
METEOROLOGICAL SERVICE, DOMINION OF CANADA.

Monthly Weather Review.

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No. 5

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 ON THE WEATHER.

The chief feature of the weather of May in Canada was the comparatively small amount of sunshine, low temperature, and heavy precipitation in the western portion of the country. These departures from the normal, however, were not very great, excepting locally in the temperature, and generally in the rainfall of the Territories. Frosts, though occurring in most districts throughout the country did comparatively little damage, and vegetation, though backward, was almost in average condition on the last day of the month.

In British Columbia, while the precipitation was almost normal there was much exceptionally cold dull weather, more especially during the first half of the month. Added to this were some frosts which doubtless checked vegetation and by the end of the month plant life generally was very backward. On the 30th, there was still much snow in the mountains and foothills.

The weather in the North-west Territories was exceptionally dull, cold and wet, the temperature being as much as 6° and 7° below average in Alberta, and the precipitation considerably above average in most districts. Snow fell at many places during the first half of the month, and on the 3rd and 4th some stations reported falls of five and six inches. Frosts were rather frequent during the month, the temperature falling to 12° at some places. These frosts, however, though retarding vegetation do not appear to have done much damage, and by the 31st the conditions were much improved.

The unpropitious weather of the Territories extended to Manitoba, but the conditions there were not quite so unfavourable; nevertheless it was wet and cool and there was little improvement until after the 19th. Snow fell in some districts during the earlier part of the month, and frosts which were for the most part light were general. Vegetation though backward made great progress during the latter portion of the month.

In Ontario the weather did not differ much from normal, the mean temperature, however, was somewhat above average, and the rainfall nearly everywhere was greater than normal. During the first and last ten days it was comparatively fine and warm, but from the 14th to 21st it was unpleasantly cool. Frosts occurred throughout the greater portion of the province, but they were not severe, excepting to the north of Lake Superior where 7°·0 and 18°·0 were recorded at Savanne and White River respectively. Little damage was caused by these frosts but the many unusually cool nights retarded vegetation and it was somewhat below normal on the last day of the month.

In the Province of Quebec the weather was for the most part fine warm and dry, some unusually low temperatures occurred however in the third week, and during this period it was comparatively dull and unpleasant. Frosts were almost general in the eastern portion of the province, 22°·1 being recorded at Father Point on the 5th. Some damage to vegetation was caused by these frosts, otherwise its condition was normal on the 31st.

The weather in New Brunswick did not differ much from normal, the departures, which were nowhere very great, being generally local. In the central portion the rainfall was in some cases quite light and although vegetation was about normal on the 31st, it was considerably retarded thereby in this portion of the province. Frosts were general but they were not severe and did little damage.

In Nova Scotia the weather conditions were almost normal, but in most districts the temperature was slightly below average, and while the rainfall was somewhat excessive in the south-western portion of the province it was comparatively light elsewhere. Frosts were recorded at all stations, 21°·8 being reported from Truro on the 6th; nevertheless little damage was done to vegetation, which was in almost normal condition.

The weather in Prince Edward Island was for the most part fine, cold and dry, and frosts occurred rather more frequently than usual in most districts. Although vegetation made good progress during the latter part of the month it was below normal on the 31st.—F. F. PAYNE.

ATMOSPHERIC PRESSURE.

The mean atmospheric pressure was nearly equal with the average in British Columbia and the North-west Territories. East of Manitoba there was a general excess ranging from ·02 to ·06 of an inch.

HIGH AREAS.

Eight high areas have been charted; four of them moved south-east from Northern Manitoba and the Territories, three eastward from the North Pacific Coast of the United States, and one south-east across the Gulf and Maritime Provinces. Those from Northern Canada were the most pronounced, and one especially which appeared in Saskatchewan on the 17th, and moved very slowly to the Middle Atlantic Coast, was apparently the controlling factor in the weather of Western Canada for about a week.

LOW AREAS.

