

CLIMATOLOGICAL TABLE—Summary of the Records of Temperature, Rainfall, and Sunshine for November 1966—continued

Station	Height of Station Above M.S.L.	Air Temperatures in Degrees (Fahrenheit)								Rainfall in Inches				Bright Sunshine	
		Means of		Mean of A and B	Difference From Normal	Absolute Maximum and Minimum				Total Fall	No. of Rain Days	Difference From Normal	Maximum Fall		
		A Max.	B Min.			Maximum	Date	Minimum	Date				Amount		Date
Musselburgh, Dunedin ..	5	62.2	46.8	54.5	-0.1	80.0	30	39.7	4	2.29	17	-0.5	0.36	8	166
Oamaru ..	47	63.3	46.4	54.8	..	77.8	30	37.0	4	2.80	12	..	0.74	5	164
West Arm, Lake Manapouri ..	590	59.2	43.7	51.4	-0.3	72.9	14	35.0	9	16.84	21	..	3.45	30	..
Queenstown ..	1,080	62.2	42.9	52.6	-0.7	74.0	24	30.2	4	2.87	18	+0.4	0.57	28	173
Mid Dome ..	1,252	61.6	41.5	51.6	-1.5	75.0	24	27.0	4	4.07	18	+1.1	0.62	21	..
Cromwell ..	720	66.8	44.8	55.8	-1.2	76.7	13	28.1	4	1.40	14	+0.2	0.27	28	..
Ophir ..	1,000	64.0	42.0	53.0	-1.3	76.0	24	24.3	4	2.01	10	+0.7	0.70	7	..
Moa Creek ..	1,400	62.3	37.8	50.0	-2.0	72.4	24	18.5	4	2.37	13	+1.2	0.75	7	..
Earnsclough ..	500	66.7	41.9	54.3	-0.7	78.5	24	23.6	4	1.34	8	+0.2	0.41	6	..
Alexandra ..	461	66.3	45.7	56.0	-0.9	78.7	24	30.1	4	1.75	12	-0.7	0.45	7	192
Roxburgh Hydro ..	350	66.6	44.3	55.4	-0.6	80.0	2	29.5	4	1.20	13	-0.7	0.35	7	..
Moa Flat, West Otago ..	1,345	60.2	40.0	50.1	-0.7	72.0	27	29.2	4	2.50	13	-0.5	0.43	8	..
Lake Mahinerangi ..	1,300	58.4	40.1	49.2	..	74.0	15	29.0	4	3.12	14	-0.1	0.51	22	..
Tapanui ..	740	62.5	42.9	52.7	-0.7	78.4	15	31.8	4	2.89	17	-0.3	0.40	7	..
Rankleburn Forest ..	835	61.2	40.9	51.0	-1.5	76.0	15	33.0	4, 20	3.92	18	..	0.60	29	..
Otautau ..	180	60.9	42.2	51.6	-1.2	77.0	14	30.0	1, 4	3.77	18	+0.3	0.95	29	156
Gore ..	230	63.4	43.4	53.4	-0.8	77.3	14	32.0	4	2.94	16	-0.3	0.41	22, 28	172
Winton ..	150	63.3	41.3	52.3	..	79.0	14	29.4	22	2.17	15	..	0.48	21	159
Pebble Hills ..	138	63.3	42.5	52.9	-1.1	80.2	14	30.0	4	3.28	18	-0.2	0.55	29	..
Invercargill Airport ..	1	60.2	42.8	51.5	-0.7	75.9	14	32.0	4	3.90	18	+0.3	0.91	30	164
Milton ..	60	62.1	41.4	51.8	..	77.8	15	30.3	20	2.38	19	+0.1	0.40	29	..
Balclutha ..	20	61.7	41.2	51.4	..	76.4	15	31.3	20	2.34	17	..	0.45	29	149
Rarotonga ..	15	79.7	69.5	74.6	+1.5	83.0	12	61.3	9	15.01	15	+8.7	4.70	12	133
Raoul Island ..	126	68.2	58.9	63.6	+2.3	71.6	26	54.1	5	4.92	12	+2.1	3.13	19	207
Chatham Islands ..	157	57.1	46.9	52.0	-0.8	63.9	29	37.8	24	1.12	14	-1.1	0.24	7	148
Campbell Island ..	49	50.0	39.6	45.6	..	61.0	15	33.8	4	3.74	26	..	0.41	14	80
Scott Base, Antarctica ..	45	..	..	12.6	..	25.7	16	-7.4	1	..	..	..	..	..	..

