

METEOROLOGICAL SERVICE, DOMINION OF CANADA.

Monthly Weather Review.

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No. 6

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.

Throughout the greater portion of Canada the weather of June was about normal; and although both the mean temperature and rainfall were in excess of average in some districts, and below in others, these exceptions were generally unimportant, and any injurious effect upon vegetation was comparatively local; nevertheless plant life was still somewhat backward in most districts on the last day of the month.

In British Columbia the weather was for the most part cool and fine over the lower mainland and islands and dull over the upper mainland, the temperature being generally below the average and the amount of cloud somewhat excessive. The rainfall was rather less than average in most districts, but in a few places it was in excess. Towards the end of the month the weather became more settled and vegetation, though backward, was much improved.

The weather in the North-west Territories was cool and wet, and in some places the mean temperature was as much as 5° below average; there was, however, much bright sunshine which had a very beneficial effect. At a few places light frost occurred on or about the 5th, but apparently no damage was done. Thunderstorms were unusually frequent, but they were not destructive, and vegetation, though somewhat backward on the 30th, was in exceptionally vigorous condition.

In Manitoba the weather conditions were much the same as in the Territories, the mean temperature being lower and the rainfall somewhat greater than normal. After the 23rd the weather turned warmer and vegetation, which, up to this date was backward, made good progress.

In the Province of Ontario the weather varied considerably, it being dull, cool and unusually wet in the northern portion, and comparatively fine, warm and dry in southern districts; there were some exceptions to these conditions, however, but they were quite local. In counties bordering upon the western portion of Lake Ontario and the eastern portion of Lake Erie, the drought was severe and vegetation was somewhat affected, whilst in Muskoka and neighbouring districts the farming community complained of excessive rains. Ground frosts occurred at a few places, and there were many thunderstorms, but no damage appears to have been caused thereby.

With the exception of the rainfall which was rather heavy and exceeded the average over eastern Quebec, the weather in this province was almost normal, the mean temperature at a few eastern stations, however, where light frosts occurred, was below the average. Some severe thunderstorms passed over districts along the Upper St. Lawrence and damage was caused by hail, otherwise vegetation was in normal condition.

In New Brunswick the weather did not differ much from average excepting along the eastern coast, where there was much fog and rain. Light frosts occurred on or about the 10th at a few places, but did no damage, and navigation, though rather backward, was making good progress on the 30th.

The weather in Nova Scotia with a few local exceptions was almost normal; the rainfall along the Atlantic coast, however, was somewhat greater than usual, but there was much bright sunshine, and the condition of vegetation, though backward at the end of the month, was much improved.

In Prince Edward Island there was much dull weather, and during the early part of the month it was unusually dry; the total rainfall, however, was rather above average, and vegetation did not differ much from its normal condition.—F. F. PAYNE.

ATMOSPHERIC PRESSURE.

The distribution of pressure was below average from the Rocky Mountains to Manitoba, and above average in all the large remaining portion of Canada; the greatest excess, .060 to .080 inches, occurred in the Lake Region, the Ottawa Valley and on Vancouver Island, and the greatest departure below average—.070 inches in the north Saskatchewan Valley.

HIGH AREAS.

Six areas of high pressure were sufficiently well marked to be traced; a number well up to, if not exceeding, that for the usual June average.

No. 1. This moderate high passed between the 1st and 4th, from the northward of Lake Superior off the New England coast attended by very cool nights from the Lakes to the Atlantic. No. 2 was another very moderate high which first appeared on our Pacific coast on the 7th, reached the Lake Region on the 10th and passed off the New England coast on the 11th. No. 3 also appeared on our British Columbia coast, the date being the 13th. It spread gradually over the western portion of the Continent to the Lake Region, and then on the 17th passed southwards to the Southern States. No. 4 succeeded low area No. 7; it appeared near Lake Manitoba on the 20th; on the 21st it reached the Ottawa Valley, and on the 23rd passed off the Nova Scotian coast. It was only of moderate energy. No. 5 lay over the North Pacific States between the 20th and 22nd, and then spread very slowly to the Lake Region, eventually breaking up on the 27th. No. 6 was as well marked as any high of the series here considered. It developed in the rear of low area No. 10, and between the 29th and 30th its centre travelled from the Lake Superior region over the Lakes to the Middle Atlantic States.

LOW AREAS.

Ten low pressure areas were of sufficient importance to be traced, and what is unusual at this season of the year two of the number were attended by gales of wind, namely, No. 6 in the Gulf of St. Lawrence on the 21st, and No. 10 in the Lower Lakes on the 28th.

