

opportunity of examining later, I believe this streptococcal growth was an accidental infection of the specimen in transit. The bacilli in broth culture tended to grow in chains. They showed no motions of translation, but Brownian movement was marked. No nitrite or indol reaction was found after two weeks. On blood-serum growth was readily obtained. Grown in milk at 37° C. no curdling resulted. In gelatine stab no liquefaction resulted, but a growth formed as a white line along the track of the needle, and spread only over the surface of the gelatine. On potato a slight yellowish-white growth was formed.

On my arrival in Auckland I examined cultures made by Dr. Purdy from the spleen and cardiac blood of the patient. The same cocco-bacillus was present as we found in the spleen sent to Wellington, but here it was apparently in pure culture. The general characteristics of *Bacillus pestis* were demonstrated by subculture in broth, agar, gelatine, and so forth, and in broth on which oil drops floated a feeble development of stalactites was obtained. In neutral red broth no colour-reaction developed.

A *post-mortem* examination of a guinea-pig (B), which had died sixty hours after Dr. Purdy had inoculated it with pulp from one of the enlarged glands of the patient, showed the presence in heart-blood, bubo, and spleen of organisms with all the morphological and culture characters of the *Bacillus pestis*. In this animal the spleen, though enlarged, was not mottled in the usual way, but the bacillus was abundantly present.

By courtesy of Dr. Frost, Honorary Pathologist of the District Hospital, I was enabled to make a *post-mortem* on a guinea-pig (C), which did not die till the eighth day after inoculation. In this the bipolar-staining cocco-bacilli were present in the heart's blood, lungs, and enlarged glands, as also abundantly in the spleen, which was typically enlarged, and mottled with patches of fatty degeneration. From this spleen pure culture of *Bacillus pestis* were obtained in agar-streak and in broth. I inoculated a fourth guinea-pig (D) with an agar culture made from the spleen of guinea-pig (B). The animal became ill in twenty-four hours, and on the fifth day was killed by chloroform when in a dying condition. The usual chain of enlarged glands leading from the inflamed and oedematous seat of inoculation was found. The spleen was typically enlarged and mottled, and pneumonic patches were found in the lungs. The bipolar-staining bacilli were practically universal in the body, and pure cultures were grown on agar streak from the spleen-pulp.

Case 2.

Drs. Frost and Purdy had prepared smears from the spleen, bubo, and heart-blood of a second case of suspected plague (M). This patient had worked in the same building in Queen Street as did Case 1. On examining these I found a bipolar-staining cocco-bacillus with the same morphological and cultural characters as detailed above. In the spleen and bubo they were very abundant, but more scanty in the blood. A guinea-pig (E) inoculated by Dr. Frost with pulp from the spleen of this patient died on the sixth day. At the seat of inoculation in the right thigh there was marked oedema and hæmorrhagic patches, and from here a chain of enlarged glands stretched to the abdominal wall and into the iliac region; enlarged glands were also present in the right axilla. The spleen was typically enlarged and mottled, the liver was enlarged and congested, and the lungs showed pneumonic patches. Cocco-bacilli with all the characters of *Bacillus pestis* were found in buboes, spleen, and blood. Pure cultures were obtained from the spleen-pulp. I inoculated a second guinea-pig (F) from the spleen-pulp of this case. It became markedly ill on the third day, and on the fourth day I killed it. The appearance at the *post-mortem* were much the same as in guinea-pig (E), but the spleen though enlarged and mottled contained few bacilli. Pure cultures were obtained on agar slope from the blood.

I have no hesitation in saying that both of these cases had died from plague.

Case 3.

With the kind assistance of Dr. Frost, I made a bacteriological examination of a case (P) sent in to the isolation hospital as suspicious. There was a small superficial furuncle on the right inner thigh, and an enlarged inguinal gland on the same side. The temperature was high. Smears made from the blood of furuncle and gland showed a small diplococcus, but not resembling *Bacillus pestis*. A guinea-pig (G) was inoculated with serum drawn from the gland by an aspirating needle, and cultures were made in broth. On the fourth day the guinea-pig remained unaffected, and no growth was present in the broth. As the patient's temperature had returned to the normal he was discharged on the following day.