In dealing with an existing or a threatened pestilence in a densely populated cosmopolitan city, health authorities meet with many difficulties and obstructions which do not obtain in more sparsely settled communities. The crowding together of several families under one roof, as we find them in large tenement houses, the frequent removal from one house to another, a practice not uncommon among tenement house populations, the large number of vagrants who infest every large city and resort to station-houses or cheap lodging-houses for the night's accommodation, and even the practice adopted by public-school teachers of sending pupils to look after absentees, have all been known to spread contagion, and are among the difficulties encountered by boards of health in every large city. The delay on the part of physicians in reporting their cases to the proper authorities, and the frequent delay in obtaining medical attendance upon the sick, thus allowing time for contagion to disseminate and become implanted in new subjects of exposure, may be cited as additional causes of the spread of contagious disease.

The health department of the city of New York, after working for years to control and arrest the spread of small-pox, had learned from this long experience the importance of carefully guarding every avenue through which contagion might spread, when, in the spring of 1881, after an absence of about fifteen years, an outbreak of typhus fever again called into action the best energies of the department.

Just how the city, after so long an immunity, became infected with this formidable disease, has never been satisfactorily explained. It was believed by some that it was brought by tramps from a city in a neighboring state, where a number of cases had previously occurred, and this explanation seemed reasonable, although it was never shown to be the case. In all probability the first case was a mild, unrecognized one, and was probably followed by others equally mild, and perhaps recovering with very little if any medical attendance.

This condition must have extended over a considerable period, for as early as the autumn of 1880 a young woman living in a tenement house on the east side of the city, and whose daily work was in a collar factory, was taken sick with what her physician supposed to be typhoid fever, from which she in due time recovered. This case was followed by four
others of the same family, all of whom were sent to Riverside hospital for treatment. Although the diagnosis was at first, as in the previous case, typhoid fever, the resident physician soon discovered symptoms which led him to suspect that he was dealing with typhus, and Dr. E. G. Jane-way, at that time health commissioner, being asked to see the cases, concurred in this opinion. One case proving fatal, the autopsy failed to reveal any typhoid lesions, and if any further evidence was needed it was furnished by the nurse who had charge of the patients being taken sick with typhus, the symptoms and eruption being so pronounced as to leave no doubt in regard to the diagnosis.

Careful inquiry failed to elicit any reliable information as to the origin of the disease in this instance, or the connection with any other cases, save that it was subsequently learned that there had been sickness in a family residing in a tenement house on the west side of the city, one of the members of which had been engaged in the same collar factory and worked beside the young woman mentioned above. There is some reason to suspect the sickness in this latter case was typhus, but as the attention of the health department had not been called to it in time for a proper investigation, it was not suspected until some time afterwards, when a case of this disease was found in the house.

During the winter months nothing more was heard of typhus until late in February, when a death occurred in one of the city hospitals, and in a short time afterwards the fact was fully recognized that we had an outbreak of typhus fever to contend with, the number of cases reported to the sanitary bureau daily increasing. The number of cases reported from week to week, and their location, character of premises, etc., have already been given to the public; and as the object of this short paper is merely to give an account of the methods adopted in dealing with the disease, it must suffice to say that during the year 506 patients suffering with the fever were removed to Riverside hospital for treatment, most of them taken from the cheap lodging-houses, or from the large, overcrowded tenement houses throughout the city.

Owing to the long immunity which New York had enjoyed from typhus fever, and to the fact that the hospital accommodations at command of the health department were occupied in the care of small-pox and such other diseases of a contagious nature as were refused admission to the general city hospitals, it is not strange that the advent of this disease found us but poorly prepared to meet the emergency. To provide proper care and treatment for the sufferers, and to control or prevent the spread of the disease, were the two objects to be accomplished. To effect the former, the first object was to secure comfortable shelter for the sick; and this was the more difficult because there was so little time in which to operate. The reception hospital offered two small wards, which would soon be overcrowded. It was therefore decided to provide tents, and with as little delay as possible such as could be found suitable to the purpose were purchased, and placed in position on the grounds at Riverside, where they sufficed until more commodious ones could be
made. Although for a few weeks the weather remained very cold, the tents were made quite comfortable, and the percentage of recoveries was all that could be expected. Medical service was already at hand, and one of the trained nurses who had passed through the fever during the previous autumn assumed charge of her department, with such assistance as was from time to time necessary. During the spring another of the nurses took the fever, but passed through it with safety, and recovered in time to resume her duties. The other nurses escaped, although from time to time exposed, even the matron of the institution being daily more or less among the sick, often doing the duties of nurse. The other attendants who took the fever were six orderlies and four female helpers, of whom one orderly and one helper died. The rate of mortality during the season was 24.51 per cent., a ratio quite satisfactory when it is remembered that many were brought in during the latter stage of the disease, and that a large number of the patients were already broken down by alcoholism, exposure, or semi-starvation.

