Article 17.—*Mean results of Meteorological Observations taken during the winter of 1853–54.* By Lieut. Noble, *R. A., F. R. A. S.*

[Read before the Society, the 18th October, 1854.]

The means of the accompanying observations are derived from observations taken at 6 A. M., 2 P. M., and 10 P. M.

Barometer.—The mean height of the Barometer, corrected and reduced to 32 F., was in October 29.638, December 29.662, January 20.776, February 29.797, March 29.618, and April 29.797.

The highest recorded Barometric pressure was 30.496 ins. on the 25th February, and the lowest 28.781 ins. on the 18th March, giving a range during the period of observations, of 1.715 ins., and a mean monthly range of 1.321 ins.

It is, of course, impossible, in observations so partial, to deduce with much probability of accuracy, any general results, yet I cannot pass over without notice the usual great height of the Barometer before an easterly wind, and its rapid fall after that wind has commenced.

The following table shews the mean height of the Barometer for twenty-four hours before every easterly wind, and also its mean height for the next two days:

		24 hrs. previous.	1st day of E. Wind.	2nd day of E. W.
Dec.	5	30.055	29.627	29.698
"	17—	29.641	.419	28.934
"	21—	30.077	.981	29.339
"	25—	29.395	.393	.394
Feb.	10—	30.018	30.090	.297
"	15—	.082	29.678	.767
"	19—	.021	.704	.208
"	22—	.000	.994	.863
"	25—	.389	.565	.548
"	7—	.181	.751	.209
"	12—	.253	.961	.941
"	20—	.050	.813	.492
"	25—	.451	.876	.854
March	1—	29.893	30.105	29.756
"	7—	.788	28.517	.703
"	13—	.803	.779	.591
"	22—	.801	.878	.093
"	30—	30.117	30.036	.344
April	7—	29.863	.021	.785
"	14—	30.199	29.958	.975
"	21—	29.782	.668	.735

It appears, therefore, from this table that while the mean height of the Barometer for the five winter months was 29.741 ins., the mean height during the 24 hours previous to the commencement of an easterly wind was 29.990 ins. during the first twenty-four hours after its commencement 29.775, and during the next twenty-four hours 29.358 ins.

The maximum height observed, 30.496 ins., occurred the day before the commencement of an easterly wind.

The only case of any importance where the Barometer appears to have remained at a considerable height during the prevalence of an easterly wind is in the period from the

28th to the 30th April inclusive, and for these three days the mean height is 30.032 ins. During this considerable height there fell 2 ins. of rain.

Although I have not examined the results of the Montreal and Toronto Observations so closely as those taken at Quebec, yet the same general remarks appear to apply to both of these places.

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TEMPERATURE. — The mean temperature of the air during the month of December was 17° 6, during January 7° 5, February 8° 1, March 24° 3, and April 34° 23.

The mean temperature of the three winter months was 11° 0, the coldest day was the 29th of January, when the mean temperature was as low as —16° 1, the minimum thermometer was also on the same day, and was —29°.

The following are the mean maxima, mean minima, and mean daily ranges for

December,		January,		February,		March,		April,	
22°.4		15°.1		17°		31°.9		41°.0	
10.1	12°.3	—2.7	17°.8.	—5.4	22°.4	14.4	17°.5	23.3	17°.7

The greatest daily range was on the 30th of January, and amounted to 46°.5, and the least was on the 14th April, 2°.8.

There were 2 days in November in which the thermometer sank below zero, 7 in December, 20 in January, 17 in February, and 4 in March, making a total of 50 days during the winter upon which the thermometer was registered below zero. There was 1 day in September in which the thermometer was below 32°, there were 14 in October, 23 in November, it was below 32° every day during the whole of December, January, February, March, and every day in April except 4

the 5th, 26th, 29th and 30th. It was also registered 4 times below 32° in May. It therefore appears that during the last winter the thermometer sank below freezing 189 nights, or rather more than half the year.

The river St. Lawrence was frozen across, opposite Quebec, on the 6th February, and broke up on the 24th April.

The river St. Charles ice broke up on the 5th of May.

If my observations had been continued during the whole of this year, I believe we should have obtained a very close approximation to the mean temperature of Quebec, as in my opinion the great cold of last winter would be compensated for by the heat of the summer, and thus Col. Sabine's remark with regard to the temperature of Toronto may perhaps be extended to Montreal and Quebec, viz: that with great fluctuations of the monthly there is very little fluctuation in the annual temperature.

In the absence of all Authentic Thermometric Registers at Quebec, it is difficult to arrive at a true mean annual temperature. Kaemtz, in his treatise on meteorology, gives as the result of 13 years observation 43°.7 as the mean temperature of Montreal. Dr. Smallwood makes the mean temperature of Montreal, for the year 1853, 42°.9, and I would assign 38.5 or 38 as the probable mean temperature of Quebec.

It may shew in some degree the difference between our climate and that of Europe, if I remark that the mean temperature of Paris and London, both of which places are north of Quebec, are respectively 51.4 and 50.7, and (although last winter is not to be taken as an average,) while our coldest month was 7°.5, the mean coldest month at Paris is 35°.2 and that at London 37.4.

ELASTICITY.—The mean elasticity for the month of December is .096, for January .064, for February .065, March .116, and for April .150, giving a mean elasticity, for the winter quarter, of .073. inches of Mercury.

HUMIDITY.—The mean humidity for December was, (saturation being represented by 1.00,) .84, for January .79, for February .74, March .82, and April .81, and the mean for the three winter months was .79.

RAIN.—No appreciable amount of rain fell in December, January, or February; there being only one shower in January.

.13 inches fell in March on two days, and 2.85 inches in April on five days, the rain on the 16th March being accompanied by thunder and lightning.

SNOW.—Snow was observed on the mountains on the 7th October, and the first snow fell in Quebec upon the 24th of the same month.

The depth of snow measured during

October	was	3 ins.,	which fell on	1	day.
November	"	15 ins.	....	7	days.
December	"	37.5 ins.	....	14	"
January,	"	41.5 ins.	....	17	"
February,	"	43.9 ins.	....	11	"
March,	"	55.8 ins.	....	13	"
April,	"	3.3 ins.	....	5	"

Making a total of 200 ins., or 16 ft. 8 ins., which fell during 68 days.

It may be observed that this method of measuring the snow after every fall, in some level place, is liable to a very serious objection, as it is evident that, if 9 ins. fall, the quantity must be considerably greater than 9 times the amount measured, should only one inch fall.

Mr. Campbell and myself, who are carrying on the Meteorological Observations for the ensuing winter, purpose reducing the snow, after each fall, to water, with the view of comparing the actual amount of snow that falls, for different measurements.

WIND.—The number of observations recorded is not sufficient to determine accurately either the prevailing wind or the mean velocity.

The W. N. W., however, seems to be the most prevalent wind, and the mean recorded velocity is 9.5 miles per hour.

CLOUD.—The various descriptions of clouds observed, appear in the Meteorological Register. I will only remark, that before and after great magnetic disturbances, the clouds at considerable elevations have been frequently observed arranged in bands, sometimes parallel to, and sometimes at right angles to, the Magnetic Meridian.

AURORA.—The Aurora Borealis has been observed at Quebec upon 117 nights.

The accompanying table shews the number of auroras observed in Quebec, Montreal and Toronto during the annexed months. It also shews the number of nights on which it was possible to see aurora at each station.

	QUEBEC.		MONTREAL.		TORONTO.	
	Observed	Possible to see.	Observed	Possible to see.	Observed	Possible to see.
August, ...	10	10	8	22	8	23
September.	13	15	6	14	7	19
October,...	12	16	1	17	4	16
November,	3	3	2	9	2	7
December,	9	11	8	10	5	8
January, ..	9	14	4	11	8	10
February, .	9	13	5	10	4	12
March	10	12	6	7	12	19
April, ...	16	17	5	8	8	15
May, ...	4	4	5	15	6	17
September,	14	14				
October, ..	8	9				
	117	138	40	123	54	146

It appears from this table, that while aurora was visible at Quebec 117 out of 138 possible nights, it was only visible at Montreal 40 out of 123 possible nights, and at Toronto 54 out of 126, or 85, 32, and 37 per cent. respectively.

I think we may attribute the difference in the percentage between Montreal and Toronto to the fact, that at Montreal there is only one observer, while at Toronto there is a watch kept up all night.

I regard the difference between Quebec and Montreal as very remarkable ; for example : during the latter half of the month of August, aurora was visible at Quebec upon every possible night, while at Montreal and Toronto there was the same number (3) observed out of 22 possible nights in the former, and 23 in the latter place. Now at Quebec all the auroras observed, with the exception of two or three were either low arches of about 5° or 6° above the horison, or faint auroral light. Hence I am led to the conclusion that Quebec is on the verge of that circle round the magnetic pole, within which aurora is observed nearly every clear night.

When we reflect that the majority of clear nights upon which aurora is recorded occur near full moon, and also that a single observer can watch only during a very small portion of the night, I think we may assume that aurora is visible here nearly 95 out of 100 possible nights.

Last winter is remarkable for the splendour and frequency of auroras of the first class.

I transcribe from the Journal of Auroras the description of the aurora of the 10th April, the most splendid I have ever seen, and remarkable for the accompanying great magnetic disturbance.

