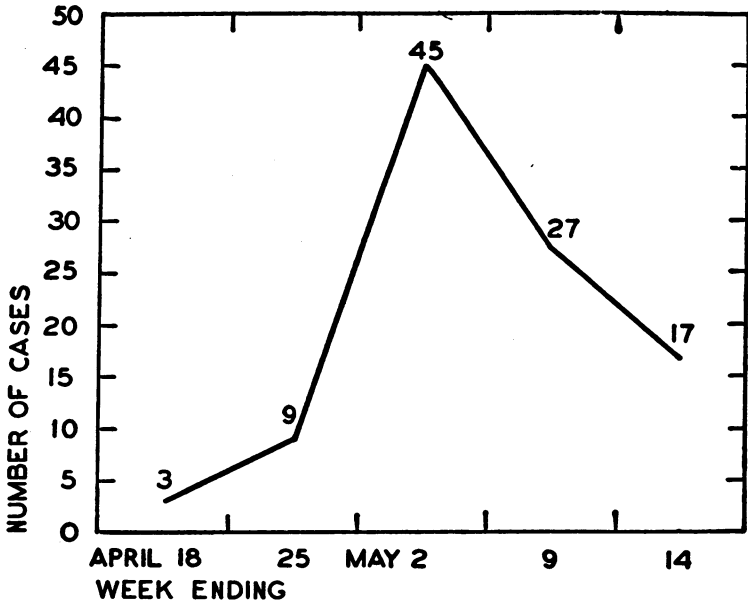
<sup>2</sup> Cultural studies were done by Passed Assistant Surgeon R. G. Pasternack of the U. S. Marine Hospital, Stapleton, New York, and by members of the staff of the hospital of the Rockefeller Institute, New York, N. Y.

<sup>3</sup> Influenza virus studies were done by Dr. F. L. Horsfall, Jr., and his associates at the Hospital of the Rockefeller Institute, New York, N. Y.

of time elapsing between the day of onset reported by the patient and the day of defervescence in the hospital was calculated in 96 of

CHART I

101 CASES GROUPED BY WEEKS ACCORDING TO HISTORY OF ONSET



the same cases (the history was uncertain as to onset in 6 others).. These are shown in table 2.

TABLE 2.—Estimate of total duration of fever in 96 cases of acute respiratory infection

Number of days from onset to defervescence	Number cases	Number of days from onset to defervescence	Number cases
2	2	12	3
3	5	14	1
4	5	15	3
5	18	16	1
6	15	17	1
7	17	18	1
8	10	19	1
9	11		
10	2	Total....	96

Median—7 days. Mean—7.36 days.

Treatment was for the most part symptomatic, including the use of codeine, sedative cough mixtures, and steam inhalations. A few patients were treated with sulfathiazole. There was no evidence that this compound exerted any beneficial effect.

### COMPLICATIONS

With the exception of two patients who had small questionable areas of bronchopneumonia, there were no complications, which seemed surprising in view of the intense inflammatory reaction in the throat and trachea.

### SUMMARY

More than 200 cases of an acute febrile respiratory illness occurred during April and May in a Coast Guard training station. The disease was characterized by fever of about 7 days' duration, cough, pharyngitis, laryngitis, tracheitis, malaise, and aching of the body and extremities. Bloody sputum was present in a considerable number of cases.

No constantly-occurring organism was found in bacterial cultures. No relation to known types of influenza virus has been established.

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### CURRENT NEEDS FOR HEALTH PERSONNEL

By G. ST. J. PERROTT, *Chief, Division of Public Health Methods*, and HAROLD F. DORN, *Senior Economist, United States Public Health Service*<sup>1</sup>

With the expansion of the armed forces following the passage of the Selective Service Act and with the increased demand for workers resulting from the expansion of war industries, both public and private health agencies began to report increasing difficulty in obtaining personnel, not only to fill current vacancies but also to meet demands for new services arising from the shift of population to centers of war industry. As a result of the increasing number of such reports, the United States Public Health Service initiated a survey to ascertain the extent and magnitude of the reported shortage of personnel.

In December 1941, with the cooperation of the American Hospital Association, a questionnaire requesting information concerning the number of vacancies and the probable need for new personnel in the immediate future was sent to each registered hospital in the United States. The same questionnaire was also sent to more than 300 clinics.

In January 1942, in cooperation with the Procurement and Assignment Service of the Office of Defense Health and Welfare Services, a similar questionnaire was sent to each full-time State, city, and county health department, and to a number of voluntary health agencies. The reports of 1,036, or 80 percent, of the 1,272 health departments to which questionnaires were sent are summarized in table 1.

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<sup>1</sup> From the Division of Public Health Methods, National Institute of Health.

**TABLE 1.—Present personnel and estimated number of persons needed by 1,036 health departments that returned questionnaires<sup>1</sup>**

Type of personnel	Number of present personnel	Number of vacant positions	Estimated number of new persons needed
Administrative medical officers.....	1,183	69	101
Other medical officers.....	902	115	259
Dentists.....	281	24	153
Veterinarians.....	105	9	15
Public health nurses.....	7,946	864	1,777
Sanitary engineers.....	886	106	273
Other sanitation personnel.....	2,920	90	747
Bacteriologists and chemists.....	909	43	93
Other laboratory technicians.....	993	53	151
Statisticians.....	264	17	70
Nutritionists.....	81	12	109
Medical social workers.....	201	26	116
Dental hygienists.....	120	7	6
X-ray technicians.....	42	-----	1
Others.....	179	9	37
Total.....	16,921	1,093	3,908

<sup>1</sup> Includes Puerto Rico.

#### THE NEED FOR PUBLIC HEALTH PERSONNEL

These health departments now employ 16,921 technically trained full-time paid persons, have existing vacancies for 1,093 persons, and need an additional 3,908 persons to provide services made necessary by wartime activities. If it is assumed that the remaining 20 per cent of the health departments need proportionately as many persons, the estimated total number of trained personnel needed at the present time is slightly more than 6,000, or an increase of about 30 per cent (table 2). Nearly one-half (46 per cent) of the personnel needed are public health nurses, about one-tenth (9 per cent) are physicians, and one-quarter are sanitary engineers and other sanitation personnel.

