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TUBERCULOSIS—THE HOME HOSPITAL EXPERIMENT.[1]

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In 1912 in New York City there were 9,981 deaths from tuberculosis. During that same year there were reported to the Department of Health 22,752 new cases of this disease. In that year in New York City there were carried over from the preceding year 32,635 cases. The disease presents, evidently, an imperative problem.

In dark, dirty, unventilated, overcrowded rooms exists many a family, usually with numerous children, of which family one or both parents have consumption. Frequently several of the children also are tuberculous and all are inevitably exposed to the disease. Not infrequently the consumptive mother is nursing an ill-fated babe. In the sputum-poisoned, germ-charged atmosphere tuberculosis develops, unrecognized and unchecked. The infected, unsegregated in this close-knit family life and opposed to separation from their loved ones, constitute a deadly menace to their family and neighbors.

The home itself is in disorder, the family in partial or utter dependency. Formerly self-respecting and independent, they have now lost the hope and often the capacity for self-support. Standards of living and of morals have either deteriorated or utterly vanished. This description is literally true of hundreds of families among the tenement poor in New York City.

To relieve these conditions various agencies are at work. Among these, and attaining a valuable measure of success, are the *dispensary* with its clinic and visiting nurses; the *preventorium* for the treatment of children over 4 years of age believed to be predisposed to tuberculosis; the *sanatorium* for the cure of incipient patients; and the *hospital* for the segregation and care of advanced cases. These agencies, excepting in part the dispensary, treat the patient apart from his home, are concerned with the individual rather than with the family as a unit, and deal almost entirely with the physical rather than with the social and economic needs.

[1] Read before the Southern Conference on Tuberculosis, Atlanta, Ga., Nov. 30, 1914.

But tuberculosis is not merely a human disease. It is a social disorder, and the real problem is not alone the patient, but the family and the conditions under which it lives. As these were basic in causing the disease, so their correction is vital to the permanent cure of the patient and to the eventual welfare of his family. To treat the social ills, therefore, is quite as important as to cure the disease, for without social rehabilitation the disease is most liable to recur in the patient and to continue in his family.

Based upon such convictions as these the Home Hospital experiment was established by our association on March 19, 1912, for the combined treatment of tuberculosis and poverty among the tenement poor of New York City. More specifically, the object sought is to demonstrate that if sanitary housing with ample sunshine and fresh air, adequate income, including good and abundant nourishment, freedom from undue work and worry, reasonable segregation, skillful medical care, and constant nursing supervision be provided, it is possible:

1. To prevent the spread of tuberculosis from the sick to the well members of the family and particularly to protect the children from infection.

2. To cure any of the family who are in the early stages of the disease.

3. To secure improved health and larger earning capacity to patients whose cases are moderately advanced; and

4. To complete, at least in instances, the rehabilitation of the family, physically, economically, and socially.

The Home Hospital, ideally located at Seventy-eighth Street and John Jay Park, occupies two entire sections of the East River homes of which one section was opened March 18, 1912, when the experiment was established. The second section was leased last year and was occupied on November 24. Two open staircases lead to the 48 apartments, consisting of from two to four rooms each, including one or more bed chambers with open-air sleeping balconies. From a sanitary standpoint these apartments far excel the most exclusive apartments in New York City. No expense has been spared to provide a maximum amount of sunlight and ventilation for each room. Even the windows, extending from ceiling to floor, are arranged in three sashes, so that when open, two-thirds of the space is unobstructed. On the roof is a spacious solarium, with hedges of privet and geraniums. A part of this solarium is reserved for the patients. Here in reclining chairs they take the cure. Another part of the roof is a children's playground, where there is no premium on fresh air and sunshine. There they play and make merry, remote from the danger of infection. Still another part of the roof is occupied by a fresh-air school.

In selecting families to participate in this experiment preference has been given, first, to families in which both poverty and tuberculosis are more or less incipient; second, to families believed to possess sufficient intelligence to cooperate in the experiment; third, to families in which dependency is due to tuberculosis of the wage earner; and, fourth, to families in which tuberculosis of the mother renders it inadvisable to keep the home together under ordinary circumstances; in general, to poor families made or kept dependent by tuberculosis and in which the disease is not more than moderately advanced. Most of the families were already under the relief care of the association, and selection was made without regard to nationality or religion.

It is to be noted that treatment is provided in this way for children too young to be admitted to preventoria, for patients unwilling or unable to leave their families, and especially for the largest and, because of its irresponsibility, most dangerous class of sufferers, namely, the more or less chronic second stage and able-to-be-about cases almost entirely unprovided for by other institutions.

The actual selection of families is made in the following manner: A relief visitor of the association visits and carefully investigates the home conditions, and if she decides that the family is suitable, all members report to the Home Hospital clinic for examination. If the case is one which gives fair promise of being cured in a reasonable length of time, or even of such improvement as to restore partial earning capacity of the patient, the family is admitted. It will be readily seen by examining the cases in the appendix of the Home Hospital report that the selection of patients has not been confined to favorable early stage cases.

As its name implies, one of the purposes of the hospital is to preserve the home. Therefore, so far as possible, each family is permitted and helped to live a normal home life. The medical régime adopted is that of the best sanatoria and hospitals, including regular physical examinations, weekly sputum tests, adequate segregation of the more advanced cases, open windows and outdoor life upon balcony, the roof, or in the park near by, absolute rest for those who need it, and a graduated amount of exercise for appropriate cases, and constant medical oversight, nursing care, and home inspection.

The patients, encouraged to work on tasks proportioned to their increasing strength, are thus prepared for a return to normal activity and to complete resumption of family responsibility. When the family is about to be discharged, the securing of employment and a sanitary home completes the care provided.

To each family, on admission, is given careful and oft-repeated instruction in precautions necessary to prevent the spread of consumption to the well members. Individual toilet articles are given to each member of the family, and all necessary furniture, clothing,

and household supplies are provided. Countless minor details in respect to prophylaxis and sanitation of the home are carefully explained, and particular emphasis is laid on the value of fresh air and personal hygiene as preventives not only of tuberculosis but also of other diseases.

To care for the patients and to supervise and educate both the sick and the well members of the families, the association has a staff of 14 persons at the hospital. This consists of a superintendent, a medical director, an attending physician, two nurses, a nurses' helper, a mothers' helper, two clerks, a cook, and four cleaners.

All positive and suspected cases are examined every six weeks, healthy children every three months, and healthy adults every six months. The results of each examination are recorded on a separate chart. After each examination the patient is advised as to his condition, and is given instructions accordingly. If the patient has active symptoms, with cough, sputum, elevation of pulse and temperature, etc., he is ordered to remain in bed. He sleeps out of doors on the balcony, is carefully fed, and isolated as far as possible from the well members of the family. The children are not allowed in the patient's bedchamber or in close contact with him. The family is encouraged to spend the day on the roof, and to return to the apartments only to eat and sleep.

With improvement, the patient spends the day on the roof, reclining in a steamer chair. Extra nourishment is given him at 10 a. m., at 3 p. m., and just before retiring. Arrested cases are at first allowed to do light work for a few hours each day, care being taken that the temperature, pulse, weight, and physical signs and symptoms remain satisfactory.

A daily morning and afternoon temperature and pulse record is kept of all positive and suspected cases. Each week sputum examinations are made and weights are recorded. Each patient is provided with a notebook, in which answers to the following questions are entered daily:

How many hours sleep?
How many sections window open at night?
Head or feet to open window?
Amount cough, sweat, or expectoration (during both day and night)?
Hour of arising?
Morning tub?
Cold water to chest?
Breakfast menu?
Morning temperature?
Hour started for roof?
Dinner menu?
Hour returning from the roof?
Nourishment at 10 a. m.?
Temperature at 3 p. m.?

Supper menu?
Nourishment at 9 p. m.?
Hour of retiring?
Amount exercise or work during day?
Amount of sleep during day?
Chills, day or night?
Total hours spent in the open during day?
Total amount of milk and eggs during day?
Condition of bowels?
Gain or loss in weight each weighing day?
Amount of earnings, if any?
General remarks.

The records, besides being extremely interesting, keep always before the patient the essentials of the cure, and there has gradually developed a friendly rivalry among the patients, for each desires to excel in improvement. The hygienic-dietetic form of treatment has been followed. No special drugs have been employed. Tuberculin was administered in suitable cases during the second year of the experiment.

The attending physician visits and holds clinics at the hospital on Monday, Wednesday, Friday, and Saturday of each week. One evening each month he meets all the patients in class conference. These gatherings are informal, the patients being encouraged to discuss their condition and ask questions.

At the same time that the patients are being treated for tuberculosis the other members of the family are treated for any physical defects they may have. They are also taught how to live properly and how to preserve their health. To the mothers instruction is given regularly in cooking, sewing, nursing, care, and feeding of infants, personal cleanliness, hygiene, and sanitation. The children attend regularly a fresh-air school on the roof.

What have been the medical results of this experiment? During the first year 11 families were discharged, 6 having been rehabilitated physically, socially, and economically. The other 5 were dismissed for intemperance or refusal to cooperate. During the past year 14 families were discharged, 11 having been restored to health and earning capacity. Three refused to follow advice and were dismissed.

Since the beginning of the experiment, of a total of 36 positive patients and 10 suspects discharged during the two years only 2 cases have relapsed. It is most gratifying to visit the homes of these discharged families and to find sanitary and prophylactic measures observed. The children continue to gain in health and strength and the mothers frequently express their gratitude for all the good and happiness the Home Hospital has brought them.

In no instance has a well member of a family developed symptoms of tuberculosis, either while at the Home Hospital or since discharge.

This would tend to show that, although the adult patient remains at home, there is little danger of infecting others if prophylactic measures are maintained. It also indicates that the degree of tuberculosis in any community, like the incidence of typhoid fever, is a fair index of that community's hygienic status. Teach people to live properly and tuberculosis will rapidly wane.

Inasmuch as some of the adult patients are of a somewhat different type from those treated at sanatoria, it has seemed wise to classify them under the following groups:

Group A: Cases with definite physical signs of pulmonary tuberculosis and with tubercle bacilli in their sputa.

Group B: Cases with definite physical signs of pulmonary tuberculosis, but without tubercle bacilli in their sputa.

Group C: Inactive cases with evidence of slight healed lesions.

Group D: Cases which have been in the hospital insufficient time to have their disease arrested.

During the two years the hospital has cared for 62 families, including 315 individuals, classified diagnostically as follows:

Positive cases, 136; suspects, 71; nonpatients, 108.

The results for the adult groups for those cases with positive signs are as indicated by the following figures:

Apparently cured, 21; arrested, 16; improved, 8; not improved, 4; died, 1; total cases, 50.

This record, I believe, compares favorably with that of tuberculosis sanatoria, especially in the second-stage cases. There were 31 such cases, 13 of which were apparently cured. Of the 15 first-stage cases, 8 were cured.

Not a single patient who has followed advice has failed to improve.

In no instance has a well member of a family developed symptoms of tuberculosis while a resident at the Home Hospital. This would tend to show that with proper supervision of patients under hygienic surroundings, there is little danger of infecting others.

The greatest good obtained is not the mere restoration of the adult member of the family to health and earning capacity. He has the disease and perchance may some day succumb to it, for it is well recognized that tuberculosis is a chronic relapsing disease. It is the children who are of especial concern.

To-day's anemic child of the tenement is the coughing, germ-spreading adult of to-morrow. Left unrescued in its inimical environment it may never reach maturity. The children from 3 to 14 years of age have, therefore, claimed our special attention. Upon admission over 75 per cent were underdeveloped, pale misfits—excellent candidates for the so-called latent or pretubercular class. During their residence at the hospital they are practically isolated

from the infected adults and are given every hygienic advantage. They are well fed, receiving extra nourishment twice daily. They spend the entire day in the fresh air and at night sleep in rooms with the windows wide open. The children of school age attend the open-air school on an adjoining roof.

Realizing the great difficulty of diagnosing tuberculosis in children, and also the difference of opinions of pediatricians as to what syndrome constitutes active pulmonary tuberculosis, we have adopted the expedient of classifying our suspected children under two groups:

Group A: Those under 12 years of age who present the following symptoms:

1. Underweight for age.
2. Constant or frequent cough.
3. Occasional or constant rise in temperature of undiscoverable origin.
4. Râles (near one or both nipples, constant or inconstant interscapular dullness).
5. Positive von Pirquet reaction (under 4 years).

Group B: Those who are delicate and present some of the above symptoms and physical signs.

According to this classification we find 60 patients and 67 suspects among the 189 infants and children under care. In other words, 31.7 per cent of the children of tuberculous parentage probably already have thoracic tuberculosis, and 34.4 per cent more are excellent candidates for the disease. It is probable that a similar appalling percentage holds true in thousands of tenement children.

The results obtained with the children have been so gratifying that we believe the experiment would be well worth while even had the adult cases shown no improvement.

A study of the weight charts of the positive and suspect children is most interesting. When admitted most of the children are underweight and underdeveloped. At the end of six months of treatment at the Home Hospital their gain in weight, according to their respective ages, not only equals that of the normal healthy children in the hospital but in most cases is considerably in excess.

Interesting also is a comparative study of the gain in weight, according to age, of healthy normal outside children and of those at the Home Hospital for a period of six months. It was noted that the underdeveloped children made a gain not only comparable to but considerably in excess of that of healthy children, so that at the end of six months many reached a weight normal for their age.

The improvement of the infants (1 to 3 years) quite rivaled that of the children. The babies are placed in cribs on the roof, where during the summer there is always a cool breeze. Careful formula feeding, good nursing, "patience and hope" have had their reward. Each week has brought results.

The average gain in weight for the infant patients has been 3.78 pounds in 180 days' average residence, and the suspect infants have gained an average of 3.4 pounds in a similar time.

One marasmic infant weighed 6 pounds and 15 ounces at 9 months. Her normal weight at this age should have been 17.5 pounds. The baby had been at a good city hospital and the mother was told it could not live. Shortly after admission to the Home Hospital the infant gained 1 pound and 7 ounces in one week and has continued to gain at the rate of $9\frac{3}{4}$ ounces a week.

The excellent results obtained with the infants and children indicate, we believe, the real value of the experiment. These children of to-day are the adults of to-morrow. Left unrescued in their tenement environment, many would have succumbed to the disease or would have reached maturity as weaklings, their health undermined with tuberculosis and a menace and burden to society, as their parents now are.

Briefly, what can be said regarding the effect of the Home Hospital treatment upon the earning power of the family? Let us take the families discharged in the last year and we see that whereas their average weekly income on admission was $6.34, on discharge it had increased to $11.17.

Taking the 39 families still under care at the end of the last year we find that their average weekly incomes have increased from $3.37 to nearly $6.

Thus by restoring to health wage earners and other members of dependent families and by teaching each properly to live and to manage a home efficiently the Home Hospital has not only increased the earning powers of those admitted but also has raised the standard of living in each home. The social and economic results during the two years of the experiment strengthen our belief that completely to rehabilitate families either made dependent by tuberculosis, or whose physical breakdown has resulted from destitution, the treatment of the physical and social ills must be combined.

What has the method cost and how does it compare with the usual hospital or sanatorium treatment?

The cost of treatment, including living expenses, cost of medicine, supervision, and administration is indicated by the following figures from the Home Hospital report:

The daily cost per family was $3.32; per individual, $0.65; per patient, $0.66; per nonpatient, $0.63.

This cost per patient of 66 cents compares very favorably with the average per capita cost of 17 New York State tuberculosis institutions giving individual treatment, the figure for which is $1.40, or over twice the Home Hospital figure.

To this difference must be added the many unique advantages of the Home Hospital method such as: (1) The directness of its attack upon the home conditions as a crucial, underlying cause of tuberculosis and its consequent poverty; (2) the readiness with which unsuspected, incipient cases may be detected and checked; (3) the exceptional opportunity it affords for adequate control of the disease and family; (4) its avoidance of the opposition, deterrent influence, worry, and other hardships inevitably occasioned by the separation of the sick from the well members of the family; (5) its preservation of the integrity of the home; (6) its care of classes of patients who either could not or would not go to institutions; (7) its fostering an increase of earning capacity in the wage earner and a gradual return to normal conditions; (8) its provision against a return of either the patient or family to the inimical environment where the disease was contracted and is likely to recur; and (9) its care not only for the physical but for the economic and social ills not merely of the patient but of the entire family.

Such a work aims at causes; seeks not only the cure of the individual but the protection of society; is concerned with the patient, his family, and environment, and deals with fundamental questions of livelihood and of life.

SEWAGE DISINFECTION

FOR VESSELS AND RAILWAY COACHES.

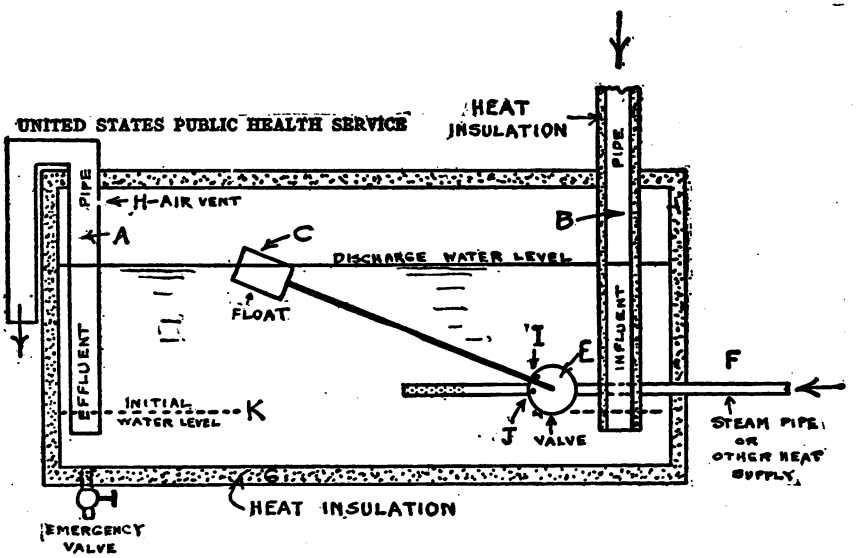
By LESLIE C. FRANK, Sanitary Engineer, United States Public Health Service.

The desirability of disinfecting the sewage of vessels traveling in lanes as heavily frequented as those on the Great Lakes system has been emphasized by the studies of De Valin (Reprint No. 168 from the Public Health Reports), and of the International Joint Commission on Boundary Waters. In these lanes of fresh-water travel, within a very short time after one steamer has discharged toilet wastes another steamer will pass over the same spot and may take in drinking water. Furthermore, these lanes of travel pass close by the drinking-water intakes of a number of large cities. The present situation with regard to railways passing over watershed areas is even more serious. The dangers of disease infection due to these conditions need no comment.

In March of this year Prof. Earle B. Phelps suggested that steam might be used to disinfect the sewage from steamers and railway coaches before it is discharged. The following device has been designed by the writer to perform this function automatically.

Description.

The device is composed of: A chamber G insulated by some heat-insulating material such as the common magnesia cement, or sawdust; an influent pipe B penetrating nearly to the bottom of the tank; an effluent pipe A penetrating nearly to the bottom of the tank, and perforated at some point H near the top of the tank by a small hole about one-eighth inch in diameter; a steam pipe F provided with an ordinary straightway valve E and a float C. The lever handle of the straightway valve has been removed and replaced by a disk, at the center of which is freely pivoted the lever arm of the float C, and which disk is provided with two pins I and J.



Operation.

The operation of this device is as follows: Assume that the initial water level in the tank is at K. The steam valve E is in its closed position and the influent pipe B is submerged below the water level; in other words, the influent pipe B is always trapped, even at the times of minimum water level in the tank. The entrance of sewage into the tank through B causes the level of the water in the tank to rise gradually and to carry the float upward with it. The float arm, however, is pivoted freely upon the steam-valve disk and therefore does not turn on the steam by revolving the disk until it engages the pin I; that is, until the liquid in the tank has reached a certain predetermined height, dependent upon the position of the pin I. When this height of water is reached the steam is gradually turned on. For

a time the entering steam is immediately condensed and gives up its heat to the water. The water thus becomes heated at a rate dependent upon the rate and pressure of the steam discharge. As the temperature of the water approaches the boiling point the steam ceases condensing in the water but rises through the water and collects in the chamber space above it. At about the boiling point of water, or a trifle above, the pressure develops in this upper space and gradually forces the sewage up and out through effluent pipe A.

As the liquid discharges the water level and the float descend. The steam, however, remains turned on full until the float arm engages pin J, when a slight further descent shuts off the steam. The level of liquid at which the steam is shut off and at which discharge from the tank immediately ceases may be predetermined by the position of the pin J. The small hole H is provided to enable the air in the tank to escape as the sewage enters. The relation of the size of this hole to the total cross-section areas of the steam influent openings is such that only a very small percentage of the steam entering through pipe F can escape through hole H, and therefore pressure develops in the tank practically as fast as if hole H were not present. This hole may be replaced by a simple thermovalve, which will be open below. say, 80° C. and closed above that temperature, but the percentage of steam escaping through H is so low that it is doubtful whether the inclusion of such a valve is warranted.

Experimental.

A device similar to the above has been operated by the writer in the basement of the Hygienic Laboratory in Washington, D. C. A number of tests made with tap water demonstrated that the device worked entirely satisfactorily so far as its mechanical operation is concerned. A test was also made to determine the mechanical and germicidal effect of the action of the device upon human wastes. The device was used six times as a toilet and then operated. The effluent seemed to be almost homogeneous, the lumps of fecal matter and the pieces of toilet paper having apparently been macerated by the violence of the steam action into very small bits. It was apparent that most of the fecal matter was actually dissolved in the water and samples collected in bottles appeared at first sight to be simply a yellowish liquid until closer inspection revealed a small amount of fine, suspended matters. Bacterial samples were collected and tested for total bacteria and for *B. coli*. The results of these tests showed a total count of 11 bacteria per c. c. and a total absence of *B. coli* in 100 c. c. The 11 bacteria which did develop were probably spore formers, which are not always killed by a single subjection to the influence of heat. However, intestinal bacteria pathogenic via the

intestinal tract are not spore formers. The liquid in the disinfector was much stronger than ordinary municipal sewage. Mr. George A. Johnson, in a sewage report for the city of Columbus, gives the number of *B. coli* for the local sewage as an average of about 500,000 per c. c. The total number of bacteria per c. c. in municipal sewage is always over a million. The above tests and facts therefore indicate that the germicidal efficiency of the device is practically 100 per cent and the disinfection efficiency actually 100 per cent. A series of experiments will be made to confirm these results.