It is worthy of observation, that at this period of great

magnetic disturbance, violent storms and hurricanes occurred in different parts of the globe.

" 10th.—At two, P. M., I noticed the clouds, (chiefly ci. cu.), arranged in, and parallel to, the magnetic meridian—the early part of the night hazy, and a very fine lunar halo, 40° in diameter, visible from 8 till 12. I first saw aurora at 11¼, P. M.; the chief characteristics were then a number of streamers changing to brilliant colours very rapidly, and a good deal of motion from W. to E. There was a total absence of the usual dart segment, and very little brilliance near the north horison. There was a narrow band of luminous vapour occasionally, of the most brilliant colours, passing through the zenith at right angles to the magnetic meridian.   Corona formed at 11 h. 45 m. At about 12 h. 10 m. the chief display was in the north, spreading E. and W., and there was a great deal of motion from north towards the zenith.   I cannot express it better than by saying, that for about 6 minutes it appeared as if a flood of luminous matter was flowing towards the zenith with immense rapidity.   At 12 h. 59 m. large patches of streamers in the N. E.   At 1 h. 10 m. streamers in the north.   At 1 h. 12 m. a great deal of motion from W. to E.   At 1 h. 28 m. no violent motion; streamers N. E.   At 2 h. 45 m. there was precisely the same appearance in the S. E. as there had formerly been in the N. W. (at 11¼.)   The corona reformed, and the appearance was magnificent. Brilliant patches appeared in every direction, except due north, where there were long lines of luminous cirrous clouds at right angles to the magnetic meridian. There was also a great deal of motion from W. to E.   After this the aurora appeared in patches near the north horison. At 6 h. 15 m. was the maximum of magnetic disturbance.   At 6 h.

54 m. I thought I saw aurora; not the slightest appearance of a cloud in the sky.

" This aurora was observed at Toronto, but owing probably to its late appearance, it is not noticed in the Montreal observations, although the same characteristics distinguished the sky at 10, P. M.

" I lay upon the table a copy of the magnetic disturbance on this day, as registered at Greenwich and Quebec.

BY LIEUT. A. NOBLE, R.A.

Latitude, 46 deg. 49·2 min. North; Longitude, 71 deg. 16 min. West.   Elevation above the level of the Sea, — Feet.

Date	Barometer corrected and reduced to 32 degrees, Fahr.				Temperature of Air				Elasticity of Air				Humidity of Air				Direction of Wind			Velocity of Air			Rain in inch	Snow in inch	Remarks
	6 A.M	2 P.M	10 P.M	MEAN	6 A.M	2 P.M	10 P.M	MEAN	6 A.M	2 P.M	10 P.M	M'N	6 A.M	2 P.M	10 P.M	M'N	6 A.M	2 P.M	10 P.M	6 A.M	2 P.M	10 P.M			
1	29.950	29.914	29.910	29.925	23.0	23.2	24.0	23.4	.111	.111	.120	.111	87	73	95	85	N E	E.N.E	E N E	15.2	11.4	8.			1st. At about 11½ a.m. light cirrus clouds at a great elevation: at L s. to the meridian. Aurora visible.
2	.903	.919	.863	.895	20.5	20.0	19.0	19.5	.095	.095	.092	.093	83	80	87	84	N E b N	E.N.E	E N E	13.9	13.4	14.3			2nd. A very faint Aurora.
3	.767	.702	.740	.736	20.0	23.4	18.0	20.4	.047	.087	.120	.098	88	93	81	88	E b N	N W	E	11.4	10.9	6.2		3.0	3rd. Snowing from 12½ to 7½ p. m. Aurora visible.
4	.879	.944	30.040	.954	4.4	9.0	2.5	5.3	.017	.051	.040	.040	91	73	76	78	N N W	N W	N W	10.9	8.8	8.			4th. A good Aurora appeared at 4, still visible at 11.
5	30.054	30.057	.055	30.055	8.3	12.0	18.0	9.4	.053	.053	.064	.053	72	66	70	73	E	E b s	Calm	8.				1.0	6th. Snowed 1½ to 10½ p.m.
6	29.929	29.603	29.349	29.627	20.4	24.5	26.0	23.6	.112	.119	.136	.136	81	88	76	83	Calm	N N W	N N W	10.1	11.4	10.1		5.0	7th. A very faint Aurora.
7	.474	.814	.805	.698	21.5	25.1	17.0	21.2	.112	.106	.075	.108	94	77	77	89	Calm	E b s	E b N	0.2	8.8	8.			8th. Snowed from 5½ a.m. to 2 p.m.
8	.930	.868	.849	.882	16.8	23.5	21.6	21.0	.108	.108	.108	.105	84	89	93	90	W	W b s	N W s	5.2	3.8	3.8		2.5	12th. Aurora visible at 6 a.m. Not visible previously.
9	.734	.789	.748	.757	27.0	23.5	1.5	31.1	.125	.156	.153	.145	91	77	93	88	N N W	W N W	W N W	3.8	3.9	3.8			13th. Cirrus clouds L s. to meridian at 2 p.m.
10	.755	.766	.766	.762	32.5	37.5	33.3	34.4	.166	.180	.163	.174	93	80	93	88	N N W	N W	W N W	3.8	3.9				14th. Lunar halo 60° in diameter at 6 o'clock p.m.
11	.793	.805	.766	.820	32.5	35.6	39.6	31.1	.155	.162	.163	.155	93	78	93	88	Calm	N W	Calm			8.			15th. At 1 p.m. cirrus clouds at L s. to meridian.
12	.874	.853	.857	.861	26.5	35.6	31.7	31.3	.140	.102	.116	.153	96	93	89	94	Calm	Calm	Calm		5.2	8.8		1.5	23rd. Sky overed with clouds but in the north a dark arch, and a glow above it; thought it might be Aurora. Observed this about 9 p.m.
13	.855	.850	.782	.873	30.2	24.8	17.0	26.4	.651	.171	.091	.141	69	83	94	85	Calm	E b N	W N W	6.2	5.2	8.8		3.5	24th. Lower stratum of clouds moving with the wind E.N.E. Upper stratum S.S.E.
14	30.006	.974	30.044	.958	25.5	33.0	30.2	29.6	.121	.133	.135	.136	72	87	73	91	N W	N W	W b N		3.8	8.5			
16	29.760	.817	.770	.782	30.5	34.0	36.3	34.0	.133	.154	.155	.175	79	87	81	89	N W	N W	E b s		3.8	9.			
17	.703	.648	.573	.641	33.3	38.5	29.0	33.6	.187	.155	.154	.144	97	85	75	73	N W	N W	N W	9.7	6.2	9.		1.5	
18	.404	.422	.341	.419	10.3	24.8	11.5	21.1	.187	.112	.054	.055	90	84	74	79	E N E	Var.	N W	8.0	11.4	13.9		3.5	
19	28.893	28.844	.127	28.893	27.5	0.4	-6.3	-2.9	.029	.011	.027	.023	67	93	79	73	E N E	N W	N W	8.	8.	3.5		0.5	
20	29.451	29.689	.650	29.507	-17.8	-8.0	-8.0	-10.2	.012	.015	.011	.012	57	91	64	74	N W	N W	E b N	5.2	5.2	3.5			
21	.857	.091	30.048	.905	-3.0	7.8	5.0	.3	.026	.031	.047	.077	63	96	79	88	N N W	N W	N W	3.2	5.2	6.2		1.5	
22	30.078	30.056	30.077	30.077	10.3	15.8	18.0	14.7	.039	.052	.053	.077	81	84	74	81	N W	E	E N E	10.1	11.4	6.2		1.5	
23	29.994	.017	29.882	29.931	20.8	22.9	27.5	23.7	.114	.089	.092	.089	97	91	77	89	E N E	E	E N E	9.3		10.9			
24	.648	.266	.102	.339	24.5	13.5	3.5	13.5	.119	.071	.011	.054	91	94	74	79	N W	E b N	E N E	9.3	7.2	3.5			
25	.044	.104	.106	.084	4.3	15.8	12.3	12.3	.019	.017	.015	.074	63	86	72	80	N W	N W	E N E	9.3		10.9			
26	.284	.404	.498	.393	10.5	20.5	21.0	17.3	.035	.063	.103	.095	63	63	75	73	N N W	N N W	E N E	3.3	11.1	10.9		1.5	
27	.454	.355	.360	.393	22.5	15.2	11.5	19.0	.108	.063	.063	.065	98	96	74	80	N N W	N W	E N E		8.5	13.9			
28	.421	.386	.346	.384	4.5	5.2	-2.5	.9	.045	.011	.021	.011	90	85	71	73	Calm	E b N	E N E		10.9	7.2		1.5	
29	.331	.524	.611	.498	-8.0	3.8	2.0	-0.9	.013	.018	.017	.039	95	77	77	89	N b W	N N W	E N E	10.1		6.2		3.0	
30	.523	.322	.082	.309	-3.5	6.0	1.0	1.2	.020	.020	.013	.013	81	71	70	77	N N W	N N W	N N W	10.9		6.2		1.0	
31	.492	.530	.580	.585	9.3	14.2	13.5	12.5	.022	.055	.068	.072	95	96	79	87	N W	E S E	E S E	6.2	6.2	6.2		2.0	
M	29.660	29.865	29.600	29.662	15.3	20.4	16.8	17.5	.091	.093	.093	.096	83	84	83	84				0.9	7.3	6.9	0.0	37.3	

Highest Barometer, at 2 p.m. on the 21st .... 30.059 } Monthly Range, 1.231 in.
Lowest Barometer, at 2 p.m. on the 18th .... 28.844 }

Maximum Thermometer, on the 17th .... 38.5 } Monthly Range, 56°.5
Minimum Thermometer, on the 20th .... -18.0 }

Maximum Thermometer .... 22.4 } Mean Daily Range 12°.3.
Minimum Thermometer .... 10.1 }

Greatest Daily Range, on the 18th .... 30°.0
Least Daily Range, on the 2nd .... 3°.5
Warmest Day, the 16th .... 34°.4 } Climatic Difference, 44°.3
Coldest Day, the 20th .... -10·2 }
Possible to see Aurora on 11 nights.
Aurora actually visible on 9 nights.