No. 1, a continuance of No. 10, on the May chart, after reaching the Ottawa Valley on the morning of the 1st, it passed to the Lower St. Lawrence Valley, and thence southward over the Maritime Provinces. It was attended in Eastern Canada by fresh to strong breezes and scattered showers and thunderstorms. Nos. 2 and 3—No. 2 was situated in Colorado on the 2nd, whence it travelled to northern Dakota, where it was joined by No. 3, the latter having previously travelled across the country from northern British Columbia. The system then moved into Manitoba where it was very energetic between the 4th and 6th. An off-shoot of the system meanwhile moved north of the Lake Region to the St. Lawrence Valley and the Maritime Provinces, but the main area remained over Manitoba until the night of the 6th when it also passed north of the Lake Region to the Gulf of St. Lawrence. During the presence of the system in Canada very heavy rains were experienced from the Rockies to Manitoba; numerous heavy rains were also general in the Lower St. Lawrence and the Maritime Provinces as well as in the Georgian Bay District and the Ottawa Valley, but elsewhere the rain was chiefly as scattered showers. No. 4 moved from the Northward very slowly over the Territories and Manitoba between the 9th and 12th accompanied by numerous showers, together with heavy thunderstorms, thence on the 13th with great rapidity far north over Canada to the Gulf of St. Lawrence, when showers and thunderstorms occurred generally in the Georgian Bay District and also in the Gulf of St. Lawrence. No. 5 was subsidiary to No. 4. It was situated over Kansas on the 13th, and after passing over the Lake Region and Upper St. Lawrence Valley on the 14th and 15th, it travelled on the 16th to the southward of the Nova Scotian coast. Rain fell generally from the Lakes to the Atlantic during the passage of this depression, and there were also some heavy local thunderstorms. No. 6—This was a shallow depression which moved into our North-west Territories on the 16th, and was attended there and in Manitoba until the following day by numerous thunderstorms. Early on the 18th its attendant thunderstorms spread to the Lake Superior region, and later in the day more locally to the Lower Lakes and Ottawa and St. Lawrence districts. No. 7 was situated over Alberta on the 17th; it appears to have been subsidiary to No. 6, and eventually proved itself to be one of the most energetic depressions of the month in that, as after reaching the Lake Superior region on the 19th, it passed southward as a depression of importance and caused gales on the 21st in the Gulf of St. Lawrence, which in some localities were very disastrous to the lobster industry. It was also accompanied by numerous showers and thunder storms in many localities. No. 8 was situated on the British Columbia coast on the 19th; on the 20th, 21st and 22nd it gave heavy rains and thunder storms from the Rockies to Manitoba. It passed far north over Canada to the Gulf of St. Lawrence, also causing scattered showers and thunderstorms in the Lake Region and the Ottawa and St. Lawrence Valleys between the 22nd and 23rd. No. 9 moved into the North-west Territories on the 25th from British Columbia and until the end of the month it hovered there, its presence being marked by many showers and heavy local thunderstorms as far as Manitoba. No. 10 was subsidiary to No. 9. It was first well marked over Montana on the 26th, whence it travelled across the southern portions of

Lakes Michigan and Erie. For a little while it became very energetic, and on the 28th it brought a gale in portions of the Lake Region which was locally severe on Lake Erie. At the same time rain fell from the Lakes to the Atlantic, and in many districts in considerable quantities.

WINDS.

The wind mileage for June was considerable in all portions of Canada and in many districts for the season of the year excessive. In British Columbia fresh to strong breezes prevailed on twenty-three days, the direction being almost entirely westerly. In the North-west Territories the westerly direction prevailed a little oftener than any other; fresh to strong breezes were experienced on nineteen days, and on five other days the force of a gale was reached. In Manitoba the winds blew from a westerly direction on fourteen days, and from an easterly on ten; three gales occurred, and there were seventeen days with fresh to strong breezes. In the Lake Region the force of a gale was reached on one occasion and fresh to strong breezes blew on twelve days; no one direction was especially predominant. In the St. Lawrence Valley and the Gulf the general direction on eighteen days was westerly; one gale occurred; this, however, was from a north-easterly direction; on sixteen days the winds were fresh to strong. In the Maritime Provinces the westerly direction prevailed on twenty-four days. There were fresh to strong breezes on thirteen days. The gale on the 28th in the Lake Region was duly warned, but that in the Gulf of St. Lawrence on the 21st and 22nd was not warned.

BRIGHT SUNSHINE.

Bright sunshine was above average over the larger part of the Dominion; the stations at Agassiz and Winnipeg would, however, indicate a deficiency in parts of British Columbia and Manitoba, and while all stations in Southern Ontario show a percentage larger than the average, much of the more northern portion of the Province was undoubtedly unsettled, cloudy and overcast. The largest amount registered was at Woodstock, Ontario, where it was 66 per cent of the possible, and the smallest amount was at Agassiz, B. C., where it was but 29 per cent of the possible.

TEMPERATURE.

In no part of the Dominion did the mean temperature differ much from average; the greatest departure was in Assiniboia and Southern Alberta, where it was 3 to 4 degrees below, and the greatest departure above was in various small districts in the vicinity of Lakes Huron, Erie and Ontario where it was about 3 degrees. In Manitoba, Quebec and the Maritime Provinces the temperature was either just normal or a little above.

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

British Columbia,	88°.0 on 22nd at Griffin Lake.	28°.0 on 5th at Barkerville.
North-west Territories,	92°.0 on 29th at Muscowpetung.	26°.2 on 19th at Banff.
Manitoba,	87°.0 on 29th at Portage la Prairie.	30°.0 on 8th at Winnipeg.
Ontario,	95°.0 on 5th at Stony Creek.	26°.0 on 10th at White River.
Quebec,	90°.0 on 14th at Richmond.	30°.1 on 4th at Father Point.
New Brunswick,	86°.0 on 13th at Chatham.	32°.5 on 11th at Sussex.
Nova Scotia,	85°.0 on 15th at Wolfville.	31°.0 on 5th at Sydney.
Prince Edward Island,	79°.6 on 1st at Charlottetown.	41°.0 on 5th at Hamilton.

