



These four maps together illustrate the weather conditions at the time of the big blow in Wellington which damaged the Hutt railway.

to fresh north-west winds in and south of Cook Strait with scattered rain in Westland and Southern Otago, the winds backing to southerlies in the rear of the depression and in front of the advancing anticyclone. The development of the northern cyclone, however, and the position of the "high" which is departing east of the North Island have complicated matters and the winds are rather variable.

Figure 2, the chart for the next day, August 7, shows that since the previous day the northern cyclone has passed rapidly to the south-east and is now apparently centred in the neighbourhood of the Kermadec Islands. Though still relatively low in the far North and about East Cape, pressure is rising everywhere over New Zealand as the large anticyclone to the eastward is gradually advancing. Winds are now more generally southerly as the North Island is being affected by the rear of the cyclone and New Zealand generally by the front of the advancing "high." North of Auckland there had been rain on account of the proximity of the cyclone, but it is now rapidly clearing in those parts and fair to fine weather rules over the Dominion, though the freshening southerly winds in front of the "High" have been accompanied by some scat-

tered showers on the East Coast south from East Cape. Figure 2 also shows that since the previous day a new depression has advanced towards Western Australia.

Figure 3, August 8.—The northern cyclone has passed entirely beyond the area covered by the map, while the anti-cyclone has travelled farther east and is now centred over the central Tasman Sea. New Zealand, being still in front of the centre, is experiencing southerly winds and mainly fair weather, but on account of the steep gradient to the east the southerlies have been strong, reaching gale force at places on the east coast between Akaroa and East Cape, and during the previous night there were some heavy rain squalls on the latter coast. The depression which originally was situated west of Australia is now in the South Australian Bight, and a new anti-cyclone is appearing further westward.

In Figure 4, August 12, the intense anti-cyclone which on the 8th was centred over the Tasman Sea is now shown east of the North Island. During its passage over New Zealand from the 8th to the 12th it was accompanied by very fine, pleasant weather with light and variable winds. The clear, calm atmosphere gave free play to the effects of radiation, and many districts experienced fairly severe frosts.

With winter anti-cyclones, also, there is a tendency for the development of fogs, and morning fogs were prevalent on the several days while this anti-cyclone dominated the situation. During the 11th the winds tended northerly, and by the 12th northerlies were general over New Zealand in the rear of the "High" and were freshening with the advance of a depression over the southern Tasman Sea. The latter is identical with the one shown in Figures 2 and 3, and which was then situated south of Western Australia. It now lies between the departing anti-cyclone and one covering Australia, the centre of the latter having moved from west of Australia since the 8th of August.

This series of charts, Figures 1 to 4, is interesting as showing the paths of the different "Highs" and "Lows" from west to east. There is, however, a seasonal variation in the movement of anticyclones which has a marked effect on the weather of the Dominion. Anti-cyclones, for instance, follow a more southerly track in summer than in winter and spring, and, as a result, in the latter seasons, southern or V-shaped depressions are able to extend farther north. It is this effect which is one of the chief causes of the more marked prevalence of strong, north-westerly winds in the spring season.

Types of Depressions.

IN Figure 4 there is shown a moderate "V" depression. Occasionally these depressions develop considerable intensity, and Figure 5, August 31, shows one with this characteristic. It is situated east of New Zealand, its trough having crossed the Dominion during the night of the 30th. There were strong northerly winds generally during the 30th, reaching gale force at many places. The passage of the trough or line of minimum pressures, as is generally the case, was marked by a sudden backing of winds to a southerly direction. The change was accompanied by very cold, squally conditions, rain in most districts and snow in many parts of the South Island and on some of the ranges in the southern districts of the North Island.

This type of depression is usually followed by one or more secondaries, and when this happens the winds will veer to west and north as each of the low-pressure waves approaches New Zealand, and they will back again to south-west after it has passed, in conformity with the trend of the isobars.

A characteristic effect of this type of depression is the occurrence of the warm, dry north-west winds in the East Coast districts in front of the trough, more especially in the Canterbury Plains. This is a similar wind to