Latitude 46 deg. 49.2 min. North : Longitude, 71 deg. 16 min. West. Elevation above the level of the sea, — Feet.

Date	Barometer corrected and reduced to 32 degree, Fahr.				Temperature of Air.				Elasticity of Air.					Humidity of Air.				Direction of Wind.			Velocity of Miles.							REMARKS.
	6 A.M.	2 P.M.	10 P.M.	MEAN	6 A.M.	2 P.M.	10 P.M.	MEAN	6 A.M.	2 P.M.	6 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.	0 A.M.	2 P.M.	10 P.M.	M'N			
1	29.748	29.542	29.496	29.595	16.0	23.5	21.0	20.2	.081		.107	.111	.090	86	82	96	88	E S E	E S E	Calm	12.4	10.9		7.8	8.5		2nd. Aurora appeared at ¼ to 7 p.m. Was obscured by the clouds at about 10 p.m. Very faint. Luminous circle and dark arch underneath.
2	.544	.587	.584	.572	18.3	26.5	17.5	20.7	.100		.127	.095	.107	96	88	94	92	W N W	W N W	W N W	3.8	6.2	6.2	5.4	1.5		
3	.992	.992	.898	.953	15.4	20.0	17.5	17.6	.083		.157	.082	.087	85	87	80	81	N N W	W b S	W	6.2	6.2		3.8			4th. A faint light visible in the north at 2 a.m.
4	.970	.482	.435	.486	23.5	33.8	41.0	32.7	.117		.157	.188	.159	91	87	77	81	N W	W b S	W	3.8	6.2	11.3	7.1	3.8		
5	.591	.889	.866	.805	23.5	21.5	15.0	20.0	.104		.090	.070	.079	80	76	78	77	N W	W b S	E b S	14.8	8.8	13.3	10.3	0.2		5th. Very hazy.
6	.829	.530	.870	.627	16.4	22.2	11.0	12.5	.091		.082	.041	.068	72	79	91	79	E b S	N W	W N W	12.4	6.2	8.0	9.6	1.0		
7	.482	.947	.781	.851	-5.0	7.7	5.8	2.8	.027		.027	.054	.044	79	89	70	79	W b N	W b S	W b N	7.2	10.1	6.2	7.4			8th. Aurora visible at 5½ p.m. Not visible at 6 p.m. Visible again at 8½ p.m. Commenced to snow at 11 p.m. Aurora again visible at 2½ a.m.
8	.914	.548	.683	.676	6.0	15.2	7.1	7.1	.059		.083	.094	.058	50	88	84	76	W N W	W N W	W N W	6.2	8.8	6.2	5.4			
9	.799	.808	.953	.815	-7.4	-7.0	-14.5	-9.6	.027		.027	.016	.023	87	87	79	79	N N W	E N E	E N E	3.8	3.8	3.8	5.4	1.5		
10	.684	.979	.020	30.018	-21.4	0.0	0.0	-7.1	.008		.044	.045	.032	87	50	95	84	N N W	E N E	E N E	3.8	3.8	3.8	5.4	4.0		
11	30.054	30.073	30.075	.090	9.0	13.4	17.5	13.3	.085		.067	.080	.071	84	85	79	84	E N E	W b S	E N E	8.8	10.1	13.9	10.9	3.0		
12	.123	.377	.892	.297	22.0	37.3	30.3	26.1	.106		.188	.164	.136	84	87	97	94	W S W	W b S	W b S	27.8	34.1	30.1	30.6	1.0		12th. Very stormy.
13	29.622	.045	29.051	.041	33.7	37.0	34.5	35.2	.182		.184	.184	.173	94	89	81	83	E b N	E b N	E b S	10.1	10.1	8.0	8.7			
14	.028	.460	.812	.449	29.8	17.5	7.0	18.1	.140		.054	.054	.096	93	84	83	83	W b S	E b N	W b S	8.0	10.1	8.0	6.1	1.0		
15	.077	30.108	30.108	30.082	-3.2	7.0	5.5	3.1	.032		.040	.054	.050	75	84	77	77	W	W	W	8.0	8.0	5.2	20.6	8.0		
16	30.026	.111	.108	.111	6.3	8.3	11.5	8.7	.090		.086	.061	.062	97	95	89	89	Calm	W b S	Calm	25.4	22.7	13.9	9.2			16th. A very dark cloud visible in the north, extending from N.N.W to N.E. A light shining through the clouds above it.
17	29.825	.545	29.665	29.678	16.3	22.8	11.3	16.5	.106		.050	.042	.085	93	88	83	88	E N E	W b S	E N E	9.4	6.2	10.1	4.1			
18	.688	.702	.911	.787	0.0	6.0	4.5	3.5	.035		.050	.053	.042	83	80	78	76	E	E	W	6.2	3.8		3.9	1.5		18th. Lunar halo at 12½ a.m., 50° in diameter. Not possible to see Aurora till 1 a.m. Aurora not visible at that time.
19	.945	30.117	30.126	30.063	-5.2	11.8	7.5	3.5	.033		.068	.052	.053	93	88	73	80	E	S W	W		8.0	8.0	8.0	3.5		
20	30.001	.106	.106	.015	7.5	8.5	7.5	7.8	.067		.064	.064	.061	61	86	92	91	W b S	E N E	E N E	16.0	3.8	21.2	9.1	3.0		
21	29.940	29.707	29.465	29.704	11.0	21.5	17.5	13.3	.071		.102	.052	.075	61	83	67	48	E	S W	W	8.0	8.0	9.1	7.6			
22	.176	.137	.311	.208	-16.0	-7.5	-12.6	-12.0	.004		.023	.018	.016	65	81	92	80	E	E N E	W	13.9	11.3	11.0	8.8			
23	.864	30.035	30.108	30.000	-11.5	1.5	-6.5	-5.5	.024		.034	.023	.029	62	85	81	80	E	E N E	E N E	8.0	8.0	7.6	6.7			
24	.995	29.920	29.996	29.994	-12.5	-7.2	-7.2	-8.9	.010		.020	.029	.022	59	65	84	80	W	W b S	W	5.8	8.0	6.2	8.1			
25	.928	.676	.984	.863	-21.5	-11.5	-16.5	-13.2	.009		.019	.011	.011	48	61	67	46	W b s	E b s	W	8.8	8.0	8.8	8.1	1.0		
26	30.378	30.415	30.374	30.389	-2.5	3.5	6.5	2.5	.025		.040	.055	.040	86	68	87	74	N N W	N N W	W N W	10.1	8.1	6.2	6.7	5.0		
27	29.816	29.461	29.418	29.565	5.6	15.5	0.0	7.0	.047		.063	.035	.048	62	66	75	68	W	W	W	10.1	8.0	5.8	8.1			
28	.519	.532	.594	.542	-15.8	-3.0	-15.4	-11.4	.013		.028	.016	.019	62	57	49	66	W	N W N	W N W	6.2	8.0	5.8	7.3			
29	.886	30.060	30.294	30.060	-26.8	-7.3	-14.2	-16.1	.009		.020	.012	.014	48	73	57	66	N N W	W N W	W N W	6.2	8.0	6.2	4.6			
30	30.383	29.420	29.440	29.805	-22.7	5.4	18.5	-1.3	.008		.044	.065	.065	86	87	76	87	W	W	W	3.8	6.2	3.8	5.0	4.0		
31	29.254	.052	.220	.342	23.5	32.4	31.2	29.0	.112		.164	.148	.141										5.2				
M	29.793	29.799	29.787	29.776	3.5	11.7	7.2	7.5	0.066		0.075	0.063	0.064	78	79	79	79				9.3	9.1	7.7	8.7	41.5		

Highest Barometer at 10 p.m. on the 29th .... 30.440 } Monthly Range, 1.548 in.
Lowest Barometer, at 10 p.m. on the 12th .... 28.892 }
Maximum Thermometer .... 43°.0 } Monthly Range, 72°.0
Minimum Thermometer .... -29°.0 }
Mean Maximum Thermometer .... 15°.1 } Mean Daily Range 17°.8
Mean Minimum Thermometer .... -8°.7 }

Greatest Daily Range, on the 30th.
Least Daily Range, on the 20th.
Warmest Day, the 4th.
Coldest Day, the 25th.
Possible to see Aurora on 14 nights.
Aurora observed on 9 nights.

