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No. 12

INTRODUCTION.

In compiling the present Review the principal data made use of are the telegraph reports of observations received at this office for the purpose of weather forecasting, and reports by mail from voluntary observers and storm signal agents. For the material used in tracing the paths of areas of high and low pressure in the United States, we are indebted to the Chief of the Weather Bureau, Washington, D.C.

REMARKS UPON THE WEATHER.

The weather of December, though departing in the aggregate little from the normal, excepting in the temperature, which was above the average, showed many local departures. The snowfall in most districts was light and excepting in portions of Ontario, Quebec and the Maritime Provinces, there was little upon the ground on the last day of the month. In many districts rivers and lakes were frozen over unusually late. Several heavy gales were reported, these occurring more especially in Ontario and the Maritime Provinces and causing some loss of life.

In British Columbia the weather was exceptionally mild, the temperature being above average; and although there was much cloud and the falls of rain or snow were unusually frequent, the precipitation altogether was about average. The maximum temperatures occurred at most places between the 22nd and 25th, and were about 54° ; and the minimum about the 17th, 27° at French Creek to -24° at Barkerville being recorded. On the 31st there was no snow upon the ground, and on Vancouver Island wild roses were in bloom in the early part of the month.

The weather in the North-west Territories was almost normal, and although there were some local departures they were generally unimportant. At Medicine Hat the temperature was 3.6° above average, and at Chaplin it was 3.0° above, these being the chief exceptions. The maximum temperatures, which were generally between 40° and 55° , occurred at most stations about the 22nd, and the minimum temperatures, which were generally between -12° at Chaplin and -37° at Edmonton, were recorded generally on the 16th and 17th. Little snow fell until the last week, and on the 31st the ground was only lightly covered. Chinook winds occurred rather frequently, and the accompanying high temperatures soon melted the snow. In most districts there was much cloud.

In Manitoba the weather was for the most part fine, mild and dry, the temperature being above average, the precipitation below, and the amount of cloud unusually small. At Stony Mountain the temperature was 6.4° above the average, and at Winnipeg it was 5.6° above. The maximum temperatures, which were generally between 40° and 50° , occurred about the 22nd at most places, and the minimum temperatures, ranging between -17.0° at Portage la Prairie and -24.7° at Brandon, about the 30th. During the first three weeks the precipitation was mostly rain, after which some snow fell, but there was little on the ground on the 31st. Most rivers were frozen over early in the month.

In most districts in Ontario the temperature and precipitation were above average, but there were local exceptions, and at several stations in the south-western portion these conditions were reversed. The greatest departures in the temperature and precipitation above average occurred in eastern and northern Ontario. The maximum temperatures, which at most stations were between 50° and 56° , were recorded generally about the 11th and 12th, and the minimum, which varied between 2.0° above at Pelee Island and -42.5° at White River, north of Lake Superior, occurred on or about the 30th. Although snow fell upon several occasions during the month in southern districts, the ground was bare at most places on the 31st, but in northern and eastern Ontario there was good sleighing by that date. A heavy gale passed over Lake Erie on the 4th, causing loss of life, and another equally severe passed over the province on the 10th. At several stations in the southern portion some garden and wild flowers were still in bloom early in the month.

In the province of Quebec the weather was exceptionally mild, the temperature being as much as 7.1° above average at Chicoutimi, and the precipitation, which was mostly snow, was also above average in most districts. The highest temperatures, which were generally between 50° and 60° , occurred about the 12th, and the lowest, which ranged between -4.5° and -19.0° , were recorded generally about the 31st.

The weather in New Brunswick, though unusually mild was exceptionally dull, and the precipitation, like the temperature, was at most places above average. The highest temperatures, which occurred generally about the 12th, were at most places between 50° and 55°, but at Dalhousie the maximum was 65·0°. The minimum temperatures, which ranged between 9·0° at Point Lepreaux and -27° at Sussex, were reported from most stations on the 31st. At St. John gales occurred on the 2nd, 4th, 8th, 12th and 15th, the wind reaching a velocity upon each occasion of 42 miles per hour. There was not much sleighing until the last week of the month.

