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PATHOLOGIC HISTOLOGY IN MICE PRODUCED BY INTRAVENOUS INOCULATION WITH THE TOXIN OF *CLOSTRIDIUM SORDELLII* (*BIFERMENTANS*)

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Histologic studies of the lesions in experimental animals have not previously been reported. The reports of Sordelli (*1*), of Hall and Scott (*2*), of Hall, Rymer, and Jungherr (*3*), of Vawter (*4*), and of Meleney, Humphreys, and Carp (*5*, *6*), agree in describing great swelling and slightly hemorrhagic edema of the subcutaneous tissues at the site of inoculation, usually with little or no emphysema. These findings were quite consistent in guinea pigs, cats, dogs, rabbits, mice, chickens, pigeons, and rats. The viscera were often normal or showed pulmonary congestion, pleural exudates, edema of pleura and peritoneum (Hall and Scott). Sordelli noted inconstantly peritoneal exudates, autodigestion of the stomach, intense congestion of jejunum and adrenals, and white friable muscles in rabbits and guinea pigs. After intravenous inoculation of rabbits, effusions in the body cavities were noted by Meleney, Humphreys, and Carp (*6*), while Hall, Rymer, and Jungherr described in rabbits pale edematous or pneumonic lungs, dilated engorged heart chambers, and 5 to 10 cc of serous fluid in the pleurae. Hall (*7*) has also noted hemorrhagic congestion of the renal cortex and contraction of the bladder in guinea pigs.

A few human cases have been studied. Sordelli's original report simply notes that the organism was recovered alone or in mixed culture from cases of gangrene. Meleney, Humphreys, and Carp (*6*) described a case fatal on the 34th postoperative day. The wound surfaces were covered with thick pus, the adjacent abdominal wall showed great thickening, board-like induration, and edema with thrombosis of subcutaneous veins, small ecchymoses, and no suppuration. Microscopically there were edema of fat and muscle, dense mononuclear and polynuclear infiltration, little destruction of fat, atrophy of muscle fibers, and numerous Gram-positive bacilli. Elsewhere there were noted 250 cc of serous peritoneal exudate containing a few fibrin flakes, congestion of liver and spleen, and edema of the lungs. Microscopically they noted centrolobular degeneration and dispersed bacilli in the liver and some destruction of tubular epithelium in the kidney.

Hall and Gray (*8*) recorded a case of peritonitis resulting apparently from intestinal infection with *Cl. sordellii* occurring in a case of decompensated hypertensive heart disease. The sigmoid showed two red areas, one externally covered by fibrine, which microscopically showed serofibrinopurulent mucosal necrosis and ulceration, seropurulent exudate with many large spore-bearing Gram-positive bacilli in the outer layers, vacuolation or destruction of muscle fibers, and a necrosing purulent arteritis in the serosa. The peritoneum contained a liter of turbid yellowish fluid. Centrolobular congestion of the liver with post-mortem necrosis and vacuolization of adjacent cells was described, but appears not improbably assignable to the chronic cardiac failure indicated clinically. Part of the upper lobe of the right lung was deep red and exuded fluid on section. Histologically there was a serous exudate containing a few leucocytes, and vessel walls were thickened.

Material for this study was derived from Bengtson and Stewart's current studies in the standardization of the antitoxins for the pathogenic anaerobes. Animals were inoculated intravenously with toxin, and only those mice were used for histologic study which were killed or seen dying. Autopsies were performed within 10 minutes of death, and all viscera fixed en bloc in Orth's bichromate formol, together with a piece of the spinal column.

Heart.—The heart cavities, particularly the atria, are often dilated and engorged with blood. The heart muscle fibers are usually cloudy in appearance and often studded with fine eosinophilic granules in the sarcoplasm. The cross striations are often clearly defined, often partially obscured, sometime totally so. Cloudiness, granularity, and suppression of cross striation are most frequent in the 17- to 30-hour period, less so before 7 hours and after 40 hours from inoculation. Cross striation was recorded as sharply defined in 7 of 11 mice killed before 7 hours, in 6 of 8 mice taken after 40 hours, and in 11 of 26 mice taken between 17 and 30 hours after inoculation.

Foci of myocardial lymphocyte infiltration, of valve proliferation, and of epicardial lymphoctye infiltration were recorded in a number of animals, but did not appear to be significant.

Lung.—Animals killed within the first 7 hours after inoculation usually (10 of 11) showed congestion of variable grade, about half (5) showed foci of alveolar hemorrhage, and one showed diffuse blood-tinged serous exudation in the alveoli. In the 17- to 30-hour period congestion was less frequent, appearing in 10 of 26 mice, hemorrhages were seen in 6 mice, 4 of which showed no concomitant congestion, slight to moderate serous exudation appeared in 4 mice, with congestion in 2, with hemorrhages in 1, and alone in 1. In the 40- to 70-hour period 6 of the 10 mice showed septal congestion, associated with focal hemorrhage in 2. No appreciable difference in frequency of con-

gestion and hemorrhages was noted between animals killed and those dying in the same periods.

The trachea and bronchi showed no significant changes. Subpleural peribronchial or perivascular lymphoid nodules, or slight infiltration appeared in a few of the mice, but do not appear to be significant.

Serous membranes.—Focal to patchy, moderate to dense infiltration, chiefly by lymphocytes, was often seen in the subserous fatty tissues of the peritoneal cavity, particularly in the omentum, less often in mesentery, renal, and parametrial fat, and infrequently on the diaphragm. The capsules of liver and spleen were not involved; the peritoneum over the pancreas was involved infrequently. In 17 of the 48 mice no peritoneal lesions were recorded.

Less frequent (in 22 of 48 mice) was a similar reaction in the pleura, usually in the mediastinal fat, seldom visceral. Noteworthy pericardial infiltration of the same type was noted in 9 mice.

The frequency and extent of these reactions did not vary appreciably during the course of the intoxication, hence they are not considered significant.

Gastrointestinal tract.—Sections of esophagus from 41 animals were studied, taken 1 to 69 hours after inoculation. Focal lymphocyte infiltration was seen in the submucosa and muscularis of one; the remainder were normal. In 41 mice the stomach was studied. In 36 it was normal; in 5 there was coccidiosis of the antral mucosa, in 4 a focal lymphocyte infiltration of mucosa or submucosa, focal polymorphonuclear infiltration of mucosa with admixed and subjacent submucosal lymphocyte infiltration in 3, and in 1 numerous mitoses in the fundus glands.

Autolysis of the tips of villi, even in animals killed and autopsied immediately, was observed in one or more levels of the small intestine in 13 mice, and in 1 there was a catarrhal enteritis. Lymphoid follicles in small and large intestine showed varying grades of germinal center hyperplasia, and swollen phagocytic intrafollicular reticulum cells with ingested nuclear fragments were observed in seven mice. Round worms were encountered in sections in eight mice, in the colon five times, in the caecum three times, and in the ileum twice, one mouse showing them in all three levels.

Hyperactivity of the mucous glands was noted, usually in the colon, rectum, or both in 31 of the 48 mice, and mucoepithelial exudate was seen on the surface of the mucosa in 29. That this reaction is probably due to the action of the toxin is indicated by its absence in 7 of 12 mice killed within 7 hours, and in 4 of 10 taken more than 40 hours after inoculation, while it was present in 23 of the 26 taken between 17 and 30 hours. This may indicate colonic excretion of the toxin.

Liver.—Up to 18 hours slight to moderate congestion was present in 4 of 14 animals, from then to 30 hours moderate diffuse capillary con-

gestion was almost regularly present, and after 40 hours slight or moderate congestion was seen in 4 of 10 mice. Scattered lymphoid nodules in the parenchyma and portal tissues were usually found in mice killed in the first 7 hours, thereafter they were infrequent. This parallels the depletion of pulp lymphoid tissue and decrease in follicle size noted in the spleen.

Usually the parenchyma showed no significant changes. Sometimes the portal halves of the lobules showed some increase in nuclear density in the liver cells. Five mice dying between 22 and 30 hours, one at 47, and one at 68 hours showed few to numerous capillary thrombi, hyaline or fibrinous in structure, often enclosing red corpuscles or cell fragments, sometimes forming hemoglobin masses up to 25μ in diameter and in five mice accompanied by coagulative or fibrinoid necrosis with karyorrhexis or karyolysis of a few abutting liver cells.

Mitoses in liver cells were noted as fairly frequent in 3 mice taken at about 48 hours from inoculation.

Pancreas.—No lesions assignable to the action of the toxin were encountered in any of 47 mice.

Spleen.—During the first 2 hours after inoculation the spleen appears normal, showing moderate blood content of the pulp, moderate accumulation of lymphoid cells adjacent to the trabeculae and capsule, moderate numbers of megakaryocytes and large follicles without germinal centers or conspicuous reticulum cells. In the 3- to 7-hour period a noteworthy congestion of the spleen pulp often appears, and megakaryocytes and lymphocytes are often somewhat diminished in numbers. In the 17- to 30-hour period pulp congestion becomes more frequent and often more marked, the earlier diminution of the peritrabecular lymphoid tissue gives way to an increase, and focal lymphocyte infiltration of the intervening pulp appears in some animals. Megakaryocytes are usually few in numbers and sometimes karyopyknotic, but in some animals they may be quite numerous.

The follicles, which remained unchanged during the first 7-hour period, in the 17- to 30-hour period show, on the average, some reduction in size, a constant, more or less marked accumulation of pyknotic nuclear fragments in dilated lymph clefts, sometimes spreading into the follicle substance as karyorrhectic necrosis, and swelling of the reticulum cells abutting on these lymph clefts, with more or less phagocytosis of the nuclear debris. In the later, 40- to 70-hour, period, less free nuclear debris is present, but the swollen reticulum cells continue their phagocytic activity in most animals. Lymphoblastic germinal centers appear in most animals in the 17- to 30-hour period and in all in the 40- to 70-hour period.

On the average, pulp congestion decreases in the 40- to 70-hour period, megakaryocytes are again present in about normal numbers,

peritrabecular and pulp lymphocyte infiltration continues increased in amount and focal polymorphonuclear leucocyte accumulation is sometimes seen in the pulp.

Appreciable pulp reticuloendotheliosis, macrophage exudation and erythroblastic activity are usually absent in all stages.

Bone marrow.—Sagittal sections of three or more vertebrae from 47 mice were prepared after decalcification. The decalcification naturally interfered somewhat with cell identification. In general, the marrow was cellular, composed predominantly of myelocytes with moderate numbers of megakaryocytes, normoblasts and polymorphonuclear leucocytes and usually few eosinophils.

During the first 4 hours after the administration of the toxin, congestion or few focal hemorrhages were observed in 3 of 8 mice. From 5 hours on to 42 hours more or less marked congestion and focal to diffuse patchy hemorrhage were almost regularly present. Sometimes hemorrhage was accompanied by considerable disruption of marrow structure, and often there was a very considerable amount of nuclear pyknosis of marrow cells in hemorrhagic areas.

Three animals killed 48 hours after inoculation showed neither congestion nor hemorrhage, while three dying after 67 to 69 hours showed moderate congestion and some focal or diffuse hemorrhages. One mouse killed 41 hours after inoculation showed little hemorrhage, moderate congestion, and distinct islets of myelocytes and of normoblasts, suggesting regeneration.

Lymph nodes.—Lymph nodes were studied histologically in 45 mice, the tracheobronchial nodes in 25, various omental, mesenteric, and pancreatic nodes in 19, pelvic in 3, and interrenal nodes in 30 mice.

During the first 7 hours after inoculation (12 mice) the nodes were usually normal (15 nodes), a few of the interrenal and abdominal groups showed slight or moderate sinus reticuloendothelial hyperplasia, sinus dilatation or edema was seen in a few, and in only two cases did the interrenal nodes show swelling of intrafollicular reticulum cells with slight or moderate phagocytosis of nuclear debris.

From the 17- to 30-hour period 39 lymph nodes from 24 mice were studied, approximately equally divided between the tracheobronchial, interrenal, and mesenteric groups. The follicles were hyperplastic and contained more or less nuclear debris in dilated lymph clefts and swollen phagocytic reticulum cells. This reaction occurred in about half the nodes studied and was most frequent in mesenteric nodes, least in interrenals. The interrenal nodes more often showed sinus dilatation, and sometimes sinus hemorrhage. Such changes were less common in abdominal nodes and infrequent in tracheobronchials. Sinus reticuloendothelial hyperplasia, sometimes with macrophage exudation in the sinuses, occurred in about half of the mesenteric and interrenal nodes, infrequently in the peribronchials.

In 9 mice taken in the 40- to 70-hour period, 14 nodes, 6 peribronchial and 4 each interrenal and mesenteric, were studied. The changes were similar to those seen in the preceding period, both in character and in frequency in the various groups, except that sinus dilatation, hemorrhage, and macrophage exudation were less frequent.

Adrenals.—The adrenal was normal in 7 of the animals killed within 7 hours after inoculation. It showed moderate to marked congestion of the inner cortical zones in 3. In 2 there were respectively, single and multiple foci of interstitial hemorrhagic disruption of cortical tissue in which the included cortex cells were rounded, slightly or moderately oxyphil and karyopyknotic. The last 2 animals were killed, respectively, at 5 and 6½ hours after inoculation.

Between 17 and 30 hours after inoculation adrenals were studied in 24 animals, 6 killed and 18 dying from the effects of the toxin. In general, these animals showed more or less marked congestion, usually multiple hemorrhages, cytoplasmic oxyphilia, and karyopyknosis of cortex cells grading into complete coagulation necrosis, diffuse or focal, generally restricted to the inner third to half of the cortex, and in necrosing areas few to numerous hyaline eosinophilic globules of apparently intracapillary origin.

These hyaline globules range from 10 to 40μ in diameter. They often stain orange with eosin, similarly to the manner of red corpuscles, and sometimes outlines of red corpuscles may be discerned in parts of them. They apparently arise by conglutination and fusion of red corpuscles into masses of nearly unaltered hemoglobin within dilated capillaries.

In the latter part of this 17- to 30-hour period complete coagulation necrosis tended to be more frequent and more focal in character, and congestion was less prominent.