Ten low areas passed across the Dominion and the United States, and of this number eight first became visible in the Western States, thence moving north-eastward and eastward in rather erratic courses. The remaining two first appeared in British Columbia and traversed the breadth of the Dominion. No. 1 appeared in the Western States on the last day of April, and on the morning of May 1st, was centered in Minnesota as a well marked area; it caused a general rain over the western part of the Lake Region, and afterwards scattered showers occurred within its boundaries as it moved rapidly with diminishing energy to the seaboard. No. 2 formed in the Western States and moved northward to Manitoba and obviously an intimate connection existed between this area and the cold wave which occurred in the North-west Territories during several days. No. 3 may be traced from the Western States to the south of the Lake Region and thence to the southward of Nova Scotia. It developed as it passed seaward and a northerly gale occurred in Cape Breton. No. 4 was accompanied by heavy rain in Ontario on the 11th as it passed over the province. No. 5 took nearly the same course as the previous area and it was in its rear that occurred the second snow and cold spell of the month in the North-west Territories and heavy rain again fell in Ontario as the centre passed across that province. No. 6 appeared in the Western States, moved across the Lake Region to the Ottawa Valley and dipped to the New England Coast; it then developed and caused rain with gales in the Maritime Provinces and Gulf. No. 7 was confined to the Southwestern States. Nos. 8, 9 and 10 may be grouped together as they formed part of a general barometric depression which existed over the western and north-western portions of the continent from the 24th until the end of the month, at times extending over the Lake Region and the St. Lawrence Valley accompanied by numerous local rains which were at some places heavy.

WINDS.

In British Columbia the winds were as a rule moderate and did not at any time exceed the force of a fresh breeze, and were from directions between south and west nearly the whole month. In the North-west Territories the force of a moderate gale was reached on four occasions, the greatest number of winds coming from between north and east. This was also the case in the prevailing winds in Manitoba where they were fresh for the greater part of the month and on three occasions reached the force of a moderate gale. Winds were for the most part moderate in Ontario although the force of a strong breeze was reached locally on four occasions, no decided tendency for any special direction was shown. In Quebec the northeast and south-west winds were the most prevalent and they did not exceed the force of a strong breeze during the month.

Three gales were experienced in the Maritime Provinces, two of which were heavy locally, but were not warned.

TEMPERATURE.

The mean temperature of May was from 2 to 6 degrees below average in Manitoba, the North-west Territories and the greater part of British Columbia, and a little above average in Ontario, Quebec, and the larger portion of Maritime Provinces. Stations in Southern Alberta show the greatest departure below, and those in Central Ontario the greatest departure above average. The weather of the North-west Territories was marked by two cold spells, the first of which occurred during the first few days of the month, when the

temperature fell to 12° at Calgary, 10° at Edmonton, and 21° at Qu'Appelle; and the second during the 12th and few following days, when 14° was recorded at Calgary, 15° at Edmonton, and 21° at Prince Albert and Winnipeg. This latter cold spell spread rapidly eastward across the Dominion, and was pronounced in Ontario from the 14th up to about the 21st. The last heavy frost occurred in the North-west and Manitoba about the 19th.

The Highest and Lowest Temperatures in each Province during May, 1899, were :

British Columbia.....	86°·0 on 24th at Griffin Lake.	6°·0 on 2nd at Barkerville.
North-west Territories	81°·5 on 23rd at Oonikup.	9°·5 on 12th at Mosquito Creek.
Manitoba	79°·0 on 30th at Roseberry,	12°·0 on 14th at Channel Island.
Ontario	86°·0 on 1st at Paris and Windsor.	7°·0 on 14th at Savanne.
Quebec	84°·0 on 1st at Richmond.	22°·1 on 5th at Father Point.
New Brunswick	81°·5 on 25th at Chatham.	25°·0 on 14th at Sussex.
Nova Scotia.....	79°·0 on 1st at Halifax.	21°·8 on 6th at Truro.
Prince Edward Island.....	71°·0 on 26th at Charlottetown.	28°·3 on 4th at Summerside.