In Nova Scotia the temperature was above average, whilst the precipitation varied, it being well above average at Sydney, Port Hastings and Whitehead, and below elsewhere. The maximum temperatures were at most stations between 50° and 55°, the dates of occurrence varying. The minimum temperatures, which ranged between -4° at Parrsboro' and 19° at Whitehead, were recorded generally on the last few days of the month. Several severe gales occurred during the month. At Halifax dandelions were in bloom on the 3rd.

In Prince Edward Island the weather was for the most part fine and mild, the temperature being above average and the precipitation average or below. The maximum temperatures were about the same as in New Brunswick, but the minimum temperatures, which occurred generally on the 31st, were higher. The ground was bare of snow during the greater part of the month, and navigation was open up to the 31st.—F. F. PAYNE.

ATMOSPHERIC PRESSURE.

The mean atmospheric pressure was a tenth of an inch below average in Cape Breton, and thence westward the departure diminished until at Quebec it was just average. Westward from this across the Lake Region to Eastern Manitoba the departure from average was minus, with a difference of 0·07 of an inch in the Ottawa Valley and over the Upper Lakes. From Manitoba to the Pacific the average was generally exceeded, with the greatest departure (0·15 of an inch) over Saskatchewan.

HIGH AREAS.

Eleven high areas have been charted, most of which were extensive, covering large portions of the continent. Three of these showed a tendency to hover, two of them over the Middle Pacific States and one over the North-west. Two first appeared in the North-west Territories and passed south and east across the continent; one came from the extreme North-west States and dispersed over the Middle Atlantic States, after having nearly crossed the continent; two came from the north of Lake Superior and passed south-eastward to the Atlantic. The paths of the remainder were short, and two of the areas were absorbed by others. The most important area of the month was present during the last few days, and brought decidedly cold weather from the Rocky Mountains to the Gulf of St. Lawrence.

LOW AREAS.

Eleven low areas have been traced; four came from the North-west Territories or British Columbia, taking generally an easterly or southeasterly course, one came from the middle Mississippi Valley moving northeastward, one from Texas taking a north-east course, and one appearing near the New England Coast passed northward across the Gulf of St. Lawrence.

The mean rate of movement of the low areas was about thirty-five miles per hour.

No. 1 was centred over Missouri on the 30th November, over the lakes on the morning of the 1st, and thence travelled to Newfoundland, which it reached on the 3rd. It was generally attended by high winds and caused a fresh gale on the Bay of Fundy. No. 2 was centred over eastern Pennsylvania on the night of the 3rd. It developed quickly, took a north-easterly course and gave a fresh gale throughout the Eastern Provinces on the 4th and then moved to Labrador. No. 3 moved as a comparatively shallow area from Manitoba to the Lake Region. It then increased in energy giving high winds and heavy local snowfalls throughout its subsequent course from Ontario to the more southern part of the Maritime Provinces. No. 4 passed across the North-west Territories and thence eastward as an ill-defined area until approaching the seaboard when a marked development occurred and a gale prevailed in the Maritime Provinces. No. 5 appeared off the British Columbia coast on the 8th; it moved to the North-west Territories, then to the north of Lake Superior where it dispersed. It was rather unimportant. No. 6 appeared over Texas on the 10th and moved north-eastward with quickly increasing energy and a strong gale with heavy rainfall prevailed in the Lake Region between the 11th and 12th; the storm moved towards James Bay and thence eastward with diminishing energy to Newfoundland. No. 7 seems to have formed over Kentucky and Tennessee on the morning of the 14th. It moved quickly northeastward with increasing energy, crossing Newfoundland on the 16th. It gave high winds and a general fall of snow from the Lakes to the Atlantic, excepting in the Maritime Provinces, where the precipitation was partly rain. No. 8 was of small dimensions and gave strong winds and a fall of rain from the Lakes to the Atlantic. No. 9 after hovering over the northern portions of the North-west Territories was centred over Keewatin on the 23rd. It then moved south-east to the Upper Lakes and then north-eastward

apparently dispersing over Northern Quebec. It caused a fresh gale throughout Manitoba and the Lake Region. No. 10 was centred over Alabama on the 23rd and then moved quickly northeastward, dispersing next day over New England States. No. 11 was first clearly defined as centred off the New England Coast on the night of the 29th. It crossed the Maritime Provinces there giving high winds, then passing to the north of the Gulf of St. Lawrence.