PRECIPITATION.

The rainfall has been below average in British Columbia and in the southern part of Ontario from the Upper St. Lawrence Valley to the St. Clair River, and particularly so in the counties bordering on parts of Lakes Erie and Ontario; in Northern Ontario, and generally in the other Provinces it was either equal to or above the average, the most marked excess being along the north shores of the Georgian Bay and Lake Superior and thence westward to Alberta.

PRESSURE, TEMPERATURE, WIND AND PRECIPITATION AT STATIONS IN THE DOMINION OF CANADA, JUNE, 1899.

Barometer not reduced to Sea Level. * Stations not furnished with Registering Thermometers.

Main data table with columns for Station, Latitude N., Longitude W., Elevation above Sea Level, Pressure (Mean reduced, Highest, Lowest, Range), Temperature (Mean, Difference from average, Highest, Lowest, Date, Mean daily range), Mean temperature of Dewpoint, Mean relative humidity, Mean amount of Cloud, No. of days completely clouded, Direction of Wind from (N, N.E., E, S.E., S, S.W., W, N.W., C), Total number of hours, Velocity of Wind (Mean miles per hour, Highest days, Date and direction from), Precipitation (Amount, Difference from Average, Heaviest fall in month), Days with 0.1 or more, No. of Fair days, No. of Auroras, No. of Thunder storms, No. of Fogs.

STATION.

- BRITISH COLUMBIA: Victoria, Barkerville, Agassiz, Abbotsford, Port Simpson, Spence's Bridge, Hazelton, Revelstoke, Kamloops, Princeton, Pilot Bay, Rivers Inlet, Stuart's Lake, French Creek, Donald, Griffin Lake, Vernon, Kuper Island, Chilliwack, Quatsino, Midway, Endbury, Nicola Lake, Chilotin, West Kootenay, Garry Point, Tobacco Plains, Alberni, New Westminster, Ladner, N. Nicomen, Clayquot, Carse Scott, Massett, Ouesnelle Forks, Bella Coola, Duncan's, Vancouver, Nelson, Kelowna, Selkirk, Matsqui, N.-W. Territories: Medicine Hat, Edmonton, Swift Current, Qu'Appelle, Carleton Place, Peace Albert, Battleford, Ombak, Banff, Calgary (2), Chetopa, Moose Jaw