PRECIPITATION.

In British Columbia, on the lower mainland and Vancouver Island, the precipitation was either equal to or greater than the average. In the North-west Territories it was much in excess of the average for May, and this was particularly the case in Southern Alberta, where it was several times greater than the average. Over the larger portion of Manitoba the rainfall was about average, some districts reporting a small excess, and others a small deficiency. A heavy snowfall, twenty inches at Qu'Appelle and nine inches at Prince Albert, occurred in Assiniboia and Saskatchewan between the 2nd and the 4th, and a smaller quantity fell in many parts of the Territories and Manitoba between the 12th and 14th. In Ontario generally the rainfall was above average to a small amount, but locally, in the counties of Elgin, Lambton and Bruce, there was a deficiency. From the Ottawa Valley eastward it was everywhere less than average—at Montreal about one-half, and in the more eastern portions of Quebec even less than one-half the average; in the Maritime Provinces a deficiency was pretty general, but not so pronounced as along the St. Lawrence.

N. W. TERRITORIES:—Con.

Table with multiple columns containing names of locations (e.g., Indian Head, Cambridge Manor, Macleod, Yarrow, Garesquith, Grenfell, Muscowpetung, Fort Simpson, Alameda, Tagish (Yukon), Red Deer, Mosquito Creek, Selkirk, MINNAPOTA, Winnipeg, Ft. Osborne, Fortage la Prairie, Brandon, Channel Island, Elkhorn, Stony Mountain, Kernebe, Rosebank, Hillview, Pipestone, Rosberry, ONTARIO, Rallybury, Sudbury, Mississauga, Schreiber, Heron Bay, North Bay, White River, Port Arthur, Farry Sound, Saugeen, Owen Sound, Uplands, Durham, North Bruce, Collingwood (2), Bogor, Whiteside, Spence, Spruceclate, Orillia, Collwater, Beatrice, Gravenhurst, Haliburton, Point Clark, Birnam, London, Port Stanley, Woodstock, Port Dover, Pelee Island, Port Rowan, S. George, Paris, St. Mary's, Stratford, Lucknow, Cottam, Bramford) and their corresponding coordinates and other data.

PRESSURE, TEMPERATURE, WIND AND PRECIPITATION AT STATIONS IN THE DOMINION OF CANADA, MAY, 1898.

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

Table with columns: STATION, Latitude N., Longitude W., Elevation above Sea Level, in feet, PRESSURE, TEMPERATURE, MEAN RELATIVE HUMIDITY, DIRECTION OF WIND FROM, VELOCITY OF WIND, PRECIPITATION, and No. of Days with 0.1 or more of Rain, No. of Fair days, No. of Auroras, No. of Thunder storms, No. of Fogs.

PRECIPITATION AT STATIONS REPORTING RAIN, SNOW AND WEATHER DURING
MAY, 1899.

