NEW ZEALAND WEATHER FOR PAST YEAR.

By ALFRED A. WINSLOW, American Consul-General.

[Dated: Auckland, New Zealand, Jan. 6, 1919.]

The rainfall at Auckland was about 55 inches for 1918, of which less than 5 inches fell during November and December, as compared with 74¼ inches for 1917 and 67½ for 1916; while the winter was exceptionally cold, and the present spring and summer to date have been the coolest for many years, and frosts and snowfalls have been quite common in different parts of the islands until recently, to the detriment of grain and fruit crops, young lambs and shorn sheep, and country life in general.

DETAILS OF THE WEATHER IN THE UNITED STATES, JANUARY, 1919.

CYCLONES AND ANTICYCLONES.

By A. J. HENRY.

The weather in the United States may be summarized in a single paragraph as follows: The normal winter LOW of Alaska was moderately well developed and extended at times southeastward, overspreading British Columbia and the Canadian northwest. This development in conjunction with a general increase in pressure over middle latitudes, most pronounced in the mountain regions of Colorado, Utah, Idaho, and Wyoming, had a tendency to increase the gradient for south to west winds along the northern boundary of the United States. It also appears that associated with this pressure distribution there was a preponderance of LOWS of the north Pacific and Alberta types, moving rapidly eastward along the northern border of the United States. The following-named exceptions may be noted: Two LOWS, which first appeared over southern Texas, moved thence east-northeast, and a third LOW passed inland over Oregon, moved thence southeastward to the mouth of the Rio Grande, and thence northeastward to the Canadian Maritime Provinces. In respect to HIGHS, four passed inland from the Pacific and eight first appeared north of the Great Lakes or in the Province of Manitoba, and of these one passed southward over the Middle West, the remainder passing eastward and southeastward to the Atlantic. (See Charts II and III.)

The leading feature of the month was, of course, the mild temperature experienced, especially in some portions of the Northwest where the month as a whole was among the warmest of record and in striking contrast to that of January, 1918.

THE WEATHER ELEMENTS.

P. C. DAY, Climatologist and Chief of Division.

[Dated: Weather Bureau, Washington, Mar. 1, 1919.]

PRESSURE AND WINDS.

The distribution of the mean atmospheric pressure over the United States and Canada, and the prevailing direction of the winds for January, 1919, are graphically shown on Chart VII, while the means at the several stations, with the departures from the normal, are shown in Tables I and III.

The pressure distribution for the month was marked by two unusual features—first, the almost constantly maintained HIGH over the Plateau region; and, second, the equal persistence of shallow LOWS along the northern border. As a result the average for the month was well above the normal over the entire region from the Rocky Mountains westward, and from the central Plains eastward to near the Atlantic coast, the center of the highest pressure being maintained in the Middle Plateau.

Over the whole of Canada, as far as observations indicate, the pressure was low throughout the month, the negative departures being quite large in the Northwest Provinces. In the United States pressure averaged below the normal over all northern districts from the Missouri Valley eastward, and along the Atlantic coast to southern Florida.

The general tendency of high pressure toward the south favored winds with strong southerly components over most central and northern districts, while along the southern borders there was a pronounced tendency to winds with northerly components. Over the Middle Plateau the winds maintained the distinctive type present in anticyclones, and were mainly outward from the center of highest pressure. The effects of these winds upon the temperature is clearly apparent on Chart No. IV, departure of the mean temperature from the normal.

TEMPERATURE.

At the beginning of the month abnormally warm weather prevailed east of the Mississippi River, but temperatures were about 20° below the normal in practically all western districts, with readings below zero as far south as the Texas Panhandle, and also over the Rocky Mountain and Plateau regions. This western cold wave overspread eastern localities during the next few days, and the line of freezing temperature extended well into Florida by the morning of the 4th. Warmer weather followed, although the temperature continued somewhat below the normal until the latter part of the first decade in most sections.

During the second decade, moderate temperatures prevailed in the northern and central districts east of the Rocky Mountains, but temperatures below the seasonal average continued in the central and southern Rocky Mountain and Plateau districts, and in other portions of the South. The third decade was marked throughout by abnormally warm weather in the North, and by moderate temperature in most other districts, although in the southern Plateau and Rocky Mountain regions and the Gulf States temperature continued generally below the normal until near the end of the month. During the closing days temperatures were near the normal almost everywhere throughout the country.