N. W. TERRITORIES—Con.

Indian	50 27 104 37 1985	57.5	3.0	15.88	0	29	35.0	8 22.2	2	18	8	7	9	15	12	19	0	90	11.1	21.0	26 SK	4.15	+1.49	1.28	10.13	0	0	
Regina	50 28 103 40 1924	57.4	4.2	10.82	0	18	37.0	3 22.0	7	3	4	8	4	4	4	17	0	88	27.5	27 W	3.88	+1.59	0.81	17.14	2	0	1	
Cunnington Manor	49 43 102 2	58.2	0.3	484.5	18	34	8 19.1	4 24.8	1	4	1	6	0	9	2	7	0	30	11.1	21.0	26 SK	4.96	+2.07	0.9	16.14	0	0	
Waclog	49 44 113 24	57.1	1.2	183.0	20	36	4 24.8	5 22.0	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.39	—	0.65	10.21	0	0	
Carrow	49 16 113 45 4000	51.1	0.6	380.0	1824	32.0	5 29.1	5 22.0	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.95	+1.03	1.43	10.21	0	0	
Garesarth	50 20 105 0 1957	55.9	5.8	385.0	19	35.0	5 22.0	5 22.0	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.81	+1.03	0.69	10.17	1	0	
Greenell	50 23 102 63	53.7	3.4	278.5	17	31.0	5 26.0	8 32.5	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.42	—	0.65	13.18	0	0	
Kneehill	51 55 113 0	57.3	6.4	182.0	29	34.0	8 32.5	8 32.5	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	1.96	—	0.64	7.24	0	0	
Muscowetung	50 15 104 15	56.5	1.1	484.0	28	33.0	7 25.8	7 25.8	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	1.62	—	0.64	7.24	0	0	
Fort Simpson	61 52 121 43	56.1	0.1	181.0	26	37.0	13 20.6	13 20.6	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	4.50	+1.47	1.45	20.10	0	0	
Alameda	49 15 102 17	57.5	—	—	26	37.0	13 20.6	13 20.6	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.68	+0.85	1.58	15.11	0	0	
Duck Lake	52 24 106 9	56.1	0.1	181.0	26	37.0	13 20.6	13 20.6	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	2.65	—	0.77	0.91	11.19	0	0
Lacina (Yukon)	60 17 134 15	54.3	—	—	26	37.0	13 20.6	13 20.6	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.93	+1.43	1.19	14.21	0	0	
Red Deer	52 15 113 34	52.8	—	—	26	37.0	13 20.6	13 20.6	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.55	+1.25	1.28	8.21	2	1	
eMosquito Creek	26 39 26 66 26 (0.0 66)	53.5	—	—	25	32.0	4 23.7	4 23.7	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	5.49	—	1.24	19.13	0	0	
Colles	50 22 113 46	59.4	0.1	1683.3	18	37.0	15 23.7	15 23.7	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.62	—	0.18	1.05	11.01	0	0
MANTOBA :																												
Minnedosa	50 10 99 48	59.4	0.1	1683.3	18	37.0	15 23.7	15 23.7	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.55	+0.31	1.20	7.23	0	0	
Winnipeg	49 53 97 7	62.4	0.0	2683.8	30	30.0	8 23.6	8 23.6	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	6.11	+2.88	1.80	14.16	0	0	
eSt. Alban's (Awenae)	760 29 82 30 20 23 11 09	61.6	—	—	26	46.0	7	7	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	2.23	—	—	10.20	0	0	
Fort Osborne	49 53 97 11	60.7	1.8	1382.0	26	46.0	7	7	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	1.50	—	1.26	0.50	5.21	0	0
eEmerson	49 1 97 13	60.7	1.8	1382.0	26	46.0	7	7	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	2.98	—	0.28	0.51	9.16	0	0
Portage la Prairie	49 57 94 1 830	62.0	0.2	1085.0	18	37.4	8 25.1	8 25.1	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	1.55	—	1.41	0.45	9.21	0	0
Brandon	49 51 99 57	58.9	0.2	1085.0	18	37.4	8 25.1	8 25.1	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	2.84	—	0.51	0.57	11.15	0	0
Chanel Island	52 18 17 23	53.9	1.7	1282.0	30	36.0	7 16.9	7 16.9	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	4.84	—	0.47	0.51	14.16	0	0
Elkhorn	49 58 101 16	61.5	0.6	1882.5	27	35.0	8 21.8	8 21.8	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.22	—	0.21	0.75	10.20	0	0
Stony Mountain	50 5 17 12 803 29 75 30 11 29 00 1.11	56.2	2.8	1122.0	19	32.0	7 21.8	7 21.8	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.00	—	0.72	0.40	10.20	0	0
Trerrene	50 59 101 20 1820 25 55 25 80 25 94 0.66	60.2	0.4	386.0	18	35.0	8 22.9	8 22.9	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	2.08	—	1.30	0.70	8.21	0	0
Rosebank	49 22 98 6	59.0	1.0	1383.0	18	35.0	8 21.8	8 21.8	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	1.53	—	1.00	0.42	10.20	0	0
Hillview	4 54 100 35	65.2	—	—	18	33.0	12 13.0	12 13.0	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	4.66	—	1.22	1.46	10.20	0	0
Pebstone	49 34 100 58	55.2	3.7	1487.0	25	31.0	18 23.4	18 23.4	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.02	—	0.51	1.70	5.25	0	0
Roseberry	49 14 99 29 1400	57.9	0.8	675.0	27	40.0	2	2	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.47	—	0.61	1.65	1.15	0	0
Ontario :																												
Halleybury	47 29 78 39 687	54.3	3.3	1080.0	6	26.0	10 23.2	10 23.2	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	5.08	—	0.82	0.55	11.19	0	0
Sudbury	46 27 80 55	54.3	3.3	1080.0	6	26.0	10 23.2	10 23.2	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.36	—	2.46	1.34	13.17	0	0
eSavanne	48 55 90 18 1506	54.3	3.3	1080.0	6	26.0	10 23.2	10 23.2	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.32	—	1.59	1.98	12.12	0	0
eMissanabie	48 21 88 28	54.3	3.3	1080.0	6	26.0	10 23.2	10 23.2	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.22	—	0.50	1.13	9.20	1	0
eSchreiber	48 50 87 15	54.3	3.3	1080.0	6	26.0	10 23.2	10 23.2	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	4.26	—	0.94	1.53	11.19	0	0
Heron Bay	46 34 79 30	54.3	3.3	1080.0	6	26.0	10 23.2	10 23.2	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	0.85	—	1.31	0.75	2.28	0	0
North Bay	46 34 79 30	54.3	3.3	1080.0	6	26.0	10 23.2	10 23.2	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	2.45	—	0.96	0.91	6.24	0	0
White River	48 27 85 12 1262	48.3	0.3	181.0	19	37.0	10 22.1	10 22.1	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	2.52	—	1.81	0.37	7.19	1	0
Port Arthur	44 29 82 34 29 49 0.92	61.3	0.5	2381.0	7	41.2	10 21.4	10 21.4	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	0.71	—	1.20	0.22	9.20	1	0
Ferry Sound	49 15 89 0 655 30 06 30 24 29 05 0.56	62.0	1.5	2786.9	5	38.6	10 22.8	10 22.8	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	0.62	—	1.20	0.22	9.20	1	0
Sauguen	44 30 81 21 655 30 06 30 29 73 0.56	62.0	1.5	2786.9	5	38.6	10 22.8	10 22.8	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	0.46	—	2.42	0.1	8.22	1	0
Owen Sound	44 34 80 55 587	61.4	0.4	1282.9	13	33.0	10 21.1	10 21.1	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	0.29	—	0.51	1.70	5.25	0	0
eUplands	45 48 79 25	62.1	0.3	1685.0	5	37.0	9	9	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	3.00	—	0.72	0.40	10.20	0	0
eDurham	44 10 80 50	62.1	0.3	1685.0	5	37.0	9	9	0	1	8	2	0	0	0	19	0	30	11.1	21.0	26 SK	2						

PRESSURE, TEMPERATURE, WIND AND PRECIPITATION AT STATIONS IN THE DOMINION OF CANADA, JUNE, 1899.

a. Barometer not reduced to Sea Level. *Stations not furnished with Registering Thermometers.