WINDS.

In British Columbia the winds most in evidence were from between E. and S. and no gale was recorded. In the North-west the most prevalent winds were westerly generally moderate to fresh, but two moderate gales occurred. This prevalent westerly direction was also well in evidence from the Lakes to the Atlantic. One fresh gale occurred in Manitoba, one moderate and one fresh in the Lake Superior district, five occurred on the Lower Lakes, those of the 12th and 24th reaching the force of a strong gale. Eight moderate to fresh gales were experienced in the St. Lawrence Valley and in the Maritime Provinces. The display of storm signals was discontinued to Lake Stations after the 10th instant. The storms which occurred on the Lakes on the 3rd and 9th, were warned, but the gale of the 7th was not warned. In Eastern Canada, six gales were duly warned, but the storms that were experienced on the 2nd and 8th, were not warned.

TEMPERATURE.

Temperature was above average throughout the Dominion, except in a few small sections, where it was just about the average, or slightly below. These sections were a portion of Alberta, the extreme southern part of Assiniboia, the extreme south-western part of Ontario, and in the neighbourhood of White River, in the Lake Superior District. From the Georgian Bay region to our Atlantic Coast the average was considerably exceeded.

The Highest and Lowest Temperature in each Province during December, 1899, were :

British Columbia,	58°·5 on 3rd at Port Simpson.	—24°·0 on 16th at Barkerville.
North-west Territories,	56°·0 on 22nd at Calgary.	—37°·0 on 16th at Edmonton.
Manitoba,	47°·0 on 21st at Portage la Prairie.	—24°·7 on 30th at Brandon.
Ontario,	65°·0 on 21st at Port Hope.	—42°·5 on 29th at White River.
Quebec,	60°·0 on 12th at Brome.	—19°·0 on 31st at Brome.
New Brunswick,	65°·0 on 24th at Dalhousie.	—27°·0 on 31st at Sussex.
Nova Scotia,	55°·8 on 12th at Truro.	— 4°·2 on 31st at Parrsboro'.
Prince Edward Island.	57°·0 on 13th at Summerside.	— 5°·2 on 31st at Summerside.

PRECIPITATION.

The precipitation was below average over British Columbia, Manitoba and the southern portions of the North-west Territories, below average over the Peninsula of Ontario, and in parts of Nova Scotia and Prince Edward Island, and elsewhere above the average. During the first three weeks of the month the precipitation was very largely rain, but during the last week it was in Ontario, Quebec and the Maritime Provinces nearly altogether snow. In British Columbia there was no snow on the ground at the end of the month; the North-west Territories and Manitoba had only a light covering, or in some localities none. In Ontario it varied from a trace at south-western stations to from 10 to 20 inches in northern localities. In Quebec it varied from 2 to 10 inches, and in the Maritime Provinces from 2 to 13 inches.

BRIGHT SUNSHINE.

Bright sunshine was slightly below average at Victoria and on the Mainland, but at Kuper Island it was slightly above. It was slightly below average in the North-west Territories and slightly above in Manitoba. In Ontario the amount recorded varied from just about average to slightly above average. In Quebec, below average to the amount of 11 and in New Brunswick 7 below average.

PRECIPITATION AT STATIONS REPORTING RAIN, SNOW, WEATHER, &c., DURING
DECEMBER, 1899.