46°.6
3°.5
82°.7 } Climatic Difference, 43°.8.
-16°.1 }

Monthly Meteorological Register, Quebec, Canada East.—February, 1854.

By Lieut. A. Noble, R.A.

Latitude, 46 deg. 49.2 min. North; Longitude, 71 deg. 16 min. West. Elevation above the level of the Sea, — Feet.

Date	Barometer corrected and reduced to 32 degrees, Fahr. 6 A.M.	2 P.M.	10 P.M.	MEAN	Temperature of Air 6 A.M.	2 P.M.	10 P.M.	MEAN	Elasticity of Air 6 A.M.	2 P.M.	10 P.M.	M'N	Humidity of Air 6 A.M.	2 P.M.	10 P.M.	M'N	Direction of Wind 6 A.M.	2 P.M.	10 P.M.	Velocity of Miles 6 A.M.	2 P.M.	10 P.M.	Rain in inch.	Snow in inch.	REMARKS
1	29.193	29.171	29.272	29.212	25.5	36.0	34.6	32.0	124	153	176	151	88	73	89	83	N W	N W	N W	8.8	8.0	7.2		0.2	
2	.404	.582	.697	.561	15.4	12.5	5.7	11.2	066	046	046	060	82	80	76	80	N W	W	E	11.3	8.0	8.0			5th. River St. Lawrence
3	.375	.875	.953	.903	-4.6	4.5	-6.3	-2.1	027	045	023	032	71	77	67	70	E	N W	E	8.0	8.8	8.0			froze across opposite Quebec.
4	.979	.979	30.035	30.035	-21.8	-1.5	-9.4	-10.9	010	030	018	021	64	63	57	64	W N W	W N W	W N W	9.4	8.8	8.0			The ice was, however, swept
5	30.091	30.114	.068	.048	-23.0	0.0	-19.5	-14.2	008	030	000	024	48	68	60	57	W	Calm	Calm	3.8					away by the tide.
6	29.987	29.987	29.175	.122	-11.6	-2.0	-7.5	-7.0	020	043	024	029	70	65	77	68	N N W	N b W	W b N	3.8	6.3	8.0			
7	.179	.165	.181	.163	-16.7	+7.5	-9.8	-6.3	018	060	023	050	59	64	87	70	W	E	E	8.0	6.3	8.8			6th. The St. Lawrence again
8	29.813	29.813	29.341	29.751	-10.4	12.0	15.6	5.7	079	180	072	119	81	75	77	80	W b S	W b N	E	10.1	19.7	11.3		6.0	frozen across, and the ice-
9	29.168	.205	.254	.209	18.3	29.4	29.4	25.2	092	181	141	089	81	80	87	80	E	E	E	10.1	8.0	6.2		1.0	bridge remained.
10	.333	.469	.813	.538	20.6	27.4	3.4	17.1	014	042	044	096	80	80	78	89	W b S	W b N	W	7.2	6.2	6.2			
11	30.052	30.222	30.119	30.119	-15.6	2.4	-6.0	-6.4	009	045	028	026	43	70	65	69	W	E b s	E	6.3	7.2	8.0			
12	.250	.282	.247	.253	-16.2	6.5	-4.0	-4.6	059	045	106	027	87	86	81	86	W	E	E	22.7	32.1	13.4			
13	.096	29.962	29.824	29.961	8.2	26.5	22.0	15.0	117	126	108	081	87	88	87	88	E	E	E	34.1	32.1	32.1		6.0	
14	29.555	.963	30.005	.941	24.5	26.5	21.5	24.2	101	117	134	080	81	90	95	88	E	E	E	34.1	39.4	34.1		2.0	
15	.866	.729	29.626	.740	22.5	30.0	26.6	24.5	101	150	072	117	81	87	77	83	N W	W	W N W	27.8	16.0	11.3		5.0	28th. Brilliant Aurora at 12.
16	.652	.608	.675	.645	22.5	15.5	15.5	22.6	077	114	071	087	55	88	89	75	N	W	W	10.1	13.9	10.0		0.2	The whole of the northern
17	.820	.810	.825	.818	10.5	23.4	13.5	15.8	073	150	119	115	83	88	85	84	N W	W	W	8.8	10.1	10.0			horizon was of a pale, violet
18	.698	.473	.563	.563	15.4	31.0	27.0	23.9	029	024	024	028	87	71	67	75	W	E b s	W b N	13.3	19.5	16.0			colour, and there was one
19	.900	.947	30.066	.971	-8.6	9.5	-1.8	-4.1	012	075	034	035	55	81	75	70	W	N W	Calm	10.9	3.8	7.2		3.0	patch of streamers in the N.E.
20	30.116	30.051	.066	30.050	-16.5	17.0	3.3	-2.9	022	123	098	046	79	88	75	83	N	E N E	E N E	8.0	3.8	8.0			
21	29.882	29.781	29.813	29.813	-8.0	26.0	21.5	4.1	047	089	036	091	89	87	81	70	E N E	E	E N E	8.0	8.0	8.0			
22	.674	.438	.363	.492	5.0	28.0	26.0	17.5	074	129	066	066	65	87	84	67	W	E N E	W	11.3	11.5	8.0		5.5	
23	.445	.616	.866	.642	14.0	9.5	-1.5	10.2	021	057	025	034	65	70	56	67	W	W N W	E N E	10.1	9.4	11.5			
24	.854	.857	.962	.891	-8.6	18.5	9.5	-0.5	012	035	022	023	65	76	66	65	W	W N W	W N W	10.1	9.4	8.5			
25	30.391	30.498	30.451	30.451	-20.8	18.5	-8.0	-9.6	045	086	035	084	61	79	91	79	W b N	W b S	E E	8.0	7.2	8.8			
26	30.253	29.974	29.401	29.876	4.0	24.4	24.5	15.6	045	086	022	121	79	83	75	84	E S E	E b S	E N E	8.0	7.2	10.9			
27	29.522	.863	30.176	.854	17.6	23.7	11.5	17.6	094	098	058	083	92	75	75	81	W b S	W b N	E b N	10.9	13.9	6.2		14.0	
28	30.330	30.194	.000	30.175	1.0	24.0	14.5	13.2	021	108	075	068	51	82	85	73	W b N	W b N	W b N	7.2	8.8	9.4		1.0	
M	29.859	29.834	29.850	29.850	1.5	16.4	7.3	8.1	049	083	063	065	70	79	74	74				10.8	11.5	10.2		43.9	

Highest Barometer at 2 p.m. on the 25th............. 30.498
Lowest Barometer, at 2 p.m. on the 1st............. 29.171 } Monthly Range, 1.825 in.
Maximum Thermometer, on the 1st............. 36°.0
Minimum Thermometer, on the 5th............. -24°.0 } Monthly Range, 60°.0
Mean Maximum Thermometer............. 17°.0
Mean Minimum Thermometer............. -5°.4 } Mean Daily Range 22°.4

Greatest Daily Range, on the 10th............. 43°.1
Least Daily Range, on the 15th............. 4°.0
Warmest Day, the 1st; mean temperature............. 32°.0 } Climatic Difference, 46°.2
Coldest Day, the 5th; mean temperature............. -14°.2
Possible to see Aurora on 13 nights.
Aurora visible on 9 nights.

BY LIEUT. A. NOBLE, R.A.

Latitude, 48 deg. 40.2 min. North; Longitude, 71 deg. 16 min. West. Elevation above the level of the Sea, — Feet.