In animals taken 40 to 70 hours after administration of the toxin, five dying of its effects showed similar lesions in which focal coagulation necrosis was a prominent feature, congestion and hemorrhage tended to be irregular or focal in distribution, and the hyaline hemoglobin globules were less frequent. Two animals killed in this period showed no adrenal lesions, while a third presented findings similar to those found in the animals that died.

The medulla was normal in 33 of 44 mice. In 11 there was partial loss of chromaffin substance, usually in discrete focal or marginal areas, normal chromaffin staining remaining in part of the medulla in 8 mice. In 8 mice chromaffinolysis was associated with slight cytoplasmic oxyphilia and definite karyopyknosis of medulla cells. The medulla was normal in 11 of 12 mice killed in the first 7 hours and in 5 of 8 taken after the fortieth hour, while 7 of 24 dead between 17 and 30 hours after inoculation showed degenerative changes. Definite focal coagulative necrosis in the medulla was seen in one mouse dying 69 hours after inoculation.

Kidney.—Glomeruli were normal in 34 of the 48 mice, slightly to moderately congested in 13 and engorged, with a few hyaline hemoglobin thrombi, in one. Congestion was noted in 1 of 12 mice in the 1- to 7-hour period, in 1 of 10 in the 40- to 70-hour period, and in 12 of 26 in the 17- to 30-hour group.

During the 1- to 7-hour period the convoluted tubules were all normal in 8 mice, while some of the proximal convoluted and coarse loop tubules showed some swelling, fine basal granularity, and possibly swelling or fraying of red borders in the other four. In the 17- to 30-hour period these tubules remained normal in 4 mice, in 13 part of them were normal, part swollen or dilated, with cloudy or finely granular basal cytoplasm and normal, swollen, hyalinized or frayed rod borders. Similar degeneration was general in the remaining 9 mice. In 12 there was more or less hyaline, granular or foamy serous exudate in dilated tubules. Later, in the 40- to 70-hour period, similar degenerative changes were general in 3 mice, affected part of the tubules in 3, and in 4 the tubules were normal.

In the 1- to 7-hour period the medulla and papilla were normal. Between 17 and 30 hours the medulla regularly showed moderate to extreme congestion, and its tubules were often oxyphil, more or less frayed toward their lumina, and usually also karyopyknotic. Total necrosis of tubules was not encountered. The renal papilla showed a less frequent and usually quite moderate congestion without tubular degeneration. A little focal epithelial calcification in the papilla was noted in 1 mouse. After 40 hours this intense engorgement of the medulla was usually absent and the tubules of the medullary rays were normal.

Diffuse or nodular lymphocyte infiltration along the sheaths of the cortical arteries was frequently noted in the early period (9 of 12 mice) and is probably not particularly abnormal. This periarterial lymphocyte infiltration became less frequent (7 of 26 mice) in the following (17- to 30-hour) period, and remained infrequent (3 of 7 mice) in the late (40- to 70-hour) period.

Male genital organs.—No lesions were seen in the testis, epididymis, or seminal vesicle of any of 5 mice.

Ovary.—In the first 7 hours focal hemorrhage into Graafian follicles was seen in 1 mouse, and the ovaries were normal in 5. Ovaries were studied in 19 mice from the 17- to 30-hour period. In 6 they were normal, 5 showed interstitial or lunate peripheral hemorrhages in mature follicles, 6 karyorrhexis grading into coagulation necrosis in thecal epithelium, 1 with a coagulated necrotic ovum centrally. Two showed focal interstitial hemorrhage in addition to follicle hemorrhage. Focal hemorrhage into corpora lutea was seen in 6 mice, in 2 accompanied by oxyphilia and necrosis of lutein cells, and in one of these by numerous hemoglobin globules similar to those described in

the liver and adrenal. Normal corpora lutea were recorded in 6 mice and in 7 none was encountered. Ovaries from two mice taken in the 40- to 70-hour period were normal.

Uterus, oviducts, vagina.—A considerable number of mice showed slight to moderate endometrial infiltration by polymorphonuclear leucocytes, focal lymphocyte infiltration, and sometimes eosinophils, often more marked in the cervical mucosa and here and in the vagina accompanied by some parakeratosis and emigration of leucocytes through the epithelium. Sometimes cellular infiltration extended into the muscularis and perimetrium, where it was more often lymphocytic in character. The oviducts and fimbriae were usually not involved.

In view of the fact that low-grade nonpuerperal endometritis is not uncommon in mice, the significance of these findings is not clear. However, slight endometritis was noted in 4 of 11 mice in the first 7 hours and became more frequent in the 17- to 30-hour period (12 slight, 3 moderate in 24 mice) and in the 40- to 70-hour group (1 slight, 2 moderate in 5 mice). Hence it would seem that the action of the toxin may have increased the frequency and severity of the endometritis, if it did not initiate it.

Urinary bladder.—The urinary bladder from 21 mice was studied histologically and no lesions were found.

Thymus.—Congestion and reticulum cell swelling were noted in 1 mouse, fatty replacement in 1, and no lesions in 4.

Spinal cord.—Partial tigrolysis occurred in 4 of 12 mice killed 1 to 7 hours after inoculation. Later about half of the animals showed partial to complete tigrolysis, perhaps accompanied by cytoplasmic vacuolation, nuclear shrinkage, and karyoplasmic oxyphilia. Slight to moderate congestion of the gray substance accompanied the tigrolysis in 7 of 18 cases. In 5 mice there was focal meningeal or perivascular lymphocyte infiltration of slight to moderate grade. The significance of this finding is not clear.

Spinal and sympathetic ganglia.—Spinal ganglia were studied in 15 mice, sympathetic in 28, partial tigrolysis of nerve cells in 1. Sympathetic ganglion was the only recorded abnormality.

Skeletal muscle.—Normal in all animals.

SUMMARY

The toxin of *Clostridium sordellii* (*bifermentans*) induces congestion of lungs, liver, spleen, adrenal, and bone marrow, usually reaching its maximum in about 24 hours. Hemorrhages ensue in lungs, marrow, adrenals, renal medulla, ovaries, and sometimes lymph nodes, and hyaline or hemoglobin thrombi appear, most often in the adrenals, sometimes in the liver, and occasionally in renal glomeruli. Accompanying these changes is a destruction of lymphoid tissues, mani-

fested by decrease in frequency of lymphoid nodules in certain parenchymatous organs, a decrease in size of splenic follicles, and accumulation of nuclear debris in the lymph clefts of the follicles of spleen and lymph nodes, with ingestion of the fragments by swollen reticulum cells in the follicles. With the congestion and hemorrhages there is diffuse and focal degeneration grading into coagulation necrosis in the inner portion of the adrenal cortex, and similar degeneration without necrosis appears in the medullary rays of the kidneys. Other findings are a low grade endometritis and a catarrhal colitis which become more pronounced and more frequent at about the end of the first day. Mild parenchymatous degeneration is noted in renal cortex and heart muscle, and tigrolysis and nerve cell vacuolation are seen in the spinal cord.

(AUTHOR'S NOTE.—While recent work of Stewart (*9*) and of Clark and Hall (*10*) indicates that *Cl. sordellii* and *Cl. bifermentans* may be the same species, this is not yet regarded as sufficiently established to warrant the use of the older name *Cl. bifermentans* in the title of this paper.)

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THE POLLUTION PROBLEM IN THE OHIO RIVER DRAINAGE BASIN [1]

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During the past 2 years or more in which there has been a concerted effort for pollution abatement on the Ohio River watershed, informa-

[1] Presented before the Ohio Valley Improvement Association, Cincinnati, Ohio, September 28, 1937.

tion has been forthcoming on the effect, at many points, of the pollution being discharged in the form of untreated domestic sewage and industrial wastes.

Sufficient detailed information is not available at present to state definitely the pollution problems that exist at all points on the watershed. However, during the past 20 years, Federal, State, and municipal agencies have gathered considerable information as to sanitary conditions at various points in the Ohio River valley which would seem indicative of the pollutional problems which might exist in other localities where the conditions were somewhat similar but for which detailed information was entirely lacking.

This information has again been reassembled in an attempt at a nontechnical and brief summary to present a picture of what are believed to be the public health aspects of the present pollution in the Ohio River.

In discussing the existing pollution, the watershed may be conveniently divided into (*a*) the upper drainage basin, extending downstream to below the Ashland-Ironton area on the main river, some 350 miles below Pittsburgh, in the watercourses of which the pollution problem is complicated by the presence of varying amounts of acid mine drainage from past and present coal-mining operations; and (*b*) the lower watershed from Portsmouth, Ohio, to the mouth, in which the acid drainage and its effects have largely disappeared and the pollution problem is one of the effect of untreated domestic sewage and manufacturing wastes.

Both on the Ohio River proper and for varying distances above the mouths of many of the larger tributaries, the pollution problem is still further complicated, during the critical summer months of decreased stream discharge, when objectionable conditions due to pollution are most likely to occur, by the presence of numerous dams constructed to form navigation pools during these periods of minimum run-off.

As a result of the operation of these navigation dams, any discussion of the present effect of sewage and waste pollution should include a statement of conditions on the watershed during periods of pool stage and minimum river discharge and at times of increasing run-off following pool stages.

POLLUTION PROBLEMS ON UPPER OHIO RIVER

In the Pittsburgh area at the present time, sufficient pollution in the form of untreated sewage and industrial wastes is reaching the Ohio River at low flows and pool stage to cause extremely offensive conditions during a considerable portion of the time.

It is estimated that the flow of the Ohio River at Pittsburgh has decreased to 1,000 second-feet at times and that it carries the sewage

of a population of some 2 million people, representing a minimum dilution ratio of 0.5 second-feet per 1,000 of contributing population.

In a stream such as the Ohio River at Pittsburgh, the dilution ratio should probably be from between 10 to 15 second-feet per 1,000 of contributing population in order to prevent nuisance conditions; yet with a flow past Pittsburgh at times of from one-thirtieth to one-twentieth of that necessary to prevent nuisances, actually no extremely offensive conditions do exist in this section of the river.

It has been estimated that the Ohio River and its tributaries receive daily some 25 million pounds of sulfuric acid derived from abandoned and active coal mines, of which some 60 percent reaches the watercourses above Pittsburgh.

Acid mine drainage at Pittsburgh tends to coagulate and settle out sewage and industrial waste solids in the navigation pools during low river stages and also inhibits bacterial action or actually destroys many of the sewage organisms. As a consequence, biological activities which ordinarily would take place in sludge deposits, causing septic conditions accompanied by possible nuisances, do not take place in the Pittsburgh pools. That disturbance of normal biological activity by acid drainage is preventing nuisance conditions in the Pittsburgh area was indicated some years ago, when comparisons between the per capita contribution of bacteria to the river at Cincinnati, below the effects of acid drainage, and that at Pittsburgh and Wheeling, within the zone of acid influence, indicated that during the months of June to October the per capita contribution of bacteria at Pittsburgh was consistently less than 1 percent and from Wheeling less than 5 percent of that from Cincinnati. In January to March, with higher stream discharges, lessening the concentration of acid pollution, the per capita contribution at Pittsburgh was still only from 15 to 27 percent of that from Cincinnati.

It appears, therefore, that the acid drainage in the river at Pittsburgh has up to now effectually prevented nuisances, in the critical summer periods, which otherwise would have existed. In a recent report, the National Resources Committee stated that "A slight increase in pollution or a decrease of the acid content will unquestionably occasion a serious nuisance in the Pittsburgh area during such periods."

For the past few years an intensive program of sealing abandoned coal mines has been in operation in the upper watershed for the removal of mine drainage reaching the river. On the other hand, with normal population increases on the watershed, the future sewered population may be expected to increase. How these two factors may operate to change future pollutional conditions in the Pittsburgh area cannot be forecast. It can, however, be stated that conditions in the future in this area should tend to become more critical rather than to improve.

From the standpoint of public health, the greatest effect of pollution, along the whole river, is on the public water supplies taken from the stream. Over 5 million people obtain their drinking water from the Ohio River basin, the Ohio River proper being the only available source of supply for approximately 2½ million people, who use an average of some 350 million gallons per day, after the water has been passed through elaborate and expensive purification processes.

When increases in river discharge take place at Pittsburgh, following periods of pool stage, to the extent that scouring velocities are produced, the sludge deposited in the pools is flushed downstream, and, because of greater dilution of the acids, less inhibitive action results and more normal biological action takes place in the stream. As a consequence, a series of highly concentrated waves of organic and bacterial pollution pass downstream to affect the operation of water-treatment plants below, imposing upon them for varying periods of time a pollution load far in excess of that for which they were designed. At such times a slip in operating technique might easily result in the appearance of water-borne diseases within the community. Following the flushing-out process, increasing river velocities bring pollution rapidly from upstream sources to the waterworks intakes before agencies of natural stream purification have time to operate, so that in the Ohio River the maximum degree of raw-water pollution at waterworks intakes does not occur at times of minimum run-off but during periods when the discharge is considerably above the minimum flow.

At East Liverpool, immediately below Pittsburgh, the limit of bacterial pollution which the usual type of water filtration plant would be expected to handle satisfactorily is exceeded during about 50 percent of the time, based on the average monthly results of bacterial determinations at the waterworks plant. At Steubenville, Wheeling, Marietta, and Huntington, the intensity of pollution decreases, and, in the order of the communities named, the limit of raw-water pollution was exceeded about 16, 15, 12, and 1 percent of the time, respectively.

The greatest concentration of bacterial pollution anywhere on the Ohio River occurs within the Ashland-Ironton area, as indicated by some 10 years of daily analytical results at the water-filtration plants of these communities.

Whether this excessive pollution is due to local sources close to water intakes or is a combination of local pollution to which has been added the effect of upstream pollution, perhaps as far as Pittsburgh, which has again become active, after lying dormant, owing to the effects of acid concentration, cannot be stated, because, unfortunately, no intensive surveys have ever been made of the effect of pollution in this particular area.

Suffice it to state, however, that such excessive pollution does apparently exist in the Ashland-Ironton area, irrespective of the cause.