STATIONS.	RAINFALL.					SNOWFALL.				REMARKS.
	Amount in inches.	Days '01 or Over.	No. of Fair Days.	Heaviest Fall in Month.	Date.	Amount in inches.	No. of Days.	Heaviest Fall in Month.	Date.	
BRITISH COLUMBIA—	in.			in.		in.		in.		
Royal Oak.....	6.64	15	14	1.50	20	5.0	2	3.0	15	
Goldstream Lake.....	9.64	18	10	1.54	21	6.5	3	5.0	15	
Alberni.....	12.93	15	15	2.56	6	3.0	3	1.5	16	
Langley.....	10.52	18	12	1.70	21	2.5	1	2.5	16	
Nanaimo.....	6.56	11	19	1.67	20	3.0	1	3.0	15	
Vancouver.....	11.15	21	9	1.49	21	2.0	3	2.0	16	
N. W. TERRITORIES—										
N. E. Beaver Hills.....						8.0	7	2.5	12	
W. Beaver Hills.....						10.3	14	3.3	12	
Crescent Lake.....						2.5	3	1.4	2	
Innisfail.....	R					5.0	5	2.5	15	
Saltcoats.....						1.5	2	1.0	2	
Coutts.....						14.7	6	5.0	12	
MANITOBA—										
Deloraine.....	0.05	2	23	0.03	21	5.3	6	2.0	1	
Rapid City.....						0.2	1	0.2	2	
Hartney.....						5.0	2	3.0	2	
Norquay.....						3.3	4	1.5	17	
Pembina Crossing.....							6			
Belmont.....							4			
Shoal Lake.....							3			
Morden.....						3.0	4	3.0	16	
Oakbank.....	R					3.0	4	1.0	1	
Turtle Mountain.....	R					4.5	3	2.5	1	
ONTARIO—										
Goderich.....	0.70	2	23	0.40	2	14.5	6	6.0	30	
Midland.....	1.94	6	18	1.10	11	36.5	8	15.0	24	
Georgetown.....	1.94	10	10	0.96	11	9.5	15	2.5	15	
Wyoming.....	1.20	2	26	0.90	11	13.0	4	9.0	4	
Arden.....	3.32	10	19	1.08	12	12.0	3	5.0	15	
Parma.....	5.86	8	18	1.03	12	40.0	6	18.0	6	
Aurora.....	1.61	6	20	1.25	13	9.0	6	5.3	14	
Lion's Head.....	1.89	4	—	1.28	11					
Huntsville.....	3.18	5	18	1.00	12	18.0	9	5.0	25	
Dealtown.....	1.94	9	20	0.75	11	1.8	3	1.5	14	
Watford.....	2.07	2	—	1.60	11					
Orangeville.....	2.16	4	18	1.03	11	10.4	9	3.3	14	
Uxbridge.....	1.35	3	22	1.05	11	8.7	6	5.0	14	
Port Burwell.....	2.29	4	24	0.80	13	2.0	3	1.0	4	
Emsdale.....	2.49	5	17	1.64	12	28.8	12	8.5	24	
Croydon.....	3.40	5	21	1.50	12	17.0	4	6.0	24	
Cherry Valley.....	3.53	7	21	1.41	11	35.0	3	15.0	25	
Wooler.....	3.64	8	19	1.65	12	19.0	5	10.0	31	
Jermyn.....	2.84	6	24	1.20	11	10.0	4	6.0	14	
Lansdowne.....	2.19	6	17	0.80	24	27.5	8	15.0	7	
Sparrow Lake.....	1.09	3	18	0.85	11	25.4	10	6.5	24	
Dutton.....	2.47	4	23	1.45	11	5.0	4	2.0	14	
Oliver's Ferry.....	1.75	4	25	1.00	11	8.0	3	4.0	15	
Ursa.....	3.13	6	19	1.60	11	17.0	6	4.0	14	
Lynedoch.....	3.29	8	20	1.75	11	8.2	3	3.2	30	
Deer Park.....	2.30	6	20	0.77	11	3.2	6	3.0	14	
Elgin.....	3.61	7	21	1.50	11	11.0	3	7.0	15	
Ennismore.....	2.35	4	25	1.00	11	8.0	2	4.0	12-25	
Providence Bay.....	2.76	7	16	1.63	12	17.0	8	6.0	28	
Princeton.....	2.45	6	19	1.10	11	8.5	7	4.0	14	
Smith's Falls.....	3.83	6	22	1.31	11	9.0	3	5.0	15	
Montague.....	3.05	5	22	1.35	11	6.0	4	3.0	24	
Roblins Mills.....	3.66	5	21	1.72	11	30.5	5	14.0	5	
Sunshine.....	2.14	3	12	1.44	11	20.5	16	4.0	6	
Warton.....	1.67	2	20	1.20	11	31.0	10	15.0	30	
Scarboro.....	1.68	8	19	0.72	11	4.0	7	4.0	15	
Wilton Grove.....	2.57	4	17	1.78	11	9.0	9	4.0	24	
NEW BRUNSWICK—										
Poinc Escuminac.....	0.79	6	23	0.46	25	1.0	3	0.4	15	
NOVA SCOTIA—										
Port Morien.....	4.13	13	13	0.94	3	7.0	6	3.0	28	
P. E. ISLAND—										
Murray River.....	2.39	8	—	0.85	18	Frequent light snow.				