**TABLE 2.—Estimated number of persons needed by all State and local health departments**

Type of personnel	Total	To fill vacant positions	New persons
Administrative medical officers.....	110	83	127
Other medical officers.....	469	144	325
Dentists.....	222	30	192
Veterinarians.....	32	11	21
Public health nurses.....	2,862	633	2,220
Sanitary engineers.....	476	133	343
Other sanitation personnel.....	1,061	124	937
Bacteriologists and chemists.....	171	54	117
Other laboratory technicians.....	255	66	189
Statisticians.....	110	22	88
Nutritionists.....	152	15	127
Medical social workers.....	178	32	146
Dental hygienists.....	17	9	8
X-ray technicians.....	1	-----	1
Others.....	57	11	46
Total.....	6,273	1,367	4,906

The effect upon the efficiency of a health department of the loss of even one or two key persons cannot be adequately measured by the

number of vacancies alone. The loss of a county health officer means that the entire work of the department is seriously impaired; the loss of the chief sanitary engineer in a State department means that the work must be reorganized if the vacancy cannot be filled. Health departments operate with a relatively small staff of professionally and technically trained persons. The loss of a few such persons may bring many phases of the program to a virtual standstill.

#### THE NEED FOR HOSPITAL PERSONNEL

Private and non-Federal governmental hospitals at the present time need nearly 20,000 nonmedical professional and technical persons to fill current vacancies and have under way, or are planning, additions to present facilities which will require an additional 20,000 trained persons (table 3.) This estimate is based upon the reports of 3,181 private and non-Federal governmental hospitals which represent 53 percent of the registered private and non-Federal governmental hospitals and have 57 percent of the total number of beds in such hospitals.

TABLE 3.—*Estimated number of professional and technical persons needed by private and non-Federal governmental hospitals*

Type of personnel	Total	Number of persons needed	
		To fill vacant positions for which funds are available	To fill positions which will be created by expansion of present facilities
Graduate nurses.....	17,722	9,684	8,038
Student nurses.....	8,129	3,273	4,856
Other persons giving nursing care.....	10,116	4,610	5,506
Nurse-anesthetists.....	479	246	233
Dietitians.....	550	204	346
X-ray technicians.....	422	178	244
Other laboratory technicians.....	691	297	394
Dental hygienists.....	59	33	26
Occupational therapists.....	247	110	137
Physical therapy technicians.....	292	103	189
Medical social workers.....	267	90	177
Medical record librarians.....	311	105	206
Total.....	39,285	18,933	20,352

The reports of these 3,181 hospitals are summarized in table 4. The estimates in table 3 are based upon the assumption that the personnel and needs of the hospitals which failed to report are the same in relation to the number of beds as the personnel and needs of the hospitals which did report.

Many hospitals report that the difficulty of obtaining internes, residents, and service and maintenance personnel is fully as great as the difficulty of obtaining technically trained persons. This shortage of personnel is partially the result of an increased demand for

hospital service arising from the higher income of wage workers and, in certain areas, from a rapid increase in population because of the expansion of war industries. Equally important, however, is the loss of personnel, some of whom have been taken by the armed forces or governmental and military agencies needing trained persons, while others have left because higher wages and shorter hours could be obtained from employment in various war industries.

TABLE 4.—Number of different types of professional and technical persons needed by 3,181 private and non-Federal governmental hospitals

Type of personnel	Present number employ-ees	Additional number needed			Percentage total needs are of present personnel	Percentage distribution of total needs by type
		Total	To fill vacant positions for which funds are available	To fill positions which will be created by expansion of present facilities		
Graduate nurses.....	66, 181	10, 427	5, 665	4, 762	15. 8	45. 2
Student nurses.....	52, 420	4, 849	1, 949	2, 900	9. 3	21. 0
Other persons giving nursing care.....	55, 828	5, 868	2, 657	3, 211	10. 5	25. 4
Nurse-anesthetists.....	2, 181	285	146	139	13. 1	1. 2
Dietitians.....	3, 155	324	120	204	10. 3	1. 4
X-ray technicians.....	3, 299	249	104	145	7. 5	1. 1
Other laboratory technicians.....	4, 706	408	174	234	8. 7	1. 8
Dental hygienists.....	300	34	19	15	11. 3	. 1
Occupational therapists.....	959	140	62	78	14. 6	. 6
Physical therapy technicians.....	1, 302	170	60	110	13. 1	. 7
Medical social workers.....	1, 377	153	51	102	11. 1	. 7
Medical record librarians.....	1, 904	185	63	122	9. 7	. 8
<b>Total.....</b>	<b>193, 612</b>	<b>23, 092</b>	<b>11, 070</b>	<b>12, 022</b>	<b>11. 9</b>	<b>100. 0</b>

As might be expected, persons giving nursing care are in greatest demand. Forty-five percent of the total number of persons needed are graduate nurses, 21 percent are student nurses, while 25 percent are orderlies, practical nurses, trained attendants, and other persons giving nursing care. The remaining 9 percent of the persons needed are fairly evenly distributed among the other types of technical jobs.

It is anticipated that the needs for personnel shown in the above tables will increase as the armed forces expand, and as more and more persons are required for the expansion of war industries. With the exception of physicians, dentists, and nurses, the armed forces are now training an appreciable proportion of their own requirements for technical health personnel. However, men of military age will continue to be taken for military service unless present policies are changed.

Moreover, within the immediate future, the increasing demand for workers in war industries will attract many persons now employed by health agencies. The losses for this reason will probably be greatest among service and maintenance workers but there is no reason to believe that it will be confined solely to them.



**DEATHS DURING WEEK ENDED JUNE 20, 1942**

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

	Week ended June 20, 1942	Correspond- ing week, 1941
<b>Data from 86 large cities of the United States:</b>		
Total deaths.....	7, 629	7, 695
Average for 3 prior years.....	7, 536	-----
Total deaths, first 24 weeks of year.....	207, 621	210, 298
Deaths per 1,000 population, first 24 weeks of year, annual rate.....	12. 2	12. 4
Deaths under 1 year of age.....	546	502
Average for 3 prior years.....	493	-----
Deaths under 1 year of age, first 24 weeks of year.....	13, 305	12, 289
<b>Data from industrial insurance companies:</b>		
Policies in force.....	64, 971, 781	64, 428, 322
Number of death claims.....	10, 518	10, 814
Death claims per 1,000 policies in force, annual rate.....	8. 4	8. 8
Death claims per 1,000 policies, first 24 weeks of year, annual rate.....	9. 8	10. 2

# PREVALENCE OF DISEASE

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

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## UNITED STATES

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### REPORTS FROM STATES FOR WEEK ENDED JUNE 27, 1942

#### Summary

A sharp increase in the number of cases of meningococcus meningitis occurred during the week, with 112 cases reported, as compared with 64 for the preceding week and a 5-year (1937-41) median of 36 cases. The incidence for the current week is above that for the corresponding week of any year since 1929, and the total to date (1,967) is above that for any year since 1937, when 3,648 cases had been reported for the corresponding period. The most significant increases during the current week occurred in California (from 3 to 29), Massachusetts (from 2 to 12), New York (from 11 to 17), and Maryland (from 7 to 10). With the exception of California, the highest incidence continues in the tier of eastern States.