Based on monthly averages of bacterial analyses at the Ashland and Ironton waterworks plants during the 10-year period 1926–35, the probable limit of raw-water pollution that the usual type of water-filtration plant would be expected to remove from the untreated water was exceeded about 97 percent of the time at Ashland and 75 percent of the time at Ironton. Detailed figures of fluctuations in bacterial concentration indicate the necessity for extremely careful operation of such greatly overloaded filtration plants in order to prevent water-borne epidemic diseases, and show the narrow margin of safety that must exist, perhaps for considerable periods of time, where water so highly polluted is used as a domestic supply.

While no extensive data are available as to the effect of pollution on many of the tributary watercourses of the upper watershed, the effect of acid drainage in the Pittsburgh area would suggest that acid pollution has a tendency to prevent or greatly reduce the effects of sewage and industrial waste pollution in the immediate vicinity of the points of discharge, tending to prevent nuisances during the periods of minimum stream flows, when nuisance conditions would usually be expected. Increasing velocities following low water flows tend to scour out any deposited sewage materials and, at such times, waves of concentrated pollution pass downstream to intensify the raw-water pollution to the point that water-treatment plants may have great difficulty in furnishing a supply to meet present-day standards of quality.

POLLUTION PROBLEMS OF LOWER OHIO RIVER

In the lower section of the Ohio River the pollution problem is not yet complicated by the presence of acid mine drainage.

During periods of minimum flow, there is a tendency, as on the upper watershed, for sewage materials to be deposited close to centers of population, such as at Cincinnati and Louisville, and to form sludge banks in the pools near points of discharge. In the absence of acid drainage in the lower river, normal biological processes take place, with a decrease of dissolved oxygen in the water, and at some points, as at Cincinnati in 1930, complete depletion of oxygen has indicated an approach toward nuisance conditions along the water front. Under such conditions the sewage pollution reaching the river affects those communities producing it, rather than down-stream communities as occurs in a free-moving river.

During periods of minimum flow, the water arrives at the water-works intakes exceptionally free from bacterial pollution, because of sedimentation in the pools above and because of the long periods of flow from upstream sources of pollution, during which time natural agencies of stream purification have time in which to operate.

In some instances, at pool stage, local pollution from points downstream, especially when entering through tributaries, may move upstream to affect the community's own water supply. Such is undoubtedly the case at Cincinnati when storms on the Little Miami River cause exceedingly rapid run-off and reversal of flow in the Cincinnati pool may result in pollution from the Little Miami River being carried upstream to the waterworks intake. In 1930 a reversal of flow in the Elk River, the source of Charleston's supply, brought excessive pollution to the intake and the production of widespread intestinal disturbance. There are some indications that, at times of low flow in the Ohio, the Muskingum River causes a reversal of flow, bringing Marietta's sewage upstream to the waterworks intake.

With increasing flows, conditions change in the lower river, resulting in increased pollution at the water works intakes and decreased pollution along the waterfront. First, scour of upstream deposits places an exceedingly heavy bacterial load on the water-treatment plants, which may or may not diminish with continued increase in discharge, depending upon the rapidity of flow from upstream sewer outlets. With increased discharge, however, the tendency toward nuisance conditions at points of sewage discharge along the water front is lessened because of additional dilution.

On the basis of monthly averages for the 10-year period 1926–35, the limit of bacterial pollution that the types of filtration plants at Cincinnati and Louisville could reasonably be expected to handle and produce a satisfactory water supply was exceeded 27 percent of the time at Cincinnati and 13 percent of the time at Louisville.

Immediately below Cincinnati and Louisville, at Aurora and New Albany, the effects of upstream pollution increase the percentage of time that the limit of raw water pollution was exceeded, respectively, from 27 to 79 percent Cincinnati to Aurora, and from 13 to 41 percent Louisville to New Albany. This marked increase in water pollution indicates the effect at downstream waterworks of the sewage from major centers of population immediately above. At Mount Vernon, towards the mouth of the river, below Evansville and Henderson, the limit of bacterial concentration for efficient removal by water-filtration plants was exceeded 26 percent of the time, indicating that pollution is also considerable, at least at some points toward the mouth of the river.

As on the upper watershed, the greatest effect on public health of existing pollution in the Ohio River is on the public water supplies, and occurs, not at times of exceedingly low flow, but when river discharges are considerably above the minimum and velocities of flow are relatively high.

Of great public health significance, and applicable to the entire watershed, is the possible effect at times on water consumers of using

a purified supply derived from a highly polluted source. Such waters appear to contain substances which act as intestinal irritants, derived either from sewage or industrial wastes or produced by chemical or bacterial action from them and which are not removed by the ordinary processes of water treatment; neither are they indicated by the usual tests for a potable and safe water.

Following the long period of pool stage along the Ohio River in the fall and winter of 1930–31, an extensive outbreak of gastroenteritis occurred in the Sistersville, Moundsville, and Wheeling area, also on the Kanawha River at Charleston, and down the Ohio, successively, at Huntington, Ironton, Ashland, Portsmouth, Cincinnati, and Louisville. In communities not using the Ohio River as a source of supply, such as Hamilton, Dayton, Columbus, and Norwood, there appeared to be no evidence of similar outbreaks.

The evidence suggests that these extensive intestinal disturbances resulted from the presence of some soluble substance or combination of substances formed in the pools during the extremely long period of pool stage, in concentrations much higher than are normally present in the river water and sufficient to act as intestinal irritants.

Of considerable importance would seem to be the question of how long in the future sewage and industrial wastes can continue to increase until conditions affecting the public health, such as prevailed at the time of exceptionally low flow, may occur under the usual and more frequent conditions of average low summer stream flow at pool stage.

To sum up briefly the pollution problem in the Ohio River basin as it exists at the present time, on the basis of available information, it appears that—

1. Pollution at Pittsburgh has reached the point where nuisances would occur in the summer months if it were not for the effects of acid mine drainage present.

2. Acid drainage, while decreasing the effect of pollution near the point of discharge, may be responsible for excessive pollution downstream, owing to its action of delaying bacterial activity until dilution has removed the inhibitive action of the acid.

3. The removal of large amounts of acid, together with normal increases in sewage and industrial waste pollution, will decrease the inhibitive action of the acid and tend to confine the effects of pollution coming from the Pittsburgh area to that vicinity, with the possible production of nuisances at Pittsburgh if sufficient acid is removed.

4. Pollution at Cincinnati, and probably at other points, has at times reached such a concentration, in the absence of acid drainage, that oxygen depletion is occurring. Future increases in pollution will be conducive to actual nuisance conditions along the water fronts of such communities.

5. From the standpoint of public health, the greatest problem of existing pollution is its effect on public water supplies—

(*a*) By the overloading of water-treatment devices to the point of passing intestinal disease organisms, conditions which now appear to have been approached in the Ashland and Ironton area most of the time and at a number of other places a large percentage of the time, and

(*b*) By the production of intestinal irritants in the water, during long periods of pool stage, which are not removed by filtration nor indicated by the usual tests of a potable water. As pollution increases, the tendency may be toward the production of such irritants more frequently at times of more nearly average summer flow rather than at times of extreme low water as in the past.

The solution of these problems, resulting mainly from the solid material and the bacteria of the sewage and industrial wastes, would appear to be in their removal, the solids by methods of sewage treatment, the bacteria by disinfection.

The degree of treatment required at specific points on the watershed or the order of installing the necessary treatment devices for the greatest improvement in sanitary conditions for the least expenditure, can be ascertained only after more detailed information becomes available on the amount and distribution of pollution and the relations that exist between the several factors influencing the effect of pollution after reaching the watercourses.

REPORT ON MARKET-MILK SUPPLIES OF CERTAIN URBAN COMMUNITIES

Compliance of the Market-Milk Supplies of Certain Urban Communities With the Grade A Pasteurized and Grade A Raw Milk Requirements of the Public Health Service Milk Ordinance and Code (as Shown by Compliance (not Safety) Ratings of 90 Percent or More Reported by the State Milk Sanitation Authorities During the Period January 1, 1936, to December 31, 1937)

The accompanying list gives the ninth semiannual revision of the list of certain urban communities in which the pasteurized market milk is both produced and pasteurized in accordance with the Grade A pasteurized milk requirements of the Public Health Service Milk Ordinance and Code, and in which the raw market milk sold to the final consumer is produced in accordance with the Grade A raw milk requirements of said ordinance and code, as shown by ratings of 90 percent or more reported by State milk-sanitation authorities.

These ratings are not a complete measure of safety, but represent the degree of compliance with the Grade A requirements of the Public Health Service Milk Ordinance and Code. Safety estimates should also take into account the percentage of milk pasteurized, which is given in the following tables.

The primary reason for publishing such lists from time to time is to encourage the communities of the United States to attain and maintain a high level of excellence in the public health control of milk supplies.

It is emphasized that the Public Health Service does not intend to imply that all communities not on the list are not provided with high-grade milk supplies. Some communities which have high-grade milk supplies are not included because arrangements have not been made for the determination of their ratings by the State milk-sanitation authority. In other cases the ratings which have been determined are now more than 2 years old and have therefore lapsed. In still other communities with high-grade milk supplies there seems, in the opinion of the community, to be no local necessity nor desire for rating or inclusion in the list, nor any reasonable local benefit to be derived therefrom.

The rules under which a community is included in this list are as follows:

(1) All ratings must have been determined by the State milk-sanitation authority in accordance with the Public Health Service rating method, based upon the Grade A pasteurized milk and the Grade A raw milk requirements of the Public Health Service Milk Ordinance and Code.

(2) No community will be included in the list unless both its pasteurized milk and its raw milk ratings are 90 percent or more, provided that communities in which only raw milk is sold will be included if the raw milk ratings are 90 percent or more.

(3) The rating used will be the latest rating submitted to the Public Health Service, but no rating will be used which is more than 2 years old.

(4) The Public Health Service will make occasional surprise check surveys of cities for which ratings of 90 percent or more have been reported by the State. If such surprise check rating is less than 90 percent but not less than 85, the city will be removed from the 90 percent list after 6 months unless a resurvey submitted by the State during this probationary interim shows a rating of 90 percent or more. If, however, such surprise check rating is less than 85 percent, the city will be removed from the list immediately.

Communities are urgently advised to bring their ordinances up to date at least every 5 years, since ratings will be made on the basis of later editions if those adopted locally are more than 5 years old.

Communities which are not now on the list and desire to be rated should request the State milk-sanitation authority to determine their ratings and, if necessary, should improve their status sufficiently to merit inclusion in the list.

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Communities which are now on the list should not permit their ratings to lapse, as ratings more than 2 years old cannot be used.

Communities which have not adopted the Public Health Service Milk Ordinance may wish to give thoughtful consideration to the advisability of doing so. It is obviously easier to satisfy the requirements upon which the rating method is based if these are included in the local legislation.

Communities which are enforcing the Public Health Service Milk Ordinance, but which have not yet been admitted to the list, should determine whether this has been the result of failure to enforce the ordinance strictly or failure to bring the ordinance up to date.

State milk-sanitation authorities which are not now equipped to determine municipal ratings are urged, in fairness to their communities, to equip themselves as soon as possible. The personnel required is small, as in most States one milk specialist is sufficient for the work.

The inclusion of a community in this list means that the pasteurized milk sold in the community, if any, is of such a degree of excellence that the weighted average of the percentages of compliance with the various items of sanitation required for Grade A pasteurized milk is 90 percent or more and that, similarly, the raw milk sold in the community, if any, so nearly meets the requirements that the weighted average of the percentages of compliance with the various items of sanitation required for Grade A raw milk is 90 percent or more. However, high-grade pasteurized milk is safer than high-grade raw milk, because of the added protection of pasteurization. To secure this added protection, those who are dependent on raw milk can pasteurize the milk at home in the following simple manner: Place the milk in an aluminum vessel on a hot flame and heat to 155° F., stirring constantly; then immediately set the vessel in cold water and continue stirring until cool.

TABLE 1.—*Communities in which all market milk is pasteurized—in these communities market milk complies with the Grade A pasteurized milk requirements of the Public Health Service Milk Ordinance and Code to the extent shown by pasteurized milk ratings of 90 percent or more* [1]

Community	Percentage of milk pasteurized	Date of rating
MINNESOTA		
Winona	100	Oct. 30, 1936.
NORTH CAROLINA		
Clinton	100	Sept. 3, 1937.
Fort Bragg	100	Sept. 7, 1937.
Greenville	100	Dec. 16, 1936.
Princeville	100	Nov. 12, 1936.
Sanford	100	June 22, 1937.
Tarboro	100	Nov. 12, 1936.

[1] Note particularly the percentage of milk pasteurized in the various communities listed in these tables. This percentage is an important factor to consider in estimating the safety of a city's milk supply.

TABLE 2.—*Communities in which some market milk is pasteurized—in these communities the pasteurized market milk complies with the Grade A pasteurized milk requirements and the raw market milk complies with the Grade A raw milk requirements of the Public Health Service Milk Ordinance and Code to the extent shown by pasteurized and raw milk ratings, respectively, of 90 percent or more* [1]

(NOTE.—All milk should be pasteurized or boiled, either commercially or at home, before it is consumed. See text for home method.)