Thunder on 1st.

Aurora recorded—

Where the class of aurora is noted by the observer, it is given, (I) being the brightest, (IV) the feeblest in brilliancy.

2. Gravenhurst, IV.
3. West Beaver Hills, Red Deer, IV.
4. West Beaver Hills
5. West Beaver Hills, IV ; Savanne.
6. Pembina Crossing, IV ; West Beaver Hills, Red Deer, IV.
7. Barnardo, IV ; Pembina Crossing, II ; Aweme, IV.
8. Minnedosa, IV ; Pembina Crossing, III ; Treherne, IV.
9. Minnedosa, IV ; Pembina Crossing, IV ; Aweme, III.
16. Truro, IV.
18. Hillview, III.
20. Chicoutimi.
21. Huntsville IV ; Chicoutimi.
25. Savanne.
26. Pembina Crossing, III ; Aweme, III ; Duck Lake, IV ; Cockburn Island, Savanne, St. Agathe.
27. Barnardo, III ; Prince Albert, II ; Hillview, IV ; Pembina Crossing, III ; Aweme, IV ; Duck Lake, III ; Savanne, Oonikup, Chennel Island, II.
28. Barnardo, IV ; Truro, IV ; Battleford, IV ; Minnedosa, IV ; Duck Lake, III ; Savanne, Tagnish.
29. Barnardo, IV ; Battleford, IV ; Minnedosa, IV ; Pembina Crossing, IV ; Treherne, III ; Duck Lake, IV ; West Beaver Hill, IV ; Savanne, Oonikup, Channel Island, IV.
30. Minnedosa, IV ; Pembina Crossing, IV ; West Beaver Hills.
31. Battleford, IV.

PROPORTION OF BRIGHT SUNSHINE REGISTERED IN EACH HOUR OF THE DAY DURING WHICH THE SUN WAS ABOVE THE HORIZON IN THE MONTH OF DECEMBER, 1899.