STATIONS.	RAINFALL.					SNOWFALL.				REMARKS.	
	Amount in inches.	No. of 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—											
Beaver Creek.....	2.35	11	20	1.03	10					12th, hard frost. 12th, ice formed.	
Cumberland.....	2.23	8	23	0.48	16						
Nanaimo.....	2.63	11	20	0.70	12						
Langley.....	4.63	15	16	0.88	7						
Salt Spring Island.....	2.04	12	19	0.54	10						
Royal Oak.....	2.24	14	17	0.57	10						
N. W. TERRITORIES—											
Saltcoats.....	0.60	2	25	0.50	31	10.0	4	8.0	3	Last frost, 8th. Rainiest May in 10 years. Frost on 29th.	
Sterling.....				0.45	26	6.0	2	6.0	14		
Innisfail.....	4.56	9	14	1.60	18	1.8	3	1.6	13		
W. Beaver Hills.....	1.82	9	19	0.71	27	2.5	1	2.5	11		
Didsbury.....	3.60	8	21	2.17	18	0.3	2	0.2	13		
Coutts.....	3.61	8	20	1.61	18	5.5	3	5.0	14		
MANITOBA—											
Hartney.....	4.35	9	22	2.00	3					Ice $\frac{1}{2}$ inch on 13th.	
Beaver Creek.....	1.6	6	25	0.92	26						
Roseberry.....	2.16	11	19	1.11	2						
Rapid City.....	1.64	4	27	0.53	26		1		12		
Selkirk.....	2.24	6	25	1.39	26						
Cartwright (2).....	1.46	8	21	0.60	4						
Greenwood.....	2.76	8	23	0.86	26						
Oak Lake.....	2.95	5	26	1.43	3						
Oakbank.....	1.35	7	23	0.45	26						
Pembina Crossing.....	2.61	7	20	0.87	26		1		12		
Shoal Lake.....	2.30	2	24	1.40	31	2.0	5	1.0	2		
Norquay.....	2.36	10	17	1.36	26		4				
Turtle Mountain.....	4.04	8	23	1.92	26		1				
Elgin.....	3.30	12	18	1.55	3		1				
Cartwright.....	2.42	10	21	0.97	26						
Morden.....	3.36	6	21	1.60	26		1				
Belmont.....	3.40	11	18	1.11	3						
Gretna.....	1.15	8	23	0.50	23		2				
ONTARIO—											
Cherry Valley.....	2.15	5	26	0.75	28					15th, ice formed.	
Wooler.....	4.47	14	17	1.25	1						
Scarboro.....	3.00	9	18	0.77	29						
Lansdowne.....	1.89	8	23	0.44	30						
Parma.....	2.52	11	20	0.73	12						
Arden.....	3.41	13	18	0.74	30						
Aurora.....	3.33	11	20	0.74	11						
Elgin.....	2.50	7	24	0.69	28						
Watford.....	2.41	7	24	0.70	17						
Port Burwell.....	4.47	10	21	1.03	13						
Jermyn.....	4.67	15	16	0.56	11						
Wyoming.....	2.50	8	23	0.60	17						
Glen Elm.....	2.87	11	20	0.66	29						
Midland.....	2.91	11	20	0.50	16						
Orangeville.....	4.27	14	17	0.72	29						
Uxbridge.....	3.82	12	19	0.63	11						
Sunshine.....	4.01	12	19	1.34	29						
Willow Grove.....	4.15	11	20	1.51	17						
Goderich.....	2.15	4	27	0.70	16						
Georgetown.....	3.90	15	15	1.27	29						
Lynedock.....	4.05	10	21	0.85	17						
Wiarton.....	2.68	6	25	0.84	28						
Ennismore.....	4.22	11	20	1.50	28						
Emsdale.....	3.52	10	21	0.98	30						
Oliver's Ferry.....	2.10	8	23	0.47	27						
Dealtown.....	3.54	11	20	0.98	16						
Montague.....	2.44	5	26	0.66	29						
Huntsville.....	5.17	7	24	1.75	30						
Roblin's Mills.....	4.28	12	19	1.50	29						
Kitley.....	2.71	7	24	0.73	28						
Deer Park.....	3.19	12	19	0.62	11		1				
Ursa.....	4.88	10	21	1.50	29						
Croydon.....	2.74	6	25	0.65	27						
Lion's Head.....	2.70	7	24	0.80	1						
Princeton.....	2.82	7	24	0.70	10						
Providence Bay.....	3.25	11	20	0.84	16						
Sparrow Lake.....	3.87	11	19	1.03	29						
Coldstream.....	4.63	11	20	1.34	17						
Nottawasaga Island.....	4.20	6	25	0.80	29						
Dutton.....	2.47	6	25	0.85	10						
NEW BRUNSWICK—											
Point Escuminac.....	0.58	9	22	0.36	27					13th, ice formed.	
NOVA SCOTIA—											
Port Morien.....	2.34	5	26	0.72	31	0.5	1	0.5	4		
P. E. ISLAND—											
Murray River.....	2.86	9	22	1.33	28		1				
Mount Stewart.....	1.26	4	27	1.25	28	2.5	2	1.5	4		