Although the number of cases of poliomyelitis increased from 38 to 41, the current incidence is below that for the corresponding week of any other year since 1938, and the cumulative total to date is also below that for the corresponding period of any other year since 1938.

The incidence of smallpox (12 cases) continues well below the corresponding figure for any prior year.

Reports of other diseases during the current week include 2 cases of anthrax (New Jersey and Louisiana, 1 each), 24 cases of amebic, 378 bacillary (315 in Texas), and 203 cases (163 in Virginia) of unspecified dysentery, 21 cases of Rocky Mountain spotted fever (14 in the eastern States), 27 cases of tularemia, and 58 cases of endemic typhus fever (25 in Texas and 21 in Georgia).

The death rate for the current week for 88 large cities in the United States is 10.8 per 1,000 population, the same as for the preceding week. This is slightly below the 3-year (1939-41) average for the week of 10.9.

*Telegraphic morbidity reports from State health officers for the week ended June 27, 1942, and comparison with corresponding week of 1941 and 5-year median*

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

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended—		Median 1937-41	Week ended—		Median 1937-41	Week ended—		Median 1937-41	Week ended—		Median 1937-41
	June 27, 1942	June 28, 1941		June 27, 1942	June 28, 1941		June 27, 1942	June 28, 1941		June 27, 1942	June 28, 1941	
<b>NEW ENG.</b>												
Maine	0	0	0				48	82	82	1	0	0
New Hampshire	0	0	0				5	2	9	0	0	0
Vermont	0	0	0				131	80	80	0	0	0
Massachusetts	2	5	1				676	826	711	12	4	1
Rhode Island	1	1	1				113	17	43	1	0	0
Connecticut	1	0	1	1			227	317	69	2	1	0
<b>MID. ATL.</b>												
New York	9	13	19	12	11	12	996	1,361	1,146	17	4	4
New Jersey	3	3	8	3	3	3	369	784	700	3	3	1
Pennsylvania	6	12	14	1			325	1,850	778	6	1	1
<b>E. NO. CEN.</b>												
Ohio	2	6	6	18	4	8	182	749	419	0	0	1
Indiana	2	5	5		6	3	63	114	80	1	0	1
Illinois	17	15	16	18	11	11	130	428	422	1	0	1
Michigan <sup>1</sup>	1	5	8	1			208	692	692	0	1	1
Wisconsin	0	1	1	12	7	13	892	1,049	793	1	0	1
<b>W. NO. CEN.</b>												
Minnesota	1	2	2			1	121	14	61	1	0	0
Iowa	1	1	1		6	2	193	92	84	0	0	0
Missouri	0	1	6				65	239	26	0	0	0
North Dakota	0	1	1	4		2	11	20	10	0	0	0
South Dakota	0	3	0				7	6	3	0	0	0
Nebraska	2	5	1	2			56	13	13	0	0	0
Kansas	1	5	5	1		1	68	128	122	0	0	1
<b>SO. ATL.</b>												
Delaware	0	0	0				1	14	3	0	0	0
Maryland <sup>1</sup>	3	3	3			1	71	360	81	10	5	2
Dist. of Col.	2	1	1		1		42	80	43	2	0	1
Virginia	2	10	6	40	44	11	72	526	167	8	4	3
West Virginia	2	4	4	3	4	5	23	181	43	1	1	1
North Carolina	3	5	9		1		120	525	378	1	1	2
South Carolina	1	7	5	81	64	64	29	279	48	1	0	0
Georgia	4	3	3	14	4		42	228	42	0	0	0
Florida	3	2	4	7	8	1	76	49	22	0	0	0
<b>E. SO. CEN.</b>												
Kentucky	4	1	3		2	4	13	96	77	1	1	3
Tennessee	4	4	3	18	18	10	16	150	48	0	1	1
Alabama	0	9	6	12	1	3	21	94	62	2	2	2
Mississippi <sup>1</sup>	1	3	3							2	0	0
<b>W. SO. CEN.</b>												
Arkansas	2	2	2	8	2	4	23	114	17	1	0	0
Louisiana	7	1	8	5		9	54	2	5	1	0	0
Oklahoma	2	2	2	7	9	9	25	63	46	1	0	1
Texas	23	18	18	76	204	89	144	196	196	1	1	0
<b>MOUNTAIN</b>												
Montana	2	0	0				74	6	31	0	1	0
Idaho	0	0	0		4	1	38	23	20	0	0	0
Wyoming	0	0	1	42			18	5	5	0	0	0
Colorado	5	9	9	27	11		75	92	69	0	1	0
New Mexico	0	3	3	1			11	52	31	0	0	0
Arizona	0	0	1	14	40	30	34	90	12	0	0	0
Utah <sup>1</sup>	0	0	0	1			473	17	81	1	0	0
Nevada	0	0					19	1		0	0	
<b>PACIFIC</b>												
Washington	0	4	1	1			247	52	61	1	1	1
Oregon	0	4	4	3	6	6	80	34	34	3	1	0
California	8	7	22	28	356	20	1,968	255	285	29	2	2
<b>Total</b>	<b>127</b>	<b>186</b>	<b>207</b>	<b>451</b>	<b>877</b>	<b>437</b>	<b>8,695</b>	<b>12,477</b>	<b>8,288</b>	<b>112</b>	<b>36</b>	<b>36</b>
<b>25 weeks</b>	<b>6,178</b>	<b>6,279</b>	<b>9,980</b>	<b>77,756</b>	<b>484,774</b>	<b>157,042</b>	<b>444,331</b>	<b>793,623</b>	<b>329,389</b>	<b>1,967</b>	<b>1,180</b>	<b>1,180</b>

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended June 27, 1942, and comparison with corresponding week of 1941 and 5-year median—Con.