	HOURS ENDING															
	5 a.m.	6 a.m.	7 a.m.	8 a.m.	9 a.m.	10 a.m.	11 a.m.	Noon.	1 p.m.	2 p.m.	3 p.m.	4 p.m.	5 p.m.	6 p.m.	7 p.m.	8 p.m.
Victoria.....				0.00	0.02	0.12	0.12	0.20	0.23	0.15	0.18	0.05	0.00			
Kuper Island.....				0.00	0.00	0.05	0.18	0.29	0.28	0.24	0.23	0.08	0.00			
Agassiz.....				0.00	0.00	0.05	0.14	0.16	0.19	0.20	0.11	0.02	0.00			
Battleford.....				0.04	0.16	0.29	0.39	0.35	0.36	0.26	0.08	0.00	0.00			
Indian Head.....				0.00	0.00	0.09	0.22	0.32	0.41	0.40	0.36	0.05	0.00			
Brandon.....				0.00	0.20	0.42	0.55	0.57	0.58	0.51	0.45	0.19	0.00			
Winnipeg.....				0.00	0.14	0.40	0.60	0.54	0.50	0.53	0.55	0.29	0.00			
Durham.....				0.03	0.06	0.10	0.15	0.19	0.19	0.19	0.21	0.22	0.12			
Woodstock.....				S	0.10	0.19	0.32	0.35	0.31	0.33	0.27	0.21	0.04			
Toronto.....				0.01	0.26	0.39	0.35	0.35	0.42	0.44	0.36	0.24	0.05			
Lindsay.....				S	0.11	0.30	0.33	0.29	0.35	0.27	0.11	0.07	0.03			
Barrie.....				S	0.11	0.21	0.26	0.17	0.24	0.26	0.03	0.07	0.00			
Kingston.....				0.02	0.16	0.35	0.36	0.39	0.24	0.24	0.25	0.17	0.01			
Ottawa.....				0.00	0.05	0.11	0.12	0.30	0.35	0.34	0.25	0.11	0.00			
Montreal.....				0.00	0.02	0.19	0.27	0.16	0.24	0.24	0.17	0.02	0.00			
Fredericton.....			0.06	0.16	0.29	0.29	0.33	0.35	0.37	0.42	0.38	0.01	0.00			
	Victoria.	Kuper Island.	Agassiz.	Battleford.	Indian Head.	Brandon.	Winnipeg.	Durham.	Woodstock.	Toronto.	Lindsay.	Barrie.	Kingston.	Ottawa.	Montreal.	Fredericton.
Mean proportion for month..... <i>(Constant sunshine being 1.)</i>	0.13	0.16	0.10	0.23	0.23	0.40	0.44	0.17	0.23	0.25	0.21	0.15	0.25	0.18	0.17	0.29
Difference from average.....	0.02	0.04	0.04	0.07	0.01	0.09	0.07	-	0.03	0.03	0.00	0.01	0.00	-	0.11	0.07
Maximum daily amount.....	0.68	0.69	0.61	0.84	0.73	0.89	0.91	1.00	0.85	0.92	0.82	0.65	0.74	0.77	0.86	0.89
Date.....	3	3	3	5	6	27	24	21	21	28	29	28	29	9	9	30
No. of days completely clouded.....	15	12	24	10	12	5	7	21	14	9	13	14	7	14	12	11

MONTHLY and Annual Summaries for the Year 1899, Fort Simpson, Mackenzie River—Latitude, N. 61° 42'; Longitude, W. 121° 43'. Height above Sea, — feet.

MONTH.	TEMPERATURE.							RAIN.		SNOW.		Gales.	Fogs.	Depth of snow at end of month.	Thunder Storms.
	Mean Max.	Mean Min.	Mean Daily Range	Max.	Min.	Mthly Range	Mthly Mean.	Amt.	Days.	Amt.	Days.				
January.	7.3	29.4	22.1	10.0	54.0	64.0	18.3	0.00	0	9.8	9	4	1	27.5	0
February.	12.8	37.2	24.4	7.0	54.0	61.0	25.0	0.00	0	3.5	4	11	0	28.0	0
March.	3.4	18.8	22.2	26.0	37.5	63.5	7.7	0.00	0	4.7	9	14	0	29.5	0
April.	34.8	11.4	23.4	56.0	11.0	67.0	23.1	R	1	15.4	9	9	0	25.0	0
May.	46.0	25.4	20.6	66.0	9.0	75.0	35.7	1.12	8	5.3	3	2	0		1
June.	65.6	43.2	22.4	76.0	36.5	39.5	54.4	3.84	20			3	0		0
July.	70.5	35.0	35.5	84.0	35.0	49.0	60.0	1.99	8			0	0		0
August.	65.6	41.6	24.0	77.0	24.0	53.0	53.6	0.87	5			0	0		0
September.	54.2	32.8	21.4	64.0	23.5	40.5	43.5	1.34	6			7	0		0
October.	28.6	12.6	16.0	58.0	7.5	65.5	20.6	0.16	1	3.5	4	9	2	2.0	5
November.	14.0	4.1	9.9	36.0	22.0	58.0	9.9	0.00	0	15.7	8	10	4		0
December.															
Year.															