Community	Percentage of milk pasteurized	Date of rating
ALABAMA		
Huntsville	82	Dec. 16, 1936.
Montgomery	27	Dec. 4, 1936.
ARKANSAS		
Fayetteville	60	November 1937.
Jonesboro	29	June 1937.
Little Rock	38	October 1937.
Pine Bluff	31	June 1937.
Texarkana	39	Do.
FLORIDA		
Coral Gables	89	May 1937.
Fort Lauderdale	64	Do.
Key West	43	August 1937.
Miami	89	May 1937.
ILLINOIS		
Chicago	99.7	Jan. 22, 1937.
KANSAS		
Junction City	31	June 1936.
Lawrence	48	May 1936.
Ottawa	13	January 1938.
Topeka	59	May 1936.
Wichita	69	November 1937.
KENTUCKY		
Ashland	86	June 1936.
Bowling Green	48	April 1937.
Glasgow	67	Do.
Louisville	98	June 1937.
MINNESOTA		
Albert Lea	97	Oct. 23, 1936.
Little Falls	64	Dec. 1, 1937.
MISSISSIPPI		
Tupelo	28	Oct. 19, 1937.
MISSOURI		
Hannibal	31	May 29, 1936.
Moberly	49	May 1, 1936.
Sedalia	20	Apr. 10, 1936.
NEW MEXICO		
Deming	12	October 1937.
NORTH CAROLINA		
Bryson City	50	Jan. 19, 1937.
Charlotte	34	June 10, 1937.
Durham	89	Apr. 3, 1937.
Elizabethtown	65	Sept. 1, 1937.
Fayetteville	52	Sept. 30, 1936.
Franklin	68	Jan. 20, 1937.
Greensboro	70	November 1937.
High Point	85	December 1937.
NORTH CAROLINA—CON.		
Hope Mills	40	Sept. 30, 1936.
Kinston	16	Apr. 10, 1936.
New Bern	72	Nov. 26, 1937.
Oxford	7	May 20, 1937.
Rockingham	55	Nov. 3, 1937.
Rocky Mount	35	Dec. 19, 1936.
Salisbury	50	Dec. 2, 1937.
Winston-Salem	60	August 1937.
OKLAHOMA		
Bartlesville	42	Dec. 20, 1937.
Blackwell	48	June 3, 1936.
Okmulgee	57	June 25, 1937.
Tulsa	72	Apr. 22, 1937.
OREGON		
Astoria	59	June 5, 1937.
Portland	78	August 1937.
TENNESSEE		
Dyersburg	21	May 13, 1937.
Knoxville	69	Apr. 16, 1937.
Memphis	84	June 3, 1937.
Union City	33	May 21, 1936.
TEXAS		
Abilene	77	Mar. 17, 1937.
Amarillo	62	July 3, 1937.
Ballinger	50	Mar. 2, 1936.
Beaumont	52	June 1937.
Big Spring	27	Mar. 22, 1937.
Brownwood	19	Aug. 11, 1937.
Corsicana	19	Mar. 12, 1937.
Dallas	75	May 3, 1937.
El Paso	69	Apr. 7, 1937.
Fort Worth	80	February 1937.
Gainesville	60	Dec. 3, 1937.
Galveston	75	August 1936.
Kerrville	72	May 8, 1936.
Livingston	20	March 1936.
Midland	51	Mar. 23, 1937.
Port Arthur	41	June 1937.
San Angelo	60	Apr. 17, 1937.
San Antonio	70	Apr. 16, 1937.
Seguin	51	June 8, 1937.
Sweetwater	53	Mar. 18, 1937.
Texarkana	41	Mar. 24, 1937.
Tyler	60	January 1936.
Waco	47	July 8, 1937.
VIRGINIA		
Pulaski	39	May 28, 1937.
WASHINGTON		
Vancouver	31	Oct. 9, 1936.
Walla Walla	49	November 1937.
WEST VIRGINIA		
Huntington	65	Dec. 16, 1937.

[1] Note particularly the percentage of milk pasteurized in the various communities listed in these tables. This percentage is an important factor to consider in estimating the safety of a city's milk supply.

TABLE 3.—*Communities in which no market milk is pasteurized, but in which the raw market milk complies with the Grade A raw milk requirements of the Public Health Service Milk Ordinance and Code to the extent shown by raw milk ratings of 90 percent or more* [1]

(NOTE.—All milk should be pasteurized or boiled, either commercially or at home, before it is consumed. See text for home method.)

Community	Date or rating
ALABAMA	
Scottsboro	Dec. 31, 1936.
FLORIDA	
Marianna	October 1937.
KANSAS	
Horton	Sept. 1, 1936.
Sabetha	Sept. 25, 1936.
MISSISSIPPI	
Brookhaven	May 31, 1937.
Durant	June 9, 1937.
Yazoo City	June 8, 1937.
MISSOURI	
Ash Grove	July 9, 1936.
NEW MEXICO	
Raton	Dec. 21, 1937.
NORTH CAROLINA	
Ahoskie	June 25, 1937.
Angier	May 18, 1936.
Aulander	June 24, 1937.
Black Mountain	July 13, 1937.
Bladenboro	Sept. 1, 1937.
Buies Creek	Nov. 9, 1936.
Canton	June 29, 1937.
Cary	Apr. 23, 1936.
Clarkton	Sept. 1, 1937.
Coats	May 18, 1936.
Colerain	Oct. 11, 1937.
Dunn	May 18, 1936.
Elkin	Sept. 24, 1937.
Erwin	May 18, 1936.
Fairmont	May 28, 1936.
Kelford	Oct. 11, 1937.
Lewiston	Do.
NORTH CAROLINA—continued	
Lillington	Nov. 9, 1936.
Lumberton	May 28, 1936.
Manteo	Sept. 27, 1937.
Mount Holly	Oct. 28, 1937.
North Wilkesboro	Nov. 11, 1936.
Pinehurst	Nov. 7, 1936.
Powellsville	Oct. 11, 1937.
Raeford	May 29, 1936.
Red Springs	May 28, 1936.
Roanoke Rapids	Apr. 6, 1936.
Roxobel	Oct. 11, 1937.
Southern Pines	Nov. 11, 1936.
Southport	Nov. 18, 1937.
Spindale	June 30, 1937.
Sylva	June 21, 1937.
Whiteville	Dec. 18, 1936.
Williamston	Nov. 19, 1936.
Wilkesboro	Nov. 11, 1936.
Windsor	June 24, 1937.
Winton	June 25, 1937.
OKLAHOMA	
Kingfisher	Nov. 22, 1937.
TENNESSEE	
Jonesboro	June 24, 1937.
Savannah	June 15, 1937.
TEXAS	
Brenham	June 11, 1936
Canyon	July 15, 1937.
Childress	Apr. 17, 1936.
Colorado	Mar. 19, 1937.
Commerce	Mar. 16, 1937.
Crockett	May 1936.
Del Rio	June 8, 1937.
Jacksonville	January, 1936.
WASHINGTON	
Camas	Oct. 9, 1936.

[1] Note particularly the percentage of milk pasteurized in the various communities listed in these tables. This percentage is an important factor to consider in estimating the safety of a city's milk supply.

DEATHS DURING WEEK ENDED JANUARY 8, 1938

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

	Week ended Jan. 8, 1938	Corresponding week, 1937
Data from 86 large cities of the United States:		
Total deaths	9,514	11,401
Average for 3 prior years	9,003	----------
Deaths under 1 year of age	551	719
Average for 3 prior years	614	----------
Data from industrial insurance companies:		
Policies in force	69,937,677	69,196,624
Number of death claims	11,288	14,253
Death claims per 1,000 policies in force, annual rate	8.4	10.8

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.

In these and the following tables a zero (0) is to be interpreted to mean that no cases or deaths occurred, while leaders (------) indicate that cases or deaths may have occurred, although none were reported.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Jan. 15, 1938, and Jan. 16, 1937

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937
New England States:								
Maine	3	------	7	19	66	90	1	0
New Hampshire	------	------	------	66	39	22	0	0
Vermont	------	------	------	------	248	1	0	0
Massachusetts	4	7	------	------	95	1,052	1	2
Rhode Island	------	------	------	22	1	74	0	1
Connecticut	7	5	10	995	17	293	1	0
Middle Atlantic States:								
New York	31	55	[1] 14	[1] 926	389	300	4	20
New Jersey	18	18	13	345	824	445	4	4
Pennsylvania	64	39	------	------	5,474	135	6	4
East North Central States:								
Ohio	34	55	------	352	1,094	70	6	11
Indiana	65	25	11	283	277	12	3	4
Illinois	37	36	28	353	1,978	13	7	11
Michigan	13	21	2	97	579	69	2	5
Wisconsin	4	7	34	1,360	501	19	0	3
West North Central States:								
Minnesota	4	8	2	88	9	31	0	2
Iowa	4	2	5	3,152	34	7	0	1
Missouri	21	19	118	818	1,251	7	0	2
North Dakota	------	2	2	232	5	------	0	1
South Dakota	1	------	1	412	------	5	0	0
Nebraska	4	------	------	99	2	5	0	0
Kansas	14	10	32	3,106	158	9	2	1
South Atlantic States:								
Delaware	2	5	2	22	2	117	0	0
Maryland [2]	8	15	15	176	11	291	0	12
District of Columbia	5	19	1	107	7	23	1	2
Virginia	21	39	------	------	212	71	3	10
West Virginia	16	14	52	72	261	17	4	4
North Carolina [3] [4]	25	47	26	79	627	98	4	6
South Carolina [3]	2	14	673	652	134	62	3	4
Georgia [3]	10	8	------	------	185	------	0	3
Florida [3]	25	9	11	12	65	------	5	3
East South Central States:								
Kentucky	15	9	61	399	157	84	6	16
Tennessee	19	18	252	873	250	4	7	2
Alabama [3]	19	20	300	384	157	3	18	7
Mississippi [3]	4	9	------	------	------	------	2	1
West South Central States:								
Arkansas	25	6	182	245	236	------	0	0
Louisiana	22	11	51	283	2	122	1	2
Oklahoma [5]	22	8	100	564	15	13	0	2
Texas [3]	68	67	619	984	84	298	1	4

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Jan. 15, 1938, and Jan. 16, 1937—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937
Mountain States:								
Montana	-------	1	-------	2,796	1	1	1	0
Idaho	2	2	6	259	10	55	1	0
Wyoming	3	-------	-------	-------	1	1	0	0
Colorado	12	5	-------	[6] 86	108	4	0	2
New Mexico	3	4	2	72	147	35	1	1
Arizona	6	2	51	386	-------	136	0	1
Utah [3]	5	1	-------	-------	72	88	3	1
Pacific States:								
Washington	-------	3	1	26	25	34	1	0
Oregon	7	2	35	825	8	5	0	0
California	33	29	86	1,243	116	71	7	3
Total	707	676	2,805	23,270	15,934	4,287	106	158
First 2 weeks of year	1,401	1,353	5,228	35,415	29,082	8,243	201	301

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid and paratyphoid fevers		Whooping cough
	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938
New England States:									
Maine	0	0	16	16	0	0	1	4	57
New Hampshire	0	0	18	23	0	0	0	0	3
Vermont	0	0	8	3	0	0	0	0	24
Massachusetts	0	0	344	260	0	0	2	2	154
Rhode Island	0	0	32	60	0	0	0	0	33
Connecticut	1	0	86	77	0	0	0	0	39
Middle Atlantic States:									
New York	1	0	564	777	0	22	3	7	330
New Jersey	0	0	111	164	0	0	1	3	150
Pennsylvania	0	1	630	590	0	0	13	16	362
East North Central States:									
Ohio	2	5	544	433	9	20	3	6	144
Indiana	0	0	157	174	66	5	2	0	36
Illinois	1	0	707	513	79	14	5	3	100
Michigan	1	0	500	613	4	1	3	3	184
Wisconsin	1	1	203	288	5	9	0	0	182
West North Central States:									
Minnesota	0	1	134	184	95	18	1	1	55
Iowa	0	1	246	156	78	18	0	0	32
Missouri	0	0	286	193	50	60	34	0	95
North Dakota	0	0	39	35	12	27	0	0	14
South Dakota	0	0	26	79	2	21	0	0	6
Nebraska	0	0	44	67	1	3	3	0	6
Kansas	0	1	199	296	23	20	5	2	93
South Atlantic States:									
Delaware	0	0	19	9	0	0	0	0	7
Maryland [3]	0	0	49	104	0	0	2	1	45
District of Columbia	0	0	26	22	0	0	1	1	9
Virginia	0	0	27	50	0	1	2	7	108
West Virginia	0	0	87	60	0	0	2	2	108
North Carolina [3 4]	0	1	49	63	0	0	4	7	324
South Carolina [3]	0	1	7	11	0	0	1	2	49
Georgia [3]	0	2	23	13	0	0	2	2	20
Florida [3]	1	0	12	6	0	0	3	1	10
East South Central States:									
Kentucky	1	0	61	54	34	2	0	0	14
Tennessee	1	0	35	32	2	0	7	5	26
Alabama [3]	1	0	15	10	0	0	1	2	29
Mississippi [3]	0	1	9	17	24	0	1	2	-------

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Jan. 15, 1938, and Jan. 16, 1937—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid and paratyphoid fevers		Whooping cough
	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938	Week ended Jan. 16, 1937	Week ended Jan. 15, 1938
West South Central States:									
Arkansas	2	1	23	18	0	0	0	2	48
Louisiana	1	1	28	7	0	1	4	9	6
Oklahoma [5]	0	2	50	27	2	8	1	2	12
Texas [3]	1	1	165	125	21	12	14	22	181
Mountain States:									
Montana	0	0	56	58	9	13	0	0	32
Idaho	0	1	29	19	58	15	1	0	11
Wyoming	0	0	10	14	2	1	0	0	10
Colorado	0	0	61	30	15	7	0	0	5
New Mexico	0	1	24	25	7	0	1	7	60
Arizona	0	0	11	11	0	0	0	2	37
Utah [3]	0	0	75	20	0	0	0	0	59
Pacific States:									
Washington	0	1	56	46	38	6	4	2	115
Oregon	0	0	67	63	20	12	3	0	13
California	2	3	218	355	71	4	0	5	456
Total	17	26	6,186	6,270	727	315	130	139	3,893
First 2 weeks of year	37	47	11,210	11,437	1,186	591	253	276	7,520

[1] New York City only.
[2] Week ended earlier than Saturday.
[3] Typhus fever, week ended Jan. 15, 1938, 25 cases, as follows: North Carolina, 3; South Carolina, 2; Georgia, 12; Florida, 2; Alabama, 2; Texas, 4.
[4] Rocky Mountain spotted fever, week ended Jan. 15, 1938, North Carolina, 1 case.
[5] Figures for 1937 are exclusive of Oklahoma City and Tulsa.
[6] Exclusive of Denver.