With a view to the early suppression of this outbreak, a special corps of inspectors was organized, whose duty it was to make frequent visits to all lodging-houses in the city for the purpose of enforcing a better system of cleanliness and ventilation, and of detecting any new cases of fever. Many of these visits were made late at night, at which time every lodger was carefully examined; and by this course many cases in the incipient stage of the disease were found and removed to the hospital for treatment. Whenever a lodger exhibited even a slight rise in temperature, or complained of headache, the proprietor was instructed not to allow him to leave in the morning until he had been seen again by the inspector, when, if the diagnosis was still doubtful, he was removed to the reception hospital to remain a few days under observation. The question of closing some of the more crowded lodging-houses was very carefully considered by the board of health; but as there was full reason to believe that such a course would have the effect to scatter the lodgers throughout the city and thus establish new centres of disease, it was wisely determined not to interfere any further than to induce the proprietors to refuse all new applications: thus, each house keeping its regular lodgers and admitting no others, the system of nightly inspections was facilitated, and the disease more readily brought under control.

In addition to these frequent inspections at night, daily inspections were continued, and two or three times a week the houses where the fever had occurred were fumigated with sulphur. Tenement-houses in which the disease was found were all subjected to a like daily supervision. On his arrival at the hospital, the patient's clothing was taken from him and destroyed, it in many instances being extremely filthy, and "alive with vermin." Hospital clothing was furnished during the term of sickness, and when the time came for the patient's discharge, a new suit throughout was furnished at the expense of the city whenever the patient's circumstances were such that he had no friends to supply him,
and was unable to supply himself. It was an invariable rule not to allow typhus clothing to find its way back to the city.

This careful watching of every place where the fever appeared, the early discovery and separation of the sick from the well, the frequent disinfection and fumigation of apartments, the enforcing of thorough cleansing and ventilation, with the immediate destruction of infected clothing, are believed to have been the successful means of arresting the progress of a disease which at one time threatened to become a pestilence to our city.

During the spring of 1882 a similar outbreak of typhus occurred, though far less in severity than that of the previous year. The same system of management was adopted, and with the advantage of the previous year's experience, the disease was more readily controlled.

During the spring of 1883 a few scattering cases occurred, which were promptly reported to the Board of Health, and as promptly taken care of. This mild outbreak would have given but little uneasiness had the disease not found its way into one of the charitable institutions for children, located in a thickly populated portion of the city. From this institution there were in all twenty-five children, and one of the sisters in charge, removed to the hospital for treatment. The sister died, but the children all recovered. While these children were under treatment, another of the trained nurses took the fever, and, although her case was one of unusual severity, she finally recovered. The house in which these cases occurred was carefully watched by Dr. McChesney of the Sanitary Bureau, and as each case developed it was promptly removed to the hospital. The spring was now well advanced; and with a view to entirely eradicate the fever infection, it was determined to vacate the house for a time, and accordingly the children were all removed to North Brother Island, a small island of about a dozen acres, situated in the East river opposite that portion of the city of New York known as Port Morris, and on which is the new small-pox hospital, nearly ready for occupancy. On this island there is also an old frame building, which had been used as a hospital by the city of Morrisania before its annexation to New York, and to this building, which had previously been put in order, the children were transferred, with two of the sisters to look after them. The infected house, being now vacated, was thoroughly cleansed and renovated, and the children enjoyed during the entire warm weather a season of fresh air and salt-water bathing such as they had never enjoyed before. It may be of further interest to state that no case of fever has occurred since the children were removed.

It may well be claimed that success was due not alone to the plan adopted, but also to the promptness of action. The number of special inspectors appointed to the service was such that each call could be responded to without delay, and the ambulance could be called at any time of night as well as day. Whenever a case was found, the least possible time was allowed for its removal, the bedding was taken and destroyed, or otherwise treated at the inspector's discretion, the apartment fumigated, and the premises cleaned and disinfected.
A few words in regard to the efficiency of trained nurses in this service would not be out of place here. Having had, during the past nine years, general supervision of the hospital service for contagious diseases connected with the health department, I have had a good opportunity for observing the value of these intelligent and faithful workers. Thoroughly educated and trained in every branch of their duties, fully appreciating the responsibilities they assume, and equal to the ordinary emergencies which are liable to occur in medical, obstetrical, or surgical service, wherever they are found they are justly regarded as the right hand supporters of the physician or surgeon. It is in the care of contagious diseases, however, that their intelligence and heroism are really put to the test. In the care of these cases self is wholly forgotten, and the welfare of the patient is the all-absorbing consideration, no matter how dangerous or repulsive the disease may be. From experience and intelligent observation they become familiar with every phase of the disease with which they are dealing; quick to observe, and often able to anticipate the physician's wishes, valuable time is saved when emergencies are pressing. In diagnosis, too, they become sometimes even experts; and on more than one occasion has the nurse in charge expressed her opinion with confidence, while the doctors were still differing over an obscure case. In proportion as we encourage the educating and training of suitable young women for this calling will the efforts of the physician to relieve human suffering be aided, no matter in what direction they are made; but whoever sees intelligent trained nurses at work in a hospital for contagious diseases, I believe will see their value as it is seen in no other branch of hospital service.