Application.

The above device may be used wherever it is desired to heat to 100° C. and discharge automatically any liquid which is received intermittently or continuously. The device is not limited to the use of steam as heating agent. For the steam may be substituted electric heating elements; a coil of pipe carrying the exhaust from a gasoline engine; direct heat from gas or gasoline burners, equipped if desired with pilots, etc.

The device will therefore apply in particular to the disinfection of sewage or toilet wastes from steamers or from steam, electric, or gasoline railway trains. The container need not be over 12 to 15 inches high, 12 to 15 inches wide, and 4 feet long, and may therefore easily be suspended under the end platforms of the coaches laterally across the coach. The toilets are always at the ends of the coaches, and this makes the necessary length of additional pipe from the toilet to the container not over several feet. The equipment of railway coaches with this device would make it possible to keep the toilet unlocked at all times, instead of being locked at railway stations and while passing over watersheds for drinking water. The inconvenience of this latter practice has become impressed upon every traveler. The disinfection of train sewage before discharge would also afford a higher degree of insurance against the infection of city water supplies. It is true that if the control were absolute the locking of toilet doors while passing over watersheds would prevent the infection of those watersheds, but it is doubtful that the control can be absolute. Such a control would mean the insurance that every toilet on every train be locked while passing over every drinking-water area; and the writer has personally observed an unlocked toilet while passing over the Seattle watershed.

It would be advisable that the steam supply to the device be closed while the train is standing in a passenger station to avoid the discharge of the contents at that time. The steam-supply valve stem can be made to penetrate the car floor external to the toilet room, and thus cause no more inconvenience in its operation than the

present locking of the toilet doors. The disinfector would have a sufficient reserve capacity to care for the period of standing in stations. If the device be in the act of discharging as the station is approached, the mere shutting off of the steam will at once discontinue the action. Discharge will also cease immediately if the toilet be flushed and not begin again until the added material has been brought to the boiling point.

Cost.

Preliminary cost studies indicate that the construction of the disinfector should not cost much over $2 per cubic foot capacity, noninstalled. The installation cost will vary with the conditions of installation. The capacity of the disinfector for steamers should be about one hour's flow during the hour of maximum usage. The capacity for railway trains may probably reasonably be placed at three to four hours' flow. It is estimated that the flow from one steamer closet during the maximum hour of usage will not exceed 8 cubic feet. This, with the above-estimated capacity cost, makes the uninstalled construction cost per closet about $16. The two closets on a railway coach will probably not discharge more than 2 cubic feet in the maximum hour, or in four hours 8 cubic feet. The uninstalled construction cost per railway coach will therefore probably be from $15 to $20.

Preliminary studies of the cost of operation indicate that with steam as heating agent the disinfection of one steamer closet flush will cost $0.001, or $1 per thousand closet flushes. On the same basis the disinfection of one railway coach closet flush would cost about $0.000075, or 7½ cents per thousand flushes. Therefore, if each steamer closet discharges on the average 50 times every day, the cost of disinfection per day per closet on steamers will be 5 cents. If each railway coach toilet discharges 100 times every day, the cost of sewage disinfection per coach per day will probably not be over 1½ cents. It is believed that these assumptions of toilet usage are, if anything, excessive, and that the actual average annual cost of steam disinfection would be considerably less than 365 times the above daily estimates.

Further experiments are being made upon the steam disinfector for confirmatory results, and these experiments will be discussed when they are completed.

AVIAN TUBERCULOSIS IN MAN RESEMBLING LEPROSY.

AN ABSTRACT OF A REPORT OF A CASE OF SKIN TUBERCULOSIS CAUSED BY THE AVIAN TYPE OF THE TUBERCLE BACILLUS.

Abstracted by GEO. W. McCOY, Surgeon, United States Public Health Service, Director Leprosy Investigation Station, Molokai, Hawaii.

In a recent paper (Archiv für Dermatologie und Syphilis, CXX Band, 2 Heft, June, 1914) Lipschütz, of Vienna, reports a case of cutaneous tuberculosis with complications due to the invasion of other structures which is of interest in connection with the diagnosis of leprosy. Cases of human infection with the avian type of the tubercle bacillus have been reported by several observers, but they are by no means frequent, and the case referred to appears to be the first one in which skin lesions were conspicuous.

The case had been under observation from time to time during a period of about five years and terminated fatally. The patient was a young adult male from Bosnia (one of the several European foci of leprosy). The clinical diagnosis at different times was lupus, syphilitic ulceration, and a combination of both diseases. The earlier lesions were chiefly ulceration of the oral mucous membrane with infiltration and ulceration of the nose and the upper lip. Later, pigmented, infiltrated spots appeared on the arms and body.

Improvement occurred several times, only to be followed by relapses.

The tuberculin reaction was positive; the Wassermann, negative. Toward the end of the disease, soft, elastic, subcutaneous tumors appeared at several points. An X-ray examination showed a carious condition of the metacarpal bones. Fistulous openings developed as a result of the necrosis. There was considerable destruction of tissue at the primary focus of the disease on the nose and lip. The cartilaginous septum of the nose was ulcerated. There was no evidence of visceral disease, though the patient became emaciated.

The skin lesions were essentially brownish-red or livid, nodulelike, infiltrations. They were found in the axilla, arm, gluteal region and over the scapula.

About two months prior to the death of the patient pus from the subcutaneous abscesses was examined microscopically and found to contain enormous numbers of acid-fast and alcohol-fast bacilli. The organisms were longer than *B. tuberculosis* or *B. lepræ*, but lay in groups and bundles as the latter do. Some were extracellular, but many were found in the leucocytes. The same organisms were found in preparations from the ulcers on the hard palate and on the nasal septum and in the internal organs at autopsy.

Sections also showed such numbers of acid-fast bacilli as one is accustomed to see in leprous tissue only. Attempts at cultures by

Lipschütz were unsuccessful, but his colleague, Dr. Löwenstein, secured a growth of the organism from an inoculated animal.

Extensive cultural and inoculation experiments left no doubt that the organisms were those of avian tuberculosis.

The organisms were slightly pathogenic for rabbits and guinea pigs but markedly so for fowls. Success in inoculating the latter together with the characteristics of the cultures made the nature of the infection clear.

Comment.—The nature of the lesions, the chronicity of the disease, and the results of the microscopical examinations would be in agreement with leprosy, and only exhaustive animal inoculations and cultural tests would serve to establish the diagnosis. Perhaps the point to emphasize especially is that the presence of large numbers of acid-fast and alcohol-fast bacilli may be found in a disease other than leprosy. In size, number, staining reactions, and location, the organisms, as shown by the illustrations accompanying the article, would pass anywhere as those of leprosy.

IMPOUNDED WATERS.

THEIR EFFECT ON THE PREVALENCE OF MALARIA—SURVEY AT BLEWETTS FALLS.

By H. R. Carter, Senior Surgeon, United States Public Health Service.

Under bureau instructions a survey was made of the pond of the power plant at Blewetts Falls, N. C. This survey was undertaken as part of the field investigation of malaria, and its object was to determine the relations of this pond to the breeding of Anopheles mosquitoes.

It is intended that this work shall form part of a general investigation of the effect of impounded waters on the incidence of malaria, involving the survey of a number of other ponds and leading, we hope, to the determination of the conditions about the pond which affect the production of malaria, and finally of the measures to be taken for producing the best sanitary conditions possible about the pond. Such an investigation should be spread over four or five years. Another paper discusses the general features of the problem and its importance. (Public Health Reports, Dec. 25, 1914, p. 3458.)

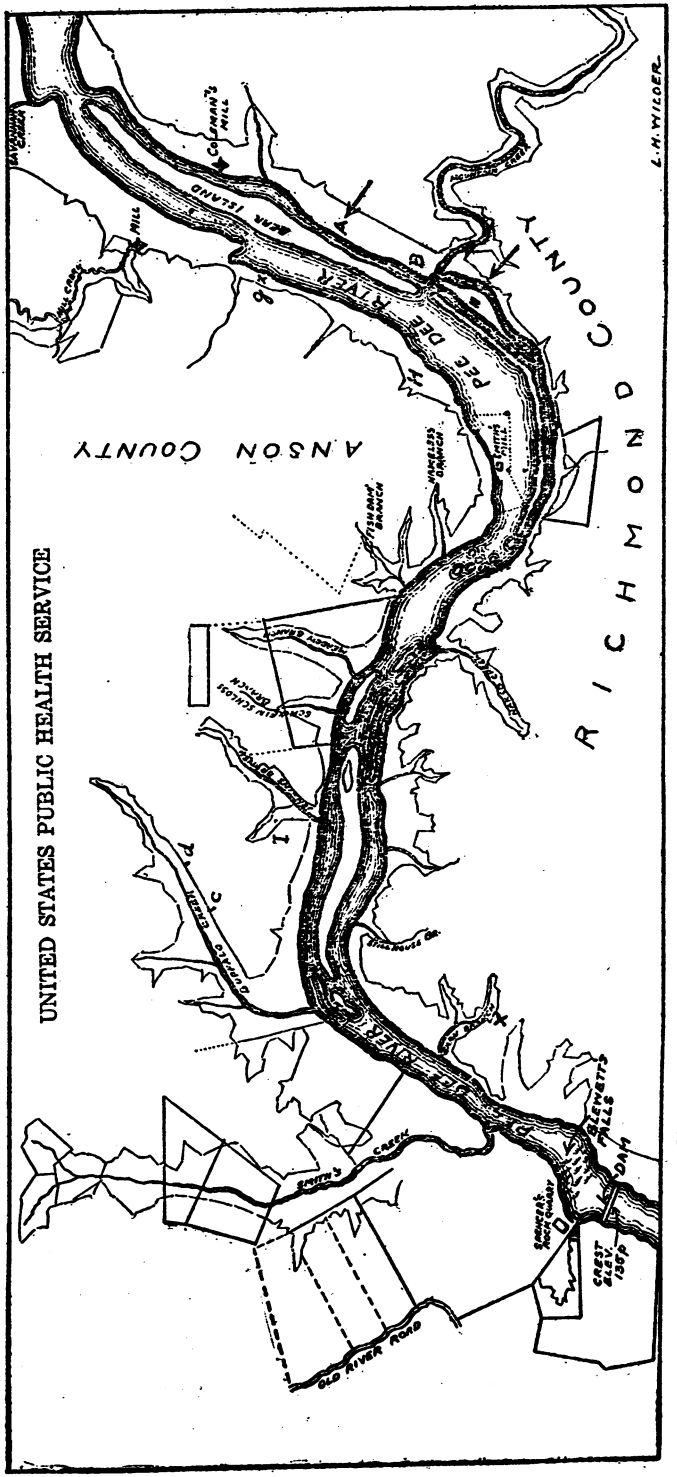
The determination of the production of Anopheles mosquitoes rather than the production of malaria was the immediate object of this inquiry. The latter requires consideration not only of mosquitoes—malaria vectors—but people accessible to them—i. e., residing within their distance of flight. This part of the problem was not touched, and our conclusions will involve the incidence of malaria from the breeding places found only if people are living within the

limits of flight from such breeding places. This limitation of investigation was made purposely, so that a more thorough investigation of the pond as a producer of Anopheles mosquitoes could be made. It was the first large pond to be so studied and we wished to learn all we could from it so as to know better how to examine the next pond we undertook. Therefore we did not limit our study to the portions of the pond adjacent to residences, which would have been an extremely small portion of it.

Two surveys were made, one during the last two weeks in July and one during the last two weeks in September. Each was a fairly complete survey—physical and biological—of the whole pond. The object of doing this work twice was that the pond might be seen under different conditions. In July the water was high, 139.4 feet on the gauge, when the survey began, and very muddy. In September it was low, 135 to 131.4 feet, and as clear, I suppose, as this river, the Pedee, ever is. For making both surveys the party included Sanitary Engineer Le Prince, Asst. Surg. Derivaux, and myself. In July we were assisted by Mr. Lamb, a field engineer, who had established the contour of flowage; in September by Mr. M. B. Mitzmain, biologist, Public Health Service, a most valuable addition to the party; Surg. von Ezdorf was also with the party for a short time. The power company furnished us a launch and did everything possible to facilitate our work.

Blewetts Falls is in North Carolina, on the Pedee River, a few miles from the southern border of the State. The dam raises the water about 35 feet, and can be raised by flush boards 3½ feet higher. It is generally high in the late winter, spring, and early summer, and low in midsummer and fall. With water at 137 to 138 feet elevation it is about 8 miles long, Coleman's mill being considered the head of backwater. Its general direction is north and south.

The conformation of the river valley in this section is that given in "Impounded water—some general considerations on its effect on the prevalence of malaria" (Public Health Reports, Dec. 25, 1914), to which the reader is referred and which should be read before and in connection with this paper. The country was cut by ridges, many of them high, that ran east and west across the river. The north side of the ridge was almost invariably very steep, while to the south the slope was gentle, especially at the base. Under these ridges the larger creeks ran, the steep ridges forming their southern banks. As a result the southern shores of the bayous were nearly always steep, while the northern shores were gently sloping. There were a few points where this was not true. Next the dam the pond stretched a solid sheet of water, except for one small island, for about 5 miles up, covering flats and the beds of creeks, and filling up ravines and creek valleys in long indentations—bayous. The pond in this



Map of property of the Rockingham Power Co. on Pedee River, Anson and Richmond Counties, N. C.

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section filled the valley from hill to hill and there were no sloping banks except up in the bayous. It was one-half mile to 1 or 1¼ miles wide. The plat submitted, copied by Asst. Surg. Waller from one belonging to the power company, is intended to show (1) the normal river before the pond was made and (2) the 150-foot contour in the river valley. This was taken as the flowage contour, but was 10.6 feet higher than the maximum flowage as we saw it and 4 or 5 feet higher than it has been since the pond was made. This plat is inaccurate in that between the mouth of Smiths Creek and the forebay there are five bayous filling ravines, from which small streams enter the pond, which are not shown on the plat; otherwise it is correct.

We have called that portion of the pond in which the level of the water is about that of the river banks the "zone of overflow." As the bank at the river's edge is higher than the flat at the back of it—when there is a flat—this flat will be overflowed here and even some distance above the place where the bank at the river's edge is still above water. Drains, branches, etc., will be backed up and there will be considerable areas covered by shallow water, some connected with the river indirectly through these water courses, and some left as pools unconnected with it. Such a section must present many places physically well suited for the breeding of Anopheles. As the level of the pond changes so the location of the zone of overflow will change, and whenever this zone is mentioned here it means the part of the pond area which was in the zone of overflow at the time of examination. Of course, in it are included all pools made by the pond either by falling and leaving them or by preventing drainage by lessening seepage from raising the water level. The zone of overflow for the creeks has a similar signification for them. The upper limit of the zone of overflow at the highest water we saw—139 feet—came not far below Coleman's mill. During our July visit it was from that point to about the point A. During our September visit it was from about this point to B, fluctuating widely as the pond rose and fell between Saturday and Monday.

The largest bayou was that of Smiths Creek, about 1½ to 2 miles long to backwater and one-fourth mile wide at the entrance, and this was studied closely as a type bayou.

Trees were standing in portions of the pond and trees and brush in many of the bayous, especially high up; i. e., distant from the old river bed. These were dead, killed by the water. The pond was filled in January, 1912, so it was two and one-half years old at our July inspection.

Survey of Normal River Valley.

It being desirable for purposes of comparison to have an idea of the mosquito (Anopheles) breeding of the normal river-valley before the dam was made, a survey was made of two sections of the valley—each

a little less than a mile long—one beginning a mile above backwater and running upstream and the other beginning one-half mile below the dam and running downstream. These surveys were carried to the 120 or 130 foot contour, as near as we could judge, and thus embraced such territory as would have been covered by the pond within, say, 2 or 3 miles of the dam.

Below the dam this territory was breeding Anopheles profusely over a wide extent of marshy flat used as a pasture. It was breeding much less above the pond. The country here was very sparsely settled and stock of any kind was scarce, and while places physically suited for breeding were common and a number of them were breeding, yet only a small proportion of them were breeding freely. We thought this probably due to the absence of convenient blood supply. The only place breeding profusely was in a pasture containing hogs. Others breeding fairly were not far from houses and at crossing places of creeks. A similar examination in September below the dam gave the same results—profuse breeding—but equally profuse above the dam and on both sides of the river. On this case we took a somewhat different section, beginning near backwater and going up the river.

Without exception, every creek emptying into the pond was found to be breeding Anopheles well above the influence of the pond; in marshes by their sides; in side pools from overflow, and in still places under hammocks in the creeks themselves. The same was true, although with some exceptions, of the branches. Some streams, as Smiths, Buffalo, Mill, and Naked Creeks, and Barn and Jenkins Branches, were breeding profusely. Some branches were not breeding at all. The creeks were breeding less near backwater than well above it—due to the much larger number of small fish in the former section. Indeed, fish were congregated at the entrance of the creek into the pond and evidently ascended the creeks from this backwater and were left in many of the side pools of this section as the pond fell. Except Mountain Creek the creeks were singularly free of fish well above backwater.

As the small streams which emptied into the pond some distance from the dam were practically all breeding Anopheles in that portion of their beds which would have been submerged had the stream emptied into the river closer to the dam, it is fair to say that those which did so empty into the river close to the dam formerly bred Anopheles in places now covered by the pond. (See p. 3458, Public Health Reports, Dec. 25, 1914, Impounded Water, etc.)

The conclusion reached, then, is that the valley now occupied by this pond formerly bred Anopheles, and bred them over a large area and freely and in places profusely. This deduction to me seems inevitable.

July Survey.

THE POND.

A survey of the pond itself was next undertaken. In the pond were included the backwater of creeks and branches, the pools left by the subsidence of the pond, the pools and marshes not draining on account of the existence of the pond, the side pools of creeks and branches filled because they were backed up by the pond and left by its subsidence, and in short every collection of water which was due to the existence of the pond directly or indirectly. We wished to get the total effect of the pond in the production of collections of water, and hence of Anopheles.

Derivaux, who arrived two days before Le Prince and myself, used those two days looking for larvæ in the bayous between the dam and Smiths Creek with practically negative result so far as the pond was concerned. The gauge was 133 feet and less. The flashboards were put in the day before the full party began its work, and with this was coincident a sharp rise of the river. On the first day of search by the full party—July 18—the water was rising rapidly and was turbid with red mud. It was not reasonable to expect to find larvæ under such conditions, and none were found. "One culex" my record shows, in the bayous south of Smiths Creek, "in four hours' search" by the whole party. Small fish had been seen by Derivaux along the shore and up in the bayous. None were seen this day in the muddy water. The water was rising out of clean banks bare of growth into banks covered by vegetation mainly dead. "Two and a half feet higher than last night" is my note, "and 12 or 14 inches lower than the high-water silt mark on trees." The survey of the normal river valley above and below the pond was made while waiting for this rise to settle. The water reached 39.4 feet. The survey of the pond was begun after a three-day interval, when the gauge was at 38.3 feet.

This rise was due to heavy rains up the river, but there was also a sharp rainfall over the section of the pond on July 16, at night, washing out the creeks pretty thoroughly. This followed a long season of drought. It is necessary to know this to understand the situation.

As I have said, the banks of the pond, as far as examined—that is, from the dam to Smiths Creek, both river banks and in the bayous—had not been found breeding Anopheles before or during the rise, from July 15 to July 18, inclusive, nor, indeed, were any found on the north bank of the bayou of Smiths Creek on July 21, although the water had reached its maximum, 39.4 feet, on the 19th and 20th, and had begun to fall. On the same bank, however, on the afternoon of July 23 larvæ were found. None were found near the entrance of the bayou and practically none in the upper part of it. We were

not able on this trip to go up to backwater, but pretty near it. They were found beginning from about one-fourth of a mile from the mouth to a point about one-half or three-fourths of a mile higher up. The larvæ were found generally one at a place. Sometimes two or three within a few yards. In two places, however, in bights at the mouths of drains they were fairly abundant, although the places themselves were small. Only at one of these last places were very small larvæ found. All were in "flotage."

FLOTAGE AND ITS RELATION TO PROTECTION OF LARVÆ.

By "flotage" is meant the small drift—pieces of bark and small sticks—which gathers almost like a scum on the water, resting against or near the bank or against brush growing close to the bank. We found it frequently sheltering mosquito larvæ, while the large pieces of driftwood rarely—or, at least, much more rarely—did so. Flotage tends to reach and rest against the bank. Wave action and wind and current all tend to bring it ashore, where, naturally, it will strand and be left above the water line as the water falls. The greater the disturbance of the surface of the pond the more rapid will be the general drift of flotage ashore, while if the surface be not disturbed at all it will naturally stay where it happens to be. The presence of thick brush, standing or fallen, next the bank will hold the flotage from the bank and thus prevent it stranding as the water falls. Naturally, too, it strands most readily on a gently sloping bank. It may follow a steep one down for some distance as the water falls, especially if it extends a little distance out from shore.

The source of flotage, as of all drift, is the river as it rises in a freshet. Some, of course, comes down the creeks into the heads of the bayous we have spoken of, but judging from the small amount seen about the upper reaches of these bayous this amount is but a small portion of what the bay receives from the river.

Coming down the main river, flotage collects along the banks wherever it can find a place to rest and, following the course of all drift in moving water, it goes up bays and bights and gathers in indentations. It goes a good way up a bayou, sometimes meeting that brought down by the creeks and landing against the banks, but is very much more abundant near their mouths. Of course it seeks the bank to the leeward. On such banks, unless the bank is very steep, it is driven up on the bank and stranded by wave action. Naturally, also, it lodges much more heavily on the lower shore of a bayou—the one down the river—than the upper one. I have already noted that the banks on the southern side of bayous—that is, down the river—were steep. Thus the bank which caught the most drift and flotage was the one on which it was most persistent and least apt to be stranded. The dead trees and brush left standing on this pond

undoubtedly add to the flotage and at the places where it can do most harm—high up in the bayous—yet the proportion they gave compared with that furnished by the full river seemed to be small—very small. Little drift is found about the heads of bayous compared with their mouths. The standing brush does more harm by keeping the flotage away from the bank, and hence preventing it stranding as the water goes down. It will be interesting to see how much of this stuff will be standing in, say, three or five years. Its removal will have an influence for good on flotage and, of what nature I can not tell certainly, on the growth of aquatic vegetation.