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
September 1937										
New Hampshire	0	----	----	----	----	----	4	1	0	1
October 1937										
New Hampshire	0	1	----	----	----	----	8	11	0	3
November 1937										
New Hampshire	0	3	----	----	----	----	0	31	0	1
Puerto Rico	2	63	45	4,791	56	----	0	----	0	33
December 1937										
Arkansas	4	88	548	135	198	9	6	145	11	20
Colorado	7	48	1	----	343	----	3	202	57	14
District of Columbia	3	49	14	----	29	----	0	59	0	4
Georgia	3	82	848	315	486	41	4	135	1	13
Idaho	0	8	17	----	92	----	2	125	109	5
Maine	1	4	3	----	158	----	1	149	0	6
Michigan	4	85	7	2	1,508	----	7	1,897	3	10
Missouri	4	110	226	12	2,786	----	9	840	47	31
New Hampshire	----	0	----	----	----	----	0	40	0	1
Tennessee	11	74	299	14	601	8	3	170	4	9
Vermont	0	2	----	----	536	----	0	61	0	1
Wyoming	0	0	----	----	4	----	0	61	30	----

Summary of monthly reports from States—Continued

November 1937

	Cases
Puerto Rico:	
Chicken pox	31
Dysentery	39
Filariasis	3
Leprosy	1
Mumps	5
Puerperal septicemia	5
Tetanus	11
Tetanus, infantile	1
Whooping cough	73

December 1937

	Cases
Chicken pox:	
Arkansas	127
Colorado	603
District of Columbia	155
Georgia	186
Idaho	176
Maine	315
Michigan	2,179
Missouri	335
Tennessee	285
Vermont	335
Wyoming	96
Conjunctivitis:	
Georgia (infectious)	3
Idaho	6
Dysentery:	
Arkansas (bacillary)	5
Colorado	2
Georgia (amoebic)	9
Michigan (amoebic)	2
Michigan (bacillary)	1
Missouri	4
Tennessee (amoebic)	2
Tennessee (bacillary)	1
Encephalitis, epidemic or lethargic:	
Colorado	2
Idaho	1
Missouri	4
Tennessee	2
German measles:	
Arkansas	2
Maine	9

December 1937—Continued

	Cases
German measles—Con.	
Michigan	82
Tennessee	3
Hookworm disease:	
Arkansas	2
Georgia	1,650
Impetigo contagiosa:	
Tennessee	1
Mumps:	
Arkansas	26
Colorado	14
Georgia	90
Idaho	208
Maine	111
Michigan	659
Missouri	59
Tennessee	86
Vermont	537
Wyoming	23
Ophthalmia neonatorum:	
Arkansas	2
Tennessee	1
Paratyphoid fever:	
Michigan	6
Tennessee	1
Puerperal septicemia:	
Georgia	1
Tennessee	4
Rabies in animals:	
Michigan	6
Missouri	1
Rocky Mountain spotted fever:	
Idaho (delayed reports)	6
Septic sore throat:	
Arkansas	4
Georgia	49
Idaho	5
Michigan	30
Missouri	52
Tennessee	15
Tetanus:	
Georgia	4
Michigan	3
Tennessee	1

December 1937—Continued

	Cases
Trachoma:	
Arkansas	9
Idaho	1
Missouri	36
Trichinosis:	
Michigan	1
Tularaemia:	
Arkansas	2
Colorado	1
District of Columbia	1
Georgia	4
Michigan	4
Missouri	15
Tennessee	3
Typhus fever:	
Georgia	86
Tennessee	2
Undulant fever:	
Arkansas	2
Colorado	1
Georgia	2
Idaho	2
Maine	3
Michigan	10
Missouri	2
Vermont	5
Vincent's infection:	
Maine	16
Michigan	18
Tennessee	8
Whooping cough:	
Arkansas	120
Colorado	41
District of Columbia	28
Georgia	64
Idaho	101
Maine	138
Michigan	732
Missouri	190
Tennessee	116
Vermont	108
Wyoming	48

CASES OF VENEREAL DISEASES REPORTED FOR NOVEMBER, 1937

These reports are 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 and city 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.

Reports from States

	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	1,339	4.63	276	0.95
Arizona	57	1.38	103	2.50
Arkansas	597	2.92	244	1.19
California	1,841	2.99	1,563	2.54
Colorado [1]				
Connecticut	222	1.28	128	.74
Delaware	213	8.16	27	1.03
District of Columbia [1]				
Florida [2]	1,994	11.94	246	1.47
Georgia	1,570	5.09	376	1.22
Idaho	46	.93	24	.49
Illinois	2,119	2.69	1,335	1.69
Indiana	300	.86	89	.26
Iowa [3]	293	1.15	171	.67
Kansas	185	.99	125	.67
Kentucky	487	1.67	255	.87
Louisiana	465	2.18	52	.24
Maine [3]	48	.56	50	.58
Maryland	935	5.57	326	1.94
Massachusetts	558	1.26	589	1.33
Michigan	897	1.86	681	1.41
Minnesota	297	1.12	282	1.06
Mississippi	1,927	9.53	2,338	11.56
Missouri	606	1.52	178	.45
Montana [3]	72	1.34	30	.56
Nebraska	104	.76	144	1.06
Nevada [3]				
New Hampshire	13	.25	11	.22
New Jersey	779	1.79	300	.69
New Mexico	91	2.16	44	1.04
New York	10,242	7.90	2,355	1.82
North Carolina	2,618	7.50	706	2.02
North Dakota	42	.59	68	.96
Ohio	1,478	2.20	397	.59
Oklahoma	414	1.62	368	1.44
Oregon	127	1.24	271	2.64
Pennsylvania [4]	2,092	2.06	254	.25
Rhode Island	126	1.85	66	.97
South Carolina [1]				
South Dakota	27	.39	21	.30
Tennessee	695	2.40	305	1.05
Texas	524	.85	290	.47
Utah	4	.08	18	.35
Vermont	24	.63	21	.55
Virginia	933	3.45	311	1.15
Washington	352	2.12	398	2.40
West Virginia [3]	293	1.57	109	.58
Wisconsin	53	.11	137	.47
Wyoming [3]	5	.21	1	.04
Total	38,104	3.03	16,083	1.28

See footnotes at end of table.

Reports from cities of 200,000 population or over

	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Akron, Ohio [1]				
Atlanta, Ga	224	7.80	144	5.02
Baltimore, Md	508	6.16	184	2.23
Birmingham, Ala	198	7.01	76	2.69
Boston, Mass	213	2.69	208	2.63
Buffalo, N. Y	167	2.82	104	1.76
Chicago, Ill	1,106	3.10	846	2.37
Cincinnati, Ohio [1]				
Cleveland, Ohio	172	1.85	94	1.01
Columbus, Ohio	88	2.88	21	.69
Dallas, Tex	166	5.73	57	1.97
Dayton, Ohio	58	2.76	17	.81
Denver, Colo	41	1.38	22	.74
Detroit, Mich	420	2.43	344	1.99
Houston, Tex. [6]	162	4.84	61	1.82
Indianapolis, Ind	25	.66	36	.95
Jersey City, N. J. [1]				
Kansas City, Mo	51	1.21	4	.09
Los Angeles, Calif	595	4.16	418	2.92
Louisville, Ky	172	5.31	114	3.52
Memphis, Tenn	162	6.07	58	2.17
Milwaukee, Wis. [1]				
Minneapolis, Minn	72	1.48	107	2.20
Newark, N. J	351	7.57	115	2.48
New Orleans, La	50	1.04	33	.69
New York, N. Y	8,743	11.97	1,627	2.23
Oakland, Calif. [1]				
Omaha, Nebr	45	2.04	53	2.41
Philadelphia, Pa	580	2.92		
Pittsburgh, Pa	190	2.78	22	.32
Portland, Oreg	54	1.72	92	2.93
Providence, R. I	85	3.28	41	1.58
Rochester, N. Y	35	1.04	55	1.63
St. Louis, Mo	131	1.57	101	1.21
St. Paul, Minn	42	1.49	35	1.24
San Antonio, Tex	98	3.90	53	2.11
San Francisco, Calif	167	2.49	191	2.85
Seattle, Wash	125	3.29	121	3.19
Syracuse, N. Y	84	3.85	51	2.34
Toledo, Ohio	221	7.26	38	1.25
Washington, D. C. [1]				

[1] No report for current month.
[2] Incomplete.
[3] Not reporting.
[4] Only cases of syphilis in the infectious stage are reported.
[5] From report submitted to medical director of epidemiological studies.
[6] Reported by Jefferson Davis Hospital.

WEEKLY REPORTS FROM CITIES

City reports for week ended Jan. 8, 1938

This table summarizes the reports received weekly from a selected list of 140 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								
Data for 90 cities:											
5-year average	232	1,612	195	1,663	1,096	1,655	20	385	23	996	------
Current week [1]	166	241	75	3,713	866	1,481	49	360	26	1,010	------
Maine:											
Portland	1	------	0	3	1	3	0	0	0	16	27
New Hampshire:											
Concord	0	------	0	9	0	0	0	0	0	6	8
Manchester	0	------	2	0	1	6	0	0	0	0	16
Nashua	0	------	0	11	2	1	0	------	0	0	8
Vermont:											
Barre	0	------	0	16	0	4	0	0	0	0	5
Burlington	0	------	0	0	0	0	0	0	0	2	12
Rutland	0	------	0	0	0	0	0	0	0	0	9
Massachusetts:											
Boston	3	------	1	68	25	77	0	8	0	14	229
Fall River	1	------	1	0	6	1	0	2	0	10	32
Springfield	0	------	1	0	7	7	0	2	1	3	39
Worcester	0	------	0	2	6	8	0	0	0	12	44
Rhode Island:											
Pawtucket	0	------	0	0	0	7	0	0	0	0	16
Providence	0	------	1	0	10	23	0	1	0	31	83
Connecticut:											
Bridgeport	0	2	1	0	5	17	0	1	0	1	40
Hartford	1	1	0	1	9	16	0	0	0	5	39
New Haven	0	------	0	0	3	1	0	1	0	5	60
New York:											
Buffalo	0	------	0	3	10	21	0	7	0	14	155
New York	27	23	3	126	156	221	0	75	3	150	1,636
Rochester	0	------	0	4	5	10	0	2	0	1	72
Syracuse	0	------	0	0	9	9	0	1	0	3	61
New Jersey:											
Camden	2	1	1	35	5	3	0	1	0	0	41
Newark	1	3	1	1	9	9	0	4	0	36	116
Trenton	0	------	1	59	4	5	0	3	0	0	34
Pennsylvania:											
Philadelphia	6	6	2	128	43	105	0	17	3	20	544
Pittsburgh	2	5	3	476	39	45	0	13	0	28	228
Reading	0	------	0	2	6	6	0	1	0	0	36
Scranton	0	------	------	44	------	4	0	------	0	2	------
Ohio:											
Cincinnati	1	------	3	1	15	11	0	10	0	3	173
Cleveland	5	21	6	147	16	39	0	14	1	47	231
Columbus	0	------	0	40	6	9	0	5	0	2	117
Indiana:											
Anderson	0	------	0	0	0	6	5	1	0	3	10
Fort Wayne	1	------	0	21	8	3	0	1	0	0	------
Indianapolis	20	------	1	18	18	30	0	1	0	3	124
Muncie	0	------	1	29	3	2	2	0	0	0	29
South Bend	0	------	0	2	3	3	0	1	0	1	19
Terre Haute	3	------	0	5	0	2	0	0	1	0	23
Illinois:											
Alton	0	------	0	7	4	5	0	0	0	1	11
Chicago	12	13	5	710	46	218	1	27	1	41	774
Elgin	3	------	0	1	0	9	0	0	0	1	10
Moline	0	------	0	52	2	13	0	0	0	0	17
Springfield	0	------	0	47	3	12	0	0	0	1	17
Michigan:											
Detroit	9	------	4	282	30	118	0	20	0	52	322
Flint	0	------	0	2	5	32	0	2	0	22	36
Grand Rapids	0	------	0	1	2	28	0	0	0	9	34
Wisconsin:											
Kenosha	0	------	0	2	1	1	0	1	0	3	9
Madison	0	------	0	0	0	4	0	0	0	2	19
Milwaukee	2	2	2	334	12	23	0	1	0	18	106
Racine	0	------	0	2	0	7	0	0	0	2	9
Superior	0	------	0	0	0	2	2	2	0	0	11

[1] Figures for St. Joseph, Mo., estimated; report not received.