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever		
	Week ended—		Median 1937-41	Week ended—		Median 1937-41	Week ended—		Median 1937-41	Week ended—		Median 1937-41
	June 27, 1942	June 28, 1941		June 27, 1942	June 28, 1941		June 27, 1942	June 28, 1941		June 27, 1942	June 28, 1941	
<b>NEW ENG.</b>												
Maine.....	0	0	0	8	2	6	0	0	0	0	1	1
New Hampshire.....	0	0	0	1	0	5	0	0	0	0	0	0
Vermont.....	0	0	0	2	4	3	0	0	0	0	0	0
Massachusetts.....	0	0	0	135	147	147	0	0	0	3	1	1
Rhode Island.....	0	0	0	5	7	7	0	0	0	0	0	0
Connecticut.....	0	0	0	12	23	38	0	0	0	1	0	1
<b>MID. ATL.</b>												
New York.....	3	4	1	167	218	219	0	0	0	13	11	10
New Jersey.....	0	0	0	55	82	70	0	0	0	4	3	3
Pennsylvania.....	0	1	0	113	138	138	0	0	0	4	8	8
<b>E. NO. CEN.</b>												
Ohio.....	0	0	1	101	75	75	1	0	0	0	8	8
Indiana.....	0	0	0	15	22	28	0	0	6	4	5	5
Illinois.....	3	0	1	87	129	174	0	3	5	2	15	7
Michigan <sup>1</sup> .....	2	0	0	99	126	208	0	1	1	0	2	2
Wisconsin.....	0	0	0	62	53	73	1	2	2	0	0	1
<b>W. NO. CEN.</b>												
Minnesota.....	1	1	1	20	29	29	0	0	7	0	0	0
Iowa.....	0	0	0	14	15	22	1	0	8	0	0	2
Missouri.....	1	0	0	13	37	25	0	0	3	1	5	5
North Dakota.....	0	0	0	6	0	6	0	0	0	0	0	0
South Dakota.....	0	0	0	13	4	4	1	15	1	0	0	0
Nebraska.....	0	0	0	6	8	8	0	1	1	0	0	0
Kansas.....	1	0	0	15	14	25	0	0	1	1	3	3
<b>SO. ATL.</b>												
Delaware.....	0	0	0	9	2	2	0	0	0	2	0	0
Maryland <sup>1</sup> .....	1	0	0	22	12	12	0	0	0	2	0	1
Dist. of Col.....	0	0	0	8	3	9	0	0	0	1	0	0
Virginia.....	0	2	2	7	12	11	0	0	0	7	3	5
West Virginia.....	0	0	0	13	13	14	0	0	1	4	2	2
North Carolina.....	1	1	1	5	16	13	0	0	0	10	2	7
South Carolina.....	0	2	1	0	2	2	0	0	0	0	3	11
Georgia.....	0	23	3	6	8	8	0	1	0	11	18	30
Florida.....	1	10	1	1	3	3	0	0	0	8	1	1
<b>E. SO. CEN.</b>												
Kentucky.....	0	0	0	17	19	19	3	0	0	7	9	11
Tennessee.....	2	1	1	6	19	14	0	0	1	6	11	13
Alabama.....	2	10	5	3	4	4	0	0	0	2	3	3
Mississippi <sup>2</sup> .....	4	5	4	3	2	2	0	0	0	4	9	9
<b>W. SO. CEN.</b>												
Arkansas.....	3	0	0	2	1	6	1	0	1	6	12	12
Louisiana.....	7	3	2	4	5	5	0	0	0	6	24	22
Oklahoma.....	0	1	1	1	10	10	0	0	3	8	12	10
Texas.....	1	4	3	25	25	25	0	1	1	21	48	26
<b>MOUNTAIN</b>												
Montana.....	0	1	0	9	6	6	0	0	1	0	2	2
Idaho.....	0	0	0	4	4	2	0	0	0	1	1	1
Wyoming.....	0	1	0	1	4	2	0	0	1	0	0	0
Colorado.....	1	1	0	0	15	15	2	0	1	4	3	3
New Mexico.....	0	1	0	4	2	7	0	0	0	3	4	2
Arizona.....	3	0	0	1	4	3	0	0	0	1	0	1
Utah <sup>2</sup> .....	1	0	0	7	5	5	0	0	0	2	0	1
Nevada.....	0	0	0	0	0	0	1	1	0	0	0	0
<b>PACIFIC</b>												
Washington.....	1	0	0	5	10	18	0	0	0	2	3	1
Oregon.....	0	0	0	7	8	8	0	5	5	0	2	2
California.....	2	7	9	78	68	100	1	0	7	3	6	5
<b>Total.....</b>	<b>41</b>	<b>79</b>	<b>79</b>	<b>1,197</b>	<b>1,415</b>	<b>1,578</b>	<b>12</b>	<b>30</b>	<b>92</b>	<b>155</b>	<b>240</b>	<b>265</b>
25 weeks.....	555	671	671	53,281	84,141	109,521	554	1,074	7,219	2,212	2,422	3,370

See footnotes at end of table.

Telegraphic morbidity reports from State health officers for the week ended June 27, 1942—Continued