Date	Barometer corrected and reduced to 32 degrees, Fahr.				Temperature of Air.				Elasticity of Air.				Humidity of Air.				Direction of Wind.			Velocity of Miles.			Rain in inch.	Snow in inch.	REMARKS.
	6 A.M.	2 P.M.	10 P.M	MEAN	6 A.M	2 P.M	10 P.M	MEAN	6 A.M.	2 P.M.	10 P.M.	M'N	6 A.M	2 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.	6 A.M	2 P.M.	10 P.M.			
1	29.920	29.871	29.887	29.893	10.0	33.8	32.0	25.2	.058	.164	.166	.126	79	85	87	84	W S W	W S W	W S W	6.2	6.2	8.0	...	...	7th. Snowing slightly.
2	30.082	30.099	30.156	30.105	24.0	25.5	11.5	20.3	.110	.109	.058	.094	87	78	75	80	E b N	W S W	E N E	5.2	7.2	12.4	...	6.0	8th. Heavy fog during the morning.
3	29.943	29.704	29.622	28.756	19.5	20.5	21.5	20.5	.085	.092	.008	.095	80	81	08	83	E N E	E N E	E N E	21.2	21.2	16.0	...	6.0	
4	.589	.902	.452	.647	25.0	29.6	23.5	26.3	.116	.140	.134	.121	81	68	85	90	E W	S W	S W	5.2	8.0	5.2	...	4.0	16th. Thunder and lightning, accompanied with hail and rain.
5	.406	.534	.605	.515	25.0	38.0	23.5	28.8	.112	.140	.112	.105	81	63	86	80	S W	S W	S W	6.2	10.1	8.0	...	...	
6	.804	.898	.982	.895	18.0	31.0	24.6	24.5	.082	.117	.117	.122	84	64	88	78	W b s	W b s	Calm	5.2	5.2		0.5		20th. Clear, but no Aurora observed.
7	.807	.765	.702	.788	21.4	39.8	23.2	28.1	.100	.156	.111	.110	81	83	88	78	Calm	W b N	E b S	21.2	13.9	31.2		5.0	
8	.685	.480	.386	.517	10.4	39.3	23.0	21.6	.040	.149	.122	.131	82	88	89	87	E b S	E b N	E b S		13.9	12.4		7.0	21st. Aurora observed. A luminous arch with dark segment, but no streamers.
9	.601	.720	.788	.703	25.4	31.4	25.0	28.3	.115	.149	.139	.181	88	82	89	84	N b W	E b N	S W	21.2	16.0	16.0			
10	.659	.592	.415	.529	27.8	32.8	30.0	30.2	.135	.145	.134	.188	87	68	80	82	N W	N W	N W b W	11.3	10.1	10.1		1.0	22nd. Aurora observed. Two mock suns seen, 10 p.m.
11	.473	.717	.597	.696	27.4	42.5	38.6	36.3	.141	.184	.186	.171	79	66	80	81	N W b W	E b s	N W b N	8.0	8.0	7.2		0.5	23rd and 24th. Very heavy fall of snow.
12	.399	.681	.677	.586	26.5	37.5	38.6	35.0	.128	.176	.171	.163	80	61	88	78	E b S	S E	S E	5.2	6.2	8.0			
13	.722	.774	.915	.803	37.5	35.4	35.4	35.8	.178	.127	.142	.159	91	60	98	90	S W	W	S E	13.9	22.1	12.4	0.04		26th. Aurora visible through the clouds.
14	.975	.732	.630	.779	23.0	26.2	26.2	24.9	.104	.124	.142	.125	84	70	68	84	Calm	W	N W	8.8	8.0	8.0			
15	.653	.658	.442	.591	38.6	46.0	35.5	36.7	.145	.213	.188	.184	92	97	81	74	S W	W	N W		10.1	9.6		0.3	
16	28.932	28.910	28.880	28.910	38.5	41.8	38.0	41.8	.209	.213	.153	.158	89	81	84	88	Calm	W	N W	11.3	16.0	13.9		3.0	29th. A comet visible just after sunset. A very remarkable Aurora, consisting of three arches; one in the north, another passing through the zenith, and a third in the south.
17	29.021	29.131	29.046	29.046	30.0	40.3	26.5	32.9	.141	.241	.134	.172	78	72	73	96	N W	N W	N W b N	19.7	32.1	27.8		4.0	
18	28.781	28.446	.058	.058	7.0	17.6	15.8	15.8	.053	.103	.107	.081	76	83	81	78	N W b N	N W b N	N W b N	19.7	16.0	10.1			
19	29.678	29.570	.605	.605	7.5	22.8	8.5	12.9	.052	.103	.050	.008	78	90	75	81	N W b N	N W b N	N W b N	10.1	11.3	10.9			30th. Aurora observed. A great deal of motion.
20	29.730	.818	.980	.843	0.0	17.0	10.5	9.1	.036	.071	.049	.059	87	84	90	83	S E	S E	S E	11.3	11.3	3.8			
21	30.051	30.008	30.012	30.012	1.3	17.0	9.1	11.7	.041	.060	.060	.061	88	97	85	88	S E	W	S E	8.0	6.2	10.1			
22	29.980	.304	.319	29.901	-0.3	24.0	19.2	14.9	.036	.128	.091	.085	89	86	81	84	W	W	W S W	10.1	13.9	20.2		9.0	
23	.465	.377	.381	.093	18.0	26.0	31.0	27.1	.093	.144	.125	.136	93	107	87	93	W S W	W b N	W b N	21.2	27.8	16.0		9.0	
24	.179	.088	.014	.064	28.6	32.3	28.0	28.7	.090	.123	.055	.009	93	89	82	85	W b N	S W	W b N	11.3	19.7	10.7		2.0	
25	.081	.047	.063	.217	16.3	30.8	17.0	18.7	.059	.086	.055	.079	62	73	92	75	Calm	N W	Calm	19.7	19.7				
26	.121	.201	.330	.330	8.0	23.0	19.4	16.9	.078	.107	.092	.081	94	82	95	77	Calm	E S E	E S E	16.0	16.0	11.3			
27	.409	.460	.571	.480	12.8	21.8	13.0	15.8	.075	.102	.057	.057		79	94	89	W S W	W S W	W S W	11.3	16.0	10.7			
28	.638	.724	.864	.742	13.0	34.3	21.0	22.7	.052	.124	.102	.112		88	79	85	W b N	W b N	W b N	11.3	11.3	11.3			
29	.924	.983	30.080	.999	8.8	27.2	13.5	17.9	.053	.071	.071	.083		82	93	77	S W	S W	Calm	10.1	7.2	5.2			
30	30.134	30.070	30.148	30.117	18.0	31.3	16.3	18.8	.097	.113	.148	.119		94	95	89	Calm	E S E	E S E		8.0				
31	30.163	30.073	30.036	30.036	18.0	26.2	29.9	24.4									Calm								
M	29.615	29.618	29.624	29.619	18.3	30.6	23.9	24.3	.096	.136	.118	.116	84	77	85	82				10.2	13.1	10.9	0.13	55.8	

Highest Barometer, at 6 a.m. on the 31st .... 30.163 }
Lowest Barometer, at 6 a.m. on the 18th .... 28.781 } Monthly Range, 1.382 in.
Maximum Thermometer, on the 18th .... 50°.0 }
Minimum Thermometer, on the 19th .... -2°.0 } Monthly Range, 52°.0
Mean Maximum Thermometer .... 31°.9 }
Mean Minimum Thermometer .... 14°.4 } Mean Daily Range 17°.5

Greatest Daily Range, on the 17th .... 35°.0
Least Daily Range, on the 14th .... 5°.6
Warmest Day, the 16th; mean temperature .... 41°.8 } Climatic Difference, 32°.7
Coldest Day, the 20th; mean temperature .... 9°.1 }
Possible to see Aurora on 12 nights.
Aurora visible on 16 nights.

BY LIEUT. A. NOBLE, R.A.

Latitude, 46 deg. 49·2 min. North; Longitude, 71 deg. 16 min. West. Elevation above the level of the Sea, — Feet.