During the first visit, July 21, to this shore, flotage was not observed resting against the shore. If it existed, it must have been in small amount, and at this time we did not find larvæ on the shore. There was flotage on the pond about the mouth of the bayou, south side, on July 24 and 25, but much more piled up on the bank, by wave action, and what remained afloat sheltered no larvæ. The record is "negative—two larvæ in one-third of a mile."

On July 18 and 21 the water was extremely muddy and no fish were seen on the banks of the bayou. On July 21, up near the head of the bayou where the water was clear, or nearly clear, from creek water, fish were fairly abundant. Down in the muddy water they were not visible, and I think were not present, as none were dipped up during a long day's work, while a number were caught in clearer water.

On the afternoon of July 23 where the water was shallow the edges were clearing on the north shore of Smiths Creek Bayou. On the edges there were fish, not in great number, but not scarce and very small; "over a dozen" were recorded as dipped up. In the upper part of the bayou they were plentiful. We did not reach to the creek above backwater in this trip, but fish were more abundant as we went higher up the bayou—in shallows and clearer water.

The south bank of this bayou was examined the next day, July 24, all day, and scattering larvæ were found in flotage, one, two, and three at a place, not enough at any place to be of sanitary importance—46 was the morning's catch of four dippers in 1½ miles of shore and some side streams. As before, none were found near the mouth of the bayou and very few in the upper part, where fish were very abundant and flotage was rare. The pond was falling and clearing slowly at this time, and the upper part of the bayou was clearing—from creek water—indeed, was quite clear some distance down from the mouth of the creek. Fish here were numerous. There were fewer fish on this shore than on the other, because the south shore is steeper and has fewer shallows. That part of Smiths Creek above the

influence of the pond was breeding freely on July 21 and 24. No fish were seen in it above Forest Road, one-fourth mile above backwater.

In Buffalo Creek Bayou larvæ were found, save one or two, only on the bank, between *c* and *d*. This was on July 27, and only large adult larvæ, a few pupæ, and a few pupa shells were found. The flotage here was held away from the bank by thick brush and was sheltered from wave action. The bank was moderately steep. Only a few fish were seen. Elsewhere the flotage was stranded high and dry, as the pond had fallen considerably. No larvæ were found near the mouth of the bayou, which is very broad, and none toward its head nor in the backwater of the creek, both of which were alive with fish. The shallows in the zone of creek overflow were full of both fish and "water boatmen," some of which had also been seen in shallows on the north bank of Smiths Creek.

Across the river in the bayou of Barn Branch, not far from its head at *x*, enough larvæ were found to make a breeding place deserving sanitary consideration. These were in flotage against a steep bank with brush growing down into the water and well shaded. All were adult larvæ or pupæ, with some pupa shells. The place was protected from wave action, unless the waves came full in the mouth of the bayou. The creek above was breeding profusely. This was on the morning of July 28. We were driven from this place by a heavy wind squall. Examination the same afternoon showed practically no larvæ—three in an hour's dipping. The wind had been almost in the mouth of the bayou and had doubtless drowned them.

On the steep bank of the river next to a cliff where the water was nearly level with the bank—at *g*—a considerable number of larvæ of all sizes were found on July 23, in indentations of the bank where flotage had collected. We were surprised at this, because they were in fairly deep water. They were fairly abundant and were in three out of eight such places examined. A creek, not examined in July, but found to be breeding profusely in September, entered the pond some distance above, and there had been a sharp rain the night of July 21. This place was reexamined two days later and no larvæ could be found—about 25 or 30 places likely to hold them being examined in a distance of one-fourth of a mile or more. The flotage was still in evidence, mainly stranded by wave action, but enough left afloat to shelter larvæ had they been there.

All these observations are grouped together here to indicate the relation of flotage to mosquito production. Very obviously it protects the larvæ from fish. Fish, predatory aquatic insects, and wave action are doubtless the defenses of the pond against mosquito production and what protects the larvæ against these promotes such production.

ORIGIN OF LARVÆ FOUND IN FLOTAGE.

It seems evident that the larvæ we found in Barn Branch Bayou and in Buffalo Creek Bayou were washed down as larvæ and (probably) eggs and lodged in the flotage where they were found. There were no young larvæ among them—all adults and pupæ; none, we judged, under 8 days old. The creeks which flowed into the heads of the bayous (and which in the former place impinged directly on this bank) were breeding profusely all sizes, and there had been a freshet washing out the creek about 10 days before.

Le Prince and I felt that the same statement applied to those found on the steep river bank on July 23. It was a most unusual place for breeding, and the larvæ found in numbers on July 23 had disappeared on July 25. It is fair to say that the same thing applies to those found in Smiths Creek, viz, that they were washed down and sheltered in the places in which we found them. They were found widely and thinly scattered; in only two places were collections of larvæ found, and these where much drift had collected; generally they were single, or, at most, two or three in a pocket, and they were found only in flotage. There was no evidence of breeding on the shallow edges of the pond, even where grassy. Younger forms were found than in the bayous last mentioned, but the examination was made earlier—after a less interval from the rain, which flooded the creeks—yet in only one place did very small forms appear. Possibly in this place eggs may have been deposited where the larvæ were found.

There were no larvæ found close to the open mouths of the bayous and—except those mentioned as found on July 23—none on the banks of the open pond. This was doubtless due to these parts of the shore being exposed to wave action, which would quickly drown the larvæ. Against this, flotage is no protection. Very few, generally none, were found in the upper ends of the bayous near the creeks entering them, but none were examined until some days after the rain. There was very little flotage lodged up this high, and the water at the time examined was clear and full of fish and, being without shelter, larvæ could not have been expected to be here. On the other hand, those that were washed down by the creek freshet, when the pond and creek were both muddy, with flotage passing down, could have passed this region safely and gone lower down the bayou and been sheltered in the flotage.

The other smaller bayous examined all contained flotage and driftwood and some of them a few larvæ—three or four to an hour's dipping—practically none. They were examined after Smiths Creek. No part of the bank of the pond, except that noted as examined July 23, showed larvæ. It is possible that had examination been made that day, just after a rain, they might have been found just below Naked Creek or Fish Dam or Nameless branches. They lasted less than two days where they were found July 23.

PRODUCTION OF MOSQUITOES.

From what we saw the development of imagos from the larvæ in the flotage was not at this pond of much sanitary importance. Indeed, the production of imagos in the bayous was very much less—beyond comparison less—than what were being produced in an equal length of creek and creek valley above backwater and which would presumably have been produced in the creek valley replaced by the bayou of the pond. Below the zone of overflow I doubt if there was any production in a sanitary sense on the banks of the pond proper as distinguished from the bayous, while the flooding of the flats, assuming they were like those in the river valley below and above the pond, covered large and productive breeding places. Below the zone of overflow, then, the production of Anopheles mosquitoes was enormously decreased during the time of our examination by the formation of the pond and at this time was not carried up the creeks.

COMPLETE AND INCOMPLETE BREEDING PLACES.

Only one place on the pond below the zone of overflow did we believe to be a complete breeding place; i. e., a place developing imagos from eggs deposited at that place. This was at the head of the bayou of Still-House Branch. Here there were found, July 28, larvæ of all sizes, some ready to pupate and some very young. They were in considerable number, although over a small area. Possibly the place found on the north shore of the bayou of Smiths Creek may also have been a complete breeding place, but it was considered doubtful at the time of examination.

The other collections of larvæ below the zone of overflow were, we thought, from eggs deposited elsewhere up creeks and branches and washed down to the places where they were found, and the places where they were found may properly be called "incomplete breeding places." In some such places, as in Buffalo Bayou and Barn Branch Bayou, the larvæ lodged there may develop into imagos, but are far less apt to do so than when breeding under normal conditions in marshes or sluggish streams, as evidenced by the observations at Barn Branch and the river bank below Mill Creek.

It seems fair to also call a place an incomplete breeding place when, although eggs are deposited there, yet imagos are not there developed from them; as in the pond at Hartsville, where although there were many small larvæ, yet adults in number sufficient for sanitary consideration were not found, on account of the fish; or as in a creek completely scoured out by a freshet—all larvæ being removed and either drowned or carried elsewhere. Such a creek might supplement an incomplete breeding place of the other kind in the flotage of a bayou at the creek's mouth.

ZONES OF OVERFLOW.

On the first examination, July 22, of the zone of overflow of the pond, it was below Coleman's Mill, from about A down to about half a mile above the mouth of Mountain Creek—gauge, 38.1 feet. Owing to the rise of the river, the water was over the meadows and all in the grass. It was extremely muddy and the grass was covered with silt. In the small streams running into it, where the water was clear, there were myriads of small fish; none were seen in the muddy water. There was no flotage. Anopheles larvæ were found, four in a bight of Mountain Creek, six in a ditch at the extreme upper edge of this zone, and quite a number in the old mill race—at one point only—under a bridge. We found none at all in the edges of the water, nor in the shallow pools running out from them, nor in the ditches or drains. There were quite a number of insects in the shallow water, which we afterwards found to be water boatmen. The larvæ in the race were very obviously washed from a small stream emptying into it just above where they were found. This stream was breeding profusely and was well above the influence of the pond.

We believed that this section would show Anopheles in a few days, as the eggs, which we judged had been and were being deposited, had time to develop. The only thing against it was the amount of silt which would be left on the grass and in the pools, and the chance of fish being left in pools as the river fell lower. Silt-covered vegetation is not favorable for Anopheles breeding, but a rain would probably wash it off and many pools would be left without fish.

This section was visited twice more during the next two weeks, and while physically changed—the river had fallen some feet—yet the conditions of Anopheles breeding were the same. The incomplete breeding place in the mill race had disappeared—July 25—and a few more were found in ditches, but none in the pools left by the falling water. These were full of water boatmen—sometimes as many as 20 would be taken at a single dip. Mr. Jennings, of the Entomological Bureau, tells us that these are Hemiptera and belong to family Corisidæ, genus *Corisa*, and feed on the larvæ of mosquitoes. They were abundant in open shallow water in many places about this pond, the bayous of Smiths Creek, Buffalo Creek, Naked Creek, etc., and wherever they were in number there were no mosquito larvæ. The drains and streams—fairly clear at the last visit—were full of fish, as were the edges of the overflow. Fish were also found in a number of pools cut off from the river. In some, nearly dried up, they were dead; in larger ones, alive.

On Bear Island, also in the zone of overflow, many Culex and some Anopheles were found breeding in pools left by the pond.

This was on the west side of the island toward its lower portion. The island is in two ridges, facing the river in each case, with a slough containing pools next to the western ridge. This place was in the woods and was breeding Anopheles enough to deserve sanitary consideration had it been near a residence. There were cattle on the island. There were also Anopheles breeding in some sloughs on the right side of the river, about H. The sloughs were, we thought, left by the river, or at least some of them were. They were breeding moderately freely.

The zones of overflow of the creeks and branches are about the heads of the bayous. They have been already considered. That they were not found breeding seemed to be due to the multitude of fish, and, to a less degree, water boatmen. Smiths and Buffalo Creeks especially were free from Anopheles larvæ in this zone and up to end of backwater, while some distance above it—above the influence of the pond—they were both breeding freely.

September Survey.

The September survey was made after a severe and long-continued drought. This was broken by heavy rains, one when we arrived and one 10 days later. On arrival Le Prince and myself discussed the matter and expected that on account of the drought such bodies of water as were left would be breeding more freely.

The results of the survey of the sections of the normal river valley above and below the pond have been given.

POND.

The water was low—135.4 feet was the highest on Monday mornings, and 131.2 feet the lowest on Saturday noons. The water was as clear as the Pedee River ever is. Below the zone of overflow the banks were bare for some feet above the water; no grass or vegetation of any kind, and practically no flotage or drift on the bank, except a little off the mouths of the bayous after the rains.

No larvæ were found on the banks of the pond proper. Practically no larvæ were found in any bayou, except in that of Jenkins Branch, of which I will speak later. It is worth noting that two bayous south of Smiths Creek were examined on the afternoon of September 17, and no larvæ found, the streams flowing into them breeding slightly above the influence of the pond. The work was stopped by a thunderstorm. The next morning larvæ were found in both bayous—scattered in ones and twos at the very places where none had been found the day before.

At Jenkins Branch Bayou larvæ were found in large number and all sizes among a small amount of flotage at the place marked I. This was 24 hours after a heavy rain, and a marshy area bordering a

small stream just above this place had been flooded into this part of the bayou. The flotage was not enough to protect from fish, but no fish were seen here, although abundant in another part of the bayou. This place was revisited two days later and no larvæ found. The shores were swarming with fish.

ZONE OF OVERFLOW.

The zone of overflow was lower down the river than in July. Two visits were paid to this zone on the east side of the river. At the first one a few larvæ were found in a pool left by the river, hid in bullrushes, and some very young ones in rain-water pools in a section the pond water had been on. We knew it was rain water, because the bottom showed the wide cracks of dried mud, but counted this against the pond, as possibly seepage was interfered with.

Visiting this place seven days later these pools of rain water were found to have completely dried up, as indeed had the others. Larvæ were found in small number on this second visit in two drains running through this flat, but generally these were full of fish. Indeed, fish were in nearly all of the pools left as the water went down and were everywhere in the edges of the flow. The total breeding on this broad flat seen during these two days was insignificant.

Bear Island was breeding Culex much as it had been doing, but so many of the pools had scum on them that only a few Anopheles were found. Fish were in some of the larger ones that were clean. The area at H, noted as breeding on page 27, was not breeding at all in the pond area. All these pools connected with the pond were full of fish and all the old ones covered with an impenetrable scum; a number of pools filled with recent rain water – cracked bottoms — were breeding moderately outside of the pond area.

SMITHS CREEK.

At this time the backwater of Smiths Creek was very carefully examined, together with the bayou some distance below and the creek some distance above. This backwater and the zone of overflow of this creek were visited three times during September. The creek for over a mile above backwater was breeding freely or profusely. There were no fish seen in it except just above backwater. Backwater and the shallow pond area adjacent thereto were swarming with fish. Indeed, the same thing was true of the shores —both sides — of this entire bayou far more than in July. Water boatmen were less common than in July, but whirligig beetles, one of the Gyrinidæ, I think, were exceedingly abundant on the shores of the bayous in every indentation. These also destroy mosquito larvæ. None were ever found where there were any number of beetles.

Doubtless larvæ were washed down the creek by the rains in September as well as in July—they were found in the side pools which the creek had filled when it overflowed—but in July the pond was excessively muddy when the creek rose, while in September it was clear. The fish in the second case could get the larvæ as they came down, and in July they could not. Also, there was flotage to shelter them in July and very little in September.

The same examination, though less extensive, was made of the backwater and adjacent zones of creek and bayou for the other bayous of the pond. The same results were found. The creeks above pond influence were breeding, the backwaters and the bayous were not.

Conditions in July and September Compared.

Indeed, entirely contrary to our expectations, the breeding in the pond area on this visit was very much less than in July, due unquestionably to (1) the low water giving clean banks without flotage; (2) the very large number of fish which the clearness of the water enabled to find their prey; and (3) to a less extent to the number of predaceous aquatic insects, mainly whirligig beetles.

Similarly, it was against our expectations to find, in July, the steeper banks of the bayous harboring larvæ and, indeed, producing imagos, while the shallows on the gently sloping banks were free. We had expected the zones of overflow of the creeks to be especially bad—i. e., free breeding places—and the effect of the flotage we had not foreseen.

General Observations.

A certain number of larvæ and pupæ were kept and developed into imagos. It was at first intended to do this separately for each place examined. In the July survey this was not done. A number of collections were developed, however, showing *Anopheles quadrimaculatus* and *A. punctipennis*. Only one collection—that from Bear Island—gave only punctipennis. Near the power plant numbers of quadrimaculatus (imagos) were taken in the tents of some laborers and in the commissary. They were breeding in a branch near by.

In September the collections were kept separate. Bear Island again gave only punctipennis, as did one or two other places. The two species found in July were found, however, in nearly every breeding place. It is understood that "place of breeding" refers to a section of country, as Smiths Creek, Barn Branch, etc., including side pools and marshes adjacent, and not to an individual breeding place. No crucians were found.

In July practically no Anopheles were found in stumps, hollow logs, etc., in the wood. In September these were found, but were rather rare. No houses were searched for them in September.

Vegetation in the Pond.

LAND VEGETATION.

The land vegetation of the submerged area was dead—the grass and weeds were not only dead, but gone; the trees all dead; the brush dead, except the sweet gums and willows. When the rise in July came, although only for a few days, well above the normal level of the pond, many bushes were killed. This rise submerged many places covered with grass and weeds. These were killed and the line of flow could be seen in September by the dead vegetation. In the zone of overflow, where most of this submergence of meadows occurred, the greater part of the area submerged in July was left bare of vegetation in the low water in September—practically all of it except the edges. Covering vegetation by water, as in an overflow, naturally kills it, but one can not help thinking that this very muddy water, leaving a deposit of silt on everything, was more destructive than usual, i. e., killed with a shorter submergence. The dried deposit of silt on weeds was found to be fully one-fourth of an inch thick in September.

Of the bushes on the edges sweet gum and willows were the only ones to survive. The sweet gum seems to be more persistent than the willow. It grows along the edges of the bayous, even on steep banks, a few feet down in the water, and holds the drift and flotage away from the banks, and thus does harm. None was seen in the zone of overflow. Willows, on the other hand, are found almost exclusively in this zone, in the lower part of it only, on the old river banks and where a number of long islands are figured on the plat. In this flat country they do, I think, no special harm.

AQUATIC VEGETATION.

Other than algæ.—There was practically no aquatic vegetation in the pond. Even where swamps of cattails had been submerged they were dead. The pond was 2½ years old. How it will be when it is older is yet to be determined.

Algæ.—The pond was singularly free from algæ. Quite an amount of dead algæ was seen in July floating down the river as drift, and occasionally a piece of driftwood would be found with live algæ on it, but live algæ were very rare. Against such algæ-carrying drift, larvæ were occasionally found. Possibly the absence of algæ was due to muddiness of the water, but in September, when it was much clearer, algæ were still lacking. In pools and some sluggish streams above the pond influence it was not so rare.

Animal Life.

Besides the larvæ of mosquitoes the animal life which affected our problem was, as far as we could determine, fish, water boatmen, and whirligig beetles.

Fish were far the most important. They were more widely distributed and more constant. They were very abundant and at the places where they were most needed—as shallows; at the mouths of affluent streams; and left in pools as the water receded, and they usually lived as long as the pool lasted in the zones of overflow both of rivers and creeks. They were not common in very muddy water and did not get all the larvæ in flotage—what proportion we do not know; I think not many.

The beginning of the survey—July 16—must have coincided with the hatching out of a large lot of fish, for at that time many of them were extremely small—simply two eyes and a tail—not much bigger than an adult Anopheles larva. The average size increased by the end of July and was much larger in September. They were then, too, much more numerous. They were rarely seen in the creeks and branches except close to the pond. The only fish I saw caught from the pond—and in July the entire countryside was fishing—were catfish. Yet the little fish I saw in such numbers were not catfish, but scalefish.

The water boatmen—one of the Hemiptera—were found in multitudes in shallow pools and the shallows on the edges of the pond; more in July than September. They seemed to like water of high temperature. Where there were many we never found larvæ and soon ceased to look for them, and this before we knew that they were predaceous.

The whirligig beetles—Gyrinidæ—were not abundant in July, but were in myriads in September. They frequented coves and bights in the banks and were abundant on the edges of bayous. Fish were rarely found in number where they were abundant, nor any larvæ of mosquitoes.

There was another aquatic insect, a surface feeder, which was fairly common. This is what is commonly called a "slider"—sometimes a "water spider"—a long-legged insect which slides on the water, rowing itself along by its side legs. Whether it is predaceous or not we did not know. It is not unlike the water boatmen in general make-up. It was more plentiful in September than in July but never in great numbers.

Here, too, one might mention the larvæ of the mosquito Psorophora. A few pools in the zone of overflow were found on July 25 filled with these larvæ. Neither of the last forms are probably of importance as preying on Anopheles larvæ—they were not common enough.

Change of Pond Level.

This plant is partially shut down from Saturday noon to Monday morning, and also partially shut down at night. Thus there results a regular change in the level of the pond, independent of the rise of

the river which supplies it. This nocturnal rise is from 9 to 12 inches; the weekly one 2 feet and upward. The variation was greater with low water—being in September 18 inches and 4.3 feet, respectively. The effect of this variation in level is discussed in the paper on Impounded Water, heretofore referred to, and will not be gone into here. The statement there made that it lessens the production of mosquitoes was abundantly borne out by our observations at Blewetts Falls.

Summary.

As a result of these studies, the following summary is presented:

(1) This pond has enormously diminished the area of breeding places of Anopheles, both next to the river and in the valleys of the creeks.

(2) During our examination in July we found only two places in the zone of overflow producing Anopheles in sufficient number to be of sanitary importance, one on Bear Island and one below it on the west bank of the river. In September this last place was not producing. It is fair to say that from the Bear Island breeding place only *A. punctipennis*—not considered to be a malaria vector—were found, and that both places were a long distance from any residence.

(3) The zones of overflow in the creeks were not found to be breeding to any extent (much less so, indeed, than the upper part of the creeks, themselves well above backwater). This was due to the number of fish which were present in these places and which, indeed, destroyed such larvæ as were washed down the creek in a freshet.

(4) Mosquito larvæ washed down from creeks, etc., lodged in the flotage of small stuff which drifts ashore in the pond and may undergo full development there. Outside of the zone of overflow this was the only place in the pond where mosquito production could take place. This was most marked during the survey in July—July 16 to 30—when the water was high. In low water this was not found to be the case.