Table with columns: STATION, PRESSURE, TEMPERATURE, MEAN TEMPERATURE OF DEWPOINT, DIRECTION OF WIND FROM, VELOCITY OF WIND, PRECIPITATION, and various weather-related metrics. Rows list stations from Ontario to Quebec.

ONTARIO.—Con.
Brantford
DeCewville
Conestogo
Stony Creek
Toronto
Welland
Niagara
Peterborough
Lindsay
Deseronto
Lakeland
Kirkcaldy
Kingston
Clonarf
Renfrew
Bancroft
Ottawa
Bisset
Mattawa
*Cartier
St. Ann's
Stouffville
Sarnia
Millbrook
Barrie
Erasmus
Gait
Bloomfield
Calvin
*Otonabee
Windsor
Alton
(*Guelph
Agincourt
Nepigon
Hamilton
Port Hope
Kinmount
Cockburn Island
Chatham
Dalhousie Mills
Meaford
Gosfield
Listowel
N. Sister Rock
QUEBEC:
Montreal
Rimond.
Brome
Quebec
Chicoutimi
Father Point
*Point des Monts
*Cape Chatte
Bicquette
Cape Magdalen

OBSERVATIONS AT STATIONS REPORTING RAIN, WEATHER, &c., DURING JUNE, 1899.

STATIONS.	RAINFALL.					THUNDER OR LIGHTNING, &c.
	Amount in inches.	Days '01 or Over.	No. of Fair Days.	Heaviest Fall in Month.	Date.	
BRITISH COLUMBIA—						
Cumberland.....	1·00	4	26	0·48	28	4
Beaver Creek.....	1·10	10	20	0·20	26	
Langley.....	2·14	6	24	0·42	10	
Royal Oak.....	0·34	4	26	0·15	9	
Goldstream.....	0·84	5	25	0·25	10	
Nanaimo.....	0·91	5	25	0·48	26	
N. W. TERRITORIES—						
West Beaver Hills.....	4·02	13	17	1·49	26	14, 15, 16, 21, 25.
Clear Spring.....	3·73	11	17	1·01	30	11, 12, 13, 20, 21, 27, 28, 29, 30.
Lethbridge.....	2·71	10	20	0·85	20	25th. Heavy hail on 11th.
Coutts.....	2·26	8	22	0·55	21	
Didsbury.....	1·84	7	23	0·60	10	
Saskatoon.....	1·82	10	18	0·50	4	
Estevan.....	1·00	1	29	1·00	29	
Innisfail.....	2·79	9	21	1·47	22	
ONTARIO—						
Georgetown.....	1·41	9	21	0·27	28	4, 5, 6, 7, 14.
Roblin's Mills.....	2·92	6	23	0·72	6	5, 14.
Aurora.....	1·50	4	26	0·52	4	4, 14. Frost on 9th.
Arden.....	2·58	11	19	0·81	15	5, 8, 15, 19, 20, 21, 23, 26.
Wooler.....	2·76	9	21	0·79	4	5, 6, 7, 23.
Jermyn.....	5·26	8	22	0·74	28	4, 5, 6, 12, 15, 20.
Cherry Valley.....	1·22	2	28	0·71	4	4.
Lansdowne.....	1·64	5	25	0·67	27	7, 14, 25.
Montague.....	1·69	5	25	0·90	28	17th, light frost.
Glen Elm.....	1·63	5	25	0·89	28	
Watford.....	1·33	6	24	0·53	14	
Dutton.....	0·60	4	26	0·35	28	1, 5, 6, 7, 28.
Wilton Grove.....	2·83	7	23	0·95	28	5, 6, 7.
Goderich.....	2·90	4	26	1·30	28	
Orangeville.....	2·75	6	24	0·93	14	2, 6, 23.
Warton.....	2·61	8	22	0·72	22	4, 5, 7, 12, 13, 14, 22.
Scarboro'.....	1·33	6	21	0·43	4	4, 5, 6, 7, 14, 17.
Parma.....	3·03	8	22	0·80	1	
Ursa.....	4·16	11	19	1·04	14	10th. Frost on 22nd.
Providence Bay.....	5·59	11	19	3·12	4	7, 8, 12, 18, 20, 22
Oliver's Ferry.....	1·80	7	23	0·82	28	
Port Burwell.....	0·52	9	21	0·34	28	5, 6, 7.
Kitley.....	1·54	4	26	1·10	28	
Lynedoch.....	0·22	2	28	0·20	29	
Emsdale.....	4·30	12	18	1·05	28	4, 7, 12, 14, 20, 23.
Ennismore.....	4·63	8	22	1·10	23	
Dealtown.....	3·12	7	23	1·16	28	5, 6, 14, 18, 28.
Uxbridge.....	2·00	5	25	0·64	4	4.
Huntsville.....	6·68	12	18	2·25	4	4, 6, 20, 22.
Elgin.....	2·18	6	24	0·81	28	
Thompson.....	3·82	6	24	2·55	4	7th, hail from 1 to 6 in. diameter.
Deer Park.....	0·91	6	24	0·28	15	
Penetanguishene.....	3·30	14	18	0·78	28	5, 6, 22.
Coldstream.....	3·99	6	24	2·71	28	
Croydon.....	2·78	7	23	0·90	28	6, 13, 23, 25.
Sparrow Lake.....	3·57	10	20	1·20	5	5, 14, 18.
Nottawsaga.....	4·10	6	24	1·50	28	
Lion's Head.....	3·90	8	22	0·80	28	4, 5, 6, 7, 14, 18, 22.
Midland.....	3·98	13	17	0·91	5	3, 4, 5, 6, 12, 13, 14, 17, 21.
Princeton.....	0·55	2	28	0·40	5	
Wyoming.....	0·85	6	24	0·20	6	5, 6, 24.
NEW BRUNSWICK—						
Point Escominac.....	2·30	11	19	1·30	21	16, 25, 26, 29.
NOVA SCOTIA—						
Port Morien.....	5·18	5	25	2·90	22	
P. E. ISLAND—						
Mount Stewart.....	2·20	6	24	1·52	16	
Murray River.....	2·50	10	20	0·94	16	