Date	Barometer corrected and reduced to 32 degrees, Fahr.				Temperature of Air.				Elasticity of Air.				Humidity of Air.				Direction of Wind.			Velocity of Miles.			Rain in Inch.	Snow in Inch.	REMARKS.
	6 A.M	2 P.M	10 P.M	MEAN	8 A.M	2 P.M	10 P.M	MEAN	6 A.M	2 P.M	10 P.M	M.N.	6 A.M	2 P.M	10 P.M	M.N.	6 A.M	2 P.M	10 P.M	6 A.M	2 P.M	10 P.M			
1	29.476	29.215	29.341	29.344	32.0	39.2	35.0	35.40	.181	.266	.168	.192	00	95	88	83	E S E	Calm	E S E	3.8		10.1	0.25		
2	29.637	29.877	30.120	29.878	23.3	31.3	17.2	23.93	.118	.189	.087	.113	87	79	87	84	E S E	W N W	W N W	5.2	8.8	7.8			2nd. Aurora visible, faint arch and dark segment underneath, at 10h. 15m. Bright streamers shot out suddenly.
3	30.176	30.176	30.192	30.228	35.8	35.8	23.9	22.43	.054	.134	.109	.109	72	65	82	70	W N W	W N W	W N W	6.2	8.0	8.0			
4	30.108	30.042	30.080	30.076	26.0	44.2	36.2	35.47	.130	.172	.155	.152	91	60	78	75	Calm	W	W		8.0	7.2			
5	30.089	29.846	29.602	29.840	34.3	47.6	41.5	41.18	.236	.281	.183	.190	79	54	75	69	Calm	Calm	W			3.8	0.24		
6	29.547	29.870	29.276	29.398	41.2	52.2	43.3	52.2	.108	.129	.253	.257	92	58	93	89	N N W	W 8 W	W			3.8		0.2	10th. At 2 p.m. the clouds were arranged in and parallel to the magnetic meridian. The early part of the night hazy, and a very fine lunar halo, 40° in diameter, visible from 8 to 12. A magnificent Aurora observed: great magnetic disturbance.
7	29.683	29.846	30.060	29.963	32.2	37.3	25.3	31.93	.164	.135	.135	.143	91	87	97	82	N N W	E N E	N	10.1	3.8	7.2			
8	30.111	30.032	30.032	30.021	23.0	36.0	33.0	29.10	.108	.129	.138	.140	86	89	96	88	N N W	E N E	E	8.0	8.0	7.8		0.3	
9	29.856	29.800	.700	29.785	30.0	36.2	32.3	32.87	.134	.208	.160	.167	80	77	88	86	E	E	E	8.0	8.8	13.9		0.3	
10	.507	.491	.568	.529	31.0	39.8	31.3	37.00	.185	.186	.155	.158	95	91	89	87	E	E	E	11.8	8.0	5.2			
11	.717	.776	.775	.756	30.8	36.0	27.0	31.27	.159	.192	.123	.178	83	55	82	89	N	E	Calm	8.8	8.6				
12	.788	.720	.863	.791	23.3	50.0	38.3	37.20	.112	.194	.228		86	38	94	78	W	W	N N W	10.1	10.1	12.4			
13	30.070	30.143	30.181	30.199	11.0	27.5	29.5	24.77	.063		.189	.124	88	70	84	85	N N W	W 8 W	W 8 W	11.8	10.1	6.2			
14	30.292	30.175	29.888	.975	15.8	33.8	26.0	27.37	.094	.169	.132	.117	82	88	82	80	E	W	W		5.2	5.2			17th. At 2 p.m. a remarkable bunch of cirrous clouds at right angles to the magnetic meridian, right across the sky.
15	30.055	29.980	.980	.872	21.8	32.0	24.5	26.20	.082	.127	.111		87	78	80	86	Calm	E	N	3.8	5.2	11.3			
16	29.956	.989	.749	.749	30.3	38.5	29.5	35.20	.075	.158	.134	.131	78	81	81	82	E 8 E	E 8 E	N E		20.2	8.0			
17	.992	.873	.609	.634	29.8	38.5	30.0	40.53	.132	.145	.153	.151	78	50	80	80	Calm	N	E N E	11.3	8.0	6.2			
18	.711	.689	.429	.506	33.0	36.5	41.0	35.43	.107	.183	.134	.162	85	58	67	68	E	E N E	E	7.2	7.2	6.2			
19	.582	.507	.596	.552	38.0	50.8	41.0	35.93	.150	.175	.172	.144	78	50	81	72	N W	S	N N E	6.2	4.2	6.2			
20	.517	.544	.749	.732	38.0	48.6	44.8	40.53	.134	.142	.153	.120	90	54	45	54	E N E	E 8 E	Calm	6.2	5.2	5.2			23rd. Aurora visible immediately after sunset, and as soon as stars of the first magnitude.
21	.720	.727	.593	.688	34.0	42.0	41.0	35.43	.138	.159	.161	.145	61	56	49	61	N W	E N E	E N E	13.0	4.2	5.2			24th. The ice opposite Quebec gave way, but that at Cape Rouge still firm.
22	.762	.649	.794	.735	28.5	44.0	34.0	40.00	.120	.129	.094	.199	75	53	64		E N E	Calm	E 8 E	8.0	6.2	6.2			25th. Swallows seen.
23	.668	.744	.584	.710	33.8	40.0	34.0	37.33	.140	.153	.163			43			W 8 W	W 8 W	Calm	5.2	6.2				26th. Wheel carriages employed in the town.
24	.835	.711	.794	.549	32.8	50.5	43.0	40.00	.156	.261	.195		72	83	83	83	S	N	W 8 W	8.0	5.2		0.4		
25	.548	.546	.303	.422	33.8	54.7	43.0	43.90	.158	.162	.151		73	74	81	79	N	Calm	Calm	3.8	8.0	6.2			
26	.546	.416	.303	.646	36.3	46.0	39.0	39.60	.164	.179	.161	.169	91	80	74	84	S	W 8 W	E	10.1	15.4			1.5	
27	.450	.685	30.205	30.102		37.0	39.6	36.43		.178	.175		95	79	77	77	S	N	Calm	11.5	16.0	21.2	1.1	1.0	
28	.996	30.166	30.189	30.130	33.8	38.8	34.0	35.20		.156	.191		79	95	87	87	E	E	E	22.1	19.7	21.2	0.9		
29	30.240	29.980	29.812	29.914	33.8	39.6	37.0	36.13	.169	.220		.193					E	E	E						
30	30.000				36.3	38.3		37.27									E	E	E						
M	29.8243	29.7887	29.7792	29.7974	28.73	40.82	33.19	34.23	.139	.176	.155	.156	86	76	81	81				7.02	7.46	6.25	3.80	.3	

Maximum Barometer, at 6 a.m. on the 3rd......... 30.316 } Monthly Range, 1.101 in.
Minimum Barometer, at 2 p.m. on the 1st......... 29.215

Maximum Thermometer, on the 25th......... 55°.0 } Monthly Range, 40°.0
Minimum Thermometer, on the 2nd......... 6°.0

Mean Maximum Thermometer......... 41°.0 } Mean Daily Range 17°.7.
Mean Minimum Thermometer......... 29°.3

Greatest Daily Range, on the 12th......... 31°.0
Least Daily Range, on the 14th......... 2°.4
Warmest Day, the 6th; mean temperature ... 45°.77 } Climatic Difference, 23°.14
Coldest Day, the 3rd; mean temperature ... 22°.63
Possible to see Aurora on 17 nights.
Aurora visible on 16 nights.

BY LIEUT. A. NOBLE, R.A.

Latitude, 46 deg. 49·2 min. North; Longitude, 71 deg. 16 min. West.   Elevation above the level of the Sea, — Feet.

Date.	Barometer corrected and reduced to 32 degrees, Fahr.				Temperature of Air.				Elasticity of Air.				Humidity of Air.				Direction of Wind.			Velocity of Air.			Rain in Inch.	Snow in Inch.	Remarks.
	6 A.M.	2 P.M.	10 P.M	MEAN	6 A.M.	2 P.M	10 P.M.	MEAN	6 A.M.	6 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.			
1	29.950	29.914	29.910	29.925	23.0	23.2	24.0	23.4	.111	.093	.129	.111	87	83	95	83	N E	E N E	E N E	15.2	11.4	8.	...	...	1st. At about 11½ a.m. light
2	.903	.919	.863	.895	20.5	20.0	19.0	19.3	.095	.090	.082	.093	85	84	87	84	N E	N E	E N E	13.9	13.4	14.3	...	3.0	cirrus clouds at a great eleva-
3	.767	.702	.740	.736	20.0	23.4	20.4	20.4	.082	.120	.092	.098	90	88	91	88	E b N	E N E	E	11.4	10.9	6.2	...	...	vation: at L.s. to the meridian.
4	.879	30.040	.934	.954	3.3	9.0	2.5	5.3	.047	.051	.051	.045	90	88	81	88	N N W	N W	N W	10.9	8.8	8.	...	...	Aurora visible.
5	30.054	30.057	.055	30.055	4.3	12.0	13.0	9.4	.011	.053	.064	.053	81	73	76	73	E	Calm	Calm	8.	...	...	1.0	2nd. A very faint Aurora.
6	29.929	29.603	29.349	29.627	20.4	24.5	26.0	23.6	.092	.119	.116	.116	71	81	80	88	Calm	E b s	E b s	10.1	11.4	10.1	...	5.0	3rd. Snowing from 12½ to 7½
7	.474	.814	.805	29.698	21.5	25.1	17.0	21.2	.112	.106	.077	.105	94	88	77	90	Calm	N N W	Calm	6.2	8.8	8.	...	...	p. m. Aurora visible.
8	.930	.868	.849	.882	16.8	23.5	17.0	21.0	.089	.108	.108	.108	84	83	83	88	W	W	W b s	5.2	3.8	3.8	...	2.5	4th. A good Aurora appeared
9	.754	.789	.748	.757	27.0	35.0	31.5	31.1	.125	.156	.153	.143	83	82	87	90	W	W b s	W b s	5.2	3.8	3.8	...	...	at 6, still visible at 11.
10	.755	.766	.766	.762	32.5	37.5	33.3	34.4	.106	.180	.175	.174	53	78	93	80	N N W	W N W	Calm	8.8	3.8	3.8	...	...	6th. Snowed 11 to 10½ p.m.
11	.798	.905	.862	.820	31.8	32.8	31.1	31.1	.159	.163	.163	.155	93	88	88	89	N W	N W	N W	3.8	3.8	8.	...	...	7th. A very faint Aurora.
12	.874	.853	.857	.861	26.5	35.6	31.7	31.3	.140	.162	.162	.153	96	78	80	94	Calm	Calm	E	3.8	5.2	8.	...	...	8th. Snowed from 5½ a.m. to
13	.855	.974	30.046	.873	10.3	22.0	17.0	17.0	.162	.171	.171	.141	69	95	82	70	Calm	E b N	Calm	...	5.2	3.8	...	1.5	2 p.m.
14	30.000	.850	29.782	.958	25.5	24.8	24.3	19.8	.051	.116	.113	.003	84	93	95	87	N N W	N W	N W	...	5.2	3.8	...	...	12th. Aurora visible at 6 a.m.
15	29.760	.817	.770	.782	25.5	33.0	30.2	29.6	.121	.156	.156	.141	74	80	85	85	Calm	Calm	N W	6.2	3.3	3.8	...	...	Not visible previously.
16	.703	.648	.573	.641	30.5	35.2	36.3	34.0	.135	.178	.178	.136	90	87	73	91	N W	W b N	W b N	...	3.8	3.8	...	1.5	13th. Cirrus clouds L s. to
17	.404	.422	.341	.419	33.3	38.5	29.0	33.6	.183	.195	.144	.175	91	85	90	83	E N E	N W	N W	9.7	6.2	13.9	...	3.5	meridian at 2 p.m.
18	28.893	28.844	.127	29.507	2.2	2.2	21.1	21.1	.137	.112	.095	.112	87	78	75	75	E N E	Var.	N W	11.4	11.4	13.9	...	0.5	14th. Lunar halo 60° in dia-
19	29.451	29.689	.650	29.507	−2.5	0.4	−6.3	−2.9	.029	.014	.027	.003	59	73	70	76	N W	N W	N W	8.0	8.	3.5	...	...	meter at 6 o'clock p.m.
20	.857	.091	30.048	.905	−3.5	−4.8	−8.0	−10.2	.012	.012	.047	.012	53	72	73	71	N W	N W	N W	8.0	8.	5.2	...	...	14th. At 1 p.m. cirrus clouds
21	30.078	30.095	30.056	30.077	−3.0	7.8	5.0	3.2	.026	.031	.033	.023	87	71	87	78	N W	N W	N W	3.2	5.2	3.5	...	...	at L s. to meridian.
22	29.909	30.095	29.882	29.931	10.3	15.8	14.7	14.7	.039	.082	.082	.047	81	85	87	85	N W	N W	N W	5.2	3.8	3.5	...	...	15th. Sky covered with clouds
23	.648	.266	.102	.339	10.8	22.9	27.5	23.7	.114	.119	.132	.122	77	87	74	93	E N E	E N E	E N E	10.1	11.3	6.2	...	9.5	but in the north a dark arch,
24	.044	.104	.106	.084	24.5	13.5	3.5	13.8	.108	.071	.041	.064	75	72	74	70	N W	N W	N W	9.3	7.2	7.2	...	...	and a glow above it; thought
25	.294	.404	.393	.395	4.3	15.8	13.5	12.5	.103	.057	.057	.074	71	69	75	69	N W	N W	N W	9.3	7.2	7.2	...	...	it might be Aurora. Observed
26	.454	.355	.369	.393	10.5	20.5	21.0	17.3	.035	.108	.103	.103	65	63	72	63	N W	N W	N W	9.3	11.1	10.9	...	1.5	this about 9 p.m.
27	.421	.386	.346	.384	20.3	23.1	11.5	19.0	.105	.129	.063	.103	95	95	73	80	N E b W	N b W	N N W	5.3	10.9	7.2	...	1.5	26th. Lower stratum of clouds
28	.331	.524	.438	.346	4.5	5.2	−2.5	2.4	.043	.032	.021	.035	96	90	90	78	Calm	N b W	N N W	13.9	10.9	7.2	...	...	moving, with the wind E.N.E.
29	.528	.322	.611	.309	−8.0	3.2	1.0	−0.9	.034	.017	.010	.039	71	73	72	77	N W	N W	N N W	9.3	7.2	6.2	...	3.0	Upper stratum S.S.E.
30	.197	.449	.580	.403	−8.0	6.0	1.2	1.0	.029	.043	.013	.019	85	77	90	77	N W	N W	N W	1.2	7.2	6.2	...	1.9	
31	.492	.530	.735	.585	9.3	14.2	13.5	12.5	.052	.085	.068	.072	92	73	72	75	N W	E S E	E S E	6.2	9.	5.2	...	2.0	
M	29.660	29.665	29.660	29.662	15.3	20.4	16.8	17.5	.091	.105	.003	.096	82	84	83	84				8.9	7.3	6.9	0.0	37.3	