(5) Wave action quickly destroys the larvæ in such flotage as it can reach.

(6) The only part of the pond in which this flotage contained larvæ over a few days was in the bayous of creeks and branches so far from the mouth of the bayou as to be protected from wave action.

(7) The production of imagos in flotage was small, except in a very few places (without sanitary significance); much less than would have been produced in the creek which had been replaced by the bayou.

(8) The change of level of this pond is an efficient deterrent to mosquito production, the fall of the pond leaving much flotage stranded and rendering larvæ more accessible to fish.

(9) Below the zone of overflow this pond when low, as in September last, was ill suited for producing mosquitoes, and was not producing them. This was due to (1) the naked banks—flotage being stranded ashore—and (2) the number of fish and predaceous insects next the banks, and especially in shallows and in the back water of creeks. The conditions for producing Anopheles were thus decidedly less favorable when the pond was low than when it was high.

It should be clearly understood that this summary is for the condition of this pond when we saw it in the summer of 1914. That its condition was different when it first filled is probable, and it may have been somewhat different last year; nor has it yet ceased changing. It may take five years longer for all of the dead brush to fall and decay, although I think but little will be left standing after three years more. When this has fallen, flotage will strand ashore more readily than it does now, and its rôle in protecting larvæ will be correspondingly lessened. What effect letting in the sunlight will have on the growth of algæ and to what extent the growth of aquatic vegetation will take place and affect the production of mosquitoes can be told definitely only by observations in future years, although surveys of ponds which have been in existence longer might throw light on the future of this one.

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.

IN CERTAIN STATES AND CITIES.

RECIPROCAL NOTIFICATION.

Minnesota.

Cases of communicable diseases referred during November, 1914, to other State or provincial health departments by the division of preventable diseases of the Minnesota State Board of Health.

Disease and locality of notification.	Referred to health authority of—	Why referred.
Tuberculosis:		
Duluth, St. Louis County.....	Orient, Adair County, Iowa.....	Left State sanatorium for Orient, Io a.
Minneapolis, Hennepin County..	Northwood, Worth County, Io a.	Ill in Thomas Hospital, Minneapolis.
Do.....	Randall, Hamilton County, Io a.	Left Thomas Hospital for Randall, Io a.
Do.....	Forest City, Winnebago County, Io a.	Left Thomas Hospital for Forest City, Io a.
Do.....	Windham, Fergus County, Mont.	Ill in Thomas Hospital, Minneapolis.
Pokegama, Pine County.....	Litchville, Barnes County, N. Dak.	Ill in Pokegama Sanatorium.
Do.....	Grafton, Walsh County, N. Dak.	Do.
Do.....	Colman, Moody County, S. Dak.	Do.
Golden Valley, Roseau County..	Madison, Boone County, Wis....	Left Golden Valley for Madison, Wis.
Pokegama, Pine County.....	Spring Valley, Pierce County, Wis.	Ill in Pokegama Sanatorium.
Minneapolis, Hennepin County.	Mount Horeb, Dane County, Wis.	Ill in Thomas Hospital, Minneapolis.
Duluth, St. Louis County.....	Brule, Douglas County, Wis...	Ill at her home with pulmonary tuberculosis, Brule, Wis.
Typhoid fever:		
Minneapolis, Hennepin County.	Wallum, Griggs County, N.Dak.	Farm laborer near Wallum, N. Dak., during three weeks previous to first symptoms.
Thief River Falls, Pennington County.	Edmore, Ramsey County, N. Dak.	Thrashing at Edmore during two weeks previous to first symptoms.
Anoka, Anoka County.....	Jud, Lamoure County, N. Dak.	Lived on a claim at Jud three weeks previous to first symptoms.
Mankato, Blue Earth County...	Grand Forks, Grand Forks County, N. Dak.	Concrete worker, living in bunk car at Grand Forks, N. Dak.; several others ill.
Deer River, Itasca County.....	Hope, Steele County, N. Dak...	Harvester at Hope, N. Dak., during three weeks previous to first symptoms.
Holdingford Township, Stearns County.	Mapleton, Cass County, N. Dak.	Farmers (2) at Mapleton, N. Dak., during three weeks previous to first symptoms.
Maynard, Chippewa County....	Warner, Brown County, S. Dak..	Domestic at Warner, S. Dak., during three weeks previous to first symptoms.
Luverne, Rock County.....	Garretson, Minnehaha County, S. Dak.	Left Luverne for Garretson, S. Dak.
Duluth, St. Louis County.....	United States Public Health Service, Washington, D. C.	Firemen (2) on lighthouse tender Marigold, Great Lakes.
Do.....	Superior, Douglas County, Wis..	Laborer at Superior, Wis., during three weeks previous to first symptoms.
Minneapolis, Hennepin County.	Ellsworth, Pierce County, Wis.	Farming at Ellsworth, Wis., during three weeks previous to first symptoms.

CEREBROSPINAL MENINGITIS.

State Reports for November, 1914.

Places.	New cases reported.	Places.	New cases reported.
Indiana:		Ohio:	
Lake County	3	Clark County	1
Marion County	3	Cuyahoga County—	
		Cleveland	2
Total	6	Hamilton County—	
		Cincinnati	2
Louisiana:		Hancock County	1
Ascension Parish	1	Hardin County	1
Concordia Parish	1	Trumbull County	1
Pointe Coupee Parish	1		
Red River Parish	1	Total	8
Total	4		

Washington Report for October, 1914.

The State Board of Health of Washington reported that during the month of October, 1914, 1 case of cerebrospinal meningitis had been notified in Yakima County, and 1 case in Seattle, King County, Wash.

City Reports for Week Ended Dec. 12, 1914.

Places.	Cases.	Deaths.	Places.	Cases.	Deaths.
Baltimore, Md	1	.....	Newton, Mass	1	.....
Buffalo, N. Y	2	.....	New York, N. Y	12	6
Cincinnati, Ohio	1	1	Philadelphia, Pa	1	.....
Detroit, Mich	.....	1	San Francisco, Cal	1	.....
Everett, Mass	1	1	Waltham, Mass	.....	1

ERYSIPELAS.

City Reports for Week Ended Dec. 12, 1914.

Places.	Cases.	Deaths.	Places.	Cases.	Deaths.
Binghamton, N Y	1	.....	New Bedford, Mass	.....	1
Boston, Mass	.....	1	New York, N. Y	12	6
Braddock, Pa	1	.....	Norristown, Pa	1	.....
Brockton, Mass	1	.....	Passaic, N. J	1	.....
Buffalo, N. Y	5	.....	Philadelphia, Pa	12	3
Chicago, Ill	19	2	Pittsburgh, Pa	12	.....
Cincinnati, Ohio	7	.....	Portland, Oreg	3	.....
Cleveland, Ohio	9	.....	Reading, Pa	1	.....
Detroit, Mich	.....	1	Rochester, N. Y	2	.....
Duluth, Minn	3	.....	Sacramento, Cal	1	.....
Erie, Pa	1	.....	St. Louis, Mo	3	.....
Harrisburg, Pa	2	.....	San Francisco, Cal	1	.....
Kalamazoo, Mich	1	.....	Springfield, Ill	1	.....
Lancaster, Pa	1	.....	Toledo, Ohio	.....	1
Los Angeles, Cal	5	1	Wilkinsburg, Pa	1	.....
Milwaukee, Wis	1	.....			

GONORRHEA.

Louisiana Report for November, 1914.

Collaborating Epidemiologist Dowling reported that during the month of November, 1914, 28 cases of gonorrhea had been notified in the State of Louisiana.

MEASLES.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 44.

PNEUMONIA.

City Reports for Week Ended Dec. 12, 1914.

Places.	Cases.	Deaths.	Places.	Cases.	Deaths.
Berkeley, Cal.	1	.....	New Castle, Pa.	2	.....
Binghamton, N Y.	5	.....	Newport, Ky.	2	2
Braddock, Pa.	1	.....	Norfolk, Va.	1	1
Chicago, Ill.	124	77	Philadelphia, Pa.	27	53
Cleveland, Ohio,	21	10	Pittsburgh, Pa.	16	22
Duluth, Minn.	1	1	Pottstown, Pa.	1	1
Erie, Pa.	2	.....	San Francisco, Cal.	15	11
Grand Rapids, Mich.	2	1	Schenectady, N. Y.	2	4
Kalamazoo, Mich.	3	3	South Omaha, Nebr.	1	.....
Lancaster, Pa.	1	.....	Springfield, Ill.	1	1
Lexington, Ky.	2	2	Wilkes-Barre, Pa.	1	4
Los Angeles, Cal.	15	9	Wilmington, N. C.	5	5
Manchester, N. H.	4	4	York, Pa.	2	.....

POLIOMYELITIS (INFANTILE PARALYSIS).

State Reports for November, 1914.

Places.	New cases reported.	Places.	New cases reported.
Indiana:		Montana	1
Cass County	1	Fergus County—	
Clinton County	1		
Elkhart County	1	Ohio:	
Huntington County	1	Cuyahoga County—	
Total	4	Cleveland	1
		Lorain County—	
Louisiana:		Lorain	1
Vernon Parish	2	Summit County—	
		Akron	3
Minnesota:		Total	5
Carver County—			
Watertown	1		
Nicollet County—			
Lake Prairie Township	1		
Total	2		

RABIES.

City Reports for Week Ended Dec. 12, 1914.

During the week ended December 12, 1914, rabies was notified by cities as follows: Brocton, Mass., 1 case; Chicago, Ill., 1 case with 1 death.

California—Oakland—Rabies in Animals.

During the week ended December 12, 1914, a case of rabies in a dog was notified at Oakland, Cal.

SCARLET FEVER.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 44.

SMALLPOX.

Kansas—Smallpox Epidemic in Three Counties.

The State Board of Health of Kansas reported that during the three weeks ended December 19, 1914, smallpox had been reported in epidemic proportions in Kansas, as follows: Comanche County, 18 cases; Harper County, 32 cases, with 1 death; Pratt County, 69 cases In addition to the above, 15 cases of the disease had been notified in Sedgwick County, 15 cases in Finney County, and 26 cases scattered among 15 other counties.

Tennessee—Chattanooga—Virulent Outbreak.

The commissioner of health of Chattanooga, Tenn., reported by telegraph December 29, 1914, in relation to an outbreak of virulent smallpox in Chattanooga, as follows: The first case occurred November 13, 1914, in a man who had come recently from the Mexican border. This case, together with six others, resulted fatally. Thirty-two cases are now under treatment in hospital and active measures are being taken to control the outbreak.

State Reports for November, 1914.

Places.	New cases reported.	Deaths.	Vaccination history of cases.			
			Number vaccinated within seven years preceding attack.	Number last vaccinated more than seven years preceding attack.	Number never successfully vaccinated.	Vaccination history not obtained or uncertain.
Minnesota:						
Anoka County—						
Anoka	7	.....	.....	.....	3	4
Blue Earth County—						
Sterling Township	1	.....	.....	.....	1	.....
Brown County—						
New Ulm	2	.....	.....	1	.....	1
Sleepy Eye	7	.....	.....	.....	.....	7
Carlton County—						
Cloquet	3	.....	.....	.....	.....	3
Wrenshall Township	5	.....	.....	.....	2	3
Chippewa County—						
Watson	2	.....	1	.....	1	.....
Hennepin County—						
Minneapolis	1	.....	.....	.....	1	.....
Le Sueur County—						
Waterville	1	.....	.....	.....	1	.....
Waterville Township	1	.....	.....	.....	1	.....
Lyon County—						
Tracy	2	.....	.....	.....	1	1

SMALLPOX—Continued.

State Reports for November, 1914—Continued.

Places.	New cases reported.	Deaths.	Vaccination history of cases.			
			Number vaccinated within seven years preceding attack.	Number last vaccinated more than seven years preceding attack.	Number never successfully vaccinated.	Vaccination history not obtained or uncertain.
Minnesota—Continued.						
Martin County—						
Fairmont	15			1	8	6
Murray County—						
Bondin Township	1					1
Iona	3				3	
Iona Township	1				1	
Slayton	1				1	
Otter Tail County—						
Scambler Township	1				1	
Pipestone County—						
Burke Township	1					1
Elmer Township	1					1
Gray Township	3			2	1	
Jasper	3				2	1
Pipestone	1					1
Woodstock	1					1
Ramsey County—						
North St. Paul	3				3	
St. Paul	4				4	
Rice County—						
Morristown Township	1					1
Rock County—						
Hills	3					3
Martin Township	3				3	
St. Louis County—						
Duluth	2				2	
Eveleth	1				1	
Swift County—						
Appleton	17			4	11	2
Total	98		1	8	52	37
Ohio:						
Ashtabula County	21				10	11
Belmont County	1					1
Champaign County	9				8	1
Columbiana County	9				4	5
Cuyahoga County—						
Cleveland	4					4
Erie County	47				20	27
Franklin County	1			1		
Gallia County	1					1
Geauga County	5			2	3	
Hamilton County—						
Cincinnati	3				3	
Hancock County	6				4	2
Hardin County	12					12
Huron County	1					1
Scioto County	2					2
Lake County	40				2	38
Lucas County—						
Toledo	1					1
Marion County	4				1	3
Portage County—						
Ravenna	1					1
Richland County	1					1
Sandusky County—						
Fremont	4				4	
Seneca County—						
Fostoria	6				5	1
Stark County	96		1	6	78	11
Wood County—						
Bowling Green	3					3
Wyandot County	43					43
Total	321		1	9	142	169

SMALLPOX—Continued.

Miscellaneous State Reports.

Places.	Cases.	Deaths.
Colorado (Nov. 1-30):		
Counties—		
Boulder	2	
Denver	4	
El Paso	2	
Mesa	1	
Rio Blanco	1	
Total	10	
Connecticut (Nov. 1-30):[1]		
Florida (Oct. 1-31):		
Counties—		
Gadsden	1	
Hillsboro	4	
Total	5	
Indiana (Nov. 1-30):		
Counties—		
Adams	2	
Allen	3	
Blackford	32	
Clark	11	
Clay	1	
Clinton	54	
Delaware	200	1
Dubois	50	
Fountain	20	
Gibson	1	
Grant	6	
Harrison	13	
Howard	1	
Jefferson	18	
Johnson	10	
Knox	36	
Lagrange	3	
Lake	47	
Madison	13	
Pike	5	
Porter	2	
Tippecanoe	5	
Tipton	3	
Vanderburgh	1	
Total	537	1
Louisiana (Nov. 1-30):		
Parishes—		
Acadia	11	
Caddo	1	
Calcasieu	9	
De Soto	2	
Jeff Davis	26	
Vermilion	2	
Total	51	
Montana:		
Counties—		
Fergus	1	
Gallatin	1	1
Hill	1	
Jefferson	1	
Helena	5	
Madison	27	
Meagher	3	
Missoula	17	
Park	1	
Sheridan	1	
Silver Bow	11	
Butte	2	
Sweet Grass	46	
Billings	2	
Total	119	1
Utah (Nov. 1-30):		
Counties—		
Boxelder	1	
Cache	5	
Davis	1	
Salt Lake	45	
Sevier	1	
Tooele	8	
Utah	14	
Weber	7	
Total	82	
Washington (Oct. 1-31):		
Counties—		
Chehalis	1	
Pierce	3	
Skagit	1	
Snohomish	1	
Spokane	5	
Whitman	1	
Yakima	1	
Total	13	
Washington (Nov. 1-30):		
Counties—		
Clallam	1	
King	1	
Pierce	1	
Snohomish	1	
Spokane	21	
Yakima	1	
Total	26	

[1] No case.

City Reports for Week Ended Dec. 12, 1914.

Places.	Cases.	Deaths.
Ann Arbor, Mich	1	
Cleveland, Ohio	1	
Detroit, Mich	6	
Duluth, Minn	2	
Evansville, Ind	1	
Galesburg, Ill	6	
Jersey City, N. J	1	
La Crosse, Wis	1	
Little Rock, Ark	2	
Milwaukee, Wis	37	
Muncie, Ind	2	
Newport, Ky	1	
Sacramento, Cal	1	
St. Joseph, Mo	12	
San Diego, Cal	10	
Superior, Wis	2	
Wilkes-Barre, Pa	5	

SYPHILIS.

Louisiana Report for November, 1914.

Collaborating Epidemiologist Dowling reported that during the month of November, 1914, 14 cases of syphilis had been notified in the State of Louisiana.

TETANUS.

City Reports for Week Ended Dec. 12, 1914.

During the week ended December 12, 1914, tetanus was notified by cities as follows: Baltimore, Md., 1 death; Los Angeles, Cal., 1 case; Norfolk, Va., 1 case with 1 death; Ponce, P. R., 3 cases (infantile) with 3 deaths; South Omaha, Nebr., 1 case; Worcester, Mass., 1 case with 1 death.

TUBERCULOSIS.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 44.

TYPHOID FEVER.

State Reports for November, 1914.

Places.	New cases reported.
Indiana:	
Blackford County	1
Boone County	3
Carroll County	2
Cass County	43
Clark County	5
Clinton County	2
Daviess County	9
DeKalb County	3
Delaware County	5
Dubois County	3
Elkhart County	2
Floyd County	5
Fulton County	2
Gibson County	7
Greene County	5
Hamilton County	2
Hancock County	3
Harrison County	1
Howard County	7
Huntington County	3
Jackson County	5
Jay County	1
Jennings County	4
Johnson County	3
Knox County	16
Kosciusko County	7
Lake County	3
Laporte County	2
Lawrence County	28
Marion County	28
Marshall County	1
Martin County	8
Monroe County	2
Montgomery County	2
Morgan County	1
Noble County	2
Orange County	4
Owen County	2
Parke County	9
Pike County	20
Porter County	3
Putnam County	1
Indiana—Continued.	
Randolph County	9
Ripley County	1
Rush County	2
Scott County	4
Shelby County	1
St. Joseph County	6
Sullivan County	6
Switzerland County	2
Tippecanoe County	1
Union County	3
Vanderburgh County	11
Vermillion County	1
Vigo County	2
Wabash County	1
Warrick County	4
Washington County	6
Wayne County	10
White County	4
Total	339
Louisiana:	
Bienville Parish	1
Caddo Parish	21
Claiborne Parish	5
De Soto Parish	1
East Baton Rouge Parish	3
Grant Parish	1
Jackson Parish	2
Plaquemine Parish	1
St. James Parish	1
St. Mary Parish	2
St. Tammany Parish	1
Terrebonne Parish	2
Vermilion Parish	2
Washington Parish	2
Total	45
Minnesota:	
Becker County—	
Detroit	2
Frazee	1

TYPHOID FEVER—Continued.

State Reports for November, 1914—Continued.

Places.	New cases reported.
Minnesota—Continued.	
Big Stone County—	
Johnson	1
Brown County—	
New Ulm	1
Springfield	1
Sleepy Eye	1
Carver County—	
Hancock Township	1
Clearwater County—	
Leon Township	1
Dakota County—	
South St. Paul	3
Dodge County—	
Claremont	1
West Concord	1
Hennepin County—	
Minneapolis	22
Hubbard County—	
Akeley Township	1
Itasca County—	
Deer River	2
Jackson County—	
Alpha	2
Kanabec County—	
Mora	1
Kittson County—	
Donaldson	1
Le Sueur County—	
Waterville Township	1
Lincoln County—	
Hendricks Township	1
Millc Lacs County—	
Princeton	1
Mower County—	
Austin	2
Norman County—	
Ada	2
Olmsted County—	
Rochester	1
Otter Tail County—	
Butler Township	1
Fergus Falls	2
Pennington County—	
Thief River Falls	3
Pipestone County—	
Pipestone	1
Polk County—	
Crookston	1
Pope County—	
Glenwood Township	1
Ramsey County—	
St. Paul	14
Redwood County—	
North Hero Township	1
Renville County—	
Norfolk Township	1
Rice County—	
Faribault	6
Northfield	1
Rock County—	
Beaver Creek Township	1
St. Louis County—	
Biwabik	1
Ely	1
Duluth	12
Hibbing	1
Virginia	2
Scott County—	
Belle Plaine	3
Stevens County—	
Donnelly	1
Swift County—	
Murdock	2
Todd County—	
Eagle Bend	1
Minnesota—Continued.	
Washington County—	
Stillwater	1
Yellow Medicine County—	
Canby	1
Hanley Falls	2
Normania Township	2
Total	114
Montana:	
Blaine County	13
Cascade County	2
Great Falls	5
Chouteau County	1
Dawson County	8
Fergus County	4
Flathead County—	
Kalispell	3
Gallatin County	1
Hill County	9
Madison County	1
Missoula County—	
Missoula	1
Ravalli County	2
Sanders County	1
Stillwater County	1
Teton County	1
Wibaux County	5
Yellowstone County	1
Billings	2
Total	61
Ohio:	
Adams County	3
Allen County	5
Ashland County—	
Ashland	1
Ashtabula County	3
Athens County	5
Auglaize County	1
Belmont County	12
Brown County	2
Butler County	5
Carroll County	4
Clark County—	
Springfield	3
Clermont County	14
Columbiana County	13
Coshocton County	7
Crawford County	2
Cuyahoga County—	
Cleveland	15
Darke County	6
Delaware County	2
Erie County—	
Sandusky	2
Fairfield County	2
Fayette County—	
Washington Court-House	6
Franklin County	5
Fulton County	1
Gallia County	2
Greene County	1
Guernsey County	3
Hamilton County—	
Cincinnati	16
Norwood	1
Hancock County	4
Hardin County	4
Harrison County	1
Henry County	2
Huron County—	
Bellevue	1
Jefferson County	5

TYPHOID FEVER—Continued.

State Reports for November, 1914—Continued.