Division and State	Whooping cough		Week ended June 27, 1942								
	Week ended—		An-thrax	Dysentery			En-ceph-alitis, infectious	Lep-rosy	Rocky Mt. spotted fever	Tula-remia	Ty-phus fever
	June 27, 1942	June 23, 1941		Ame-bic	Bacil-lary	Un-spect-ified					
<b>NEW ENG.</b>											
Maine.....	25	15	0	0	0	0	0	0	0	0	0
New Hampshire.....	2	0	0	0	0	0	0	0	0	0	0
Vermont.....	90	8	0	0	0	0	0	0	0	0	0
Massachusetts.....	186	191	0	0	0	0	1	0	0	0	0
Rhode Island.....	16	13	0	0	0	0	0	0	0	0	0
Connecticut.....	95	47	0	0	0	0	0	0	0	0	0
<b>MID. ATL.</b>											
New York.....	436	270	0	1	3	0	1	0	0	1	3
New Jersey.....	325	118	1	1	0	0	0	0	0	0	0
Pennsylvania.....	206	307	0	0	0	0	0	0	0	0	0
<b>E. NO. CEN.</b>											
Ohio.....	173	236	0	0	0	0	0	0	0	0	0
Indiana.....	43	16	0	0	0	0	0	0	0	0	0
Illinois.....	271	117	0	1	0	0	1	0	2	2	0
Michigan <sup>1</sup> .....	173	282	0	0	0	0	0	0	0	0	0
Wisconsin.....	160	129	0	0	0	0	0	0	0	0	0
<b>W. NO. CEN.</b>											
Minnesota.....	39	79	0	5	0	0	0	0	0	0	0
Iowa.....	28	32	0	0	0	0	0	0	0	0	0
Missouri.....	4	67	0	0	0	1	0	0	0	2	0
North Dakota.....	17	20	0	0	0	0	1	0	0	0	0
South Dakota.....	2	11	0	0	0	0	0	0	0	0	0
Nebraska.....	6	18	0	0	0	0	0	0	0	0	0
Kansas.....	46	152	0	0	0	0	2	0	0	0	0
<b>SO. ATL.</b>											
Delaware.....	2	5	0	0	0	0	0	0	0	0	0
Maryland <sup>1</sup> .....	55	79	0	0	0	3	0	0	3	0	0
Dist. of Col.....	28	9	0	0	0	0	0	0	0	0	0
Virginia.....	51	102	0	0	0	164	0	0	3	0	1
West Virginia.....	23	57	0	0	0	0	0	0	0	0	0
North Carolina.....	128	330	0	0	0	0	0	0	1	0	0
South Carolina.....	40	160	0	0	2	0	0	0	0	1	1
Georgia.....	49	17	0	1	10	0	0	0	0	1	21
Florida.....	13	11	0	0	0	0	0	0	0	0	2
<b>E. SO. CEN.</b>											
Kentucky.....	41	69	0	0	6	0	0	0	0	0	0
Tennessee.....	8	71	0	0	0	17	1	0	1	0	1
Alabama.....	29	23	0	0	0	0	0	0	0	0	0
Mississippi <sup>1</sup> .....			0	0	0	0	0	0	0	1	1
<b>W. SO. CEN.</b>											
Arkansas.....	17	13	0	6	5	0	0	0	0	10	0
Louisiana.....	14	14	1	3	26	0	0	0	0	0	0
Oklahoma.....	16	50	0	0	0	0	0	0	0	0	0
Texas.....	248	274	0	3	315	0	1	0	4	1	25
<b>MOUNTAIN</b>											
Montana.....	15	27	0	0	0	0	0	0	2	1	0
Idaho.....	7	14	0	0	0	0	0	0	1	0	0
Wyoming.....	3	5	0	0	0	0	0	0	1	4	0
Colorado.....	30	204	0	0	0	0	0	0	1	0	0
New Mexico.....	26	36	0	0	0	0	0	0	0	0	0
Arizona.....	12	12	0	0	0	18	0	0	0	0	0
Utah <sup>2</sup> .....	31	70	0	0	0	0	0	0	1	1	0
Nevada.....	0	0	0	0	0	0	0	0	0	0	0
<b>PACIFIC</b>											
Washington.....	16	134	0	0	0	0	0	0	1	0	0
Oregon.....	30	23	0	0	0	0	0	0	0	0	0
California.....	191	558	0	3	11	0	1	1	0	3	0
Total.....	3,475	4,495	2	24	378	203	9	1	21	27	58
25 weeks.....	95,277	116,429									

<sup>1</sup> New York City only.<sup>2</sup> Period ended earlier than Saturday.

## PLAGUE INFECTION IN CALIFORNIA, IDAHO, AND OREGON

The following reports of plague infection found in California, Idaho, and Oregon since May 1, 1942, have recently been received: <sup>1</sup>

### CALIFORNIA

**Kern County:** May 4, in a pool of 5 fleas from 4 chipmunks, *Eutamias*, from a ranch 2 miles south of Davis Ranger Station.

**Lassen County:** May 21, in tissue from a marmot, *M. flaviventris nosophora* (?), taken 19 miles southeast of Adin; May 31, in tissue from 1 ground squirrel, *C. beldingi oregonus*, taken 9 miles east of Amedee.

**Monterey County:** May 5, in tissue from a pack rat, *Neotoma fuscipes*, taken in Lugo Canyon, west of San Antonio river; May 20, in tissue from 5 wood rats, taken on Highway in San Lucas Canyon, 8 miles northeast of Lockwood; June 2, in tissue from a ground squirrel, *C. beecheyi*, taken in Lugo Canyon, upper end, near Nacimiento Road.

**San Luis Obispo County:** May 27, in tissue from a jack rabbit, *Lepus californicus*, taken at Ace Oakley, 16 miles southeast of Arroyo Grande (Alamo Creek); in a pool of organs from 9 ground squirrels, *C. beecheyi*, taken in Alamo Creek area, northeast of Santa Maria; and May 28, in tissue from 1 brush rabbit, and from 1 ground squirrel, *C. beecheyi*, taken in same locality.

**Santa Barbara County:** June 1, in tissue from carcasses of 2 ground squirrels, *C. beecheyi*, taken 8 to 9 miles northeast of Santa Maria; June 4, in tissue from 1 ground squirrel (8 weeks old), same species, taken 12 to 13 miles northeast of Santa Maria.

**Siskiyou County:** May 28, in a pool of 152 fleas from 8 ground squirrels, *C. douglasii*, taken 1½ miles west of Montague.

### IDAHO

**Ada County:** May 6, in a pool of 90 fleas from 3 marmots, *M. flaviventris*, taken south of Boise; May 7, in tissue from 2 sick ground squirrels *C. townsendii mollis*, taken 1½ miles southeast of Gowen Field Air Base at Boise (infection later found in fleas and lice from these squirrels; an epizootic of plague occurred in this locality last spring); in a pool of 50 fleas from ground squirrels; and, May 8, in tissue from 1 ground squirrel and a pool of 70 fleas from 44 ground squirrels all of the same species and from the same locality.

**Canyon County:** May 13, in a pool of 30 fleas from ground squirrels, *C. townsendii mollis*, taken 3 to 6 miles north of junction of highways U. S. #30 and State #44; May 18, in tissue from 1 ground squirrel, *C. townsendii mollis*, taken 6 miles north of same junction.