While January as a whole was unusually warm over all central and northern districts, being one of the warmest of record in portions of the far north, and remarkably free from even moderate cold periods, nevertheless over small areas in the southern Rocky Mountain and Plateau regions the month as a whole was unusually cold. This was particularly noticeable in southeastern Utah and the adjacent portions of Arizona, New Mexico, and Colorado, where the prevailing clear weather and general snow cover left over from the heavy falls of the early part of the winter favored intense night radiation. As a result minimum temperatures were unusually low throughout the entire month, and the average temperatures were locally among the lowest of record. (See note in a later REVIEW).

PRECIPITATION.

The month opened with snow in the northern and rain in nearly all central and southern districts east of the Mississippi River, and also in the west Gulf States,

the falls being heavy in Tennessee and portions of the Ohio Valley. During the next few days rain or snow continued in eastern districts, with heavy rainfalls in portions of the Atlantic coast States. During the remainder of the first decade unsettled weather prevailed in many eastern sections, with frequent precipitation, but over the middle and western districts practically no precipitation occurred throughout the decade. The first half of the second decade was marked by an unusual absence of precipitation in practically all portions of the country, but toward the end general rains prevailed in the Gulf and Atlantic coast States, with some heavy falls in Texas, though in most other portions of the country the weather continued fair.

During the first few days of the third decade there was an unusual absence of precipitation of any character, save over the extreme eastern and western districts where rain or snow fell in some sections. With the exception of local precipitation over a few limited areas, the remainder of the decade was almost continuously free of clouds or precipitation.

The month as a whole had unusually light precipitation in nearly all districts; in fact, the monthly amounts were everywhere less than normal, save over small areas in the southern States and along the north Pacific coast. Many localities in the Middle West, and generally the lower elevations of the Mountain and Plateau regions received little or no precipitation of any character during the entire month.

SNOWFALL.

The month opened with a considerable portion of the country under a moderate cover of snow left over from the December falls. The heavy snows of the early winter in the southwest had remained unmelted, due to continued cold, and at the beginning of January the western portions of Kansas, Oklahoma, and Texas and the higher elevations of New Mexico, Arizona, southeastern Utah, and southern Colorado had a covering far deeper than usual so early in the season. Over other portions of the country where a covering existed the amounts were generally light and much below the normal. This was particularly true for portions of the Lakes region, New England, and the mountains of the Pacific States. In California the snow stored in the mountains at the beginning of the month was only a small per cent of that usual for the period of the year.

The snowfall for January was nearly everywhere remarkably light, and under the influence of much sunshine and generally moderate temperatures the snow-covered area rapidly diminished, save for occasional increases over small areas. By the close of the month the snow cover had disappeared, except for small areas in the more northern districts and at the higher elevations in the western mountains.

The snowfall stored in the mountains at the end of the month was nearly everywhere deficient as compared with the usual amount, and the outlook in the districts where the water supply is usually dependent upon the snowfall was generally discouraging—in some sections the poorest known. In some of the more northern districts, particularly Idaho, there was a moderate accumulation of snow. In the Lakes region the absence of any material snow cover was seriously hindering logging operations, the success of which depends much upon a good covering of snow as an aid in transportation.

RELATIVE HUMIDITY.

For the month as a whole the relative humidity was higher than usual for January throughout the central and southern portions of the Rocky Mountain and Great Plains regions and in the west Gulf States. Elsewhere it was generally below the normal, and over local areas negative departures were unusually large, notably in portions of the Plateau region and in central and southern California.

Average accumulated departures for January, 1919.