Places.	New cases reported.
Ohio—Continued.	
Lawrence County	3
Licking County	3
Logan County	2
Lorain County—	
Lorain	2
Lucas County	14
Madison County	3
Mahoning County	10
Marion County—	
Marion	1
Medina County	6
Mercer County	9
Miami County	3
Montgomery County	7
Morrow County	6
Muskingum County	1
Noble County	1
Ottawa County	2
Paulding County	2
Perry County	3
Pickaway County	12
Pike County	2
Preble County	22
Putnam County	6
Richland County—	
Mansfield	4
Ross County	5
Sandusky County	3
Scioto County	16
Seneca County	4
Shelby County	4
Stark County	6
Summit County	29
Trumbull County	8
Tuscarawas County—	
Canal Dover	2
Union County	2
Van Wert County	3
Vinton County	1
Wayne County—	
Wooster	1
Williams County	1
Wood County	4
Wyandot County	1
Total	373
Washington:	
Adams County	2
Clallam County	1
Clark County	1
Columbia County	13
King County	2
Seattle	11
Lewis County	7
Okanogan County	1
Pierce County	12
Tacoma	1
Spokane County	1
Spokane	14
Whatcom County	4
Bellingham	8
Yakima County	9
Total	87

Washington Report for October, 1914.

Places.	New cases reported.
Washington:	
Adams County	3
Benton County	11
Chelan County	1
Clallam County	1
Columbia County	2
Ferry County	1
King County—	
Seattle	11
Lewis County	2
Lincoln County	1
Pierce County	6
Tacoma	1
Skagit County	2
Washington—Continued.	
Snohomish County	1
Everett	3
Spokane County	2
Spokane	17
Stevens County	1
Thurston County	2
Walla Walla County	6
Whatcom County—	
Bellingham	1
Whitman County	2
Yakima County	31
Total	108

TYPHOID FEVER—Continued.

City Reports for Week Ended Dec. 12, 1914.

Places.	Cases.	Deaths.	Places.	Cases.	Deaths.
Alameda, Cal.	1		New Castle, Pa.	2	
Auburn, N. Y.	1		New Orleans, La.	20	11
Baltimore, Md.	19	2	Newport News, Va.	1	1
Boston, Mass.	12	2	Newton, Mass.	1	
Brockton, Mass.	1		New York, N. Y.	30	4
Buffalo, N. Y.	7	4	Norfolk, Va.	2	
Camden, N. J.	2		North Adams, Mass.		1
Charleston, S. C.	2	1	Oakland, Cal.	2	
Chicago, Ill.	27	5	Orange, N. J.	2	
Cincinnati, Ohio.	2		Passaic, N. J.	1	
Cleveland, Ohio.	6	1	Pawtucket, R. I.	1	
Coffeyville, Kans.	4		Philadelphia, Pa.	15	1
Cumberland, Md.	1		Pittsburgh, Pa.	1	1
Detroit, Mich.	3	1	Portland, Oreg.	1	
Duluth, Minn.	2		Portsmouth, Va.	4	
East Orange, N. J.	1		Providence, R. I.	5	1
Erie, Pa.	1		Racine, Wis.	1	
Fall River, Mass.	2		Richmond, Va.	4	
Galveston, Tex.	1		Reading, Pa.	7	
Grand Rapids, Mich.	4		Roanoke, Va.	2	
Hartford, Conn.	8	3	Rochester, N. Y.		1
Jersey City, N. J.		1	Rockland, Me.	1	
Johnstown, Pa.	1		Sacramento, Cal.	1	
Los Angeles, Cal.	3		Saginaw, Mich.	2	
Lowell, Mass.	1		St. Louis, Mo.	1	
Lynchburg, Va.	3	2	San Francisco, Cal.	4	1
Marinette, Wis.	1		Springfield, Ill.	1	
Milwaukee, Wis.	6	1	Taunton, Mass.		1
Mobile, Ala.	1		Toledo, Ohio.	1	
Moline, Ill.	1		Waltham, Mass.	1	
Nashville, Tenn.	2		Wilkes-Barre, Pa.	1	1
Newark, N. J.	3		Worcester, Mass.	3	
New Bedford, Mass.	6		York, Pa.	6	

TYPHUS FEVER.

New York—New York City.

During the week ended December 12, 1914, a case of typhus fever was notified at New York.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

State Reports for November, 1914.

States.	Cases reported.			States.	Cases reported.		
	Diphtheria.	Measles.	Scarlet fever.		Diphtheria.	Measles.	Scarlet fever.
Indiana.	521	283	501	Montana.	32	6	64
Louisiana.	33	12	32	Ohio.	1,468	548	917
Minnesota.	479	203	235	Washington.	47	28	78

Washington Report for October, 1914.

The State Board of Health of Washington reported that during the month of October, 1914, 40 cases of diphtheria, 25 cases of measles, and 83 cases of scarlet fever had been notified in the State of Washington.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Contd.

City Reports for Week Ended Dec. 12, 1914.

Cities.	Population as of July 1, 1914. (Estimated by United States Census Bureau.)	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Over 500,000 inhabitants:										
Baltimore, Md.	579,590	165	35	3	1	.....	25	.....	39	27
Boston, Mass.	733,802	216	83	5	107	4	74	1	51	22
Chicago, Ill.	2,393,325	569	231	17	50	.....	60	1	225	62
Cleveland, Ohio.	639,431	151	81	2	3	1	16	.....	33	23
Detroit, Mich.	537,650	170	65	7	1	.....	25	2	15	9
New York, N. Y.	5,333,537	1,338	353	23	297	5	161	3	407	158
Philadelphia, Pa.	1,657,810	514	84	8	46	4	27	1	77	58
Pittsburgh, Pa.	564,878	145	44	2	108	4	75	5	35	9
St. Louis, Mo.	734,667	200	210	7	1	.....	32	3	27	14
From 300,000 to 500,000 inhabitants:										
Buffalo, N. Y.	454,112	103	19	1	1	.....	22	1	33	11
Cincinnati, Ohio.	402,175	106	44	1	2	.....	13	1	27	16
Los Angeles, Cal.	438,914	134	12	1	8	.....	20	.....	47	23
Milwaukee, Wis.	417,054	90	40	2	9	.....	24	4	11	9
Newark, N. J.	389,106	100	18	1	1	.....	10	.....	35	6
New Orleans, La.	361,221	163	43	3	1	.....	.....	.....	42	22
San Francisco, Cal.	448,502	150	38	1	.....	1	3	.....	.....	18
From 200,000 to 300,000 inhabitants:										
Jersey City, N. J.	293,921	81	44	2	2	.....	12	.....	23	4
Portland, Oreg.	260,601	38	19	2	2	.....	4	.....	5	4
Providence, R. I.	245,090	63	21	.....	1	.....	17	.....	1	6
Rochester, N. Y.	241,518	62	7	1	24	.....	4	1	5	2
Seattle, Wash.	313,029	65	3	.....	.....	.....	.....	.....	13	5
From 100,000 to 200,000 inhabitants:										
Cambridge, Mass.	110,357	24	9	1	14	.....	5	.....	4	2
Camden, N. J.	102,465	.....	4	.....	21	.....	2	.....	6	.....
Dayton, Ohio.	123,794	27	6	.....	1	.....	4	.....	4	3
Fall River, Mass.	125,443	.....	3	.....	7	.....	6	.....	7	2
Grand Rapids, Mich.	123,227	30	7	.....	3	.....	5	.....	4	1
Hartford, Conn.	107,038	36	8	1	1	.....	.....	.....	4	.....
Lowell, Mass.	111,004	30	2	1	.....	.....	1	.....	2	3
Nashville, Tenn.	114,899	39	3	.....	.....	.....	3	.....	3	3
New Bedford, Mass.	111,230	25	4	1	6	1	11	.....	8	2
Oakland, Cal.	183,002	44	2	.....	5	.....	3	.....	.....	3
Reading, Pa.	103,361	26	7	3	.....	.....	1	.....	18	3
Richmond, Va.	134,917	34	13	.....	1	.....	.....	.....	2	4
Springfield, Mass.	100,375	29	5	.....	1	.....	3	.....	5	.....
Toledo, Ohio.	184,126	55	14	6	11	.....	2	.....	29	4
Trenton, N. J.	106,831	39	5	.....	.....	.....	2	.....	3	2
Worcester, Mass.	157,732	42	6	1	.....	.....	2	.....	10	2
From 50,000 to 100,000 inhabitants:										
Altoona, Pa.	56,553	11	.....	1	.....	.....	2	.....	2	.....
Atlantic City, N. J.	53,952	7	1	.....	.....	.....	1	.....	1	.....
Bayonne, N. J.	65,271	8	7	.....	.....	.....	.....	.....	1	.....
Berkeley, Cal.	52,105	5	1	.....	13	.....	1	.....	1	.....
Binghamton, N. Y.	52,191	13	9	1	1	.....	5	.....	2	2
Brockton, Mass.	64,043	12	4	.....	1	.....	1	.....	6	.....
Charleston, S. C.	60,121	33	3	.....	.....	.....	.....	.....	1	2
Duluth, Minn.	89,331	.....	2	.....	.....	.....	.....	.....	.....	2
Erie, Pa.	72,401	14	7	.....	.....	.....	4	.....	3	.....
Evansville, Ind.	71,284	16	3	.....	14	.....	1	.....	.....	2
Harrisburg, Pa.	69,493	19	2	.....	2	.....	.....	.....	2	1
Johnstown, Pa.	64,642	17	7	1	.....	.....	1	.....	2	2
Kansas City, Kans.	94,271	.....	12	.....	.....	.....	2	.....	6	2
Little Rock, Ark.	53,811	14	11	.....	.....	.....	.....	.....	1	.....
Lynn, Mass.	98,207	31	7	1	.....	.....	3	.....	6	1
Manchester, N. H.	75,635	20	1	.....	.....	.....	.....	.....	1	1
Mobile, Ala.	55,513	19	.....	.....	.....	.....	.....	.....	.....	3
Norfolk, Va.	46,540	.....	3	.....	.....	.....	2	.....	1	1
Passiac, N. J.	66,276	12	2	.....	.....	.....	2	.....	4	.....
Pawtucket, R. I.	56,901	17	4	.....	.....	.....	1	.....	.....	3
Rockford, Ill.	52,337	15	3	.....	.....	.....	1	.....	.....	1
Saginaw, Mich.	53,988	.....	2	.....	2	.....	2	.....	1	.....
St. Joseph, Mo.	82,712	21	13	.....	.....	.....	1	.....	1	1
Schenectady, N. Y.	90,503	21	3	37	.....	.....	4	.....	3	1
South Bend, Ind.	65,114	13	.....	.....	.....	.....	1	.....	.....	2
Springfield, Ill.	57,972	14	1	.....	2	.....	5	.....	2	2
Wilkes-Barre, Pa.	73,660	31	9	1	8	.....	.....	1	.....	1

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Contd.

City Reports for Week Ended Dec. 12, 1914—Continued.

Cities.	Population as of July 1, 1914. (Estimated by United States Census Bureau.)	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From 25,000 to 50,000 inhabitants:										
Alameda, Cal.	26,330	5	.....	.....	11	.....	.....	.....	2	.....
Auburn, N. Y.	36,509	10	1	1	.....	.....	3	1	.....	4
Aurora, Ill.	33,022	9	3	.....	.....	.....	.....	.....	.....	2
Austin, Tex.	33,218	11	3	1	.....	.....	3	.....	.....	3
Brookline, Mass.	31,138	7	.....	.....	.....	.....	.....	.....	.....	1
Chelsea, Mass.	32,452	12	4	.....	1	.....	1	.....	1	.....
Chicopee, Mass.	28,057	3	4	.....	.....	.....	2	.....	.....	.....
Danville, Ill.	30,847	10	2	1	.....	.....	.....	.....	.....	1
East Orange, N. J.	39,852	.....	1	.....	.....	.....	3	.....	.....	.....
Elgin, Ill.	27,485	8	3	1	.....	.....	.....	.....	.....	.....
Elmira, N. Y.	37,816	.....	14	1	1	.....	4	.....	2	.....
Everett, Mass.	37,381	4	1	.....	18	.....	2	.....	.....	.....
Fitchburg, Mass.	40,507	5	1	.....	.....	.....	.....	.....	3	1
Galveston, Tex.	40,289	29	2	1	.....	.....	2	.....	.....	2
Haverhill, Mass.	47,071	8	2	.....	.....	.....	3	.....	6	1
Kalamazoo, Mich.	45,842	20	.....	.....	.....	.....	.....	.....	5	1
La Crosse, Wis.	31,367	8	1	.....	.....	.....	.....	.....	.....	1
Lancaster, Pa.	49,685	.....	1	.....	.....	.....	.....	.....	.....	.....
Lexington, Ky.	38,819	12	2	.....	.....	.....	1	.....	1	.....
Lynchburg, Va.	31,830	16	.....	.....	1	.....	.....	.....	3	2
Malden, Mass.	48,979	9	4	1	1	.....	4	.....	2	.....
Medford, Mass.	25,240	5	2	.....	3	.....	1	.....	.....	.....
Moline, Ill.	26,402	6	2	.....	1	.....	1	.....	.....	.....
Newcastle, Pa.	39,569	.....	1	.....	.....	.....	1	.....	1	.....
Newport, Ky.	31,517	10	4	1	.....	.....	6	.....	2	2
Newport, R. I.	29,154	5	.....	.....	.....	.....	1	.....	.....	.....
Newport News, Va.	20,446	3	2	.....	.....	.....	.....	.....	.....	.....
Newton, Mass.	42,455	13	1	.....	.....	.....	2	.....	1	.....
Niagara Falls, N. Y.	35,127	17	5	.....	.....	.....	1	.....	.....	1
Norristown, Pa.	39,265	8	3	.....	.....	.....	.....	.....	.....	.....
Orange, N. J.	31,968	11	2	.....	.....	.....	4	.....	1	.....
Passadena, Cal.	40,880	5	1	.....	.....	.....	.....	.....	2	1
Portsmouth, Va.	37,569	9	3	.....	.....	.....	.....	.....	.....	.....
Roanoke, Va.	40,574	7	5	.....	.....	.....	1	.....	2	1
Sacramento, Cal.	62,717	22	3	.....	12	.....	2	.....	3	3
San Diego, Cal.	48,900	.....	7	.....	.....	.....	1	.....	1	1
South Omaha, Nebr.	26,368	2	.....	.....	.....	.....	.....	.....	.....	.....
Superior, Wis.	44,344	15	1	.....	.....	.....	.....	.....	.....	.....
Taunton, Mass.	35,631	18	1	.....	1	.....	.....	.....	2	2
Waltham, Mass.	29,688	6	1	.....	.....	.....	.....	.....	.....	1
West Hoboken, N. J.	40,647	.....	8	.....	.....	.....	8	.....	2	.....
Wheeling, W. Va.	42,817	13	9	1	.....	.....	1	.....	.....	.....
Wilmington, N. C.	27,781	9	1	.....	.....	.....	.....	.....	.....	.....
York, Pa.	49,430	.....	4	.....	1	.....	2	.....	1	.....
Zanesville, Ohio.	29,949	.....	1	.....	.....	.....	1	.....	.....	.....
Less than 25,000 inhabitants:										
Ann Arbor, Mich.	14,948	8	5	.....	.....	.....	7	.....	5	.....
Beaver Falls, Pa.	13,100	.....	1	.....	.....	.....	.....	.....	.....	.....
Braddock, Pa.	20,935	.....	.....	.....	1	.....	1	.....	1	.....
Clinton, Mass.	13,075	3	1	.....	.....	.....	.....	.....	.....	.....
Coffeyville, Kans.	15,982	.....	1	.....	.....	.....	.....	.....	.....	.....
Concord, N. H.	22,291	10	.....	.....	.....	.....	1	.....	.....	1
Cumberland, Md.	23,846	8	5	.....	.....	.....	2	.....	.....	.....
Florence, S. C.	.....	3	1	.....	.....	.....	.....	.....	.....	.....
Galesburg, Ill.	23,570	1	.....	.....	.....	.....	3	1	.....	.....
Grand Haven, Mich.	.....	3	.....	.....	.....	.....	.....	.....	.....	.....
Hidalgo, Tex.	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Key West, Fla.	21,150	9	.....	.....	.....	.....	1	.....	.....	2
Kokomo, Ind.	19,694	2	2	.....	.....	.....	1	.....	.....	.....
Marinette, Wis.	14,610	3	1	.....	.....	.....	4	.....	.....	.....
Melrose, Mass.	16,887	4	8	.....	4	.....	.....	.....	.....	.....
Montclair, N. J.	24,782	5	3	.....	.....	.....	2	.....	.....	1
Morristown, N. J.	13,033	2	1	.....	.....	.....	1	.....	.....	.....
Muncie, Ind.	24,969	4	.....	.....	.....	.....	3	.....	.....	.....
Muscatine, Iowa.	17,074	5	.....	.....	.....	.....	.....	.....	.....	.....
Nanticoke, Pa.	21,756	4	2	.....	2	.....	.....	.....	1	.....
Newburyport, Mass.	15,147	1	3	1	.....	.....	.....	.....	.....	.....
New London, Conn.	20,557	4	.....	.....	.....	.....	.....	.....	2	1
North Adams, Mass.	22,019	14	2	.....	.....	.....	1	.....	.....	.....
Northampton, Mass.	19,766	6	.....	.....	.....	.....	.....	.....	.....	.....
Palmer, Mass.	8,955	1	.....	.....	.....	.....	.....	.....	.....	.....

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Contd.

City Reports for Week Ended Dec. 12, 1914—Continued.

Cities.	Population as of July 1, 1914. (Estimated by United States Census Bureau.)	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Less than 25,000 inhabitants—Continued.										
Palo Alto, Cal.	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Plainfield, N. J.	22,755	5	2	1	5	.....	.....	.....	1	.....
Pottstown, Pa.	16,403	4	.....	.....	.....	.....	.....	.....	.....	1
Rockland, Me.	8,132	1	.....	.....	.....	.....	.....	.....	.....	.....
Rome, Ga.	14,146	2	1	.....	.....	.....	.....	.....	.....	.....
Rutland, Vt.	14,417	5	5	.....	.....	.....	.....	.....	.....	.....
Saratoga Springs, N. Y.	12,813	5	.....	.....	.....	.....	3	.....	.....	.....
South Bethlehem, Pa.	22,840	.....	2	.....	1	.....	.....	.....	.....	.....
Steelton, Pa.	15,126	.....	.....	.....	.....	.....	3	.....	1	.....
Vineyard Haven, Mass.	.....	1	.....	.....	3	.....	1	.....	.....	.....
Weymouth, Mass.	13,561	4	.....	.....	.....	.....	.....	.....	.....	.....
Wilkinsburg, Pa.	21,701	2	1	.....	1	.....	4	.....	.....	.....

IN INSULAR POSSESSIONS.

PHILIPPINE ISLANDS.

Cholera—Manila.

Reporting under date of November 5, 1914, Asst. Surg. Duffy, of the United States Public Health Service, acting chief quarantine officer for the Philippine Islands, states:

The cholera epidemic in the city of Manila is about over. During the last two weeks only a few sporadic cases have been reported and the examination of contacts and others exhibited practically no carriers.

Cholera Carriers.

The campaign inaugurated by this office to rid vessels engaged in the river and bay traffic of cholera carriers, and thereby to prevent the occurrence of cholera on vessels engaged in interisland and foreign trade, was continued through October, 1914. During the month, 526 examinations were made with negative results in each case. This work was discontinued on October 31, 1914. The results are as follows:

Examinations for cholera carriers, August, September, and October, 1914.

Month.	Examinations.	Cholera carriers.
1914.		
August	568	11
September	720	8
October	526	.....
Total	1,814	19

FOREIGN REPORTS.

CHINA.

Plague—Plague-Infected Rats—Shanghai.

During the week ended November 14, 1914, a death from plague was notified at Shanghai. During the same period 267 rats were examined for plague infection. Eleven plague-infected rats were found.

CUBA.

Communicable Diseases—Habana.

Communicable diseases were notified in Habana during the period from December 1 to 10, 1914, as follows:

Diseases.	New cases.	Deaths.	Remaining under treatment.	Diseases.	New cases.	Deaths.	Remaining under treatment.
Diphtheria	7	1	10	Smallpox	1	.....	4
Leprosy	.....	1	260	Tetanus in the new born	1	1	.....
Malaria	.....	.....	1	Typhoid fever	23	5	106
Measles	1	.....	1	Varicella	5	.....	16
Paratyphoid fever	9	1	22				
Scarlet fever	3	.....	6				

GREAT BRITAIN.

Examination of Rats—Liverpool.

During the two weeks ended December 5, 1914, 453 rats were examined at Liverpool. No plague-infected rat was found. The total number of rats examined from July 26 to December 5, 1914, was 4,040. No plague infection was found.

PERSIA.

Plague.

Plague was reported present October 31, 1914, in the vicinity of Belessavar, Province of Azerbijan.

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX.

Reports Received During Week Ended Jan. 1, 1915.[1]

CHOLERA.

Places.	Date.	Cases.	Deaths.	Remarks.
Dutch East Indies:				
Celebes—				
Menado	Oct. 18–31	168	160	
Java—				
Batavia	Oct. 25–Nov. 7	220	220	
Sumatra—				
Mengalla	Oct. 18–24	60	47	
Palembang	do	62	49	
India:				
Bombay	Nov. 1–7	5	1	
Calcutta	Oct. 25–31	.....	4	Not previously reported.
Do	Nov. 1–7	.....	10	
Rangoon	Sept. 1–30	1	1	
Philippine Islands:				
Manila	Oct. 25–Nov. 14	9	3	
Straits Settlements:				
Singapore	Oct. 4–10	1	1	

PLAGUE.

Brazil:				
Bahia	Nov. 16–Dec. 5	8	6	
Ceylon:				
Colombo	Oct. 25–Nov. 22	12	13	
India:				
Bombay	Nov. 1–14	3	1	
Karachi	Nov. 8–14	1	1	
Rangoon	Sept. 1–30	72	66	
Persia:				
Azerbijan—				
Belessavar	Oct. 31	.....	.....	Present.
Turkey in Asia:				
Bagdad	Nov. 1–2	1	1	

SMALLPOX.