<sup>1</sup> For reports of plague infection found up to May 1, 1942, see PUBLIC HEALTH REPORTS, June 26, 1942, page 979.

## OREGON

Grant County: May 24, in a pool of 19 fleas, 16 lice, and 6 ticks from 83 ground squirrels, *C. oregonus*; May 25, in tissue from 1 ground squirrel, same species, all from a ranch 4 miles southwest of Mt. Vernon.

Harney County: May 14, in a pool of 14 fleas from 1 marmot, *M. flaviventris avara*, taken 2 to 4 miles southwest of Follyfarm.

Lake County: May 8, in a pool of 400 fleas from marmots, *M. flaviventris flaviventris*, taken at Lake Albert, 5 to 7 miles north of Valley Falls, highway #395.

WEEKLY REPORTS FROM CITIES

City reports for week ended June 13, 1942

This table lists the reports from 90 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Pollomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Atlanta, Ga.....	0	0	2	0	0	0	0	0	1	0	0	1
Baltimore, Md.....	3	0	1	0	102	8	7	0	22	0	3	25
Barre, Vt.....	0	0	0	0	4	0	0	0	0	0	0	2
Billings, Mont.....	0	0	0	0	21	0	0	0	1	0	0	1
Birmingham, Ala.....	1	0	1	0	4	0	2	0	2	0	0	6
Boise, Idaho.....	0	0	0	0	4	0	0	0	0	0	0	0
Boston, Mass.....	3	0	0	0	239	1	7	0	47	0	2	47
Bridgeport, Conn.....	0	0	0	0	7	0	2	0	3	0	0	1
Brunswick, Ga.....	0	0	0	0	2	0	1	0	0	0	0	0
Buffalo, N. Y.....	0	0	0	0	22	0	5	0	16	0	0	4
Camden, N. J.....	0	0	0	0	0	0	4	0	11	0	0	1
Charleston, S. C.....	0	0	2	0	4	0	1	0	0	0	0	0
Charleston, W. Va.....	0	0	0	0	0	0	0	0	0	0	0	0
Chicago, Ill.....	17	0	1	1	33	0	13	0	27	0	0	151
Cincinnati, Ohio.....	1	0	0	0	4	0	4	0	7	0	0	10
Cleveland, Ohio.....	1	0	1	0	8	1	3	0	36	0	0	36
Columbus, Ohio.....	0	0	0	0	39	0	6	0	4	0	0	18
Concord, N. H.....	0	0	0	0	1	0	0	0	0	0	0	0
Cumberland, Md.....	0	0	0	0	0	0	0	0	0	0	0	0
Dallas, Texas.....	5	0	0	0	3	0	1	0	2	0	5	14
Denver, Colo.....	2	0	1	0	99	1	5	0	2	0	0	12
Detroit, Mich.....	5	0	0	0	40	0	6	0	95	0	0	97
Duluth, Minn.....	0	0	0	0	1	0	1	0	4	0	0	3
Fall River, Mass.....	3	0	0	0	14	0	1	0	16	0	1	1
Fargo, N. Dak.....	0	0	0	0	3	0	1	0	1	0	0	0
Flint, Mich.....	0	0	0	0	1	0	6	0	1	0	0	1
Fort Wayne, Ind.....	0	0	0	0	1	0	1	0	0	0	0	0
Frederick, Md.....	0	0	0	0	0	0	0	0	0	0	0	0
Galveston, Texas.....	0	0	0	0	7	0	0	0	0	0	0	11
Grand Rapids, Mich.....	0	0	0	0	1	0	0	0	1	0	0	7
Great Falls, Mont.....	0	0	0	0	15	0	0	0	1	0	0	1
Hartford, Conn.....	0	0	0	0	60	0	0	0	2	0	0	15
Helena, Mont.....	0	0	0	0	18	0	0	0	0	0	0	2
Houston, Texas.....	0	0	0	0	3	0	3	0	0	0	0	1
Indianapolis, Ind.....	0	0	0	0	46	0	0	0	9	0	0	23
Kansas City, Mo.....	0	0	0	0	78	0	1	0	11	0	0	1
Kenosha, Wis.....	0	0	0	0	3	0	0	0	2	0	0	11
Little Rock, Ark.....	0	0	0	0	0	0	2	0	0	0	0	0
Los Angeles, Calif.....	3	0	8	2	382	0	13	0	23	0	0	25
Lynchburg, Va.....	0	0	0	0	1	0	0	0	0	0	0	20
Memphis, Tenn.....	0	0	0	0	18	0	6	0	3	0	0	15
Milwaukee, Wis.....	0	0	1	1	402	0	1	0	31	0	0	33
Minneapolis, Minn.....	1	0	0	0	56	0	3	0	3	0	0	3
Missoula, Mont.....	0	0	0	0	1	0	1	0	0	0	0	0
Mobile, Ala.....	0	0	1	0	0	0	3	0	0	0	0	0
Nashville, Tenn.....	0	0	0	0	6	0	0	0	2	0	0	2
Newark, N. J.....	0	0	0	0	208	1	1	0	12	0	0	55
New Haven, Conn.....	0	0	0	0	33	0	0	0	1	0	0	16
New Orleans, La.....	0	0	0	0	30	1	2	0	1	0	1	6
New York, N. Y.....	8	1	3	0	30	12	29	1	123	0	4	158
Omaha, Nebr.....	0	0	0	0	6	0	3	0	0	0	0	0
Philadelphia, Pa.....	3	0	2	2	26	3	14	0	94	0	3	96
Pittsburgh, Pa.....	3	0	1	14	14	1	2	0	11	0	1	24
Portland, Maine.....	0	0	0	0	48	2	2	0	1	0	0	11
Providence, R. I.....	0	0	0	0	100	0	0	0	2	0	1	30