Highest Barometer, at 2 p.m. on the 21st.......... 30.059 } Monthly Range, 1.251 in.
Lowest Barometer, at 2 p.m. on the 18th.......... 28.844 }
Maximum Thermometer, on the 17th.......... 38.5 } Monthly Range, 56°.5
Minimum Thermometer, on the 20th.......... −18.0 }
Mean Maximum Thermometer.......... 22.4 } Mean Daily Range 12·3.
Mean Minimum Thermometer.......... 10.1 }

Greatest Daily Range, on the 18th.......... 30°.0
Least Daily Range, on the 2nd.......... 3°.5
Warmest Day, the 10th.......... 34°.4 } Climatic Difference, 44°.2
Coldest Day, the 20th.......... −10°.3 }
Possible to see Aurora on 11 nights.
Aurora actually visible on 3 nights.

Latitude 46 deg. 49.2 min. North : Longitude, 71 deg. 16 min. West. Elevation above the level of the sea, — Feet.

Date	Barometer corrected and reduced to 32 degree, Fahr.				Temperature of Air.				Elasticity of Air.				Humidity of Air.				Direction of Wind.			Velocity of Miles.				Rain in Inch.	Snow in Inch.	Remarks.
	6 A.M	2 P.M.	10 P.M	MEAN	6 A.M	2P.M.	10 P.M.	MEAN	6 A.M.	2 P.M.	10 P.M.	M'N	6 A.M	2 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.	0 A.M	2 P.M.	10 P.M.	M'N			
1	29.748	29.542	29.496	29.595	16.0	23.5	21.0	20.2	.081	.107	.111	.080	.86	.82	.98	.88	E S E	E S E	Calm	12.4	10.9		7.8		3.5	2nd. Aurora appeared
2	.544	.587	.584	.572	18.3	26.5	17.5	20.7	100	127	095	107	96	83	94	92	W N W	W N W	W N W	3.8	6.2	6.2	5.4		1.5	at 5 to 7 p.m. Was obscured
3	.970	.992	.898	.953	15.4	20.0	17.5	17.6	083	097	097	082	85	87	87	85	W s W	W s W	W s W	6.2	5.2		3.8			by the clouds at about 10
4	.591	.432	.432	.488	23.5	33.8	41.0	32.7	117	157	183	159	91	80	72	81	W	W	W	3.8	6.2	11.3	7.1			p.m. Very faint. Lumi-
5	.829	.989	.866	.895	23.5	21.5	-1.0	12.5	104	090	070	088	85	76	77	77	W	W	E b s	3.8	6.2	8.0	9.2		3.8	nous circle and dark arch
6	.482	.530	.870	.627	16.4	22.2	0.0	12.8	091	105	041	080	88	86	77	77	N W	W	W	14.3	8.8	8.0	10.3		0.2	underneath.
7	.914	.847	.791	.851	-5.0	7.7	5.8	2.8	027	053	054	085	72	89	87	79	E b s	W	W	12.4	10.1	6.2	9.6		1.0	4th. A faint light visible
8	.799	.548	.683	.676	-6.0	15.2	0.0	8.1	059	082	082	058	79	89	70	74	W N W	W N W	W N W	7.2	8.8	3.8	7.4			in the north at 2 a.m.
9	.684	.808	.953	.815	-7.4	-7.0	-14.5	-9.6	027	027	008	023	79	93	69	76	W N W	W N W	E N E	6.2	6.2	3.8	5.4		1.5	5th. Very hazy.
10	30.054	.979	30.020	30.018	-21.4	0.0	0.0	-7.1	008	044	044	032	98	95	90	84	E N E	E N E	E N E	6.2	3.8	3.8	3.8		4.0	8th. Aurora visible at 5½
11	.123	30.073	.075	.090	9.0	13.4	17.5	13.3	065	067	080	071	98	87	97	94	E N E	E N E	W s W	8.8	10.1	13.9	10.9		1.0	p.m. Not visible at 6 p.m.
12	29.822	29.377	28.892	29.297	22.0	37.3	36.3	26.1	106	138	184	186	87	92	95	84	E N E	N N E	E N E	27.8	34.1	30.1	30.6			Visible again at 8½ p.m.
13	.028	.051	.297	.041	33.7	37.3	34.5	35.2	182	184	143	173	87	81	83	87	N W	W s W	W b s	10.1	8.0	5.2	7.8			Commenced to snow at 1
14	.077	.460	.812	.440	29.8	17.5	7.0	18.1	140	094	054	096	84	77	83	83	W b s	W s W	W b s	8.0	10.1	8.0	8.7		1.0	p.m. Aurora again visible
15	30.026	30.111	30.082	30.086	-3.2	7.0	5.5	3.1	032	053	044	050	77	85	82	85	W s W	W	W	8.0	5.2	6.2	6.1		3.0	at 2½ a.m.
16	29.825	.545	.665	29.678	6.3	8.3	11.5	8.7	090	064	061	062	94	91	74	89	E b N	E b N	W	25.4	22.7	13.9	20.6			
17	.688	.702	.911	.767	15.8	22.8	11.3	16.5	086	106	066	085	80	84	72	78	W	W s W	W	6.2	10.1	10.1	9.2			9th. No Aurora.
18	.945	30.117	30.126	30.068	0.0	6.0	4.6	3.5	035	050	053	063	80	80	73	78	W	W	W	6.2	6.2	3.8	4.1			12th. Very stormy.
19	30.001	.837	.106	.015	7.5	11.3	7.5	8.5	057	064	064	050	90	83	61	89	Calm	W b s	E N E	2.4	6.2	8.0	3.9		1.5	14th. A very dark cloud
20	29.940	.707	29.465	29.704	7.5	8.5	7.5	7.8	051	064	061	061	90	93	86	89	E N E	E b N	E E	11.3	22.7	21.5	20.0		3.5	visible in the north extend-
21	.176	.137	.311	.208	11.0	21.5	7.5	13.3	071	102	052	075	87	85	76	86	E	W	W	8.0	8.0	11.3	9.1		3.0	ing from N.N.W to N.E.
22	.564	30.035	30.103	30.000	-16.0	-7.5	-12.6	-12.0	005	023	018	016	83	57	80	84	W	W	W	13.9	11.3	8.0	11.0			A light shining through
23	.995	.920	.066	29.994	-11.5	1.5	-6.5	-5.5	002	034	028	029	83	55	81	64	E N E	W b s	E N E	8.0	8.8	6.2	7.6			the clouds above it.
24	.924	.676	.676	.863	-7.2	-7.2	-7.0	-8.9	017	020	020	022	76	67	70	61	W	W	W	5.2	3.8	3.8	4.2			
25	30.378	30.415	30.374	30.389	-21.5	-11.5	-16.5	-13.2	008	020	019	021	66	57	63	57	W b s	W s W	W s W	10.1	8.0	3.2	6.7		1.0	19th. Lunar halo at 12¾
26	.816	.461	.418	29.565	-2.5	3.5	0.0	2.5	027	038	038	038	62	63	62	45	E b s	E b s	E b s	8.0	3.8	5.8	5.1		5.0	a.m., 50° in diameter. Not
27	.519	.532	.594	.548	-8.5	15.5	0.0	7.6	047	063	063	040	65	81	74	74	E	E E	E	10.1	8.0	5.8	8.1			possible to see Aurora till
28	.886	30.060	30.294	30.080	-15.8	-3.0	-15.4	-11.4	020	044	008	018	62	63	67	68	W	W	W	10.1	8.0	3.8	7.3			1 a.m. Aurora not visible
29	30.383	.420	.440	.414	-26.8	-7.3	-14.2	-16.1	009	020	012	014	51	62	61	70	N N W	W	W	10.1	6.2	6.2	6.2			at that time.
30	.254	.052	29.805	.087	-22.7	5.4	13.5	-1.3	008	044	045	039	48	73	60	67	N N W	W	W	6.2	3.8	3.8	4.5			
31	29.508	29.503	.220	29.342	23.5	32.4	31.2	29.0	112	164	148	141	86	90	84	87	W	W	W	8.0	6.2	5.2	5.0		4.0	
M	29.793	29.799	29.787	29.776	8.5	11.7	7.2	7.5	0.068	0.073	0.063	0.064	78	79	79	79				9.3	9.1	7.7	8.7		41.5	