City reports for week ended Jan. 8, 1938—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								
Minnesota:											8
Duluth	0	------	0	0	3	4	0	0	0	18	32
Minneapolis	0	------	0	1	3	23	0	1	0	7	93
St. Paul	0	------	0	5	8	9	27	2	0	9	76
Iowa:											
Cedar Rapids	1	------	--------	0	-------	3	0	-------	0	1	--------
Davenport	0	------	--------	6	-------	2	0	-------	0	0	--------
Des Moines	0	------	--------	0	-------	30	0	-------	0	0	41
Sioux City	0	------	--------	1	-------	2	0	-------	0	0	--------
Waterloo	0	------	--------	1	-------	6	0	-------	0	1	--------
Missouri:											
Kansas City	1	------	1	68	22	33	0	3	0	1	105
St. Joseph	-------	------	--------	-------	-------	-------	-------	-------	-------	-------	-------
St. Louis	9	------	1	480	13	51	3	14	1	2	235
North Dakota:											
Fargo	0	------	0	0	1	6	0	0	0	2	13
Grand Forks	0	------	--------	0	-------	9	1	-------	0	0	--------
Minot	0	------	0	0	0	0	0	0	0	15	4
South Dakota:											
Aberdeen	10	------	--------	0	-------	0	0	-------	0	3	--------
Nebraska:											
Omaha	1	------	0	0	5	7	0	0	2	0	51
Kansas:											
Lawrence	0	1	0	0	0	0	0	0	0	10	1
Topeka	0	------	0	0	2	3	0	0	0	29	15
Wichita	0	------	0	1	4	2	0	0	0	4	35
Delaware:											
Wilmington	0	------	0	2	3	7	0	0	0	5	24
Maryland:											
Baltimore	7	7	1	6	21	15	0	7	1	30	221
Cumberland	0	------	0	0	1	2	0	1	0	0	17
Frederick	0	------	0	0	0	0	0	0	0	0	4
District of Columbia:											
Washington	6	2	2	14	19	20	0	11	0	17	179
Virginia:											
Lynchburg	0	------	1	0	6	0	0	0	0	5	19
Norfolk	0	------	0	0	2	4	0	1	0	0	26
Richmond	0	------	0	1	7	8	0	5	0	0	64
Roanoke	0	------	0	1	1	3	0	2	0	0	15
West Virginia:											
Charleston	0	4	0	9	10	1	0	3	0	1	37
Huntington	0	------	--------	11	-------	2	0	-------	0	0	--------
Wheeling	0	------	0	2	1	4	0	0	1	9	24
North Carolina:											
Gastonia	0	------	--------	0	-------	0	0	-------	0	1	--------
Raleigh	2	------	0	1	1	0	0	0	0	27	8
Wilmington	0	------	0	0	1	0	0	1	0	0	12
Winston-Salem	1	------	0	3	6	1	0	1	2	24	14
South Carolina:											
Charleston	1	43	0	32	5	0	0	0	1	0	22
Florence	0	------	0	0	2	0	0	0	0	0	9
Greenville	0	------	1	0	5	0	0	1	0	16	31
Georgia:											
Atlanta	3	37	4	103	17	7	0	6	0	7	107
Brunswick	0	------	0	0	2	0	0	0	0	0	6
Savannah	0	7	0	0	4	2	0	2	0	0	38
Florida:											
Miami	0	------	0	86	3	0	0	4	1	2	40
Tampa	1	3	3	1	2	1	0	2	0	0	26
Kentucky:											
Covington	1	------	0	0	3	4	0	1	0	0	14
Lexington	0	------	0	0	5	1	0	2	0	3	21
Louisville	2	3	0	154	9	11	0	3	0	8	92
Tennessee:											
Knoxville	2	4	0	5	1	5	0	0	0	1	--------
Memphis	0	------	3	171	9	6	0	5	0	0	83
Nashville	2	------	0	8	10	0	0	3	0	2	77
Alabama:											
Birmingham	1	8	8	15	19	4	0	3	0	0	115
Mobile	0	------	3	2	3	0	0	0	0	0	31
Montgomery	0	5	--------	5	-------	0	0	-------	0	1	--------
Arkansas:											
Fort Smith	1	------	--------	0	-------	3	0	-------	0	0	--------
Little Rock	1	------	0	84	2	2	0	0	0	1	--------

City reports for week ended Jan. 8, 1938—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								
Louisiana:											
Lake Charles	0	------	0	0	0	0	0	0	0	0	6
New Orleans	2	12	0	0	12	5	0	11	1	0	163
Shreveport	2	------	1	0	5	4	0	0	1	0	50
Oklahoma:											
Oklahoma City	1	------	0	0	6	3	0	2	0	0	48
Tulsa	6	------	--------	0	-------	8	2	-------	0	8	--------
Texas:											
Dallas	6	7	4	0	13	14	0	1	0	0	84
Fort Worth	5	------	1	0	4	11	0	1	0	5	54
Galveston	0	------	0	0	3	1	0	1	0	0	14
Houston	3	------	0	0	19	4	0	3	1	0	99
San Antonio	0	------	2	0	11	0	0	9	3	0	86
Montana:											
Billings	0	------	0	1	1	1	0	0	0	0	12
Great Falls	0	------	0	0	2	1	2	0	0	29	6
Helena	1	------	0	1	1	0	0	0	0	4	6
Missoula	0	------	0	0	1	0	0	0	0	0	7
Idaho:											
Boise	0	------	0	0	1	0	8	0	0	0	4
Colorado:											
Colorado Springs	0	------	0	1	1	3	0	1	0	1	11
Denver	4	------	0	142	9	11	0	2	0	4	96
Pueblo	0	------	0	0	1	0	1	1	0	0	7
Utah:											
Salt Lake City	0	------	0	3	2	16	0	1	0	5	21
Washington:											
Seattle	0	------	0	1	5	2	0	4	0	45	71
Spokane	0	------	0	0	1	2	0	1	0	15	42
Tacoma	0	------	1	0	2	4	2	0	0	10	30
Oregon:											
Portland	1	1	1	4	3	12	2	1	0	2	74
Salem	0	1	--------	1	-------	0	0	-------	0	0	--------
California:											
Los Angeles	14	8	3	8	25	49	3	12	1	17	391
Sacramento	0	21	0	0	5	4	0	5	0	52	48
San Francisco	0	4	0	0	10	11	0	13	1	65	217

State and city	Meningococcus meningitis		Poliomyelitis cases	State and city	Meningococcus meningitis		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				Maryland:			
Boston	2	1	0	Baltimore	1	1	0
Connecticut:				District of Columbia:			
Bridgeport	1	0	0	Washington	1	1	0
New York:				Kentucky:			
Buffalo	1	0	0	Louisville	1	1	0
New York	3	0	0	Tennessee:			
Ohio:				Knoxville	1	0	0
Cincinnati	1	0	1	Alabama:			
Cleveland	2	0	0	Birmingham	3	0	0
Illinois:				Oklahoma:			
Chicago	2	0	1	Oklahoma City	1	0	0
Minnesota:				Texas:			
Minneapolis	1	0	1	Houston	1	1	0
Nebraska:				Colorado:			
Omaha	0	0	1	Denver	1	1	0
Kansas:				California:			
Topeka	0	1	0	Los Angeles	1	0	1

Encephalitis, epidemic or lethargic.—Cases: Muncie, 1.
Pellagra.—Cases: Philadelphia, 1; Chicago, 1; Atlanta, 5; Savannah, 2; Mobile, 1; Dallas, 1.
Typhus fever.—Cases: Charleston, S. C., 2; Savannah, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended December 18, 1937.—During the 2 weeks ended December 18, 1937, 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				3	1					4
Chicken pox		2	1	268	547	170	72	17	136	1,213
Diphtheria		9	12	130	17			3		171
Dysentery				1	2					3
Erysipelas				7	7	5	3	3	3	28
Influenza		6			18	12	1		10	47
Measles		32	13	224	498	11	95	58	131	1,062
Mumps		3	4		100	27		5	40	179
Pneumonia		1			38		2		19	60
Poliomyelitis				3	7		8			18
Scarlet fever		12	2	219	192	55	75	50	39	644
Trachoma							2			2
Tuberculosis	2	4	15	86	96	9	2	2	22	238
Typhoid fever				96	7	6	8	1	4	122
Undulant fever				1	5		2		1	9
Whooping cough				274	125	48	9		66	522

CUBA

Provinces—Notifiable diseases—4 weeks ended December 11, 1937.—During the 4 weeks ended December 11, 1937, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer		1		13			14
Chicken pox			1				1
Diphtheria	2	7		5	1	1	16
Hookworm disease	2					1	3
Leprosy		3	1	2		1	7
Malaria	33	43	58	108	37	141	420
Measles	1	9	6				16
Poliomyelitis	1	3		4		3	11
Scarlet fever		2					2
Tuberculosis	7	23	33	57	4	26	150
Typhoid fever	15	17	6	33	8	30	109
Yaws						4	4

ITALY

Communicable diseases—4 weeks ended November 7, 1937.—During the 4 weeks ended November 7, 1937, cases of certain communicable diseases were reported in Italy as follows:

Disease	Oct. 11-17		Oct. 18-24		Oct. 25-31		Nov. 1-7	
	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected	Cases	Communes affected
Anthrax	30	25	24	21	23	21	38	32
Cerebrospinal meningitis	10	10	6	6	9	8	10	8
Chicken pox	77	53	100	42	100	44	134	74
Diphtheria	779	387	773	378	721	337	786	375
Dysentery	45	28	44	24	34	24	28	18
Hookworm disease	20	12	17	9	8	8	28	10
Lethargic encephalitis	2	2	1	1	3	3	2	2
Measles	369	142	393	140	430	129	787	163
Mumps	73	46	96	47	60	39	79	50
Paratyphoid fever	148	109	124	98	121	79	112	85
Poliomyelitis	65	43	40	32	49	40	40	35
Puerperal fever	34	31	37	37	40	36	39	37
Scarlet fever	273	129	263	122	324	126	400	147
Typhoid fever	1,048	508	806	483	840	438	927	460
Undulant fever	42	30	35	32	31	26	34	28
Whooping cough	284	80	180	90	188	80	201	61

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

From medical officers of the Public Health Service, American consuls, International Office of Public Health, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following table must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		May 30–June 26, 1937	June 27–July 31, 1937	Aug. 1–28, 1937	Aug. 29–Sept. 25, 1937	Week ended— October 1937 2	9	16	23	30	November 1937 6	13	20	27	December 1937 4	11	18	25
China:																		
Canton	C		62	80	102	3	7	4										
Hangchow	C				12		[1] 41											
Hoihow	C		100															
Hong Kong	C		7	964	580	24	29	13	14	4	4	1	1	1				
	D		7	497	344	26	16	4	13	4	3	1	3					
Kwangchow Wan	C			104		20	13	23	6		4	8						
	D			81		20			6		4	6						
Macao	C			286	190	9	12	6			1		1					
Manchuria:																		
Dairen	C					3	1	2										
Kwantung Leased Territory	C				3													
Mukden	C						2											
Nanking	C						[1] 63		[1] 42	15								
	D						[1] 8		[1] 6									
Shanghai	C			8	1,804	513	333	359	110	99	67	81	49	40	6	10	3	3
Swatow	C			8	24		13	9	11	11	24	19	42	16	2			
Tientsin	C					1	7											
Chosen: Fusan	C				1													
Dutch East Indies—Celebes	C				[2] 6													
Federated Malay States	D		2															
India	C	11,113	13,893	18,259	12,203	1,623	2,254	2,463	2,489	2,515	1,029	1,806						
	D	5,454	6,495	7,976	5,768	836	1,139	1,191	1,254	1,367	495	1,046						
Assam	C	435	63	35	44	13	6	3	12	25	13	39	19	16	6	68	40	25
	D	274	34	25	16	3	4	5	6	7	11	23	13	6	1	13	24	18
Bassein	C	6	1															
Bombay Presidency	C	1,713	2,936	4,273	3,366	391	430	311	130	113	122	106	104	31	49	42	53	
	D	674	1,098	1,719	1,571	202	212	153	63	56	51	50	53	17	28	19	35	
Bombay	C		[3] 1		[3] 1													
Calcutta	C	173	92	77	56	16	23	13	21	10	19	21	18	22	19	23	15	12
Central Provinces and Berar	C	318	62	176	286	154	214	177	211	104	79	93	102	82	36	27	19	31
Chittagong	C	34	5															

Delhi	C											1							
Madras Presidency	C	1,048	2,794	4,210	1,844	163	175		235	253	239	290	411	264	374		402		
	D	544	1,182	1,659	771	77	86		103	123	83	110	150	88	135		174		
Madras	C	6	16	64	70	17	15	35	23	16	32	61	44	96	52	29	30	49	
	D	3	6	26	18	7	4	14	13	5	7	9	4	14	12	13	8	7	
Negapatam	C	20		1	3			1											
	D	12	1		1														
Northwest Frontier Province	C			203	32	2	17												
Orissa Province	C	188	295	247	111	16	40	23	55	13	12	43	26	10	20	11	7	1	
Punjab	C	16	24	120	29														
Rangoon	C	7												1					
Sind State	C			1	1														
Tuticorin	C	10																	
India (French):																			
Chandernagor Territory	C	2	2				2			2	2	1	1						
Karikal Province	C				1														
Pondichery Province	C				1				1										
Indochina (French): [4]																			
Annam Province	C							4	1	32	173	191			40	18	31	5	
Haiphong	C				56	120	204	169	68	16	16	12	10	6	1				
	D				30	75		2	82		18	9							
Hanoi	C					5	35	71	86	87	83	95	106	77	21	8	8	2	
Tonkin Province	C				320	683	1,029	973	759	735	1,074	1,268			274	69	82	84	
Japan: [5]																			
Hiroshima	C				32	5													
Kobe	C					1													
Okayama Prefecture	C						1	4											
Taku	C				1		3												
Tokuyama	C						10												
Tokyo	C						1												
Siam:																			
Bangkok	C	28	5	1				2											
Provinces	C	255	151	42	16	2	2	2	1										
Straits Settlements: Penang	C	1																	

[1] For 2 weeks. [2] El Tor strain. [3] Imported. [4] For reports prior to Apr. 25, 1937, see previous issues of PUBLIC HEALTH REPORTS.

[5] A report states that up to Sept. 30, cholera was reported in Japan, as follows: Hiogo Prefecture, 1 case, 1 death; Hiroshima Prefecture, 40 cases, 14 deaths; Yamaguchi Prefecture, 2 cases, 1 death.

On vessels:

S. S. *Ellenga* at Penang from Negapatam	15 cases	June	2, 1937
S. S. *Aronda* at Rangoon from Calcutta	1 case	June	3, 1937
S. S. *Badahur* at Rangoon from Calcutta	1 case	June	11, 1937
S. S. *Talamba* at Port Swettenham from Madras	2 cases	June	27, 1937
S. S. *Chungking* at Bangkok from Hoihow	1 case	July	15, 1937
S. S. *Kwantung* at Hong Kong from Koihow	1 case	July	21, 1937
S. S. *Kiangsu* [6] at Singapore from Hong Kong	1 case	July	22, 1937
S. S. *Eagle* at Hong Kong from Kongmoon	1 case	July	27, 1937
S. S. *Muinam* at Singapore from Hong Kong	2 cases	Aug.	16, 1937
S. S. *Sandviken* at Kong Kong	Present	Aug.	18, 1937

On vessels—Continued.