Thunder-storms recorded on—

1. Cherry Valley, Wooler, Scarboro, Lansdowne, Arden, Jermyn, Georgetown, Wiarton, Emsdale, Kitley, Ursa, Providence Bay, Ridgetown, Otonabee, Lakefield, Agincourt, Peterboro, Kinmount, Gosfield, Brantford, Sprucedale, Owen Sound, Point Clark, Uplands, Deseronto, Lindsay, Guelph, Kingston, Parry Sound, White River, Bancroft, Stony Creek, Parrsboro, Sussex, St. Mary's, Clontarf, Birnam, Barrie.
2. Roseberry, Rapid City, Oak Lake, Pembina Crossing, Shoal Lake, Turtle Mountain, Elgin, Hillview, Belmont, Arden, Lakefield, Gosfield, Chicoutimi, Brome, Treherne, Aweme, Pipestone, St. Stephen, Brandon, Stratford, Quebec, Fredericton.
3. Norquay, Cartwright, Hillview, Gretna, Brandon.
4. Roseberry.
6. Pembina Crossing, Regina.
7. Pipestone, Brandon, Hamilton, P.E.I.
8. Roseberry, Aweme, Pipestone, Griffin Lake, Quesnelle Forks.
9. Norquay, Savanne, Medicine Hat, Bermuda, Regina.
10. Roseberry, Princeton, Brantford, Point Clark, Guelph, London.
11. Pembina Crossing, Hillview, Belmont, Jermyn, Brantford, Pipestone, Gatesgarth, Brandon, Saugeen, Port Stanley, Regina, Quesnelle.
12. Norquay, Arden, N. Sisters Rock, N. Nicomen.
13. Langley, Providence Bay, Hazlemere.
14. Haileybury,
16. Port Burwell, Wyoming, Wilton Grove, Wiarton, Princeton, Ridgetown, Erasmus, Sarnia, Collingwood, Lucknow, Gosfield, Brantford, Hamilton, Chatham, St. Mary's, Birnam, Point Clark, Durham, Guelph, London, Stratford, Port Stanley, Dutton.
17. Wyoming, Wilton Grove, Dealtown, Princeton, Ridgetown, Erasmus, Lucknow, Gosfield, Paris, Brantford, Port Dover, Chatham, Stony Creek, St. Mary's, Birnam, Point Clark, Durham, Stratford, Port Arthur, Port Stanley.
22. Collingwood, Quesnelle Forks.
23. W. Beaver Hills, Wooler, Otonabee.
24. Coutts, Lakefield, Tobacco Plains, Brandon, Calgary.
25. Oakbank, Pembina Crossing, Turtle Mountain, Elgin, Hillview, Jermyn, Abitibi, Uxbridge, Erasmus Otonabee, Lakefield, Meaford, Peterboro, Lucknow, Aweme, Pipestone, Red Deer, Cannington Manor, Moose Jaw, W. Kootenay, Point Clark, Lindsay, Guelph, Medicine Hat, Swift Current, Regina, Haileybury, Barrie.
26. Norquay, Elgin, Belmont, Wooler, Aurora, Jermyn, Midland, Uxbridge, Georgetown, Wiarton, Ursa, Otonabee, Haliburton, Agincourt, Peterboro, Gosfield, Port Hope, Perce, Sussex, St. Stephen, Moose Jaw, Clontarf, Brandon, Calgary, Point Clark, Durham, Lindsay, Coldwater, Stratford, Medicine Hat, Qu'Appelle, Winnipeg, Ottawa, Chatham, Quebec, Fredericton, Haileybury Barrie.
27. Roseberry, Norquay, Elgin, Hillview, Belmont, Wyoming, Midland, Ridgetown, Gosfield, Stouffville, Niagara, Aweme, Cannington Manor, Griffin Lake, Gatesgarth, Birnam, Deseronto, Swift Current, Port Stanley, Dutton.
28. Pembina Crossing, Cherry Valley, Wooler, Scarboro, Arden, Port Burwell, Smith's Falls, Midland, Orangeville, Georgetown, Wiarton, Erasmus, Otonabee, Bloomfield, Agincourt, Collingwood, Lucknow, Gosfield, Port Hope, Owen Sound, Pickering, Niagara, Beatrice, Stony Creek, St. Mary's, Birnam, Point Clark, Durham, Deseronto, Lindsay, Guelph, Coldwater, Gravenhurst, Stratford, Saugeen, Barrie.
29. Cherry Valley, Wooler, Scarboro, Jermyn, Orangeville, Uxbridge, Sunshine, Wilton Grove, Georgetown, Emsdale, Dealtown, Kitley, Ursa, Croydon, Sparrow Lake, St. George, Ridgetown, Erasmus, Otonabee, Lakefield, Haliburton, Meaford, Paris, Port Hope, Brantford, Sprucedale, Port Dover, Owen Sound, N. Sisters Rock, Agincourt, Collingwood, Peterboro, Kinmount, Whiteside, Lucknow, Gosfield, Cockburn Island, Birnam, Point Clark, Uplands, Durham, Deseronto, Lindsay, Stouffville, Pickering, Hamilton, Beatrice, Bancroft, St. Mary's, Clontarf, London, Coldwater, Gravenhurst, Stratford, Woodstock, Parry Sound, Saugeen, Port Stanley, Barrie, Dutton.
30. Arden, Emsdale, Sparrow Lake, Abitibi, Pipestone, Cannington Manor, Cockburn Island, Point Clark, Deseronto, Ottawa, Quebec.
31. Wyoming, Dealtown, Huntsville, Providence Bay, Ridgetown, Gosfield, Beatrice, Abitibi, Port Hastings, Uplands, White River, Port Stanley, Haileybury, Dutton.

