

and about equalled by the much smaller Canterbury District. Nelson suffered quite out of proportion to its size as regards the pneumonic infection, yet among men from the neighbouring Marlborough District not one case of either type occurred. The men from the district round Te Aroha and Waihi suffered very heavily, with 7 cases, while the Bay of Plenty adjoining it contributed but 2. Wanganui district contributed 5 cases and Palmerston only 2; North Canterbury 2 cases and South Canterbury 9, and so on. The climatic differences between these contrasted districts is negligible, and throughout there is no obvious connection between climate and the susceptibility of the recruits to infection. Thus from the mild climate of the Auckland Hospital District we find but 2 cases of pneumonia, while from the almost equally mild climate of Nelson 5 pneumonic cases came. It was suggested in the Public Health Report that the immunity of the men from the Wellington Hospital District was due to their being inured to the boisterous climate and so did not suffer from preliminary catarrhal troubles. Yet while only 3 cases arose from that district, 13 came from the much more rigorous climate of Otago and Southland. It is useless, then, to look for any climatic influence governing the distribution of the disease. We have seen, too, that by far the majority of the patients followed the same occupation—namely, farming—and lived in rural districts irrespective of what part of New Zealand they came from.

The true explanation of this distribution probably can be found by a close examination of the grouping of the cases, when it will be seen that the disease prevailed more among men from a particular locality at definite periods, irrespective to some extent of the unit to which they belonged. We have already seen the influence of locality in examining the grouping by company. Thus in the case of one Reinforcement in July the disease affected men belonging to a company who came from Nelson, while in August the patients in that company were all men from Canterbury. In the case of another company, 4 out of the 7 patients came from the Waihi-Te Aroha district, and so on. This distribution by district, however, does not confine itself to one company or one Reinforcement, otherwise one might regard the grouping as dependent on the fact that the companies are largely made up from men from one particular area.

The following table shows the distribution by month and by locality from which the patients were recruited. Prior to July the cases are too scattered to be of much interest as regards the prevalence in any one district, so that the table only shows the cases as from July, when the disease became epidemic.

	Auckland.	Wellington.	Canterbury.	Otago.	Southland.	Nelson.	Westland.
July	4	2	2	1	1	1	...
August	9	3	6	1	1	2	2
September	5	5	2	4	1	3	...
October	4	5	1	1	...	1	...
November	3	1	2	1	1	...	1
December	2	1	2	1	...	1	...

(NOTE.—Meningeal and pneumonic cases are grouped together.)

This table shows how unevenly the incidence fell on each province. Auckland throughout contributed a high proportion, but in September and October a higher percentage came from Wellington, and in November and December Canterbury contributed almost as many as Auckland.

The proportions for the large provincial districts are as follows:—

	Auckland.	Wellington.	Canterbury.	Otago and Southland.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.
July and August	36	14	22	11
September and October	28	32	9	19
November and December	31	10	25	19

In September Nelson contributed 15 per cent. of the cases.

If we now reconsider the distribution of infection in Reinforcements and companies it becomes evident that the *locality* from which the patient was recruited exerted the greatest influence on the outbreaks. Taking each province in turn we find outbreaks are distributed thus:—

Auckland.—During July 3 out of 4 cases came from Auckland City or its neighbourhood. These cases were drawn from two Reinforcements—the 17th and 18th. After the first week in August, although infection was common among the men from Auckland Province, practically none came from the city or suburbs. During August 4 out of 9 cases came from the neighbourhood of Te Aroha and Waihi. They were drawn from the 18th and 19th Reinforcements. In September 2 more came from the same neighbourhood—the 19th and 20th Reinforcements contributing 1 case each. Thereafter there was only 1 more case from this district—a man in the 22nd Reinforcement, in November. The group is of interest since the district is not a populous one and does not contribute a large number of men to the Forces, and there were no cases in the civil population at this time. It is a district somewhat noted for its freedom from all forms of infectious disease, and it is unlikely the men came into camp already infected. The fact that the patients did not develop the disease till they had been three to four weeks in camp supports this conclusion. The patients were drawn from four Reinforcements and no two lived in the same hut, so that there was little chance for contact in the ordinary round of camp life. Similarly there was no evidence of infection in the hospital wards. It seems probable, then, that these men, being from the same neighbourhood, associated together while on leave and in places of amusement, and that this group of companions included, or came in contact with, a carrier, and probably thereafter the infection continued to spread from one to another of the coterie.

Wellington.—During the sharp outbreaks of meningococcal infection in July and August Wellington Province suffered little; but during September and October more patients came from