S. S. *Haiching* at Hong Kong	Present	Aug.	18, 1937
S. S. *Talma* at Singapore from Hong Kong	1 case	Aug.	20, 1937
S. S. *Cremer* at Singapore from Amoy, Hong Kong, and Swatow	1 case	Aug.	24, 1937
S. S. *Tyndareus* at Kobe from Hong Kong and Dairen	1 case	Aug.	27, 1937
S. S. *Manila Maru* at Moji from Hong Kong	1 case	Aug.	31, 1937
S. S. *Anking* at Singapore from Hong Kong	1 case	Sept.	10, 1937
S. S. *Sphinx* at Singapore from Hong Kong	1 case	Sept.	15, 1937
S. S. *Kiungchow* at Hong Kong from Shanghai	3 cases	Oct.	3, 1937

[6] In addition, for week ended July 28, 3 cases with 2 deaths in contacts.

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

PLAGUE [1]

[C indicates cases; D, deaths; P, present]

Place		May 30–June 26, 1937	June 27–July 31, 1937	Aug. 1–28, 1937	Aug. 29–Sept. 25, 1937	Week ended— October 1937					November 1937				December 1937			
						2	9	16	23	30	6	13	20	27	4	11	18	25
Algeria: Algiers	C	-------	[3] 1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Argentina. (See table below.)																		
Belgian Congo	C	-------	-------	-------	-------	-------	-------	-------	-------	[3] 2	-------	-------	-------	-------	-------	-------	-------	2
Bolivia. (See table below.)																		
Brazil. (See table below.)																		
British East Africa:																		
Kenya	C	24	42	16	11	10	1	1	1	2	7	-------	3	-------	-------	-------	-------	-------
Tanganyika	C	6	-------	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Uganda	C	39	47	32	50	12	9	12	8	10	28	12	17	10	14	6	-------	-------
	D	38	43	32	48	12	-------	12	7	9	20	12	14	10	12	-------	-------	-------
Ceylon:																		
Central Province—Nuwara Eliya District	C	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	3
Colombo	C	2	-------	1	-------	-------	-------	-------	-------	1	-------	-------	-------	1	-------	1	-------	-------
	D	2	-------	1	-------	-------	-------	-------	-------	1	-------	-------	-------	1	-------	1	-------	-------
Plague-infected rats		3	1	-------	2	-------	1	1	1	-------	-------	-------	-------	-------	-------	-------	-------	-------
China: [4]																		
Fukien Province. [4]																		
Hsiatangchi. [4]																		
Manchuria. [4]																		
Dahomey. (See table below.)																		
Dutch East Indies:																		
Java and Madura	C	205	226	215	213	51	57	49	66	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	205	224	215	212	51	55	48	66	-------	-------	-------	-------	-------	-------	-------	-------	-------
Pasoerosean	C	-------	1	-------	-------	-------	-------	-------	-------	-------	3	-------	1	-------	-------	-------	-------	-------
Ecuador (see also table below):																		
Guayaquil	C	4	-------	1	-------	1	-------	1	-------	-------	-------	-------	-------	-------	-------	1	-------	1
	D	3	1	1	-------	1	-------	-------	1	-------	-------	-------	-------	-------	-------	1	-------	-------
Plague-infected rats		13	2	2	1	-------	-------	2	-------	-------	-------	-------	3	-------	1	-------	-------	1
Parroquia Eloy Alfaro	C	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	1	-------	-------	-------	-------
Egypt:																		
Asyut Province	C	1	-------	-------	-------	-------	-------	-------	-------	-------	1	-------	-------	-------	-------	-------	-------	-------
Behetra Province	C	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	1	-------
Girga Province	C	1	-------	-------	-------	-------	-------	-------	-------	1	-------	-------	-------	-------	-------	-------	-------	-------

Hawaii Territory:[6] Plague-infected rats:																		
Hawaii Island—Hamakua District:																		
Hamakua Mill Sector [6]				8	4		1			2			1	3	7			1
Honokaa Sector			3															
Paauhau Sector [6]		7	1	1	1					1		3		2				2
Paaullo															2	13	3	
Maui Island:																		
Makawao District—Plague-infected rats															1	3	2	
Omaopio					1													
Wailuku District—Puunene.[6]																		
India	C	316	558	962	1,697	421	334	320	310	611	465	364						
	D	203	356	522	747	157	158	129	144	233	187	188						
Bassein	C	6	1	2	2													
Plague-infected rats		2	1															
Bombay Presidency	C	24	33	43	62	17	18	13	11	23	20	11	16	12	15	10	10	
	D	9	20	25	42	13	10	12	4	9	9	11	8	8	17	8	4	
Central Provinces and Berar	C	7	10	85	285	31	121	96	48	286	120	84	183	205	109	147	80	54
Cochin	C				2						1							
Karachi	C				12													
Madras Presidency	C	6	106	203	111	13	20		30	17	43	45	74	13	23		16	
	D	3	63	98	59	8	8		14	11	20	23	28	13	13		5	
Punjab	C			17														
Rangoon	C		[6] 2	5														
Sind State	C				8													
Indochina (French) (see also table below):																		
Pnom-Penh	C	1																
Sadec	C		1		1													
Madagascar. (See table below.)																		
Peru. (See table below.)																		
Senegal:																		
Dakar	C	1	1		1													
Thies	C	4																
Tivaouane	C		1															
Siam	C					57												
	D					57												
Syria: Ras el Ain region	D	[7] 12																
Tunisia: Tunis	C		2															
Plague-infected rats			1														1	
Union of South Africa	C				[6] 1				[6] 1									

[1] Including plague in the United States and its possessions.
[2] Suspected.
[3] Includes 1 case of pneumonic plague.
[4] Plague has been reported in China as follows: Information dated Aug. 18 reports an outbreak in West Hsingan (Khingan) and Southern Lungkiang Provinces. Under date of June 1, estimated deaths from plague in Fukien Province reported to be 3,000 to 4,000. According to a report dated May 10 several hundred deaths from bubonic plague occurred in Hsiatangchi. Information dated Sept. 2 states that 115 cases and 105 deaths occurred in Manchuria.
[5] Plague has also been reported in Hawaii Territory as follows: Week ended Aug. 14, 1937, 1 lot of 5 rats and 1 lot of 3 mice, by mass inoculation; week ended Nov. 20, 10 rats by mass inoculation in Omaopio, Makawao District, Maui Island; week ended Jan. 1, 1938, 1 rat in Hamakua Mill Sector, week ended Jan. 8, 1 rat in Paauhau Sector, Hamakua District, Island of Hawaii; week ended Jan. 8, 1938, 1 death (human) in Puunene, Wailuku District, Maui Island.
[6] Imported. [7] Pneumonic plague. [8] For 2 weeks.

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

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	May 30–June 26, 1937	June 27–July 31, 1937	Aug. 1–28, 1937	Aug. 29–Sept. 25, 1937	Week ended— October 1937 2	9	16	23	30	November 1937 6	13	20	27	December 1937 4	11	18	25
United States: [9]																	
California: [9 10 11]																	
Eldorado County — Plague-infected fleas.																	
Fresno County [10] C				1													
Plague-infected fleas.																	
Plague-infected ground squirrels				3													
Placer County [11]—Plague-infected fleas.																	
San Bernardino County—Plague-infected fleas.																	
San Mateo County—Plague-infected fleas, lice, and ticks.																	
Idaho: [9] Bannock County—Plague-infected ground squirrels	(12)																
Montana:																	
Beaverhead County—Plague-infected ground squirrel		1															
Madison County — Plague-infected squirrels			2														
Nevada: [9]																	
Douglas County C	1																
Plague-infected fleas.																	
Ormsby County — Plague-infected fleas and lice.																	
Oregon: [9] Wallowa County—Plague-infected ground squirrel	1																
Utah: [9]																	
Morgan County — Plague-infected fleas.																	
Wasatch County — Plague-infected ground squirrel			1														

[9] Plague infection proved in insect hosts as follows: *California*—Eldorado County, Aug. 31; Fresno County, Oct. 7–Nov. 5; Placer County, June 22; San Bernardino County, July 12–Sept. 8; San Mateo County, July–Aug. 27. *Idaho*—Bannock County, July 8. *Nevada*—Douglas County, July 29–31; Ormsby County, July 2–Aug. 20. *Oregon*—Wallowa County, June 26. *Utah*—Morgan County, reported Aug. 10.

[10] For 5 weeks ended Nov. 6, plague infection proved in pooled tissue from squirrels, chipmunks, and mice in Fresno County.

[11] For week ended Oct. 9, plague infection proved in pooled tissue from squirrels, chipmunks, and rats, and week ended Oct. 30, pooled tissue from squirrels, in Placer County.

[12] Number unspecified.

Place		June 1937	July 1937	August 1937	September 1937	October 1937	November 1937
Argentina:							
Cordoba Province	C				1		
Mendoza Province	C		[7] 9				
Salta Province	C			[7] 1			
Santiago del Estero Province	C		[7] 6				
Bolivia: La Paz Department	C	[7] 2					
Brazil: Pernambuco State	C			5			5
Dahomey	C	1					
Indochina (French) (see also table above):							
Cambodia	C	4	2				
Cochinchina	C		2		1		
Madagascar (central region)	C	23	25	22	48	59	
	D	22	24	22	47	59	
Peru	C	4	7	3	5	9	12
Ancash Department	C						3
Lambayeque Department	C	1	1	2	2	1	
Libertad Department	C	2	4	1		2	1
Salaverry	C		3				
Lima Department	C	1	2		3	6	8

[7] Pneumonic plague.

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

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place		May 30–June 26, 1937	June 27–July 31, 1937	Aug. 1–28, 1937	Aug. 29–Sept. 25, 1937	Week ended— October 1937 2	9	16	23	30	November 1937 6	13	20	27	December 1937 4	11	18	25
Algeria:																		
Algiers Department	C	2					1											
Oran Department	C	1																
Argentina. (See table below.)																		
Belgian Congo. (See table below.)																		
Bolivia. (See table below.)																		
Brazil:																		
Bahia (alastrim)	C	2	16	10	6	3												
Porto Alegre (alastrim)	D	1	2	2														
Recife (alastrim)	C				1													
Santos	C													1				
British East Africa:																		
Kenya	C		116															
Tanganyika	C	57	65	186	121						100	223						
Canada:																		
Alberta	C	[1]1	5															
Quebec	C										[1]1							
Saskatchewan	C			[1]1														
China:																		
Amoy	C	1																
Canton	C											1						
Dairen	C	5	2	2														
Foochow	C	P	P	P	P		P		P		P		P					
Hangchow	C		1															
Hankow	C	4		1														
Hong Kong	C	7	9	82		1					1			5	4	2		7
Nanking	C	4																
Shanghai	C	18	29	2	1					1								
Swatow	C	2																
Tientsin	C	4																
Chosen. (See table below.)																		
Colombia (see also table below): Barranquilla	D	2	1			1				1								
Ecuador: Guayaquil	C	48	37	20	3	1		3	5	4	2			2		2		1
Egypt: Port Said	C	1	1															
Eritrea	C	3	2		28	52					9	7						

France. (See table below.)																		
Great Britain: England and Wales—																		
Chester County	C												1					
Greece: Saloniks	C	5	24															
Guatemala. (See table below.)																		
India	C	9,247	6,578	3,026	1,738	318	437	249	375	377	336	466						
	D	2,725	1,875	910	461	87	108	44	113	77	70	99						
Assam	C	238	107	98	58	18	7	9	6	5	5	10	5	17	12	16	20	8
Bombay Presidency	C	536	331	177	181	23	51	24	39	17	5	49	35	41	102	83	205	
	D	120	106	53	38	5	12	5	7	4	3	17	9	12	27	28	51	
Bombay	C	105	104	28	47	11	17	3	4	6	5	23	26	19	50	43	66	110
	D	72	69	18	23	3	10	3	4	3	3	8	9	10	19	23	23	54
Calcutta	C	21	14	40	28	3	3	4	4	6	5	5	5	9	3	15	20	31
	D	19	10	16	17	2		3	4	5	1	3	4	5	2	11	13	17
Central Provinces and Berar	C	202	153	61	44	10	5	2	4	5	4		1	2	1		8	6
Chittagong	C	[1] 2	2															
Delhi	C		12	7				1								1	2	3
Karachi	C	5	2		[1] 2							[1] 1	1		[1] 1			3
Madras Presidency	C	130	462	415	318	67	64		96	77	66	67	50	30	30		30	
	D	31	104	95	62	16	11		13	11	7	3	12	4	6		5	
Madras	C	43	95	102	76	19	5	18	19	13	14	13	9	14	10	10	19	49
Moulmein	C	[1] 1																
Northwest Frontier Province	C	46	171	76	27	1	35	17	87	14	112	70	20	178	16	113	139	149
Orissa Province	C	457	462	310	117	30	62	27	36	38	40	81	35	50	63	94	69	127
Punjab	C	674	560	165	69	8	7	36	91	20	55	182	138	29	192	300	226	317
Rangoon	C	1		[1] 1				1		2			4	1		1		5
Sind State	C	254	279	209	96	31	10	17	8	12	19	41	68	36	75	79	52	230
Indochina (French) (see also table below):																		
Haiphong	C											2				4	21	11
Hanoi	C																	1
Pnom-Penh	C	1																
Saigon-Cholon	C		1															
Tonkin Province	C																	26
Iran	C	2		3							2							
Teheran	C			1														
Iraq	C		2	5														
Italian Somaliland	C		1															
Japan: Osaka	C	[1] 1																
Mexico (see also table below):																		
Chihauhua	C		1		1													
Ciudad Juarez	D		1															
Durango	D	4	1			1												
Guadalajara	D	1																
Mazatlan	C	1	1															
Mexico, D. F	C		10	8	6	1			4		5	5	1		2			
Monterrey	C		1	1	2								1		1			
San Luis Potosi	D					1												
Torreon	C	12	7	3	1									4	1	1		1
	D		11	7	3	1	1		1	2						2		4
Vera Cruz	C														1			

[1] For 2 weeks.

[2] Imported.