January 4th, blizzard; February 19th and 20th, blizzard; March 21st and 22nd, blizzard; May 6th, cranes, gulls, butterflies, geese and ducks; 12th, white waxies; 13th, swans; 17th, Liard River broken up; 24th, still a light snow on ground; September 30th, violent wind storm from N. W.; October 16th, ice drifting briskly from Liard; 21st, ice drifting from Mackenzie; 28th, Liard closed; 29th, Liard broken out again; November 17th, Liard blocked by ice; 29th, Mackenzie river closing.

MONTHLY and Annual Summaries for the Year 1899, Stuart's Lake, British Columbia—Latitude, N. 54° 28'; Longitude, W. 124° 12'. Height above Sea, 1,800 feet.

MONTH.	TEMPERATURE.							RAIN.		SNOW.		Gales.	Fogs.	Depth of snow at end of month.	Thunder Storms.
	Mean Max.	Mean Min.	Mean Daily Range	Max.	Min.	Mthly Range	Mthly Mean.	Amt.	Days.	Amt.	Days.				
January.	25.4	11.8	13.6	42.9	47.0	89.9	18.6	2.33	3	16.0	4	0	0		
February.	33.1	3.4	29.7	45.0	31.0	76.0	18.2	0.18	1	*	1	1	0	3.6	
March.	27.7	9.2	18.5	51.5	35.0	86.5	18.4	0.00	0	10.0	3	0	0	3.0	
April.	45.4	20.9	24.5	58.0	11.0	47.0	33.1	0.03	2	0.0	0	0	0	2.0	
May.	53.0	25.5	27.5	64.0	11.0	53.0	39.3	0.70	6	1.0	1	0	0		
June.	65.1	33.5	31.6	83.0	28.5	54.5	49.3	R	3			0	0		
July.	77.8	36.7	41.1	93.0	29.5	63.5	57.3	R	6			0	0		
August.	67.8	33.5	34.3	85.0	19.9	65.1	50.6	R	3			0	0		
September.	54.8	31.1	23.7	67.0	18.9	48.1	43.0	0.95	4			0	0		
October.	37.4	21.7	15.7	62.0	1.0	61.0	29.5	1.00	4	6.0	3	0	1		
November.	37.0	20.8	16.2	45.0	11.0	34.0	28.9	0.15	1	2.0	2	0	4	0.2	
December.	18.7	5.7	13.0	39.9	31.2	71.1	12.2	0.22	2	15.0	6	1	0	11.0	
Year.	45.3	21.2	24.1	93.0	47.0	140.0	5.56	35	50.0	20	2	5		

January 21st and 22nd, heavy rain and very warm; February 13th, rain; April 4th, good sleighing; July 25th, potatoes touched by frost; August 26th, hard frost; 31st, ice formed; October 1st, first snow; 10th, hard frost; December 22nd, rain.

ABSTRACT OF OBSERVATIONS AT CARMANAH, VANCOUVER ISLAND, JANUARY TO OCTOBER, 1890.
 LATITUDE, N. 48° 37'. LONGITUDE, W. 124° 47'. HEIGHT ABOVE SEA, 130 FEET.