Thunder recorded on:—

1. Brandon, Agincourt, Pipestone, Treherne, Perce, Dutton, Quebec, Minnedosa, Port Stanley.
2. Moncton, W. Beaver Hills, Edmonton.
3. Hill View, Portage la Prairie, Lakefield, Point Clark, Channel Island, N. Sister Rock, Pipestone, Midland, Calgary, Orangeville, Port Hastings, Barnardo, Minnedosa.
4. Agincourt, Clontarf, Cockburn Island, Uplands, Whiteside, Collingwood, Lakefield, Point Clark, Hamilton, Owen Sound, Beatrice, Bancroft, Stony Creek, Abitibi, N. Sister Rock, Haliburton, Otonabee, Midland, Lion's Head, Calgary, Peterboro', Welland, Kinmount, Sprucedale, Meaford, Lucknow, Penetanguishene, Scarboro, Providence Bay, Emsdale, Uxbridge, Huntsville, Wiarton, Beaver Creek, Georgetown, Aurora, Jermyn, Cherry Valley, Macleod, Lindsay, Stratford, Coldwater, Gravenhurst, Durham, Guelph, Deseronto, Quebec, Winnipeg, Port Arthur, Parry Sound, White River, Port Stanley, Barrie.
5. Ridgetown, Birnam, Erasmus, Agincourt, Cannington Manor, Cockburn Island, Collingwood, Lakefield, Point Clark, Hamilton, Owen Sound, Beatrice, Bancroft, Stony Creek, Gosfield S., Abitibi, Brome, Haliburton, Otonabee, Midland, Lion's Head, Brantford, Calgary, Paris, Peterboro, Port Dover, Kinmount, Port Hope, Meaford, Sparrow Lake, Penetanguishene, Scarboro, Providence Bay, Dealtown, Wiarton, Georgetown, Roblin's Mills, Arden, Wooler, Jermyn, Dutton, Wilton Grove, Regina, Moose Jaw, Montreal, Woodstock, Lindsay, London, Stratford, Coldwater, Gravenhurst, Guelph, Grand Manan, Saugeen, Kingston, Port Arthur, Port Stanley, Wyoming, Barrie.
6. Hillview, Ridgetown, Erasmus, Agincourt, Cannington Manor, St. Stephen, Sussex, St. Ann's, Collingwood, Lakefield, Point Clark, Hamilton, Owen Sound, Beatrice, Gosfield, S., Brome, Pipestone, Otonabee, Midland, Lion's Head, Brantford, Paris, Peterboro, Welland, Meaford, Croydon, Scarboro, Dealtown, Huntsville, Georgetown, Arden, Wooler, Jermyn, Dutton, Wilton Grove, Woodstock, Lindsay, Stratford, Coldwater, Durham, Guelph, Halifax, Yarmouth, Grand Manan, Saugeen, Kingston, Parry Sound, White River; Port Stanley, St. John, Wyoming, Barrie.
7. Stouffville, Ridgetown, Birnam, Erasmus, Clontarf, Uplands, Lakefield, Point Clark, Owen Sound, Bancroft, Gosfield S., Abitibi, Otonabee, Lion's Head, Paris, Peterboro, Welland, Port Hope, Sprucedale, Lucknow, Scarboro, Providence Bay, Emsdale, Orangeville, Wiarton, Georgetown, Wooler, Lansdowne, Dutton, Wilton Grove, Lindsay, Stratford, Durham, Deseronto, Grand Manan, Kingston, Swift Current, Port Arthur, Parry-Sound, Port Stanley, Barrie.
8. Agincourt, Lakefield, Peterboro, Arden, Barnardo, Lindsay.
9. Brandon.
10. Gatesgarth, Red Deer, Pipestone, Regina, Barnardo, Prince Albert, Swift Current, Medicine Hat.
11. Brandon, Gatesgarth, Portage la Prairie, Regina, Moose Jaw, Battleford, Swift Current, Medicine Hat, Qu'Appelle, Winnipeg.
12. Brandon, Uplands, Whiteside, Lakefield, Point Clark, Owen Sound, Beatrice, Bancroft, Midland, Meaford, Lucknow, Ursa, Providence Bay, Emsdale, Huntsville, Wiarton, Jermyn, Lindsay, Durham, Deseronto, Qu'Appelle, Port Arthur.
13. Chicoutimi, Stouffville, Birnam, Erasmus, Collingwood, Lakefield, Owen Sound, Abitibi, Midland, Kinmount, Meaford, Lucknow, Wiarton, Point Escuminac, Coldwater, Durham, Father Point, Port Arthur.
14. Ridgetown, Birnam, Erasmus, Agincourt, Cannington Manor, Hamilton, P.E.I., Uplands, Collingwood, Lakefield, Point Clark, Chatham, Hamilton, Owen Sound, Beatrice, Bancroft, W. Beaver Hills, Red Deer, Haliburton, Midland, Lion's Head, Brantford, Calgary, Paris, Sprucedale, Meaford, Lucknow, Sparrow Lake, Sunshine, Scarboro, Emsdale, Dealtown, Wiarton, Georgetown, Aurora, Lansdowne, London, Stratford, Coldwater, Lindsay, Durham, Deseronto, Sydney, Parry Sound, White River, Port Stanley, St. John, Barrie.
15. Birnam, Cannington Manor, Duck Lake, Wolfville, St. Ann's, Hamilton, Stony Creek, Summerside, Welland, Sunshine, Arden, Jermyn, Woodstock, London, Gravenhurst, Guelph, Truro, St. John.
16. Hillview, Pictou, Escuminac, Barnardo, Truro, Yarmouth, Minnedosa.
17. Duck Lake, Bancroft, W. Beaver Hills, Midland, Scarboro, Stony Mountain, Quebec, Winnipeg Minnedosa, Port Arthur.
18. Brandon, Birnam, Agincourt, Portage la Prairie, Lakefield, Lion's Head, Treherne, Kinmount, Meaford, Sarnia, Providence Bay, Dealtown, Georgetown, Lindsay, Bissett, Winnipeg, Barrie.
19. Cape Magdalen, Gosfield S., Calgary, Paris, Sprucedale, Sunshine, Arden, Kingston.
20. Hillview, Chicoutimi, Cannington Manor, St. Stephen, Hamilton, P.E.I., Clontarf, Bancroft, Stony Creek, Abitibi, Haliburton, Paris, Peterboro, Croydon, Providence Bay, Emsdale, Huntsville, Arden, Regina, Montreal, Lindsay, Stratford, Deseronto, Ottawa, Kingston, Quebec, Swift Current, Qu'Appelle, Parry Sound.
21. Hillview, Renfrew, Hamilton, P.E.I., Sussex, Muscowpetung, Brome, Midland, Arden, Fredericton, Chatham, Quebec, Winnipeg, St. John.
22. Erasmus, Cannington Manor, Duck Lake, Cockburn Island, Uplands, Whiteside, Collingwood, Lakefield, Point Clark, Owen Sound, Beatrice, Pipestone, Lion's Head, Port Hope, Sprucedale, Meaford, Penetanguishene.