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. Cockburn Island, Nelson, Pictou, Treherne, Erasmus, Lucknow, Georgetown, III ; Huntsville, II ; Cape Magdalen, Durham, Coldwater, II ; Gravenhurst, IV ; Truro, IV ; Prince Albert, I ; Halifax, II ; Barrie, III ; Oonikup.
2. Savanne, Haileybury, III.
3. Birnam, III ; St. Stephen, IV ; Clontarf, III ; Nelson, Red Deer, I ; Erasmus, Meaford, Port Hope, Brantford, IV ; Port Dover, Hamilton, Bancroft, III ; Savanne, Huntsville, IV ; Pembina Crossing, II ; Toronto II. *Sudden and brilliant display at 10.40 p.m.* Halifax, II ; Father Point, III ; Quebec, II ; Fredericton, III ; Coldwater, III ; Gravenhurst, II ; Truro, IV ; Medicine Hat, I ; Haileybury, I ; Barrie, IV ; St. John, III.
4. Calgary, III ; Clontarf, IV ; Aweme, II ; Hillview, I ; Chicoutimi, Cape Magdalen, Quebec, IV ; Medicine Hat, III ; Swift Current, III ; Kingston, I ; Father Point, III ; Haileybury, II.
5. Calgary, III ; Cannington Manor, III ; Portage la Prairie, Aweme, III ; Georgetown, IV ; Battleford, IV ; Cape Magdalen, Coldwater, I ; Truro, IV ; Medicine Hat, III ; Prince Albert, IV ; Father Point, III ; Quebec, III ; Haileybury, Oonikup.
6. Meaford, Haileybury.
7. Hillview, IV ; Channell Island, IV ; Savanne, Gravenhurst, IV ; Father Point, III ; Quebec, IV ; Haileybury, III.
8. Savanne, Gravenhurst, IV ; Haileybury, IV.
10. Pembina Crossing, III ; Gravenhurst, IV.
11. Cockburn Island, Hillview, IV ; Savanne, Emsdale, III ; Huntsville, III ; Coldwater, II ; Truro, IV ; Kingston, III ; Father Point, IV.
12. Minnedosa, I.
13. Minnedosa, I.
14. Savanne.
15. St. Stephen, IV ; Bancroft, II ; Georgetown, IV ; Kingston, I ; Yarmouth, IV ; Father Point, II ; Quebec, IV ; Haileybury, III.
16. Haileybury, III.
18. Hillview, IV.
19. Hillview, IV.
20. Hillview, IV ; Savanne, Haileybury, IV.
21. Cannington Manor, IV ; Treherne, Hillview, II ; Channell Island, IV ; Pembina Crossing, IV.
22. Haileybury, IV.
26. Bancroft, IV.
30. Haileybury, IV.
31. Truro, IV.