MONTHS.	BAROMETER AT 32°.				TEMPERATURE.								
	8 a.m.	3 p.m.	8 p.m.	Mean.	8 a.m.	3 p.m.	8 p.m.	Mean.	Mean Max.	Mean Min.	Mean Daily Range	Max.	Min.
	in.	in.	in.	in.	°	°	°	°	°	°	°	°	°
January.....	29.80	29.79	29.78	29.79	38.8	41.8	40.2	39.0	42.4	35.7	6.7	50.0	19.0
February.....	29.89	29.87	29.84	29.87	36.5	38.9	37.5	36.4	40.8	31.8	9.0	48.0	12.0
March.....	29.76	29.81	29.78	29.78	40.3	44.7	40.1	40.4	45.4	35.5	9.9	52.0	31.0
April.....	29.84	29.83	29.82	29.83	45.6	48.9	45.0	45.1	50.1	40.1	10.0	61.0	34.0
May.....	29.85	29.86	29.84	29.85	48.5	49.2	46.9	47.9	51.6	44.3	7.3	61.0	36.0
June.....	29.92	29.94	29.94	29.93	52.3	55.1	50.4	51.4	55.2	47.6	7.6	63.0	45.0
July.....	29.89	29.88	29.87	29.88	57.1	61.0	55.6	56.4	63.2	49.6	13.6	80.0	44.0
August.....	29.78	29.78	29.77	29.78	57.8	61.3	55.6	54.9	60.6	49.2	11.4	64.0	42.0
September.....	29.91	29.89	29.88	29.89	55.1	59.6	54.3	55.2	61.0	49.3	11.7	68.0	45.0
October.....	29.79	29.78	29.77	29.78	48.3	51.1	48.2	48.6	52.2	45.0	7.2	60.0	39.0

MONTHS.	NO. OF WINDS FROM										Mean Force.	RAIN.		SNOW.		Clouded Sky.	No. of Fogs.
	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.	Amt.		Days.	Amt.	Days.			
										in.			in.		%		
January.....	6	7	38	8	3	6	17	0	8	III	16.86	23	2.0	4	75	2	
February.....	2	5	40	3	13	0	18	0	3	IV	16.11	17	6.0	5	82	0	
March.....	10	6	21	0	1	12	30	0	11	III	6.87	16	1.7	5	65	0	
April.....	5	1	22	10	3	9	33	0	7	IV	9.76	18			56	0	
May.....	1	0	13	15	3	11	29	1	17	II	8.09	17			57	1	
June.....	0	0	8	3	2	6	48	1	22	II	1.55	8			57	5	
July.....	1	0	13	3	4	0	38	1	33	I	0.51	8			54	18	
August.....	1	0	21	0	1	1	18	0	51	I	0.94	10			58	11	
September.....	1	0	35	2	1	1	19	1	30	II	3.40	7			49	9	
October.....	4	0	41	20	3	0	9	2	14	III	9.12	17			51	2	

FORECASTS FOR DECEMBER, 1899.

The forecasts issued by this office at 11 p.m. each night, are posted up at every telegraph station in Canada, and are for the 24 hours beginning at 8 a.m. the following day.

The number of predictions issued during the month was 985. These were divided as follows :—

DISTRICT.	No. Issued.	VERIFIED.			
		No. Fully	No. Partly	No. Not	Percentage
Manitoba.....	98	73	14	11	81·6
Lake Superior.....	114	80	25	9	81·1
Lower Lake Region.....	120	84	22	14	79·2
Georgian Bay.....	115	80	20	15	78·3
Ottawa Valley.....	104	73	19	12	79·3
Upper St. Lawrence.....	104	67	28	9	77·9
Lower St. Lawrence.....	103	71	21	11	79·1
Gulf.....	109	79	18	12	80·3
Maritime Provinces.....	118	62	38	18	68·6
Total.....	985	669	205	111	78·3

In order to obtain the percentage of verification of the predictions, the number partly verified is divided by two and added to the number fully verified, and the result divided by the total number issued.

In ascertaining to what extent the predictions have been verified, the reports from the agents at all observing stations, as well as the telegraphic reports, are used.

The forecasts and storm warnings for December were issued by Forecast Official H. V. Payne.

R. F. STUPART,
Director.

Meteorological Office, Toronto,
26th January, 1900.