shene, Ursa, Providence Bay, Wiarton, Regina, Coldwater, Gravenhurst, Saugeen, Prince Albert, Battleford, Swift Current, Medicine Hat, Qu'Appelle, Parry Sound, Barrie.

23. Beatrice, Bancroft, Brome, Peterboro, Kinmount, Sprucedale, Regina, Croydon, Sunshine, Emsdale, Orangeville, Arden, Wooler, Montreal, Kingston, Barnardo, Lindsay, Quebec, Barkerville, Prince Albert, Qu'Appelle, Minnedosa.

24. Dalhousie, Lakefield, Calgary, Father Point, Quebec, Wyoming.

25. Moncton, Hamilton, P.E.I., Uplands, Yarrow, W. Beaver Hills, Calgary, Yarmouth, Summerside, Croydon, Coutts, Point Escuminac, Lansdowne, Port Hastings, Fredericton, Edmonton, Port Arthur, St. John.

26. Hillview, Pictou, Cannington Manor, Duck Lake, Hamilton, P.E.I., Sussex, Red Deer, Pipestone, Summerside, Point Escuminac, Arden, Regina, Fredericton, Barnardo, Truro, Charlottetown, Bissett, Prince Albert, Battleford, Swift Current, Medicine Hat, Qu'Appelle, Minnedosa, St. John.

27. Duck Lake, Channel, Summerside, Clearspring, Regina, Fredericton, Winnipeg.

28. Gatesgarth, Point Clark, Gosfield, S., Treherne, Clearspring, Dealtown, Dutton, Barnardo, Swift Current, Minnedosa.

29. Brandon, Hillview, Moncton, Summerside, Clearspring, Sunshine, Point Escuminac, Stony Mountain, Chatham, Swift Current, Winnipeg.

30. Hillview, Renfrew, Clearspring, Barnardo, Stony Mountain, Swift Current, Winnipeg.

Aurora Recorded:—

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

1. Savanne.

3. Quebec, IV.

9. Savanne, Minnedosa, III.

15. Duck Lake, IV.

27. Cannington Manor, Savanne, Minnedosa IV.

28. Georgetown, II; Huntsville, II; Meaford, I; Port Hope, Port Dover, Midland, I; Channel Island, IV; Hamilton, St. George, Collingwood, Cockburn Island, Clontarf, III; Cannington Manor, I; Erasmus, Stouffville, Savanne, London, II; Stratford, Gravenhurst, II; Durham, I; Guelph, Deseronto, II; Saugeen, II; Kingston, II; Quebec, I; Barrie, II.