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

SMALLPOX—Continued

(C indicates cases; D, deaths; P, present)

Place		May 30–June 26, 1937	June 27–July 31, 1937	Aug. 1–28, 1937	Aug. 29–Sept. 25, 1937	Week ended— October 1937 2	9	16	23	30	November 1937 6	13	20	27	December 1937 4	11	18	25
Morocco. (See table below.)																		
Nigeria	C	111	229	[3] 71	11	6	10	-------	87	53	-------	29	-------	-------	-------	-------	-------	-------
Nyasaland	C	-------	1	12	-------	9	-------	-------	4	18	2	5	4	-------	-------	-------	-------	-------
Panama Canal Zone: Colon	C	-------	-------	-------	-------	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Portugal (see also table below):																		
Lisbon	C	6	6	1	5	2	-------	1	-------	-------	-------	1	1	1	-------	1	-------	1
Oporto	C	1	1	-------	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Senegal. (See table below.)																		
Siam: Tak Province	C	3	3	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Sierra Leone	C	1	-------	[3] 5	-------	-------	[1] 1	-------	[1] 9	-------	-------	-------	-------	-------	-------	-------	-------	-------
Southern Rhodesia	C	-------	-------	-------	-------	4	-------	-------	-------	-------	-------	100	21	-------	-------	-------	-------	-------
Sudan (Anglo-Egyptian)	C	39	8	6	27	8	7	8	20	21	7	58	13	10	14	13	18	19
Tunisia	C	4	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Turkey. (See table below.)																		
Unfederated Malay States: Kedah	C	-------	P	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Uruguay	C	3	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

[1] For 2 weeks.
[3] For 4 weeks.

On vessels:
S. S. *Changte* at Thursday Island ..... 1 case ..... June 26, 1937
S. S. *Empress of Japan* at Kobe from Manila ..... 1 case ..... Aug. 11, 1937
S. S. *Northern Prince* at New York from Rio de Janeiro .. 1 case ..... Aug. 19, 1937

On vessels—continued.
S. S. *Empress of Asia* at Honolulu ..... 1 case ..... Sept. 5, 1937
S. S. *Castalia* at Suez from Karachi and Bombay ..... 1 case ..... Oct. 5, 1937
S. S. *Egra* at Rangoon from Calcutta ..... 1 case ..... Nov. 16, 1937

Place		June 1937	July 1937	August 1937	September 1937	October 1937	November 1937
Argentina	C					3	1
Belgian Congo	C		366	312	391		
Bolivia: La Paz	C				30		
China: Manchuria—Harbin	C		1				
Chosen	C	1					
Colombia (see also table above)	C	108		[4] 209			
France	C						2
Guatemala	C	2		1			
Indochina (French) (see also table above)	C	273	143	226	96	147	197
	D	50	30	63	12	28	43
Mexico (see also table above):							
Aguascalientes State	C				5		
Campeche State	C				1		
Chihuahua State	C				4		
Coahuila State	C				2		
Durango State	C				15		
Guanajuato State	C				7		
Hidalgo State	C				1		
Jalisco State	C				5		
Guadalajara	C	1					
Mexico State	C				3		
Mexico (see also table above—Con.							
Mexico, D. F	C	28	18	9	11	5	
Mexico City	D		3	1	2		
Michoacan State	C			4	37		
Nayarit State	C				1		
Nuevo Leon State	C				2		
Monterrey	C		1				
Queretaro State	C	8		1	5	1	
San Luis Potosi State—San Luis Potosi	C	1					
Sinaloa State	C				3		
Tabasco State	C				1		
Tlaxcala State	C				3		
Vera Cruz State	C				2	1	
Yucatan State	C		1				
Zacatecas State	C				1		
Morocco	C	1	4		1	1	2
Portugal (see also table above)	C				61		
	D				8		
Senegal	C	36	16				
Turkey	C	1					

[4] For July and August.

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

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place		May 30–June 26, 1937	June 27–July 31, 1937	Aug. 1–28, 1937	Week ended—														
					September 1937				October 1937					November 1937				December 1937		
					4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18
Algeria:																				
Algiers Department	C	79	197	30	6	1				20	2		16	18		[1] 27	44		6	
Algiers	C	2	73	3									15							
Constantine Department	C	216	203	83	13	3		10	2	9	2		34	1		[1] 14	8	29	37	
Bone	C	11	15	4									1						1	
Constantine	C		22	7				2					7							
Philippeville	C		1										2				1			
Oran Department	C	26	16	7	4											[1] 13	3	2		
Southern Territories	C	9	4	1													2		1	
Basutoland	C			9				6				[2] 3								
Bolivia. (See table below.)																				
Bulgaria	C								12		1									
Chile	C	272	273		49	47	32	48	57			[1] 198								
Concepcion Province	C	1	32	16	3	2	2													
Iquique	C	2												1						
Linares Province	C		9	6	3	1		1	2											
Malleco Province	C		5	8	4	1	1													
Nuble Province	C		7	3				14	1											
Santiago Province	C	111	137	151	35	36	22	21	50			[2] 84								
Valparaiso	C	105	50	47	6	2	4	2	5	4	5		1		1	2	2	1		
China (see also table below):																				
Canton	C											1	2							
Dairen	C									1							2			
Hankow	C	1	1	1									2							
Shanghai	C	4	5		2															
Swatow	C		3																	
Tientsin	C	6	1	1		1	2					1		4						
Tsingtao	C		1																	
Chosen. (See table below.)																				
Czechoslovakia. (See table below.)																				
Egypt:																				
Alexandria	C	5	6	13	1	1	1	1		2	2			3	1	3		2		
Asyut Province	C	5	6	2								1								
Beheira Province	C	14	23	1																
Beni-Suef Province	C													1						
Cairo	C	1					1												1	
Dakahliya Province	C	15	31	3																

Damietta Province	C	2																		
Faiyum Province	C		1																	
Gharbiya Province	C	55	41																	
Girga Province	C	2	2																	
Giza Province	C		2																	
Minufiya Province	C	4	4																	
Minya Province	C			1																
Port Said	C	1	2																	
Qena Province	C	3																		
Sharkiya Province	C	3	1																	
Suez	C	1	2		1	1														
Provinces	C	307	130		9		1	1	1	1			2	4		1	1			4
Eritrea: Asmara	C	2	1											2						
Finland. (See table below.)																				
Germany: Frankfort-on-Main	C							1												
Great Britian—England and Wales—Gloucester County	C														1					
Greece. (See table below.)																				
Guatemala. (See table below.)																				
Hawaii Territory: Honolulu	C		4	1			2		2		2				1					1
Hungary	C		1																	
Iran	C	25					1													
Teheran	C	1																		
Iraq:																				
Baghdad	C	1	2																	
Kirkuk Province	C	12	2																	
Latvia. (See table below.)																				
Libya. (See table below.)																				
Lithuania. (See table below.)																				
Mexico (see also table below):																				
Chihuahua	C															2				
Mexico, D. F.	C		2	27	4	11	6	1	3	5	2	3	4	4	3	7	4	13		
San Luis Potosi	D	1																		
Torreon	C														1					
Morocco (see also table below)	C	174	85	21	6	7	3		1	17	11	7	2	1		6	22	18	58	102
Casablanca	C	200	5	5						4										4
Netherlands: Rotterdam	C																			[3]1
Nigeria	C							2												
Palestine:																				
Haifa	C	1	3	4	4	3	4		3		7		6	3		2		3	3	2
Jaffa	C	3	3	9	4	5			1		6	5	1	2	5	4	6			2
Panama Canal Zone. (See table below.)																				
Poland	C	287	89	43	5	6	8	7	9	9	9	19	7	12	10	23	23	37	40	35
	D	20	1	4								1		2	1		2			
Portugal. (See table below.)																				
Rumania. (See table below.)																				
Straits Settlements: Singapore	C	1					1						1							
Switzerland			1							1										
Trans-Jordan	C		1											1						
Tunisia:																				
Tunis	C	19	4	10	5	1	1				2	1				3		1		
Provinces	C	545	337	216	12	14		50	1	38	24	40	29	23	29	63	46	11	34	

[1] For 2 weeks. [2] For 3 weeks. [3] Suspected.

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

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place	May 30–June 26, 1937	June 27–July 31, 1937	Aug. 1–28, 1937	Week ended—															
				September 1937				October 1937					November 1937				December 1937		
				4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18
Turkey. (See table below.)																			
Union of South Africa. (See table below.)																			
Yugoslavia: Belgrade C	-------	-------	-------	------	------	------	------	------	------	------	------	------	1	------	------	------	------	------	------

Place		June 1937	July 1937	August 1937	September 1937	October 1937	November 1937
Bolivia	C	35	-------	-------	-------	-------	-------
China: Manchuria—Harbin	C	35	14	8	2	-------	-------
Chosen	C	85	-------	-------	-------	-------	-------
Czechoslovakia	C	-------	-------	-------	-------	-------	-------
Finland	C	1	-------	-------	-------	-------	-------
Greece	C	11	5	3	6	18	-------
Guatemala	C	8	16	10	6	2	-------
Latvia	C	-------	-------	-------	1	-------	-------
Libya	C	34	10	-------	-------	-------	-------
Lithuania	C	2	7	-------	2	6	7
Mexico (see also table above):							
Aguascalientes State	C	-------	-------	-------	1	-------	-------
Campeche State	C	-------	-------	-------	2	-------	-------
Durango State	C	-------	-------	-------	1	-------	-------
Guanajuato State	C	-------	3	-------	19	-------	-------
Hidalgo State	C	2	-------	3	4	-------	-------
Jalisco State	C	-------	1	-------	2	-------	-------
Mexico State	C	-------	14	38	29	19	-------
Mexico D. F.	C	14	16	27	29	14	-------
Mexico City	D	-------	5	3	4	-------	-------
Mexico—Continued.							
Michoacan State	C	-------	-------	-------	5	-------	-------
Puebla State	C	-------	-------	-------	55	-------	-------
Queretaro State	C	2	-------	2	3	2	-------
San Luis Potosi State	C	-------	-------	-------	6	4	-------
Tamaulipas State	C	-------	-------	-------	2	-------	-------
Tlaxcala State	C	-------	-------	-------	3	-------	-------
Vera Cruz State	C	-------	-------	-------	9	-------	-------
Zacatecas State	C	-------	-------	-------	2	-------	-------
Morocco (see also table above)	C	182	88	25	16	39	47
Panama Canal Zone	C	-------	-------	1	1	-------	-------
Portugal	C	-------	-------	2	1	26	-------
Rumania	C	177	61	26	31	33	-------
Turkey	C	72	30	23	27	100	-------
Istanbul	C	3	2	2	4	-------	-------
Union of South Africa:							
Cape Province	C	12	50	81	-------	162	-------
Natal	C	13	-------	2	-------	-------	-------
Orange Free State	C	35	11	2	-------	3	-------
Transvaal	C	3	13	-------	-------	5	-------

YELLOW FEVER

[C indicates cases; D, deaths; P, present]

Place		May 30–June 26, 1937	June 27–July 31, 1937	Aug. 1–28, 1937	Week ended—																	Jan. 1, 1938
					September 1937				October 1937					November 1937				December 1937				
					4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	
Brazil:																						
Amazonas State	D			1																		
Matto Grosso State [1]	D		1																			
Para State [1]	D		6	1			1															
Piauhy State	D	1																				
Colombia:																						
Boyaca Department	C	1	2	1																		
	D		4	2							1											
Caldas Department	D						1															
Cundinamarca Department	D	2	1	2		1	1															
Intendencia of Meta—Villavicencio	D							1														
Santander Department	C				2																	
	D		1	4			4	2	1				2						1		1	
Dahomey:																						
Bohicon	C	1																				
Cotonou	C																				[2] 1	
French Equatorial Africa:																						
Bangui	D						1															
Fort Archambault	C						[2] 2															
Libreville	C		1																			
	D		1																			
Gold Coast	C	11	23	9		3			1	1		1	1	[3] 7			[2] 1			2		[3] 5
	D	11	19	4		2			1					2			[2] 1			2		
Accra	C	2	2	1		[2] 1																
Keta	C																					1
Ivory Coast:																						
Agboville	C			1																		
Gaoua	C					2												[2] 1				
	D					1	[2] 1															
Touba	D							[2] 1		[2] 2												

[1] See also reports of yellow fever in Brazil on pp. 463, 536, 657, 683, 762, 818, 912, 1134, 1248, 1327, 1471, 1637, and 1691 of the PUBLIC HEALTH REPORTS for 1937.
[2] Suspected.
[3] Includes 1 suspected case.

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

YELLOW FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		May 30–June 26, 1937	June 27–July 31, 1937	Aug. 1–28, 1937	Week ended— September 1937 4	11	18	25	October 1937 2	9	16	23	30	November 1937 6	13	20	27	December 1937 4	11	18	25	Jan. 1, 1938
Nigeria:																						
Aba	C			1																		
Abeokuta	C					1																
Calabar (vicinity of)	C																				[3]1	1
Enugu	C		1									[3]1										
Forcados	C		1							2			[3]1									
Ibadan	C										1											
Jos	C		5																			
Maiduguri	C		2																			
Makurdi	C																2					
Ogbomosho	C																1					
	D		1																			
Ovim	C			3																		
	D			1																		
Sapele	C			1																		
Shendam	C							1														
Wana	C																					
	D																					
Paraguay [4]	C		P																			
Asuncion	C															1						
Senegal:																						
Bambey	C	[3]1																				
Baol	C									[3]1				[6]2						[3]1		
Dakar	C										1								[3]1			
Diakhao	C				1																	
Diourbel	C																					
	D			1																		
Gade	C													[3]1								
Gossas	C			1				1		3												
Kaolakh	C												[3]1	[3]1								
Keur Moussa	C																1					
Louga	C																				1	
Rufisque	C								1		1				2							
Sebikotane	C													3								
	D													1								

Tamba-Counda	C			[2]1							2		2				1							
Thies	C													1										1
Thies Circle—Khombole	C																							
Sudan (French)	C															[2]1						1		
San	C																							
Toukoto	C																							

[2] Suspected.
[4] A dispatch dated June 4, 1937, from the United States legation in Asuncion, Paraguay, states that yellow fever has been officially reported in the northwestern part of Paraguay.
[5] Imported.
[6] Includes 1 suspected imported case.

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