## City reports for week ended June 13, 1942—Continued

	Diphtheria cases	Ecephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Pollomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
Pueblo, Colo.....	0	0	0	0	1	0	0	0	0	0	0	0
Racine, Wis.....	0	0	0	0	119	0	0	0	0	0	0	19
Raleigh, N. C.....	0	0	0	0	6	0	1	0	0	0	0	1
Reading, Pa.....	0	0	0	0	2	0	0	0	0	0	1	5
Richmond, Va.....	0	0	1	0	13	0	3	0	2	0	0	1
Roanoke, Va.....	0	0	0	0	1	0	0	0	0	0	0	0
Rochester, N. Y.....	0	0	0	0	19	0	1	0	8	0	0	10
Sacramento, Calif.....	2	0	0	0	28	0	0	0	0	0	0	36
Saint Joseph, Mo.....	0	0	0	0	0	0	0	0	0	0	0	0
Saint Louis, Mo.....	0	0	0	0	19	0	10	0	6	0	0	2
Saint Paul, Minn.....	0	0	0	0	44	0	3	0	2	0	0	14
Salt Lake City, Utah.....	0	0	0	0	261	0	2	0	0	0	0	17
San Antonio, Tex.....	0	0	1	0	13	0	3	0	0	0	0	2
San Francisco, Calif.....	2	0	2	0	218	0	9	0	6	0	0	19
Savannah, Ga.....	0	0	0	0	0	0	0	0	0	0	0	0
Seattle, Wash.....	0	0	0	0	351	0	1	0	1	0	0	11
Shreveport, La.....	1	0	0	0	2	0	0	0	0	0	0	0
South Bend, Ind.....	0	0	0	0	0	0	0	0	4	0	0	1
Spokane, Wash.....	0	0	0	0	68	0	1	0	1	0	0	6
Springfield, Ill.....	0	0	0	0	3	0	0	0	2	0	0	0
Springfield, Mass.....	0	0	0	0	35	0	3	0	14	0	0	5
Superior, Wis.....	0	0	0	0	1	0	0	0	1	0	0	0
Syracuse, N. Y.....	0	0	0	0	483	0	1	0	2	0	0	62
Tacoma, Wash.....	0	0	0	0	27	0	1	0	3	0	0	2
Tampa, Fla.....	0	0	0	0	3	0	1	0	0	0	0	1
Terre Haute, Ind.....	0	0	0	0	2	0	1	0	1	0	0	0
Topeka, Kans.....	0	0	0	0	6	0	0	0	3	0	0	2
Trenton, N. J.....	0	0	0	0	0	0	2	0	6	0	0	9
Washington, D. C.....	1	0	0	0	41	1	8	0	6	0	1	24
Wheeling, W. Va.....	0	0	0	0	2	0	0	0	1	0	0	0
Wichita, Kans.....	0	0	0	0	50	0	2	0	1	0	0	9
Wilmington, Del.....	0	0	1	0	2	0	0	0	0	0	0	0
Wilmington, N. C.....	0	0	0	0	0	0	2	0	0	0	0	20
Winston, Salem, N. C.....	0	0	0	0	3	0	0	0	2	0	0	2
Worcester, Mass.....	0	0	0	0	2	0	7	0	19	0	1	49

*Anthrax*.—Cases: Camden, 1.

*Dysentery, amebic*.—Cases: Detroit, 4.

*Dysentery, bacillary*.—Cases: Detroit, 1; Los Angeles, 3.

*Leprosy*.—Cases: Memphis, 1; San Francisco, 1.

*Rocky Mountain spotted fever*.—Cases: Lynchburg, 1; Missoula, 1; Salt Lake City, 1; Springfield, Ill. 1.

*Typhoid fever*.—Cases: Los Angeles, 1; New York, 1.

*Whooping cough*.—Cases: Los Angeles, 1; New York, 1.

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

Period	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Typhoid cases fever	Whooping cough cases
		Cases	Deaths						
Week ended June 13, 1942...	9.93	3.97	1.22	630.59	34.37	111.67	0.00	3.36	202.56
Average for week, 1937-41...	13.43	6.33	2.93	606.27	50.79	180.32	1.70	4.63	190.51

1 Median.

## FOREIGN REPORTS

### CANADA

*Provinces—Communicable diseases—Week ended May 30, 1942.*—During the week ended May 30, 1942, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis		1		4	3				1	9
Chickenpox	2	28	1	184	295	44	19	18	145	736
Diphtheria		17		20		7	3	3	4	54
Dysentery				7						7
German measles		1	5	18	46	6	16	10	12	114
Influenza		14			7	2	4		7	34
Lethargic encephalitis						1				1
Measles				388	265	127	34	17	33	864
Mumps		16		155	408	75	191	56	316	1,217
Pneumonia		11			3	2			7	23
Poliomyelitis							1			1
Scarlet fever	1	17	14	65	154	34	51	64	36	436
Tuberculosis		7	15	273	37		26		11	369
Typhoid and paratyphoid fever				24	8		1		1	34
Undulant fever				2	2				1	6
Whooping cough		11		214	71	1	3	6	87	393
Other communicable diseases		18		3	249	34	5		17	326

### COSTA RICA

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

Disease	Cases	Deaths	Disease	Cases	Deaths
Chickenpox	10		Typhoid and paratyphoid fever	12	
Diphtheria	12	1	Whooping cough	39	
Measles	1,120	10			

### CUBA

*Habana—Communicable diseases—4 weeks ended May 30, 1942.*—During the 4 weeks ended May 30, 1942, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria	19	4	Rabies	3	3
Leprosy	1		Tuberculosis	10	
Malaria	5		Typhoid fever	45	7
Measles	21		Yaws	4	4
Poliomyelitis	6				

## EGYPT

*Infectious diseases—Fourth quarter 1941.*—During the fourth quarter of 1941, certain infectious diseases were reported in Egypt as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	5	.....	Measles.....	915	285
Cerebrospinal fever.....	17	11	Mumps.....	168	3
Chickenpox.....	89	.....	Pneumonia.....	852	890
Diphtheria.....	1,198	561	Poliomyelitis.....	2	.....
Dysentery.....	1,022	147	Puerperal septicemia.....	86	56
Erysipelas.....	647	75	Scarlet fever.....	28	.....
Influenza.....	1,967	37	Tuberculosis.....	1,454	925
Leprosy.....	114	22	Typhoid fever.....	1,251	253
Lethargic encephalitis.....	2	2	Typhus fever.....	730	132
Malaria.....	2,531	42	Whooping cough.....	327	15

*Vital statistics—Fourth quarter 1941.*—Following are the numbers of births and deaths for the fourth quarter of 1941 for all localities of Egypt having a health bureau:

Number of live births.....	58,910
Births per 1,000 population.....	46.3
Deaths, all causes.....	35,692
Deaths per 1,000 population.....	28.1
Deaths under 2 years of age.....	7,801
Deaths under 2 years of age per 1,000 live births.....	132

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

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

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

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

#### Typhus Fever

*Bulgaria.*—During the week ended May 16, 1942, 47 cases of typhus fever were reported in Bulgaria.