LATE RETURNS

Te Kauwhata, October 1966	105	..	..	..	..	..	..	..	..	2.20	13	-2.0	0.68	31	..
Flock House, October 1966	30	61.7	45.4	53.6	-0.1	69.5	15	35.0	14	0.88	..	-2.3	0.21	5	..
Darfield, October 1966	640	64.4	41.7	53.0	+1.0	75.7	17	31.8	1	2.94	8	+0.2	1.51	9	..

The "normal" refers to the present site of the instruments. The standard periods for normals are: for temperature 1931-60, for rainfall 1921-50, for sunshine 1935-60. No normals are available for stations with only short records.

*Sunshine recorder is not located at the station but is in the near vicinity.

NOTES ON THE WEATHER FOR NOVEMBER 1966

General: November was cloudy and cool, and also wetter and more unsettled than usual. The additional rain was appreciated after the comparatively dry weather of September and October; so that in most areas growth was satisfactory and stock in good condition. However, the unsettled weather delayed shearing, especially in the North Island.

Rainfall: Rainfall was more than double the average value in parts of Nelson and Bay of Islands. It was also well above average in central Canterbury, central Hawke's Bay, and parts of eastern Northland, Auckland, Taupo, Wanganui, and Central Otago. Elsewhere rainfall was fairly close to average, though predominantly somewhat greater.

On the afternoon of the 18th a thunderstorm in Christchurch was accompanied by hail and unusually heavy rain. In parts of the city as much as 1½ in. of rain were recorded in half an hour, with flooding of the streets.

Temperatures: Temperatures were mainly 1-2 degrees below average. There were two cold spells, about 6-12 and 19-23 November, with snow well down on the ranges.

Sunshine: Over the greater part of the North Island and inland districts of the South Island sunshine was 20-50 hours below average. In coastal districts of the South Island and also in Southland, Taranaki, Gisborne, Auckland, and Northland, it was close to, or a little below, average.

Weather Sequence: During the first four days of the month a deep depression was passing far to the south, with troughs crossing the country. Winds were mainly north-west to west, with rain in western districts. On the 3rd and 4th a trough became rather slow-moving, and the rain spread to other districts, from North Canterbury to Wairarapa, including Nelson.

A depression had been developing over the Tasman Sea, and this crossed the country from the 5th to the 7th. An anticyclone was centred south of Tasmania, and winds over New Zealand soon changed to southerlies, with unseasonably cold temperatures, which persisted till about the 12th. Rain became general during the passage of the depression, with considerable falls in Bay of Plenty and Nelson. By the 8th the depression was centred to the south-east

and the anticyclone had reached the South Tasman Sea. In the cold south-westerlies snow was reported down to 2,000 ft, but the weather cleared in some western districts, mainly in the South Island. As barometers rose during the next two days the weather cleared in most districts, but showers persisted in Wellington, Wairarapa, and Auckland. With the passage of an anticyclone over the South Island on the 11th and 12th the weather was fine, but still rather cold.

The anticyclone remained to the east during the next two days and a depression over the North Tasman Sea moved southward. The moist northerlies brought considerable rain to Northland, and some also to Coromandel, Nelson, and the West Coast. The depression continued to move southward, and from the 15th to the 18th a number of troughs crossed the country, with the winds changing through north-west to south-west. Over the North Island rain was general at first, and heavy in Bay of Plenty; but later the weather cleared in the east from Wairarapa to Gisborne. In the South Island nearly all districts received some rain, with heavy falls at first in Nelson.

Pressure remained comparatively low over the country, and a depression developed to the north-east on the 19th. It deepened rapidly, moving past East Cape and the Chatham Islands. Cold southerly to south-westerly winds prevailed until the 22nd, with snow for a second time low on the ranges. Rain was again fairly general, but more persistent over the North Island and in Canterbury. A weak trough brought some light rain on the 23rd.

For the next two days winds were north-westerly to westerly, with milder conditions and rain mainly on the West Coast, but scattered showers in some other areas. Better weather was experienced on the 26th and 27th, with anticyclones over and to the east of the North Island. Westerlies and north-westerlies prevailed once again during the last three days of the month as deep depressions passed to the south and troughs crossed the country. Strong gales were reported about Cook Strait. The main area of rain was again the West Coast with the Alps, and there were particularly heavy falls in Fiordland on the 30th. Southland, Otago, and the Canterbury high country also received rain; while showers were reported about the North Island ranges and in Wellington.

J. F. GABITES, Director.

(N.Z. Met. S. Misc. Pub. 107)

New Zealand Government Railways—Schedule of Civil Engineering and Building Contracts of £10,000 or More in Value

Name of Work	Successful Tenderer	Amount of Tender Accepted
		£ s. d.
Earthworks and provision of culverts on the Waiuku line ..	Downer and Co. Ltd., P.O. Box 1292, Wellington	38,196 0 0
	I. THOMAS, General Manager.	