Australia:				
New South Wales—				
Sydney	.....	.....	.....	Total Nov. 13–19: Cases, 7 in the metropolitan area and 2 in the country districts.
Arabia:				
Aden	Nov. 5–18	1	3	
Brazil:				
Rio de Janeiro	Nov. 1–14	215	71	
Canada:				
Ontario—				
Sarnia	Dec. 13–19	1	.....	
Toronto	Dec. 6–19	3	.....	
Quebec—				
Quebec	Dec. 13–19	2	.....	
Ceylon:				
Colombo	Oct. 25–Nov. 7	21	3	
China:				
Shanghai	Nov. 9–15	1	8	Deaths among natives.
Dutch East Indies:				
Borneo	.....	.....	.....	Oct. 18–24: Cases, 112; deaths, 44, mainly in Pontianak.
Java	.....	.....	.....	In the western part, including Batavia, Oct. 18–24: Cases, 807; deaths, 119.
Batavia	Oct. 18–24	30	10	
France:				
Paris	Nov. 15–21	2	2	
Greece:				
Patras	Nov. 23–29	.....	3	
Saloniki	Nov. 15–21	12	6	
Great Britain:				
Cardiff	Nov. 30–Dec. 5	5	.....	

[1] From medical officers of the Public Health Service, American consuls, and other sources. For reports received from June 27, 1914, to Dec. 25, 1914, see PUBLIC HEALTH REPORTS for Dec. 25, 1914. In accordance with custom, the tables of epidemic diseases are terminated semiannually and new tables begun.

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

Reports Received During Week Ended Jan. 1, 1915—Continued.

SMALLPOX—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
India:				
Bombay	Nov. 1-14	8	4	
Calcutta	Oct. 25-Nov. 7	9	.....	
Madras	Nov. 1-7	1	.....	
Japan:				
Taiwan	Oct. 25-Nov. 7	7	.....	
Mexico:				
Aguascalientes	Dec. 7-13	.....	2	
Juarez	Dec. 4	.....	.....	Prevalent.
Vera Cruz	Dec. 1-13	.....	2	
Norway:				
Christiansand	Nov. 1-30	7	2	Including report, vol. 29.
Stavanger	Nov. 30-Dec. 5	1	.....	
Russia:				
Petrograd	Oct. 25-Nov. 8	66	16	
Spain:				
Valencia	Nov. 15-28	44	4	
Straits Settlements:				
Singapore	Oct. 10-17	2	1	
Turkey in Asia:				
Beirut	Nov. 1-21	14	6	
Haifa	Nov. 2-8	2	1	

SANITARY LEGISLATION.

COURT DECISIONS.

KENTUCKY COURT OF APPEALS.

Habit-forming Drugs—Sale of—Law Held to be Valid—Form of Indictment.

COMMONWEALTH v. GABHART, 169 S. W., 514. October 2, 1914.

In an indictment for violation of a statute which prohibits the sale of "opium or its alkaloidal salts or their derivatives" it is sufficient to charge that the defendant sold "morphine."

The Kentucky law of 1912 prohibiting the sale of opium or its alkaloidal salts or their derivatives for any purpose other than for "legitimate use" held sufficiently definite to be enforceable and valid.

The defendant was charged with selling morphine in violation of the Kentucky act of March 14, 1912, chapter 86 (Public Health Reports, Mar. 21, 1913, pp. 579–580), which prohibited the sale of "opium or its alkaloidal salts or their derivatives, or any admixture containing opium or its alkaloidal salts or their derivatives," or dealing in the same "for any purpose other than for the legitimate use as herein provided."

In the opinion Settle, J., said:

The circuit court sustained a demurrer to the indictment upon the ground that the facts therein alleged failed to charge an offense under the statute. This conclusion of the court below was based upon the theory that, as the indictment failed to charge that the morphine prescribed for and sold the purchaser by appellee was an alkaloid or derivative of opium or an admixture containing opium, and the court could not judicially know or say that such was its character, this omission rendered the indictment fatally defective.

* * * * * * *

While morphine is not named in the statute as an alkaloid, derivative, or admixture of opium, we do not suppose there is a person of ordinary intelligence or common understanding residing in the State but has familiar knowledge of its power as a narcotic, its deadly effect as a poison, and that it is an alkaloid or derivative of opium. The word "morphine" has as well-defined a meaning as the word "whisky," and its qualities and effect are as well known to the generality of the people of the State as are those of the intoxicant known as "whisky"; and manifestly it would be a work of supererogation to allege in an indictment charging one with the unlawful sale of whisky that it is a spirituous liquor or intoxicant.

* * * * * * *

In view of what has been said, it is hardly necessary to add that, in our opinion, the validity of the indictment is not affected by its failure to state that the morphine sold by appellee under the circumstances therein alleged was an alkaloid or derivative of opium.

It is further insisted for appellee that the failure of the statute to define the words "legitimate use" renders it void for uncertainty. In other words, it is argued that the statute fixes no standard by which the physician in selling or dispensing

opium, its alkaloidal salts or derivatives, is enabled to know what use of it by the purchaser would or would not be legitimate, and that the indictment, in simply charging in the language of the statute that the sale made by appellee was for other than a legitimate use of the drug, fails to state an offense under the statute. Authority may be found, even among the decisions of this court, that apparently sustains this contention, but none of them rests upon the precise state of case here presented; and in the recent case of Katzman *v.* Commonwealth (140 Ky., 124, 130 S. W., 990, 30 L. R. A. (N. S.) 519, 140 Am. St. Rep., 359) we had under consideration the validity of section 2630, Kentucky Statutes, which regulates the sale of certain poisons by retail, and declares, in substance, that a sale or delivery of such poisons shall not be made by any person without satisfying himself that the poison is to be used for legitimate purposes, without defining the words "retail" and "legitimate purposes." A prosecution instituted by warrant against Katzman for violating this statute resulted in his conviction, and he sought a reversal of the judgment, upon appeal, on the ground that the statute was void for uncertainty because it failed to define the words "retail" and "legitimate purposes." We held, however, that the statute was not void on either of these grounds, and with respect thereto in the opinion, in part, said:

"In the argument in support of the objection mentioned it is said that the legislature should have defined the meaning of the words 'retail' and 'legitimate purposes,' so that a druggist might know what quantity would constitute a sale by retail and what would or would not be considered a sale for legitimate purposes and so that there could not be two opinions as to what these words mean when different courts or juries came to pass upon questions involving a violation of the statute. It may be admitted that, although the meaning of the words 'retail' and 'legitimate purposes,' as used in the statute, are reasonably well understood, it is nevertheless possible that there might be difference of opinion as to whether in a given state of case the sale of a drug was by retail or for a legitimate purpose, and it is possible that in administering this statute it may occasionally happen that a druggist will be accused who claims not to know what constitutes a sale by retail or what is a legitimate use of opium; and it is also possible that different trial courts and juries may not always be harmonious in the conclusions reached upon this point. But the fact that there may be occasional doubt or want of agreement on this question can not be allowed to invalidate the statute. If this rule obtained, many penal statutes that have stood unquestioned for years and have been often enforced would be held invalid. There are numerous statutes in existence creating and describing offenses the enforcement of which often brings into prominent notice a question concerning the meaning of words in the law about which different persons might reach a different conclusion. In the trial of many criminal cases there are of necessity submitted to the jury issues involving the meaning of certain words upon which depend the guilt or innocence of the accused; and with the court or jury, as the case may be, is left the decision whether or not the law under which the prosecution is pending has been violated.

"It would of course be extremely desirable if every penal statute could be made so plain as not to leave any doubt as to its meaning, and so intelligible as that every person could by reading it at once decide what he might with safety do under it. But this ideal condition is not attainable. It would not be at all practicable to define in every statute the meaning of controlling words in it, that there may be difference of opinion concerning when it is attempted to apply them to a given state of facts. To do this would extend to unreasonable length almost every statute that creates and describes an offense, and would also complicate and confuse the administration of the criminal law, as the definitions would often be as uncertain as the thing defined. Every penal statute should be given a reasonable construction, one that will effectuate the legislative intent in its enactment; and if it describes the offense in language that can be understood by persons of ordinary intelligence it will not be declared invalid

on the ground of uncertainty. The established rules of construction do not require that the sufficiency of penal statutes should be measured by a technical standard that would impair their efficiency and make their enforcement difficult, if not impossible. A little common sense, as well as legal learning, must be used in the practical administration of the law; and it is not essential that a statute shall be so elaborate in its detail as to attempt to meet every possible state of fact that may arise under it. * * *"

The opinion then proceeds to state that a person who has intelligence enough to conduct a drug store could not fail to know what would constitute the selling of a drug by retail or to understand the meaning of the words "legitimate purposes" as used in the statute; that the druggist must, as declared by the statute, first satisfy himself that the sale of the drug or poison is for a legitimate purpose, and that if he, in fact, does not know the purpose for which the poison is to be used or has any doubt about it, then he must in good faith exercise reasonable care to find out the purpose for which the drug or poison is bought. It is further said in the opinion:

"The statute was intended to regulate sales by druggists, and when it is sought to apply the words 'legitimate purposes' to a sale of drugs or poison by druggists they have a technical meaning that may not be clearly known or understood by courts or jurors, and so it is permissible to allow experts to give evidence as to what is regarded by qualified druggists and physicians legitimate purposes for which sales may be made, so that the trial court and jury may be informed as to what is recognized as a legitimate purpose for which these drugs may be sold by those intrusted with their sale and to whom, in a measure, is confined the knowledge as to what constitutes a sale for legitimate purposes. * * * The question is further suggested that the construction of words and phrases in a statute is usually for the court. Generally this is true. But if it is shown by evidence that words and phrases are susceptible of two meanings, depending on the state of facts it is attempted to apply them to, the court may instruct the jury in the words of the statute and leave them to find from the evidence whether it has been violated. To illustrate: If there should be differences of opinion on the part of witnesses as to whether or not the sale being inquired into was made for a legitimate purpose, the court should leave it to the jury to find the fact and make their verdict accordingly."

The reasoning contained in the opinion in the case supra applies with equal force to the statute here involved, and must control in the construction to be given the words "legitimate use," found therein. The failure of the statute to define these words does not make it void for uncertainty. The word "legitimate," in the statute, is not used in its original sense of lawful, but in its secondary sense of proper or warranted, as when we speak of a "legitimate conclusion" or a "legitimate argument." Morphine is sold for legitimate purposes under the statute when, under the facts, a druggist or doctor, acting according to the ordinary usage of the profession and exercising ordinary care, would have made the sale. This is a question for the jury, and should be so submitted to them by the instruction of the court. If, upon a trial of the case, the appellee should make the defense that the sale of morphine with which he is charged in the indictment was made for a legitimate use, it will be competent for him to show by evidence of physicians or druggists that the use for which he sold the morphine to the purchaser is a legitimate use. On the other hand, the Commonwealth may also introduce evidence to show that the use was not a legitimate one; and, following the introduction of the evidence, the court should instruct the jury upon the issue of fact thereby presented in such manner as will enable them to determine whether or not the sale made by appellee was for a legitimate use as contemplated by the statute.

For the reasons indicated, the judgment is reversed, and cause remanded, with directions to the circuit court to overrule the demurrer to the indictment and for further proceedings consistent with the opinion.

MUNICIPAL ORDINANCES, RULES, AND REGULATIONS PERTAINING TO PUBLIC HEALTH.

LA SALLE, ILL.

Board of Health—Organization, Powers, and Duties. (Ord. Apr. 23, 1914.)

ARTICLE 1. SECTION 1. That there be and there is hereby created and constituted in the city of La Salle a board of health which shall be in general charge of a health commissioner who shall have general supervision of all matters pertaining to the sanitary conditions and health of the city. Said health commissioner shall be appointed by the mayor, by and with the advice and approval of the city council, on the first Tuesday in May, A. D. 1914, and shall hold his office until the first Tuesday in May, A. D. 1915, and shall be appointed annually thereafter on the first Tuesday in May of each year or as soon thereafter as may be. Said health commissioner shall, before entering upon the duties of his office, take and subscribe the oath prescribed by law for city officials.

SEC. 2. That there shall be and there is hereby created and established in the city of La Salle the office of assistant health commissioner, who in case of the temporary absence or disability of the health commissioner shall possess the powers and exercise the duties of said health commissioner. At all other times the assistant health commissioner shall be under the direction and control of said health commissioner. Said assistant health commissioner shall be nominated by said health commissioner and be appointed by the mayor, by and with the advice and consent of the city council, on the first Tuesday in May, A. D. 1914, and shall hold his office until the first Tuesday in May, A. D. 1915, and shall be appointed annually thereafter upon the nomination of the said health commissioner on the first Tuesday in May of each year or as soon thereafter as may be. He shall, before entering upon the duties of his office, take and subscribe the oath prescribed by law for city officials.

SEC. 3. Said health commissioner and assistant health commissioner shall each be a physician legally admitted to the practice of medicine by the authorities of the State of Illinois, and shall be skilled in sanitary and health matters.

SEC. 4. Said health commissioner and his assistant shall give the mayor and other city authorities all such professional advice and information as they may require with a view to the preservation of the public health, and said health commissioner, or his assistant under his direction, shall make a detailed monthly report of the proceedings of the board of health hereby created; and it shall be, and it is hereby, made the duty of said health commissioner, or his assistant under his direction, to investigate the existence of any malignant, contagious, or pestilential disease and adopt measures to arrest the progress of such disease or diseases.

SEC. 5. It is hereby made the duty of the health commissioner, or the assistant health commissioner under the order and direction of the health commissioner, to enforce all the laws of the State and ordinances of the city in relation to the health and sanitary regulations of said city and cause all nuisances to be abated with all reasonable promptness; and for the purpose of carrying out the foregoing requirements the said health commissioner or the assistant health commissioner, or any officer designated by such health commissioner or the assistant health commissioner, shall be permitted at all times from the rising to the setting of the sun to enter into any house, store, stable, or other building, and to cause the floor to be raised if it shall

be deemed necessary in order that a thorough examination of the cellar, vaults, sinks, drains, and the entire premises shall be made, and to cause all privies or vaults to be cleaned and kept in good condition, and to cause all dead animals and other nauseous things or unwholesome substance to be buried, removed, or disposed of as directed by the authorities of said board of health.

SEC. 6. In order to carry out the provisions of the foregoing section it is hereby made the duty of the health commissioner or the assistant health commissioner to serve, or cause to be served, a notice, in writing, upon the owner, occupant, or agent of any lot or building or premises in or upon which any nuisance may be found, or who may be the owner of or cause of any such nuisance, requiring that said nuisance shall be abated in such manner as said health commissioner or his assistant shall prescribe, within reasonable time. Such notice and all other notices pertaining to the board of health shall be delivered to the sanitary policeman or any policeman of said city to serve, and it is hereby made the duty of the sanitary policeman and the members of the police force of said city to serve any and all notices which may be delivered to them by the health commissioner or the assistant. If such owner, occupant, or agent shall neglect or refuse to comply with the requirements of such notice within the time specified they shall be subject to a fine of not less than $5 nor more than $200 for each such violation, and it shall be the duty of such sanitary policeman or police official to proceed at once upon the expiration of the time specified in said notice to cause such nuisance to be abated.

SEC. 7. Said health commissioner shall, annually, on or before the first day of May, make to the city council a full and comprehensive statement of all matters pertaining to the board of health during the year and of all expenditures against such city made during such year. The health commissioner and the assistant health commissioner shall receive no compensation from said city for their services, the compensation for their services being paid for by private contribution.

Communicable Diseases—Notification of Cases—Quarantine—Placarding—Vaccination—Disinfection. (Ord. Apr. 23, 1914.)

ART. 2. SEC. 8. Every householder within the limits of the city of La Salle in whose dwelling there shall occur a case of Asiatic cholera, cerebrospinal fever, typhoid fever, scarlet fever, diphtheria, smallpox, chicken-pox, measles, whooping cough, tuberculosis, or other infectious disease dangerous to public health, shall immediately notify the health commissioner of the same; and until instructions are received from said health commissioner no clothing or other property that may have been exposed to the infection or contagion shall be removed from the house; nor shall any occupant of such infected dwelling change his residence elsewhere without the consent of said health commissioner during the prevalence of any public danger from said disease. And every physician and other attendant upon any person sick with Asiatic cholera, cerebrospinal fever, typhoid fever, scarlet fever, diphtheria, smallpox, chicken-pox, measles, whooping cough, tuberculosis, or other infectious disease dangerous to public health shall forthwith report the same in writing to the health commissioner, stating the name and age and describing the locality of such patient with sufficient accuracy so that he may be easily found; and any person who neglects or fails to comply with the provisions of this section shall, upon conviction, be fined not less than $10 nor more than $100.

SEC. 9. It shall be the duty of the health commissioner or his assistant to visit or examine, or cause the same to be done by a competent person, all persons who shall be reported to him, or them, as laboring, or supposed to be laboring, under any contagious or communicable infectious disease, and said health commissioner or his assistant may cause any person within the city and suffering with a communicable

or infectious or contagious disease to be removed to some safe or proper place within or without the corporate limits where danger from contagion will be avoided, and shall provide suitable medical and other attendance for such person at his or her expense if able to pay the same, and if not, at the expense of the city, provided, that if such person being a resident of the city shall refuse to be removed or if his condition be such that in the opinion of the attending physician removal would be attended with danger to his life then such measures shall be taken by the board of health as may be deemed most advisable to prevent the spread of the pestilence.

SEC. 10. It shall be the further duty of the health commissioner to cause a notice printed in large letters to be placed upon all or any house in which any person may be sick with smallpox, scarlet fever, diphtheria, measles, or any infectious, pestilential or epidemic disease, upon which shall be printed the name of such disease; and if any person or persons shall deface, alter, mutilate, destroy, or tear down such notice without the permission of the health commissioner, such person or persons shall be liable for each offense to pay a fine of not less than $25 nor more than $100.

SEC. 11. Said health commissioner may take such measures as he may from time to time deem necessary to prevent the spread of smallpox by issuing an order requiring all persons in the city requiring vaccination to be vaccinated within such time as he or his assistant shall prescribe, and all persons refusing or neglecting to obey such orders shall be liable to a fine of not less than $3 nor more than $50: *Provided*, That it shall be the duty of the health commissioner to provide for the vaccination of such persons as are unable to pay for same at the expense of the city health department.

SEC. 12. Said health commissioner shall have power to cause any house or any premises to be cleansed, disinfected or closed to visitors and to prevent persons from resorting thereto while any person is laboring under any pestilential or infectious disease. He may, by an order in writing, direct any nuisance to be abated or unwholesome substance, dirt, or filth to be removed from any house or premises, and may prescribe the time and manner of so doing and take any other measures he may deem necessary and proper to prevent the spread of any infectious or contagious disease, and any person who shall neglect or refuse to obey the orders, directions, or instructions of said health commissioner, or his assistant, or who shall violate any of the provisions of this section, shall be fined in any sum not less than $5 nor more than $200 for each offense.

SEC. 13. Any person having smallpox or other communicable, infectious, or contagious disease, who shall go about any street or public place within the city of La Salle while in danger of giving such disease to others, shall be subject to a penalty of not less than $10 nor more than $200.

SEC. 14. Any physician, nurse, or servant, being attendant upon or about any person having the smallpox or other infectious or contagious disease, who shall not change or purify his or her wearing apparel before going upon any street or into any public place, or shall otherwise conduct himself or herself so as to endanger the spreading of the disease, shall for each and every offense be liable to a fine of not less than $10 nor more than $100.

SEC. 15. Whoever shall bring into said city of La Salle any person having the smallpox or other like infectious or contagious disease or any clothing, bedding, or other article or thing infected with smallpox or other infectious or contagious disease shall, upon conviction, be fined not less than $10 nor more than $100.

SEC. 16. Any person who shall knowingly, after having been an inmate of a house where any person or persons are suffering from scarlet fever, smallpox, cholera, or any other infectious or contagious disease, shall publicly expose himself or herself in a manner calculated to spread such disease within said city shall be subject to a fine of not less than $10 nor more than $100 for each offense.

Diseased Animals Not to be Brought Into the City. (Ord. Apr. 23, 1914.)

SEC. 17. No diseased or sickly horse, cattle, swine, sheep, or other animal, or any such animal that has been exposed to any disease that is contagious among animals, shall knowingly be brought into the city of La Salle under a penalty of not less than $10 nor more than $100 for each offense.

Nuisances. (Ord. Apr. 23, 1914.)

ART. 3. SEC. 18. No person shall throw or deposit any manure of animals or any other offensive animal substance or any nauseous liquid or other filthy matter of any kind in or upon any street, alley, or public ground within the city of La Salle under a penalty of not less than $3 nor more than $100 for each offense.

* * * * * * *

ART. 4. SEC. 26. Whoever shall keep, use, or maintain, or cause to be kept, used, or maintained within the city of La Salle any stable, chicken yard, lot, building, or premises in which any horse, cattle, hogs, sheep, or other animals or fowls may be confined in such a manner as to emit a nauseous, foul, or offensive odor, or from any cause to be a nuisance to any community, family, or person, shall be deemed guilty of keeping and maintaining a nuisance, and upon conviction shall be fined in a sum of not less than $5 nor more than $100 for each offense.

SEC. 27. Whoever shall place or deposit or who shall suffer to be placed, deposited, or accumulated on any premises owned or controlled by him any heap of filth or manure in such a manner as to emit a nauseous, disagreeable, or offensive smell to the annoyance or detriment of any family, or whoever shall place or deposit, or cause to be placed or deposited, any manure or the contents of any privy vault in or upon any public street, alley, or other public place, or upon or along the bank of any ravine within the city of La Salle shall be deemed guilty of a nuisance and on conviction shall be fined not less than $5 nor more than $100 for each offense.

* * * * * * *

SEC. 30. Whoever shall place, erect, or maintain any obstruction in or across any watercourse, stream, brook, or ravine so as to cause water to stand and to stagnate therein, or shall place or deposit therein any nauseous or offensive matter, or any stone, earth, straw, hay, manure, or other article or substance, or whoever shall by any means dam up or obstruct any sewer, drain, or gutter shall be deemed guilty of keeping and maintaining a nuisance, and on conviction shall be fined not less than $50 nor more than $200.

SEC. 31. Whoever shall keep any nauseous, foul, or putrid liquid or substance or any liquid or substance likely to become nauseous, foul, offensive, or putrid, or who shall permit any such liquid to be discharged, placed, or thrown, or to flow from or out of any premises into or upon any adjacent premises, or any public street or alley, or who shall allow or permit the same to be done by any person connected with the premises under his or her control shall be deemed guilty of creating a nuisance and shall be fined not less than $5 nor more than $100 for each offense.