29. Georgetown, III; Meaford, II; Port Hope, Welland, II; Channel Island, IV; Collingwood, Clontarf, IV; St. Stephen, IV; Erasmus, Stouffville, Stratford, Durham, IV; Guelph, IV; Grand Manan, IV; Kingston, III; Quebec, II; Swift Current, Barrie, IV.

PROPORTION OF BRIGHT SUNSHINE REGISTERED IN EACH HOUR OF THE DAY DURING WHICH THE SUN WAS ABOVE
THE HORIZON IN THE MONTH OF JUNE, 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		0.13	0.39	0.45	0.62	0.59	0.57	0.57	0.61	0.63	0.70	0.63	0.55	0.44	0.44	0.04
KUPER ISLAND																
AGASSIZ		0.00	0.07	0.31	0.33	0.43	0.42	0.47	0.53	0.59	0.46	0.43	0.36	0.23	0.10	0.00
BATTLEFORD	0.38	0.52	0.63	0.64	0.60	0.61	0.64	0.62	0.65	0.52	0.52	0.59	0.59	0.50	0.46	0.26
INDIAN HEAD		0.10	0.37	0.57	0.56	0.58	0.55	0.56	0.53	0.52	0.55	0.61	0.51	0.50	0.36	0.10
BRANDON		0.21	0.45	0.50	0.57	0.55	0.63	0.67	0.67	0.63	0.61	0.64	0.62	0.61	0.47	0.07
WINNIPEG	0.16	0.32	0.54	0.59	0.62	0.63	0.58	0.65	0.69	0.71	0.66	0.67	0.57	0.58	0.51	0.17
DURHAM	S	0.12	0.45	0.55	0.63	0.71	0.73	0.70	0.70	0.73	0.77	0.77	0.82	0.72	0.65	0.29
WOODSTOCK		0.09	0.54	0.66	0.72	0.69	0.82	0.91	0.88	0.84	0.81	0.80	0.81	0.83	0.76	0.13
TORONTO		0.17	0.61	0.70	0.74	0.74	0.72	0.75	0.77	0.79	0.77	0.70	0.73	0.79	0.62	0.03
LINDSAY	0.07	0.43	0.61	0.64	0.64	0.66	0.69	0.69	0.68	0.70	0.64	0.67	0.67	0.64	0.52	0.24
BARRIE	0.08	0.51	0.65	0.62	0.66	0.65	0.74	0.71	0.69	0.70	0.77	0.78	0.80	0.74	0.55	0.00
KINGSTON		0.35	0.69	0.73	0.73	0.79	0.71	0.68	0.66	0.73	0.70	0.63	0.63	0.56	0.49	0.05
OTTAWA		0.19	0.52	0.52	0.63	0.72	0.71	0.75	0.69	0.69	0.74	0.69	0.66	0.64	0.43	.....
MONTREAL	0.03	0.36	0.61	0.67	0.70	0.67	0.72	0.71	0.80	0.72	0.67	0.65	0.63	0.57	0.22	.....
FREDERICTON	S	0.31	0.52	0.55	0.62	0.67	0.70	0.67	0.68	0.66	0.64	0.65	0.52	0.45	0.45	0.13

	VICTORIA.	KUPER ISLAND.	AGASSIZ.	BATTLEFORD.	INDIAN HEAD.	BRANDON.	WINNIPEG.	DURHAM.	WOODSTOCK.	TORONTO.	LINDSAY.	BARRIE.	KINGSTON.	OTTAWA.	MONTREAL.	FREDERICTON.
MEAN PROPORTION FOR MONTH..... (Constant sunshine being 1.)	0.46	.....	0.29	0.54	0.43	0.49	0.53	0.60	0.61	0.62	0.59	0.62	0.59	0.55	0.64	0.53
DIFFERENCE FROM AVERAGE.....	+0.04	.....	-0.06	+0.09	+0.04	+0.04	-0.01	-	+0.14	+0.06	+0.03	+0.13	+0.06	-	+0.10	+0.05
MAXIMUM DAILY AMOUNT.....	0.82	.....	0.72	0.97	0.85	0.85	0.89	0.90	0.88	0.86	0.98	0.92	0.89	0.87	1.00	0.94
DATE.....	18	.....	16	13	8	28	24	29	29	21	20	29	2	30	11	11
NO. OF DAYS COMPLETELY CLOUDED.....	1	.....	7	2	6	3	0	2	1	1	2	0	1	1	1	3

FORECASTS FOR JUNE, 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 907. These were divided as follows:—

DISTRICT.	No. ISSUED.	VERIFIED.			Percentage
		No. Fully	No. Partly	No. Not	
MANITOBA	81	44	26	11	70.4
LAKE SUPERIOR.....	90	62	20	8	80.0
LOWER LAKE REGION.....	117	96	19	5	87.6
GEORGIAN BAY.....	115	89	19	7	85.7
OTTAWA VALLEY.....	105	88	6	11	86.7
UPPER ST. LAWRENCE.....	106	92	8	6	90.6
LOWER ST. LAWRENCE.....	98	75	18	5	85.7
GULF	97	70	19	8	82.0
MARITIME PROVINCES.....	98	75	17	6	85.2
TOTAL.....	907	688	152	67	84.2

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.

R. F. STUPART,
Director.

Meteorological Office, Toronto,
26 July, 1899.