Appearance of Spring Birds, &c.

Swallows.—Coutts, 16th ; Gatesgarth, 19th ; Red Deer, 9th ; Qu'Appelle, 11th ; Fredericton, 3rd ; Barrie, 11th ; Oonikup, 8th.

Whip poor Will.—Pembina Crossing, 16th ; Gravenhurst, 2nd.

Cat bird.—Pembina crossing, 18th ; Owen Sound, 1st.

Oriole.—Pembina Crossing, 21st ; Lucknow, 1st ; Owen Sound, 3rd.

Wren.—Pembina Crossing, 22nd.

Bobolink.—Pembina Crossing, 23rd ; Scarboro, 6th ; Erasmus, 15th.

Humming Bird.—Pembina Crossing, 30th ; Arden, 13th ; Clontarf, 24th ; Port Hope, 10th ; Stouffville, 13th ; St. Stephen, 23rd ; Barrie, 26th.

Robins.—Hillview, 4th ; Barkerville, 2nd.

Yellow birds.—Arden, 16th ; Barrie, 23rd.

PROPORTION OF BRIGHT SUNSHINE REGISTERED IN EACH HOUR OF THE DAY DURING WHICH THE SUN WAS ABOVE
THE HORIZON IN THE MONTH OF MAY, 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	0'00	0'09	0'31	0'40	0'38	0'48	0'58	0'54	0'57	0'54	0'43	0'40	0'35	0'23	0'00
KUPER ISLAND.....																
AGASSIZ, B. C.....			0'09	0'19	0'24	0'30	0'30	0'33	0'30	0'28	0'32	0'26	0'16	0'05	0'02	0'01
BATTLEFORD.....	0 30	0'41	0'44	0'46	0'51	0'53	0'54	0'52	0'52	0'51	0'46	0'46	0'43	0'36	0'12	.....
INDIAN HEAD.....																.....
BRANDON.....		0'23	0'50	0'50	0'58	0'55	0'56	0'53	0'48	0'48	0'48	0'35	0'32	0'33	0'27	.....
WINNIPEG.....	0 04	0'30	0'35	0'40	0'45	0'48	0'49	0'49	0'46	0'43	0'41	0'41	0'38	0'36	0'24	.....
DURHAM.....		0'02	0'24	0'36	0'45	0'57	0'59	0'57	0'64	0'56	0'65	0'60	0'42	0'23	0'06	.....
WOODSTOCK.....		0'03	0'32	0'47	0'49	0'49	0'52	0'55	0'55	0'61	0'59	0'58	0'49	0'46	0'23	0'02
TORONTO.....		0'17	0'43	0'57	0'59	0'50	0'55	0'57	0'55	0'59	0'55	0'60	0'53	0'47	0'32	0'02
LINDSAY.....	0'02	0'23	0'36	0'47	0'51	0'51	0'55	0'58	0'63	0'58	0'56	0'52	0'46	0'45	0'36	0'08
BARRIE.....		0'11	0'46	0'47	0'46	0'50	0'54	0'55	0'60	0'59	0'56	0'60	0'64	0'50	0'26	.....
KINGSTON.....		0'19	0'46	0'50	0'52	0'58	0'61	0'55	0'59	0'61	0'65	0'57	0'60	0'48	0'25	.....
OTTAWA.....		0'25	0'51	0'52	0'55	0'57	0'58	0'62	0'57	0'57	0'58	0'58	0'56	0'55	0'26	.....
MONTREAL.....		0'24	0'56	0'62	0'70	0'70	0'74	0'69	0'66	0'59	0'61	0'61	0'60	0'56	0'06	.....
FREDERICTON.....	0'20	0'50	0'61	0'60	0'56	0'58	0'65	0'64	0'60	0'65	0'60	0'59	0'55	0'42	0'03	.....