SEC. 32. Whoever shall deposit or place in or upon any premises, public or private, inclosed or common, within the said city any vegetable or animal matter or slops, or any filth of a character likely to affect the public health or to produce offensive smells, or shall allow or permit the same to be done by any person connected with the premises under his or her control shall be deemed guilty of creating a nuisance, and on conviction shall be fined not less than $5 nor more than $50 for each offense.

Premises—Care of. (Ord. Apr. 23, 1914.)

ART. 3. SEC. 19. No person having the right or power to prevent the same shall knowingly cause or permit any person to sleep or remain in any cellar or place dangerous or prejudicial to health by reason of want of ventilation, drainage, or because

of dampness, or by reason of the presence of any poisonous, nauseous, or offensive substance or otherwise. Any person so offending shall be fined in the sum of not less than $5 nor more than $50 for each offense.

SEC. 20. The owner, owners, occupant or occupants, respectively, of each lot, house, premises, or any appurtenances thereto of whatever description, shall keep the same in every part thereof free from all filthy matter or thing offensive to the neighborhood about the same or of any unwholesome gas which would be likely to cause disease of any kind, and in case of failure to do so each and every such owner, owners, occupant or occupants shall forfeit and pay to the city not less than $10 nor more than $100, and the sanitary police or any other police officer designated by the health commissioner shall cause the same to be cleansed and purified.

Privies and Cesspools—Care and Disposal of Contents—Sewer Connections. (Ord. Apr. 23, 1914.)

SEC. 21. The health commissioner shall give such directions and adopt all such measures for cleansing and purifying all such buildings, lots, and other places and for causing the removal therefrom of any wells, cisterns, privy vaults, urinals, sinks, slop hoppers, defective plumbing, or any sewer connection, and of nauseous substances producing a disagreeable smell or tending to cause sickness or disease as in his opinion may be necessary; and he may do or cause to be done whatever in his judgment shall be needful to carry out such measures for the preservation of the public health. Any person who shall disobey any order of the health commissioner which shall have been personally served upon him requiring him to abate or remove any nuisance or to cleanse or purify any premises owned or occupied by him in the manner or at the time described in the order shall on compiaint of the health commissioner or any person serving such order be liable to punishment by fine of not less than $3 nor more than $50.

SEC. 22. The cleansing, emptying, and removal of the contents of privy vaults shall be done in an inoffensive manner and the contents of the same shall be conveyed beyond the city limits in air-tight tanks and vessels and shall be disposed of in such a manner as to cause no offense. Said tank or vessels shall be kept clean and inoffensive when not in actual use.

SEC. 23. No privy vault shall be opened nor the contents thereof disturbed or removed between the hours of 6 a. m. and 10 o'clock p. m. of any day, nor shall such contents be deposited or buried within the city, but the contents of the same shall be disposed of under the order and direction of the health commissioner, or his assistant.

SEC. 24. Whenever, in the opinion of the health commissioner, or his assistant, any privy vault shall be offensive and need cleaning it shall be his duty to notify the owner, agent, or occupant to cleanse the same within a period named in said notice, and unless the person so notified shall comply within the time mentioned it shall be the duty of said officer to cause the said privy vault to be cleansed, and such person so failing to comply with said notice shall, upon conviction, be fined not less than $25 nor more than $100: *Provided*, That any person so notified to cleanse any privy vault who shall within the time mentioned request that such work be done by labor furnished by the city of La Salle, and who shall deposit with the city clerk a sum sufficient to cover the expense of such cleansing, shall not be subject to prosecution for any delay or failure to perform said work.

SEC. 25. When any privy vault is cleaned by labor furnished by the city of La Salle said city shall be allowed the sum of 50 cents per barrel of not less than 41 gallons for cleaning each privy vault or hogpen, and 50 cents per barrel for removing all other substances in accordance with the terms of this ordinance, to be paid for by the owners of the premises on which said privy vault and hogpens are located

or from which premises the other substances mentioned in this ordinance may be removed by him.

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ART. 4, SEC. 28. Every dwelling house in said city and every factory or other business building shall be furnished by the owner or agent of the same with a suitable privy or water-closet. These privies or water-closets shall be connected with the city sewer wherever possible, and where not possible to be connected with the city sewer the outside privies for dwellings shall be sunk in the ground at least 6 feet deep and shall be walled up with brick or stone or curbed with 2-inch plank and shall be constructed so that the outside wall thereof shall be at least 5 feet distant from the line of every adjoining lot and at least 20 feet from any house, hotel, boarding house, restaurant, business building, school building, or other place of business and shall be at least 10 feet distant from any street or avenue; and every owner or agent of any premises who shall violate or fail to comply with any of the provisions of this section shall be deemed guilty of a nuisance and shall, upon conviction, be fined not less than $5 nor more than $25, and shall be subject to a further fine of $5 for each and every day thereafter he shall fail to remedy such nuisance.

SEC. 29. Whenever any privy vault or privy shall be kept or permitted to remain in such condition as to become offensive or unwholesome to any person or persons in the vicinity thereof, the same shall be deemed a nuisance; and any owner or occupant of the premises upon which said privy is located who shall neglect or refuse to abate said nuisance after being notified so to do by the health commissioner, or his assistant, or the sanitary policeman, or any police officer, or by any person aggrieved thereby, shall, upon conviction, be fined not less than $5 nor more than $100 for each offense, and shall incur a further fine of $5 for each day thereafter he shall allow such a nuisance to continue.

Foodstuffs—Manufacture, Care, and Sale. (Ord. Apr. 23, 1914.)

ART. 5. SEC. 33. Every manager of a store, market, café, lunch room, or of any other place where a food or a beverage is manufactured or prepared for sale, stored for sale, offered for sale, or sold, which store, café, lunch room, or other place is in operation at the time of the adoption of this ordinance shall, on or before July 1, 1914, register his full name, and the location of said store, market, café, lunch room, or other place, and the nature of the business transacted, in a book to be kept in the health office for that purpose; and every manager of a store, market, café, lunch room or other place where a food or beverage is manufactured or prepared for sale, or sold, that is first opened for business after the adoption of this ordinance shall, within five days after the opening of said store, market, café, lunch room, or other place, register in like manner. In event of a change in the manager or in the location of any store, café, lunch room, or other place aforesaid, the manager thereof shall call at the health office within five days after such change takes place and make a corresponding entry. Any person who violates the provisions of this section shall, upon conviction thereof, be punished by a fine of not exceeding $25 for each and every such offense.

SEC. 34. No restaurant, oyster house, cookshop, ice-cream parlor, dairy lunch, or eating house by whatever name designated where food, meals, or refreshments are served to transient customers to be eaten on the premises where sold shall be established, maintained, or continued without a certificate from the health commissioner that the premises are in a proper sanitary condition in which to conduct such business. Any person who violates the provisions of this section shall, upon conviction thereof, be punished by a fine not exceeding $25 for each and every such offense.

SEC. 35. Every store, market, café, lunch room, or any other place where a food or a beverage is manufactured or prepared for sale, stored for sale, or sold shall be open at all times during business hours for inspection by the health commissioner or his

assistant, or any duly appointed agent of the board of health. Any person who violates the provisions of this section shall, upon conviction thereof, be punished by a fine of not less than $5 nor more than $25 for each and every offense.

SEC. 36. Every manager of a store, market, café, dairy lunch room or any other place in the city of La Salle, where a food or a beverage or confectionery, or any similar article, is manufactured or prepared for sale, stored for sale, offered for sale, or sold, shall cause it to be screened effectually or effectually protected by power-driven fan or fans, so as to prevent flies and other insects from obtaining access to such food, beverage, confectionery, or other article, and shall keep such food, beverage, confectionery, or other article free from flies and other insects at all times. Any person violating the provisions of this section shall, upon conviction thereof, be punished by a fine of not more than $25 for each and every such offense.

SEC. 37. Every manager of a store, market, dairy, café, lunch room, or of any other place in the city of La Salle where a food or a beverage, or confectionery, or any similar article, is manufactured or prepared for sale, stored for sale, offered for sale, or sold, shall equip said store, market, café, lunch room, or other place, with running water, or other proper water supply, if running water be not available, and with facilities and material for the proper washing, and shall cause such washing to be done, of the hands of all persons employed therein, and for the proper cleansing, and shall cause cleansing to be done, of said store, market, dairy, café, lunch room, or other place and of all apparatus, utensils, and material used in connection therewith. Any person violating the provisions of this section shall, upon conviction thereof, be punished by a fine of not more than $25 for each and every such offense.

SEC. 38. That no person owning, renting, leasing, or occupying any stall, room, or stand where meats or vegetables are sold for food within the city of La Salle shall fail to keep said stall, room, or stand in a cleanly condition; nor shall such person allow said meats or vegetables to become poisoned or infected, or unfit for food by reason of uncleanly condition of such stall, room, or stand; and any person violating the provisions of this section shall upon conviction be punished by a fine of not less than $10 nor more than $25 for each and every such offense.

SEC. 39. No person shall expose for sale on any public highway or in any uninclosed market, store, shop, stand, or stall, or in any open lot, or transport over any public highway to any place for sale there or elsewhere, in the city of La Salle any meat, fish, plucked poultry, or game bird, dressed rabbit or squirrel, butter, butterine, oleomargarine, lard, lard compound or substitute, cheese, candy, cake, bread, dates, figs, or any food whatsoever of a kind not commonly washed, peeled, shelled, or cooked before being eaten unless the same be then and there effectually and in a cleanly manner wrapped or uncovered and inclosed, so as to protect it from dust and insects.

SEC. 40. No person selling candy, cake, bread, dates, figs, butter, or other articles of food of a kind not ordinarily cooked, peeled, or washed before being eaten, shall wrap or cover the same with newspaper or with any other paper previously used for any other purpose.

SEC. 41. No person shall expose for sale in any place aforesaid between April 1 and October 31, inclusive, of any year any fresh meat or fish unless said meat or fish while thus exposed be kept at a temperature not exceeding 55° F.

SEC. 42. No person shall expose any article of food for sale on any public highway in the city of La Salle within 24 inches from the surface of the ground, unless said article of food is covered or inclosed so as to prevent access of dogs or is constantly in the immediate presence of the owner of such article of food or of the proper representative of such owner having custody thereof.

SEC. 43. No vendor or distributor of foods or beverages in the city of La Salle for immediate consumption on or about the place of business of such vendor or distributor shall permit any cup, glass, spoon, knife, or fork that has been used for or in connection with the consumption of any such food or beverages to be used again for the same purpose until after it has been thoroughly washed in clean water.

SEC. 44. Any person who violates any of the provisions of section 39 to section 43, inclusive, shall be punished by a fine of not less than $1 nor more than $25 for every such violation.

SEC. 45. Any person who shall sell or offer for sale within the city of La Salle any diseased poultry or fish or the flesh of any diseased animal, fowl, or fish, or any tainted or spoiled meat or any decayed or unwholesome fruit or vegetable, or unsound or unwholesome provisions whatever to be used or eaten for human food, shall, upon conviction, be fined not less than $10 nor more than $100 in each case, and the sanitary policeman or any police or health officer may seize, take, and destroy any meat, food, or drink so exposed or offered for sale.

SEC. 46. That no person, whether owner, manager, keeper of, agent, bartender, or clerk in any saloon, restaurant, boarding house, or eating house, located within the city of La Salle shall offer for sale as food or drink anything unclean, poisonous, or unwholesome, and any person violating the provisions of this section shall, upon conviction thereof, be punished by a fine of not less than $5 nor more than $25 for each and every such offense.

SEC. 47. That no occupant of any building, room, stand, stall, or other place in the city of La Salle where cattle, sheep, hogs, poultry, or other animals are slaughtered or killed, and no occupant of any building, room, stand, stall, or other place in the city where milk, game, poultry, fish, vegetables fruits, groceries, or other articles of food are prepared, kept, sold, or offered for sale shall permit such place or any appurtenance thereto to be unnecessarily unclean and unwholesome. No person who slaughters or kills in said city any cattle, sheep, hogs, poultry, or other animals, and no person, who prepares, keeps, sells, or offers for sale any meat, game, poultry, fish, vegetables, fruits, groceries, or other articles of food shall permit any implement, knife, measure, or utensil used in connection therewith to be unnecessarily unclean or unwholesome or in unfit condition for use in connection with the slaughtering or killing of cattle, sheep, hogs, poultry, or other animals, or for the preparation, keeping, selling, offering for sale, and delivery of meat, game, poultry, fish, vegetables, fruits, groceries, or other articles of food.

Any person who violates any of the provisions of this section shall, upon conviction thereof, be punished by a fine of not more than $25 for each and every offense.

Meat—Sale of—Slaughtering of Animals. (Ord. Apr. 23, 1914.)

SEC. 48. No person shall slaughter any cattle for the purpose of sale as food within the city of La Salle when such cattle are in a feverish or diseased condition; and any person violating the provisions of this section shall, upon conviction thereof, be punished by a fine of not less than $5 nor more than $25 for each and every such offense.

SEC. 49. No slaughtered calf, pig, or lamb or the meat thereof shall be sold or offered for sale within the city of La Salle which, at the date of being butchered or slaughtered (being a calf) was less than four weeks old or (being a pig) was less than five weeks old or (being a lamb) was less than eight weeks old, under a penalty of not less than $10 nor more than $100 for each offense.

SEC. 50. No person shall sell or offer for sale in the city of La Salle any sheep or lamb slaughtered for food until the pelt, head, and feed thereof shall have been removed; and any person violating any of the provisions of this section shall, upon conviction thereof, be punished by a fine of not less than $1 nor more than $25 for each and every offense.

Milk and Cream—Production, Care, and Sale. (Ord. Apr. 23, 1914.)

ART. 6. SEC. 51. No person, firm or corporation shall sell or offer for sale any milk or cream within the city of La Salle without having obtained a license so to do, in the manner hereinafter provided.

SEC. 52. Any person, firm, or corporation desiring a license to engage in the business of selling milk or cream shall first make application therefor to the board of health by filing with the city clerk an application, which application shall set forth with reasonable exactness the name and place of residence of the applicant, the exact location from which the applicant obtains, or is to obtain, his milk or cream, and if the applicant is not a producer of milk or cream, then the name of the person or persons from whom he obtains, or is to obtain, his milk or cream for sale or distribution, and if said applicant is a producer of milk or cream, the number of cows in his dairy herd, or if he is not a producer of milk or cream, the number of cows in the dairy herd of the person or persons from whom he obtains, or is to obtain, his milk or cream, and said applicant shall further set forth the manner in which the applicant intends to dispose of his milk or cream when licensed according to the provisions of this ordinance, and shall be signed by the applicant, and when received by the city clerk shall be placed on file, and the name of the applicant shall be registered in a book of registration kept for such purpose. There shall also be filed with the city clerk the veterinary surgeon's certificate required by section 60 of this ordinance before the issuance of the license. In case any licensee makes a change in the source of his milk or cream supply he shall immediately notify the health commissioner of such change.

Such application shall be accompanied by a fee of $1 payable to the city treasurer: *Provided, however,* That vendors of milk and cream using more than one vehicle shall pay a fee of $1 for each such vehicle.

SEC. 53. A certificate of a duly approved veterinary surgeon shall authorize the applicant to engage in the sale or distribution of milk or cream, and to continue therein until the board of health takes action thereon and either issues a license to the applicant or refuses to do so.

Any such applicant, or any person, firm, or corporation from whom such applicant obtains, or is to obtain, his milk or cream, shall permit the health commissioner and other officers of the board of health of the city of La Salle to inspect the dairy and dairy herds of such applicant, or the dairy herd of the person, firm, or corporation from whom the applicant obtains, or is to obtain, his milk or cream, together with all appliances and milk vessels used therein; any refusal on the part of such applicant or on the part of the person, firm, or corporation from whom such applicant obtains, or is to obtain, his milk or cream, to permit the inspection above referred to shall be deemed a sufficient ground upon which the board of health may refuse to issue the license applied for, and for such cause may revoke the same after its issuance.

SEC. 55. The city clerk shall present the application provided for in section 53 of this ordinance to the health commissioner of said city within three days after the filing of such application.

SEC. 56. It is hereby made the duty of the health commissioner upon receiving notice from the city clerk of the filing of application for license to sell or distribute milk or cream in the city of La Salle to ascertain whether or not such applicant is a fit and proper person to receive a license under the provisions of this article and to make a report thereof in writing to the city clerk.

SEC. 57. If said report shows that the applicant is a fit and proper person to receive a license under the provisions of this article, then the city clerk shall grant the license applied for to such applicants as are entitled thereto.

SEC. 58. The licenses thus granted shall be numbered, and signed by the city clerk, and a record thereof shall be kept by him in the book of registration provided for in section 52 of this ordinance. All licenses shall expire on the first day of May of each year.

SEC. 59. Each licensee shall cause his name and his place of business and the number of his license to be legibly placed in a conspicuous place on the outer side of all automobiles, wagons, and sleighs used by him in the sale or distribution of milk or

cream within the corporate limits of the city of La Salle, and all licensees who sell milk or cream from stores, shops, or houses shall keep their license constantly posted in a conspicuous place on the wall of the room within which said sale of milk or cream is carried on.

SEC. 60. Upon the filing of any application under this ordinance for a license to sell or dispose of milk or cream in the city of La Salle, in case no inspection and test has been made within one year last prior to the date of filing such application, the dairy and dairy herds of the applicant for such license or the dairy and dairy herds of the person, firm, or corporation from whom such applicant obtains, or is to obtain, his milk or cream for sale within said city shall be inspected, examined, and tested without unnecessary delay by the health commissioner of the city of La Salle or by some duly licensed veterinary surgeon approved by the board of health, for the purpose of detecting the presence or absence of tuberculosis or other contagious or infectious diseases. After such inspection, examination, and test of such dairy and dairy herds as hereinbefore provided, each and every animal so examined and tested shall be tagged by the person making such examination and test with a tag duly numbered and of such character as to afford a permanent record of such examination and test, and the results of the same as regards the presence or absence of infectious or contagious diseases, and file a copy of such examination and test with the health commissioner. All such dairy and dairy herds shall be tested, examined, and inspected, as hereinbefore provided, at least once every 12 months so long as the milk or cream produced by them shall continue to be sold and distributed within the city of La Salle.

SEC. 61. No person, firm, or corporation shall bring into the city of La Salle for sale, either by wagon, cart, train, or other kind of vehicle, or keep, have, or offer for sale, or sell in said city any milk or cream contained in cans, bottles, or other containers, unless such cans, bottles, or other package containing such milk or cream for sale shall be marked with a legible stamp, tag, or impression bearing the name of the owner of the cows from which such milk was drawn, giving the place of business, and unless the owner or owners of such cows shall first file in the office of the city clerk a certificate of the health commissioner or of a duly approved veterinary surgeon, stating that such cows have been by him inspected, examined, and tested, and found free from tuberculosis and other contagious or infectious diseases, and giving the results of such inspection and test as to each and every animal so examined and tested. Such certificate shall give a number which has been permanently attached to each cow and a description sufficiently accurate for identification, stating the date and place of examination.

SEC. 62. Milk which is watered, adulterated, reduced, or changed in any respect by the addition of water, or other substance, or by removal of cream, and milk which has been drawn from cows suffering from tuberculosis or any other contagious or infectious disease, and milk which has been drawn from cows which have not been inspected by the health commissioner or by a duly approved veterinary surgeon and tested by physical examination for the purpose of detecting the presence or absence of tuberculosis and other infectious diseases shall not be brought into the city of La Salle, sold or offered for sale at any place in said city, nor shall any person, firm, or corporation sell or offer for sale any such milk in said city of La Salle, except that milk from which any part of the cream has been removed may be sold in the manner hereinafter provided.

The term "adulterated" milk as used in this ordinance means:

First. Milk containing more than 88 per cent of water or fluids.

Second. Milk containing less than 12 per cent of milk solids.

Third, Milk containing less than 3 per cent of fats.

Fourth. Milk drawn from animals within 15 days before or 5 days after parturition.

Fifth. Milk drawn from animals fed on any substance in a state of fermentation or putrefaction, or on any unwholesome food.

Sixth. Milk drawn from cows kept in a crowded or unhealthy condition, or from cows suffering from tuberculosis or any other contagious disease.

Seventh. Milk from which any part of the cream has been removed.

Eighth. Milk which has been diluted with water or any other fluid, or to which has been added or into which has been introduced any foreign substance whatever.

Ninth. Milk the temperature of which is higher than 50° F., or which shall contain more than 250,000 bacteria per cubic centimeter.

Tenth. Milk that has been exposed to the contagion of smallpox, scarlet fever, diphtheria, typhoid fever, measles, or any other contagious disease dangerous to public health.

SEC. 63. Notwithstanding the provisions of section 62 of this ordinance, milk from which cream has been removed, if such milk is otherwise wholesome and unadulterated, may be sold as skimmed milk by licensed milk dealers, but only from vessels legibly marked, in addition to the stamp, tag, or impression provided for in section 61 of this ordinance, with the words "Skimmed milk" in plain black letters upon a light background, the said words being placed in a conspicuous place on the side of such vessel or other container.

SEC. 64. Any adulterated milk and any milk which has been drawn from cows which have not been inspected by the health commissioner or a duly approved veterinary surgeon and tested by physical examination for the purpose of detecting the presence or absence of tuberculosis or other infectious diseases, and any milk drawn from cows where the owner or owners of such cows shall not have filed in the office of the city clerk a certificate of the health commissioner, or of a duly approved veterinary surgeon, stating that such cows have been by him inspected as provided in section 61 of this ordinance, which has been brought into the city of La Salle or is held and offered for sale in said city, may be seized and destroyed by the health commissioner or any other officer of the board of health authorized to inspect the same.

SEC. 65. No cream which is adulterated or that shall contain less than 18 per cent of fat shall be brought into the city of La Salle or held, kept, sold, or offered for sale in said city, nor shall anyone keep, have, or sell, or offer for sale, in said city any such cream. The term "cream" means the fatty portion of pure milk which rises to the surface when milk is left at rest or which is separated by other means. The term "cream which is adulterated," as used in this section, means any cream to which any foreign substance whatever has been added.

