

being a boy employed as a gasfitter on these premises. The diagnosis here was long delayed owing to peculiar complications, but it ultimately proved to be undoubtedly an infection by *pestis bubonicus*. A fourth employee at this warehouse was reported on the 10th May as suffering from suspicious symptoms—namely, a bubo with some febrile disturbance. A bacteriological investigation by Dr. Monk of the fluid drawn by an aspirating-needle from the bubo, however, proved negative, and as the symptoms rapidly cleared up the case was not considered to be one of plague. The warehouse was a large one, employing over a hundred hands, and the question of closing it during cleansing was a serious one. The building was not permanently infested by rats, and it was considered probable that, as in the case of the bottling-store, the outbreak was due to the chance access of infected rats from an old sewer below the building. The flooding of this sewer a few days before had caused trouble, and rats had been at that time driven to take refuge in the basement. In view of this, and the excellent general sanitary state of the place, and the ease with which thorough disinfection could be done, it was decided not to close the premises, and the result justified this attitude, for no cases arose among those working in or visiting the warehouse subsequent to its disinfection.

As usual, a large number of suspected cases required investigation, most of which were readily proved to be conditions other than plague. Two, however, must be regarded as suspicious, one being a man working in a flour-mill in the city who had a femoral bubo and some slight febrile disturbance. He had not, however, laid up, and only obtained medical advice when he was quite convalescent. The bubo was clearing up when we saw him, and no bacterial diagnosis was possible. This probably was a case of *pestis minor*. The other may have been a case of plague of the septicæmic type, the history being merely a rapidly supervening high temperature, ending fatally on the fifth day. The *bacillus pestis* was not found in blood or sputum. The patient lived in a good suburb under the best sanitary conditions, and there was nothing to connect the case with any other case or any suspected area. The matter, therefore, must remain in doubt.

There were, then, probably nine—possibly ten—cases in all, the last being that reported on the 8th May. Some fourteen other cases reported as suspicious on investigation proved negative.

*Infection among Rats.*—Only a limited number of rats could be obtained for examination in the first four months of the year, therefore it is not very surprising that no infection was demonstrated among them till the 4th May, when an infected carcase was sent in by the Harbour Board rat-catcher from the Hobson Street wharf. In none of the premises from which patients came had we been able to get any carcasses except those which were too decomposed to make any satisfactory bacteriological examination. During April, however, the City Council, at the instance of His Worship the Mayor, organized their sanitary department, and appointed two special rat-catchers, and the suburban local bodies also took up the question of rat-destruction and collection, so that we were enabled to obtain a good many more specimens from all parts. Later in May I was granted permission to appoint two departmental rat-investigators and a man to prepare the dissections, and to make arrangements with Mr. Armitage, of the clinical laboratory, to conduct the bacteriological examination. We were now in a position to put the work on something like a systematic basis. In all, 4,181 rats were examined at the laboratory during the year, and of these 14 were proved to be suffering from plague. At Onehunga, save for the dead rats found in the fruiterer's shop where the first cases arose, there was no evidence of epizootic, and none of the carcasses obtained from that suburb were found infected, nor could we obtain any evidence of unusual mortality among rats in any part of the city or suburbs till the 27th May, when the manager of the Singer Sewing-machine Company in Queen Street reported that a number of dead rats had been found in their cellars. A specimen was obtained, and the *bacillus pestis* found in the spleen and inguinal glands. This information led to important results, for, while the cellar in which the rat-mortality was first reported was in good sanitary condition, subsequent investigations revealed a number of gross sanitary defects in the block of buildings of which it formed a part, and large numbers of dead and dying rats were found in the basements. All of these which were brought to the laboratory for examination were found to be suffering from plague-infection, and numbers of decomposed bodies were undoubtedly similarly affected. Indeed, it seems possible that this block had been for many years a centre for the epizootic, as seven years before a case of plague was reported in a man working in one of the cellars, and in the process of reconstruction necessitated in a particularly insanitary restaurant there were found the mummified bodies of many rats which had probably been lying for years. It is a remarkable fact that, despite the number of infected rats found in this block of buildings, no cases occurred among human beings. On the 30th May the last infected body was obtained from this restaurant. Since this time, although on the average over 100 rats have been each week examined at the laboratory, no further infection has been detected.

We cannot, however, build too many hopes on such failure to find plague. In Sydney, where the examination of rats was much more searching, the infection seemed to disappear for long periods, only to break out afresh; while during 1908 and 1909 no cases in rat or man were known in Auckland, although the evidence is in favour of the germ having been dormant all the time. We are at all times handicapped by the suppression of evidence by business firms and shopkeepers, who fear to report disease among rats lest their business suffer should it prove to be plague. The manager of the sewing-machine firm who reported the outbreak in the City Chambers is, therefore, to be congratulated on his sense of public duty in reporting the matter, as it undoubtedly led to the removal of at least one focus of infection, possibly the main focus in the city.

*General Precautions.*—The occurrence of so many cases of plague within a few weeks, and the fact that two were of the dreaded pneumonic type, made a considerable impression on the local sanitary bodies, with the result that more effectual sanitary reforms were made than on any previous outbreak. The Harbour Board had steadily kept up a campaign against rats, but redoubled their efforts, so that rats are now comparatively scarce along the city waterfront. The substitution of ferro-concrete wharves for the old wooden structures, which has been proceeding for some years, must be regarded