	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.)	0'35	.....	0'19	0'42	.....	0'40	0'37	0'40	0'43	0'45	0'43	0'46	0'48	0'49	0'61	0'52
DIFFERENCE FROM AVERAGE.....	-0'07	.....	-0'09	-0'05	.....	-0'06	-0'16	-	-0'01	-0'03	-0'01	+0'03	+0'01	-	+0'10	+0'07
MAXIMUM DAILY AMOUNT.....	0'77	.....	0'62	0'94	.....	0'88	0'91	0'81	0'88	0'93	0'96	0'87	0'90	0'91	1'00	0'91
DATE.....	27	.....	7	21	.....	18	18	23	30	24	2	2	4	3	17	5
NO. OF DAYS COMPLETELY CLOUDED.....	4	.....	14	9	.....	7	14	8	4	2	4	3	4	4	2	5

FORECASTS FOR MAY, 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 877. These were divided as follows:—

DISTRICT.	No. ISSUED.	VERIFIED.			
		No. Fully.	No. Partly.	No. Not.	Percentage.
MANITOBA.....	89	70	13	6	86.0
LAKE SUPERIOR.....	93	58	30	5	78.5
LOWER LAKE REGION.....	111	80	21	10	81.5
GEORGIAN BAY.....	111	91	11	9	86.9
OTTAWA VALLEY.....	94	84	3	7	91.0
UPPER ST. LAWRENCE.....	93	79	10	4	90.3
LOWER ST. LAWRENCE.....	89	73	8	8	86.5
GULF.....	95	72	13	10	82.7
MARITIME PROVINCES.....	102	80	19	3	87.7
TOTAL.....	877	687	128	62	85.6

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 for May were issued by the Forecast Official, B. C. Webber.

HINTS TO OBSERVERS.

(F. F. PAYNE.)

To those voluntary observers in Canada who extend their observations beyond the reading of their instruments and desire to make their records of auroras, thunder-storms, &c., as complete as possible we would suggest that in addition to noting the class to which the aurora belongs, as set forth in the book of "Instructions to Observers," a full description with the date and time of beginning and ending would add much to the value of the observation. If possible the altitude and azimuth of the arch should always be given, or its position may be explained by reference to some well known fixed stars. The extent and position of streamers, presence of corona, prismatic colours, waves, &c., should be noted and it would be well to mention whether changes are rapid or slow.

To most volunteer observers a full description of each thunder-storm may perhaps be found too tedious, therefore the following observations are suggested, they being of most importance.—Time when first and last thunder is heard, position of thunder cloud when first seen and when last seen, time of beginning and ending of rain or hail, direction and maximum force of the wind. If several storms occur on the same day they are considered as separate when a period or region of clear sky occurs between each.

Tornadoes do not often occur in Canada nor are they usually so destructive as those experienced in other latitudes; they are reported occasionally, however, and it is important that they should be properly described. The date and time of occurrence having been given, the following notes should be added:—Appearance of the tornado, direction in which it moved; direction of whirl, length and width of track, amount of rain, amount of destruction, position of trees and other objects thrown down, &c.

If a meteor is recorded, a full description should also be given, or if not seen by the observer, a trustworthy neighbour might be able to give the information desired. If possible its angular altitude and azimuth when first and last seen should be noted, together with remarks stating whether a report or vibration was noticeable, whether the white vapoury cloud left appeared to shift its position, and how long this cloud could be seen; also the time in seconds that elapsed before the sound was heard after the meteor passed.

Some further suggestions might be added, but we may give these in a later issue.