Districts.	Temperature.			Precipitation.			Cloudiness.		Relative humidity.	
	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure from the normal.	General mean for the current month.	Departure from the normal.
	° F.	° F.	° F.	Ins.	Ins.	Ins.	0–10.		P. c.	
New England	29.2	+ 5.1	+ 5.1	3.24	−2.5	−2.5	6.6	+0.6	77	+ 1
Middle Atlantic	36.4	+ 4.8	+ 4.8	3.11	−0.1	−0.1	5.3	−0.7	73	− 3
South Atlantic	47.8	+ 2.6	+ 2.6	3.52	−0.3	−0.3	4.9	−0.4	74	− 3
Florida Peninsula	64.3	− 1.1	− 1.1	1.42	−1.0	−1.0	5.7	+0.9	79	− 3
East Gulf	46.9	− 0.4	− 0.4	5.68	+0.7	+0.7	5.2	−0.5	75	− 2
West Gulf	46.4	+ 0.3	+ 0.3	3.08	+0.1	+0.1	5.4	0.0	77	+ 2
Ohio Valley and Tennessee	36.8	+ 3.8	+ 3.8	2.66	−1.2	−1.2	5.4	−1.1	74	− 3
Lower Lakes	30.4	+ 6.1	+ 6.1	1.19	−1.5	−1.5	6.3	−1.2	76	− 4
Upper Lakes	25.8	+ 7.5	+ 7.5	0.83	−1.3	−1.3	6.8	−0.2	84	+ 2
North Dakota	19.7	+15.7	+15.7	0.15	−0.4	−0.4	5.1	+0.1	80	− 1
Upper Mississippi Valley	29.2	+ 7.7	+ 7.7	0.25	−1.5	−1.5	4.7	+0.9	79	− 1
Missouri Valley	31.7	+10.7	+10.7	0.11	−0.9	−0.9	3.6	−1.5	75	− 2
Northern slope	29.5	+10.5	+10.5	0.25	−0.6	−0.6	4.3	−0.9	65	− 8
Middle slope	33.4	+ 4.4	+ 4.4	0.09	−0.6	−0.6	2.5	−1.8	72	+ 4
Southern slope	38.2	− 3.3	− 3.3	0.89	+0.2	+0.2	3.9	−0.6	72	+ 8
Southern Plateau	39.2	− 1.6	− 1.6	0.13	−0.6	−0.6	2.1	−1.4	45	− 7
Middle Plateau	28.1	− 0.4	− 0.4	0.16	−0.9	−0.9	3.4	−2.0	65	− 7
Northern Plateau	32.4	+ 3.6	+ 3.6	1.19	−0.4	−0.4	5.6	−1.3	71	− 9
North Pacific	42.4	+ 2.4	+ 2.4	8.72	+2.0	+2.0	7.8	+0.2	84	− 2
Middle Pacific	48.4	+ 1.1	+ 1.1	3.25	−1.5	−1.5	4.4	−1.5	75	− 6
South Pacific	54.6	+ 3.8	+ 3.8	0.87	−1.9	−1.9	3.0	−1.7	58	−13

Winds of 50 mis./hr. (22.4 m./sec.) or over, during January, 1919.

Station.	Date.	Velocity.	Direction.	Station.	Date.	Velocity.	Direction.
Block Island, R. I.	10	59	nw.	North Head, Wash.	11	50	s.
Do.	11	56	nw.	Do.	14	88	se.
Do.	24	60	w.	Do.	15	72	nw.
Buffalo, N. Y.	1	64	sw.	Do.	16	80	s.
Do.	2	60	sw.	Do.	17	84	s.
Do.	8	60	sw.	Do.	21	58	s.
Do.	9	62	sw.	Do.	22	70	s.
Do.	10	78	sw.	Do.	23	68	s.
Do.	16	54	sw.	Do.	25	64	s.
Do.	17	60	sw.	Pensacola, Fla.	16	60	s.
Do.	30	52	sw.	Point Reyes Light, Cal.	19	64	s.
Burlington, Vt.	1	60	s.	Do.	24	50	nw.
Cheyenne, Wyo.	3	50	w.	Do.	31	80	nw.
Do.	6	54	w.	Providence, R. I.	24	79	nw.
Do.	17	58	w.	Do.	31	54	nw.
Do.	18	50	w.	Sandy Hook, N. J.	1	50	s.
Do.	24	51	w.	Do.	9	53	nw.
Detroit, Mich.	10	54	w.	Do.	10	53	w.
Duluth, Minn.	8	51	w.	Do.	24	58	w.
Eastport, Me.	24	52	e.	Seattle, Wash.	23	52	sw.
Ellendale, N. Dak.	16	52	nw.	Tatoosh Island, Wash.	10	52	s.
Ludington, Mich.	8	50	sw.	Do.	12	52	sw.
Mount Tamalpais, Cal.	19	62	s.	Do.	13	54	s.
Nantucket, Mass.	10	56	sw.	Do.	14	91	s.
New York, N. Y.	1	53	s.	Do.	16	64	s.
Do.	9	64	nw.	Do.	17	72	s.
Do.	10	62	nw.	Do.	21	50	s.
Do.	11	52	nw.	Do.	22	54	e.
Do.	19	51	nw.	Do.	23	64	sw.
Do.	24	84	nw.	Toledo, Ohio	10	52	w.