SEC. 66. The health commissioner and his assistant shall have authority to stop and inspect, or cause to be inspected, any wagon, cart, automobile, or other vehicle used in delivering milk or cream, or any store, depot, shop, creamery, or any place where milk or cream are offered for sale or sold, and to take samples of such milk or cream from wagons, carts, or other places where milk or cream is sold or offered for sale, for the purpose of enforcing the provisions of this ordinance.

SEC. 67. Milk or cream must not be kept for sale or stored in any stable or milk house that is connected with a stable or in any room used for sleeping or domestic purposes, or opening into same, or in unclean or rusty cans.

Milk must not be transferred from cans to bottles on streets or at railway depots.

The vessels in which milk or cream is kept for sale must be protected by means of a suitable covered receptacle so as to prevent dust from the street or other impurities falling into it.

The ice box in which milk or cream is kept for sale must be cleansed by scrubbing out with hot soda solution at least twice a week.

When any licensee hereunder shall sell or deliver to any customer any tickets or tags representing any milk or cream to which the customer is entitled, the same shall be in the form of coupon tickets or be metal tags so as to be sure of cleanliness.

SEC. 68. When milk or cream is shipped or delivered to a central mixing station, pasteurizing plant, or creamery, all containers in which such milk or cream is delivered shall be labeled and marked and a public record shall be kept by such recipient of all such deliveries and shipments, designating the date, quantity, number of containers, and owner; and the cans, bottles, or other containers delivered to the customers shall be plainly marked with the name, address, and license number of the mixing station, pasteurizing plant, creamery, or dairy, the form for which label shall be approved by the board of health.

SEC. 69. No person or corporation shall sell or offer for sale, expose, or keep for sale in any shop, store, vehicle, or other place milk or cream, unless the same is sold or offered, exposed, or kept for sale in tightly closed or capped bottles or receptacles. Nothing contained herein shall prevent the sale of milk or cream from cans, crocks, coolers, or other receptacles in restaurants, hotels, barrooms, or at soda fountains when the milk or cream is to be consumed in the restaurant or hotel by guests or patrons ordering the same.

SEC. 70. No person, firm, or corporation shall sell, offer, keep or expose for sale within the city of La Salle any milk or cream coming from any premises where there is a case of smallpox, diphtheria, scarlet fever, typhoid fever, measles, or any other contagious disease dangerous to public health.

SEC. 71. Every person, firm, or corporation engaged in the sale or distribution of milk or cream in the city of La Salle and on whose premises there may occur a case of smallpox, diphtheria, scarlet fever, typhoid fever, measles, or any other contagious disease dangerous to public health shall immediately report the same to the health commissioner, and shall stop all sale or distribution of milk or cream until given a permit by the health commissioner to continue such sale or distribution of milk or cream.

SEC. 72. Any person who shall violate any of the provisions of section 51 to section 71, inclusive, of this ordinance shall, upon conviction thereof, be punished by a fine of not less than $10 nor more than $100.

Factories—Sanitary Regulation of. (Ord. Apr. 23, 1914.)

ART. 7. SEC. 73. All industries located within the city of La Salle wherein material is used producing lint, dust, or other particles which fly in the air, and all industries such as foundries, paint shops, dye works, chemical works, and all other industries where chemical gases or fumes are created or where the air is otherwise made impure, shall be under the inspection of the health commissioner in so far as the same are not regulated by statutes of the State. Said health commissioner is empowered to order inspection of all factories and working places in regard to ventilation, and estimating the sufficiency or insufficiency of the amount of fresh air per workman; also general sanitary condition, sufficiency or insufficiency of proper light, temperature, and whether or not persons afflicted with tuberculosis are employed.

SEC. 74. No employer may permit any employee to work in any factory wherein material is used producing lint, dust, or other particles which fly in the air unless same are prevented as much as practicable by suction fans, currents of air or other means. No employer may permit any employee to work in any factory or industry where chemical gases or fumes are created, or where air is rendered impure without ventilating same so as to remove impurities as much as practicable.

SEC. 75. No employer may cause any employee to work in any room where so many persons are employed as to use up fresh air within, without providing means whereby sufficient fresh air will be either let in or forced in. No employer may cause any employee to work in any factory at a place so far removed from a window or other light-giving aperture and so far from artificial light as to be injurious to eyesight. And when sunlight is not adequate for work to be done, the employer shall

furnish adequate artificial light. No employer may knowingly permit any person afflicted with tuberculosis or any other infectious or contagious disease to work in the same room with a person not afflicted with such disease. A written notice signed by the health commissioner or the assistant health commissioner certifying that any such person has any such disease shall constitute knowledge of the fact.

SEC. 76. The health commissioner is authorized and empowered to order changes and improvements in the structure, windows, ventilation, equipment, location of machinery, lights, and air-purifying devices of any factory or working place within the city to meet the requirements of this act; but before the commissioner shall order any such change or new equipment he shall confer with the employer, and if such employer shall voluntarily begin such change or installation of equipment within 10 days thereafter the commissioner shall not order same to be done. If, however, the employer refuses to comply with request, or fails to begin improvement within 10 days after consenting to do so, the commissioner shall order same to be done, in a written order signed by him and left with the employer. Said order shall be complied with within 60 days thereafter.

SEC. 77. The health commissioner and his assistant shall report all violations of State law that may come to their attention to proper authorities.

SEC. 78. Violations of any provisions of section 73 to section 76 of this ordinance shall be punished by a fine of not less than $10 and not more than $100 for each offense.

Garbage, Manure, and Refuse—Care and Disposal. (Ord. Apr. 23, 1914.)

ART. 8. SEC. 79. Garbage is hereby defined and divided into classes, as follows:

Class 1. Kitchen garbage, which includes all manner of kitchen and table refuse and offal, including decayed or spoiled fruit, vegetables, etc., and tin cans and broken bottles.

Class 2. Night soil, which includes the contents of privy vaults, cesspools, etc.

Class 3. Dead animals of all kinds.

Class 4. Stable manure.

Class 5. Ashes and all other refuse of a like general nature, including all sorts of refuse not included in the foregoing four classes.

SEC. 80. Garbage of the first class shall be kept only in water-tight covered receptacles, holding not to exceed 20 gallons, which receptacles shall be so placed on the premises as to be easily accessible to the garbage collector. Such receptacles shall be emptied and the contents thereof removed by the garbage collector as often as such receptacles become full, and in case of private residences at least once each week, in case of boarding houses at least once every four days, and in case of hotels of 20 rooms or more at least once every two days.

SEC. 81. Garbage of the second class shall be removed as often as such privy vault, cesspool, etc., become full, and in no event at intervals longer than one year, and at such other time or times as may be ordered by the board of health of the city, and when removed the contents of such privy vault, cesspools, etc., shall be entirely removed and the occupant of the premises shall thoroughly disinfect the same.

SEC. 82. Garbage of the third class shall be removed within 24 hours after the death of the animal, and until removal no such dead animal shall be suffered to remain in any street, alley, or other public place of the city.

SEC. 83. Garbage of the fourth class shall not be permitted to be unnecessarily scattered over or upon any premises, and no such garbage shall be thrown in or upon any street, alley, avenue, or other public place of the city. Such garbage shall be kept only in covered boxes, the cover to be rain proof, and one side of the box to be at least 6 inches higher than the other side, the dimensions of which shall be not less than 12 feet long, 4 feet wide, and 3 feet deep, which said boxes shall be so placed that the bottoms thereof shall be at least 6 inches above the ground. Garbage of this

class shall be removed from time to time as may be deemed necessary, and in no event at intervals of more than two weeks. Provided that such garbage may be placed in a wagon and hauled away as soon as the wagon box is filled.

SEC. 84. Garbage of the fifth class shall not be permitted to be unnecessarily scattered over or upon any premises, and no such garbage shall be thrown in or upon any street, alley, avenue, or other public place of the city, nor shall any owner or occupant of any premises within the city suffer or permit any such to be or remain in or upon any street, avenue, alley, or other place of said city adjacent to the premises owned or occupied by him.

SEC. 85. For the purpose of this ordinance the city is hereby divided into two districts, to be known as garbage district No. 1 and garbage district No. 2; said district No. 1 shall consist of and include all that portion of the city lying east of Marquette Street and St. Vincent Avenue and district No. 2 shall consist of and include all that portion lying west of Marquette Street and St. Vincent Avenue.

SEC. 86. It shall be the duty of the city to collect and remove garbage of the first class only. Garbage of the second, third, and fourth and fifth classes shall be removed by the owner or occupant of the premises upon which said garbage may accumulate and must be removed within the time and in the manner herein specified; provided, however, that garbage in class No. 1, with the exception of tin cans and broken botttles, shall be securely wrapped in paper before being deposited in garbage cans.

SEC. 87. Any person violating any of the provisions of section 80 to section 86 shall for the first offense be punished by a fine of not less than $5 nor more than $25, and for a second and all subsequent offenses by fines of not less than $10 and not more than $50.

Spitting—Prohibited in Public Places. (Ord. Apr. 23, 1914.)

ART. 9. SEC. 88. No person shall spit, expectorate, or deposit any sputum, spittle, phlegm, tobacco juice, or wads of tobacco upon the floor or stairway or any part of any theater, public hall, or building, or upon the floor or any part of any railroad car or street car, or any other public conveyance in the city or upon any sidewalk abutting any public street, alley, or lane, and it is hereby made the duty of the owner or agent of every theater, public hall, or building in said city to provide every such theater, public hall, or building with a sufficient number of spittoons or cuspidors. Any person violating any of the provisions of this section shall be fined not to exceed $5 nor less than $1 for every such offense.

LONG BRANCH, N. J.

Foodstuffs—Sale of. (Ord. Feb. 24, 1914.)

That the sanitary code be amended by making section 25 read as follows:

"No exposed foodstuffs shall be placed, sold, or offered for sale in front of or adjacent to the outside of any store building in the city of Long Branch: *Provided, however*, That this rule shall not apply to fruits or vegetables which must necessarily be peeled before use, and these shall be placed upon stands, tables, or other structures having a height of at least 20 inches above the sidewalk or ground."

Common Towels, Hair Combs, Hair Brushes, and Cake Soap—Prohibited in Public Places. (Ord. Feb. 24, 1914.)

That the sanitary code be amended by adding section 135A, as follows:

"Any person or corporation that shall offer or expose for use or permit a common towel, hair comb, hair brush, and cake soap to be used by the public in hotels, restaurants and public places in the city of Long Branch shall be guilty of committing a nuisance. Any person, persons, or corporations offending against any of the provisions of this section shall forfeit and pay a penalty of $20."

Markets, Grocery Stores, etc.—Sanitary Regulation—Screening. (Ord. Feb. 24, 1914.)

That section 22 of the sanitary code of the city of Long Branch, adopted September 28, 1911, be amended so as to read as follows:

SEC. 22. That every person or corporation being the owner, lessee, or occupant of any room, market, store, or place where meat, fish, shellfish, bird, fowl, fruit, vegetable, milk, cream, ice cream, or any other article designed or held for use as human food which shall be stored or kept, or shall be offered for sale in the city of Long Branch shall put and preserve the same in a cleanly and wholesome condition, and shall not allow the same, or any part thereof, to be poisoned, infected, or rendered impure or unwholesome or unsafe for the storage or keeping of human food, and shall, from the 1st day of April to the 15th day of October in each year, screen the windows and doors opening into any room, market, store, or place where such foodstuffs above enumerated may be kept with screens sufficiently fine to prevent the entrance of flies and mosquitoes. Any person, persons, or corporation offending against any of the provisions of this section shall forfeit and pay a penalty of $20.

Garbage—Definition of. (Ord. Feb. 24, 1914.)

That the defining of the word "garbage," as set forth in section 2 of the sanitary code of the city of Long Branch be amended to read as follows:

"The word 'garbage' shall be held to include every accumulation of either animal or vegetable matter, liquid or solid, which attends the preparation, decay, and dealings in storage of meats, fish, fowl, birds, or vegetables."

LYNN, MASS.

Milk and Cream—Production, Care, and Sale. (Reg. Bd. of H., Jan. 14, 1914.)

RULE 1. No person shall engage in the sale or distribution of milk in the city of Lynn except in accordance with the rules and regulations adopted by the board of health of said city and in accordance with the public statutes contained in Revised Laws of Massachusetts, chapter 56, and in the acts and amendments thereof.

RULE 2. No person either by himself or his agent or as the agent of any other person, firm or corporation shall produce, offer or expose for sale, or have in his possession with intent to sell or deliver milk or cream in the city of Lynn, who has not annually on the first day of May or within 30 days thereafter made application and received from the inspector of milk a license for the sale and delivery of milk in the city of Lynn; said license to be upon forms prepared by the board of health.

RULE 3. No license will be issued for the sale of milk in any store, shop, market, bakery or other establishment outside of a properly equipped milk plant except in properly labeled and stoppered bottles. All milk so kept for sale shall be maintained at a temperature not above 50° Fahrenheit, in a suitable refrigerator or cooler properly drained and cared for, as approved by the board of health. The attendant making a sale of milk may transfer it to a container furnished by the customer at the time of purchase, but no bottle of milk shall be left unstoppered. A special permit must be obtained for the sale of milk from bulk containers to be drank on the premises.

RULE 4. All persons engaged in the sale, delivery or distribution of milk in the city of Lynn shall furnish the board of health, upon proper blanks provided, a list of the names and location of the dairy farms from which the milk so distributed is obtained, and shall, before making any changes in their supply, notify the board of health of such intended changes. Any person neglecting to comply with this regulation, or who dispenses milk from any dairy whose milk has been excluded from the city of Lynn by the board of health, shall have his license revoked.

RULE 5. All wagons or other vehicles and utensils used in the conveyance of milk for distribution or sale in the city of Lynn shall be kept in a cleanly condition and free from offensive odors. Receptacles containing milk shall at all times during distribution be properly covered. Each wagon or vehicle used for sale, delivery or distribution of milk shall have the name of the owner, residence, and license number painted thereon in plain uncondensed gothic letters not less than 1½ inches in height.

RULE 6. No milk shall be brought into, held, delivered, or offered for sale in the city of Lynn from cows that are either diseased, not properly cared for, or kept in any stable which is not at all times maintained in a clean, wholesome, and sanitary condition, or from any dairy refusing permission to allow an inspection made by the board of health or its agent as to the equipment and methods used in producing milk. A permit will be issued to every dairy desiring to send milk into the city of Lynn after an approved sanitary inspection has been made, and a permanent dairy number will be assigned to each dairy farm to be used by dealers of this department and for purposes of identification.

RULE 7. No milk shall be brought into, held, delivered, or offered for sale in the city of Lynn from cows within 15 days before or 5 days after parturition, nor from cows having an inflammatory disease of udder.

RULE 8. No person either by himself or his agent or as the agent of any other person shall offer or expose for sale or have in his possession with intent to sell in the city of Lynn any milk from cows kept on premises where any infectious, contagious, or communicable diseases exist, nor milk which has been delivered by or has been in contact with any person or persons who have or who have been exposed to any such diseases until such person or persons have received from the board of health a certificate stating that there no longer exists danger of infection to others.

RULE 9. No milk shall be sold, offered for sale, or distributed in the city of Lynn unless the cows from which it is delivered have within one year been examined by a competent authority and shown to be free from diseases dangerous to the public health; but this shall not be construed as forbidding the sale or use of milk from cows not tested with tuberculin.

RULE 10. All persons having a permit or license to sell, deliver, or distribute milk in the city of Lynn shall keep a copy of the license constantly posted in a conspicuous place on the premises.

RULE 11. No milk for sale or distribution shall be stored in that portion of the building which is used for the stabling of horses, cows, or other animals, or for the storing of manure, or in any room used in whole or in part for domestic or sleeping purposes.

RULE 12. No person in the city of Lynn engaged in the business of producing milk for sale, and no person engaged in the business of storing or delivering milk in said city shall strain, store, cool, or mix said milk in any room which is occupied by horses, cows, or other animals. All rooms in which milk is strained, stored, cooled, or mixed shall be provided with tight walls and floor and kept constantly clean. The walls and floors of said rooms to be of such a construction as to allow easy and thorough cleansing. The room or rooms aforesaid shall contain proper appliances for washing or sterilizing all utensils actually employed in the storage, sale, or distribution of milk, and all such apparatus and utensils shall be washed with boiling water or sterilized by steam regularly after being so used.

RULE 13. No urinal, water-closet, or privy shall be located in the rooms called for in the preceding section, or so situated as to pollute the atmosphere of said rooms.

RULE 14. All milk wherever produced and offered for sale in the city of Lynn shall be strained, cooled, or stored as soon as it is drawn from the cow.

RULE 15. All cans, bottles, or other vessels of any sort used in the sale, delivery, or distribution of milk in the city of Lynn must be cleaned or sterilized before they are again used for the same purpose; and it shall be deemed a sufficient reason for forfeiture of license for any milk dealer to fail so to do.

RULE 16. Bottles shall only be filled at a dairy or milk plant, or in such other manner as may be acceptable to the board of health. In no case shall milk bottles be filled from the delivery wagon. All milk sold in bottles shall have a properly fitting stopper which shall have stamped thereon the name and license number of the dealer supplying the milk. Milk tickets shall not be used a second time. No can or other vessel used to contain milk shall be transported in any vehicle used for the conveyance of garbage or other material, or in other manner liable to cause contamination of milk.

RULE 17. In all cases of diphtheria, scarlet fever, and typhoid fever, on notification all milkmen shall discontinue leaving any milk jars or cans of any description at the house where said disease exists, and notify the family that they must furnish their own receptacle for the milk.

RULE 18. No person, by himself or by his servant or agent or as the servant or agent of any other person, firm, or corporation, shall in the city of Lynn sell, exchange, or deliver, or have in his custody or possession with intent to sell, exchange, or deliver any milk, skimmed milk, or cream which contains more than 500,000 bacteria per cubic centimeter, or which has a temperature higher than 50° F. Penalty, up to $100 for each offense.

RULE 19. No person who shall test milk or cream which is to be offered for sale in any form by tasting shall do so except by means of a clean piece of wood, paper, or cardboard, and no such piece of wood, paper, or cardboard shall again be brought in contact with milk or cream intended for sale. No person shall permit his hands, fingers, lips, or tongue to come in contact with milk or cream intended for sale in any form. All persons engaged in the tasting, mixing, or handling of milk for sale in any form shall, before engaging in such tasting, mixing, or handling, thoroughly clean his hands and finger nails and keep them clean and dry during such tasting, mixing, or handling. No person shall permit his hands while wet to remain or pass over any open vessel containing milk intended for sale in any form. No person shall fill a jar, can, or other receptacle with milk while the aforesaid jar, can, or other receptacle is held over an open vessel containing milk intended for sale in any form. No person who has sore throat, diarrhea, or is suffering from any other disturbance of the bowels, or has symptoms of infectious or contagious disease shall engage in the handling of milk which is to be offered for sale or which is for sale.

RULE 20. To insure that your milk or cream shall conform to the above requirements both cleanliness and cold are absolutely necessary at every stage of its handling. With clean cows, clean hands, clean pails, cans, ladles, strainers, etc., absence of dust in the air to which milk is exposed, rapid cooling, and continuous maintenance thereafter of the temperature at or below 50° F. you need have no failures in meeting the demands of the above regulation.

RULE 21. The board of health of the city of Lynn may revoke the license of any person, firm, or corporation who has been licensed to engage in the production, delivery, or sale of milk within the city of Lynn for any breach of the foregoing rules and regulations, or who has been convicted in court under the Revised Laws of Massachusetts, chapter 56, and in the acts and amendments thereof.

Ice Cream—Manufacture, Care, and Sale. (Reg. Bd. of H., Jan. 14, 1914.)

RULE 1. No person shall engage in the manufacture, sale, or distribution of ice cream in the city of Lynn except in accordance with the rules and regulations adopted by the board of health of said city and in accordance with the public statutes con-

tained in Revised Laws of Massachusetts, chapter 56, and in the acts and amendments thereof.

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RULE 3. No person, by himself, his servant, or by his agent, or as the agent or servant of any other person, firm, or corporation, shall manufacture, have in his custody or possession with intent to sell or offer for sale in the city of Lynn any ice cream or preparation similar thereto, until the place of manufacture of the same, the utensils and receptacles used, and the wagon or other means of carrying the same shall have been examined by an inspector of the board of health. Such inspector when satisfied as to the cleanliness of all articles used shall provide said person with a certificate to that effect, and no person shall manufacture or sell such ice cream or similar preparation until such certificate has been issued.

RULE 4. Inspectors shall examine all articles used in the business as often as they may deem necessary, and whenever an inspector shall certify that proper cleanliness is not observed, either in the place of manufacture, in the implements, materials, or manner of making ice cream, etc., or in the manner of carrying or selling the same, no further sales of such ice cream shall be allowed until the objectionable features are removed and the inspector so certifies.

RULE 5. Ice cream kept for sale in any shop, restaurant, or other establishment shall be stored in a covered box or refrigerator. Such box or refrigerator shall be properly drained and cared for, and shall be kept tightly closed, except during such intervals as are necessary for the introduction or removal of ice cream or ice, and they shall be kept only in such locations and under such conditions as shall be approved by the board of health.

RULE 6. Every person engaged in the manufacture, storage, transportation, sale, or distribution of ice cream immediately on the occurrence of any case or cases of contagious, infectious, or communicable disease, either in himself or in his family, or amongst his employees or their families, or within the building or premises where ice cream is manufactured, stored, sold, or distributed, shall notify the Lynn board of health, and at the same time shall suspend the sale and distribution of ice cream until authorized to resume the same by the said board of health. No vessels which have been handled by persons suffering from such disease shall be used to hold or convey ice cream until they have been thoroughly sterilized.

RULE 7. No person, by himself or by his servant or agent, or as the servant or agent of any other person, firm, or corporation shall, in the city of Lynn, sell, exchange, or deliver any ice cream which contains more than 500,000 bacteria per cubic centimeter.

RULE 8. No old or melted ice cream or ice cream returned to a manufacturer from whatever cause, shall again be used in the preparation of ice cream. Penalty up to $100.

RULE 9. The board of health may revoke the permit of any person or persons engaged in the manufacture, delivery, or sale of ice cream in any form for any breach of the foregoing rules and regulations.

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