*Hungary.*—During the week ended May 30, 1942, 28 cases of typhus fever were reported in Hungary.

*Iraq.*—For the week ended May 16, 1942, 15 cases of typhus fever were reported in Iraq.

*Irish Free State—Mayo County—Westport.*—During the week ended May 16, 1942, 3 cases of typhus fever were reported in Westport, Mayo County, Irish Free State.

*Morocco.*—During the week ended June 6, 1942, 854 cases of typhus fever were reported in Morocco.

*Rumania.*—During the week ended June 13, 1942, 78 cases of typhus fever were reported in Rumania.

*Spain.*—During the week ended May 23, 1942, 25 cases (8 in Barcelona) of typhus fever were reported in Spain. For the week ended May 16, 1942, 35 cases (10 in Barcelona) of typhus fever were reported.

**COURT'S DECISION ON PUBLIC HEALTH**

*Nuisance—dumping of garbage on farm—power of local board of health—statute upheld.*—(Iowa Supreme Court; *State v. Strayer*, 299 N.W. 912; decided September 23, 1941.) The defendant was the operator of a farm and engaged in raising hogs. He fed them garbage which was obtained from various sources and deposited upon his land. The board of health of the township in which the defendant's farm was located, without notice having been served upon the defendant, found that a nuisance existed by reason of the dumping of the garbage and ordered the removal of such nuisance from the premises. It was alleged that the defendant failed to comply with the order and 2 months after the order he was charged with violating chapter 107 of the 1939 Iowa Code, section 2228 et seq., by hauling garbage to his place in violation of the board's order. The said code chapter provided for the organization, powers, and duties of boards of health and section 2240 provided that the local board could order the owner, occupant, or person in charge of any place to remove at his own expense any nuisance found thereon, by serving on such person a written notice stating some reasonable time within which the removal should be made, and if there was failure to comply with the order the board could cause the same to be executed at such person's expense. Section 2246 made it a misdemeanor to violate knowingly any provision of the chapter or of the rules of the board or any lawful order of the said board or of its officers or authorized agents.

From a ruling by the lower court sustaining a demurrer to the information the State appealed to the Supreme Court of Iowa. The latter court held that the statute under consideration was a valid exercise of the police power of the State and was not a delegation of the legislative power in permitting the local board of health to pass upon the question of whether or not a certain condition constituted a nuisance or was detrimental to the health of the community.

Another point passed upon by the appellate court related to the right of the board, without notice or opportunity for hearing, to declare a nuisance and order its abatement. The defendant's contention respecting this was that an ex parte determination of facts as to a nuisance which was not such per se was a denial of due process of law. However, in this also, the court ruled against the defendant, stating that he was not without remedy and pointing out that, if he failed to comply with the order and was made the subject of criminal prosecution, he had his day in court in such proceeding on the question whether the dumping of garbage on his farm constituted a nuisance. Nothing in the statute, said the court, grants to the officers immunity from the consequences of unfair or oppressive acts. "The particular form of procedure prescribed may vary from the customary procedure,

but essential rights are not violated by granting to the board the right, in an emergency, to proceed in the abatement of a nuisance detrimental to public health, and it is safe to say that most cases calling for action on the part of the board of health are matters requiring immediate attention." The court then went on to say that, while the courts had not been uniform in their holdings, it believed that the weight of authority, as well as reason and necessity, prescribed that in cases involving the public health, where prompt and efficient action was necessary, the State or its officers should not be subjected to the inevitable delays incident to a complete hearing before action could be taken. "The enforcement of quarantine regulations to avoid the risk of an epidemic is a situation in point; and a public nuisance of the nature claimed in this proceeding is also a menace, not only to comfort but to health. In such cases, so far as consistent with constitutional rights, the public interest should prevail against the interest of the individual."

The ruling of the lower court was reversed.

*Food—adulterated—sale in violation of statute.*—(Kansas Supreme Court; *State v. Hupp*, 118 P.2d 579; decided November 8, 1941, rehearing denied December 11, 1941.) The statutes of Kansas made it unlawful to sell, keep for sale, or offer for sale any article of food which was adulterated and provided that one instance in which an article of food should be deemed to be adulterated was if it were the product of a diseased animal or one that had died otherwise than by slaughter. In a criminal prosecution for the sale of adulterated food consisting in whole or in part of the product of a diseased animal, in violation of the said statutory provisions, the Supreme Court of Kansas held that it was not necessary for the State to charge and prove that the sale was to a particular person.

*City ordinance on garbage collection upheld.*—(Arkansas Supreme Court; *Geurin v. City of Little Rock*, 155 S.W.2d 719; decided November 17, 1941.) An ordinance of the city of Little Rock provided for the collection of garbage, waste, trash, and refuse in the city. The appellant was convicted of violating this ordinance and his appeal to the Supreme Court of Arkansas involved the constitutionality of the ordinance.

One of his contentions was that the ordinance was void because it levied an illegal tax and made failure to pay this illegal tax a criminal offense. The court said that the legislature had granted to cities the power to prevent injury or annoyance within their limits from anything dangerous, offensive, or unhealthy and that, in questions of the kind before the court previously, it had always been held that a city had the power to provide by proper ordinance for the removal, at suitable intervals, of garbage, etc. At the time the city council

passed the instant ordinance it was not possible for it to have known exactly what the expense of collecting the garbage, etc., would amount to and its duty in this respect was to make a fair, reasonable estimate. If, said the court, when it had done this, the amount collected happened to be in excess of the necessary amount, the ordinance would not for that reason be void.

Another of the appellant's contentions with which the court disagreed was that the ordinance was void because it provided for imprisonment for debt. The ordinance "provides for punishment for the violation of law, just as it is provided if one is charged with false pretenses, in which case he is not imprisoned for debt, but for a violation of the law."

Also rejected was the argument that the ordinance imposed excessive fines and cruel and unusual punishment.

The supreme court concluded that the ordinance was valid, saying that "One of the most important fields of legislation that may be enacted under the police power is that of regulations in the interest of public health" and that "If a city could not enact laws of this sort to protect the health of its citizens, any kind of disease might be permitted to spread among the inhabitants, resulting in great damage."

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