Highest Barometer at 10 p.m. on the 29th .... 30.440 } Monthly Range, 1.548 in.
Lowest Barometer, at 10 p.m. on the 12th .... 28.892 }

Maximum Thermometer .... 43°.0 } Monthly Range, 72°.0
Minimum Thermometer .... -29°.0 }

Mean Maximum Thermometer .... 15°.1 } Mean Daily Range 17°.8
Mean Minimum Thermometer .... -2°.7 }

Greatest Daily Range, on the 30th .... 46°.5
Least Daily Range, on the 20th .... 3°.3
Warmest Day, the 4th .... 32°.7 } Climatic Difference, 41°.5.
Coldest Day, the 29th .... -16°.1 }

Possible to see Aurora on 14 nights.
Aurora observed on 9 nights.

METEOROLOGICAL REGISTER, QUEBEC, JANUARY 1851.

BY LIEUT. A. NOBLE, R.A.

Latitude, 46 deg. 49·2 min. North; Longitude, 71 deg. 16 min. West. Elevation above the level of the Sea, — Feet.

Date	Barometer corrected and reduced to 32 degrees, Fahr.				Temperature of Air.				Elasticity of Air.				Humidity of Air.				Direction of Wind.			Velocity of Miles.			Rain in inch.	Snow in inch.	REMARKS.
	6 A.M.	2 P.M.	10 P.M	MEAN	6 A.M.	2 P.M.	10 P.M.	MEAN	6 A.M.	2 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.	M'N	6 A.M.	9 P.M.	10 P.M.	6 A.M.	9 P.M.	10 P.M.			
1	29.193	29.171	29.272	29.212	25.5	36.0	34.6	32.0	.124	.153	.176	.151	88	73	89	83	N W	N W	N W	8.8	8.0	7.2	…	0.2	5th. River St. Lawrence froze across opposite Quebec. The ice was, however, swept away by the tide.
2	.404	.582	.697	.561	15.4	12.5	5.7	11.2	.066	.068	.046	.060	71	80	76	76	N W	W	E	11.3	10.1	8.0	…	…	
3	.875	.882	.953	.903	-4.6	4.5	-6.3	-2.1	.027	.045	.018	.032	59	77	63	70	E	E	N W	8.8	8.8	8.0	…	…	
4	.979	.987	30.114	30.035	-21.8	0.0	-0.4	-10.9	.008	.080	.000	.013	48	76	60	57	W N W	W N W	N W	9.4	8.8	8.0	…	…	
5	30.091	29.987	.008	.048	-23.0	0.0	-19.5	-14.2	.020	.088	.024	.024	55	63	90	57	W	Calm	Calm	3.8	…	…	…	…	
6	.086	30.104	.175	.122	-11.8	-17.5	-7.5	-7.0	.012	.043	.023	.029	53	64	77	68	W	W b N	W b N	3.8	6.2	8.0	…	…	
7	.179	.200	.165	.181	-16.7	17.5	-0.8	-0.3	.018	.060	.028	.050	55	70	87	65	W	E	E	8.0	6.2	8.8	…	…	
8	.101	29.813	29.341	29.751	-10.4	12.0	15.6	5.7	.012	.048	.141	.044	79	75	77	70	E	E	W	11.3	19.7	11.3	…	6.0	
9	29.166	.205	.254	.209	18.3	27.4	29.4	25.2	.092	.181	.188	.089	81	89	78	84	E	E	W b N	10.1	8.0	6.2	…	1.0	
10	.338	.469	.813	.538	-15.6	4.5	3.4	17.1	.014	.042	.026	.026	81	90	78	80	W	W b N	E	7.2	6.2	6.2	…	…	6th. The St. Lawrence again frozen across, and the ice-bridge remained.
11	30.052	30.222	30.119	30.119	-16.8	6.5	-6.0	-6.4	.009	.045	.025	.026	48	85	65	68	W	W	E	6.9	8.0	13.4	…	6.0	
12	.250	.262	.247	.253	8.2	15.0	-4.0	-4.6	.059	.078	.045	.081	87	86	81	86	E	E b s	E	22.7	32.1	32.1	…	2.0	
13	.096	29.982	29.824	29.941	24.5	22.0	22.0	15.0	.117	.126	.098	.106	81	87	81	88	E	E	E	34.1	39.4	34.1	…	5.0	
14	29.335	.963	30.005	29.981	22.5	26.5	21.5	24.5	.101	.117	.072	.117	81	85	85	83	W	W N W	W N W	27.8	16.0	11.3	…	0.2	28th. Brilliant Aurora at 12. The whole of the northern horizon was of a pale, violet colour, and there was one patch of streamers in the N.E.
15	.866	.729	29.696	.740	22.5	24.5	26.6	24.5	.101	.150	.071	.087	55	88	82	75	N W	N W	W	10.1	13.9	16.0	…	…	
16	.652	.608	.825	.645	10.5	23.4	13.5	15.8	.077	.114	.071	.074	81	85	85	84	N	W	W	8.8	10.1	11.3	…	…	
17	.820	.810	.473	.818	15.4	14.0	13.5	13.5	.022	.089	.024	.023	87	71	81	68	W	W	W b N	13.8	19.5	16.0	…	3.0	
18	.696	.518	30.066	.563	-8.8	3.3	25.5	23.9	.012	.059	.046	.035	67	81	75	75	W	N N W	Calm	10.9	8.0	7.2	…	…	
19	.900	.947	29.983	.971	-8.0	17.0	-7.0	-4.1	.022	.089	.024	.034	81	83	75	84	W	W	W	13.8	3.8	…	…	…	
20	30.116	30.051	.050	30.050	-10.5	18.5	-1.8	-2.9	.018	.059	.046	.046	66	77	81	75	W	N N W	E N E	8.8	9.4	8.0	…	…	
21	29.882	29.781	29.813	29.777	-8.0	13.8	8.3	4.1	.022	.075	.036	.091	79	88	81	83	E N E	E N E	N W	8.8	8.0	8.0	…	5.5	
22	.674	.438	.368	.492	14.0	26.0	-1.5	17.5	.047	.123	.089	.034	84	87	88	67	E N E	N N W	W	11.3	11.5	11.3	…	…	
23	.445	.616	.366	.642	-8.6	9.5	10.2	10.2	.074	.089	.036	.046	85	70	81	84	W b N	W b N	W b N	10.1	9.4	8.8	…	…	
24	.854	.857	.962	.891	-20.8	0.0	-2.5	-0.5	.021	.057	.025	.034	65	76	56	64	E S E	E b s	E b s	10.1	8.0	8.8	…	…	
25	30.391	30.496	30.468	30.457	0.0	18.5	-8.0	-9.8	.012	.035	.012	.022	61	76	66	84	W b S	W b N	N N W	8.0	7.2	10.9	…	…	
26	.252	.974	29.401	29.876	4.0	23.7	24.4	15.6	.045	.089	.121	.084	79	88	75	81	E S E	W b s	W b s	10.9	13.9	6.2	…	14.0	
27	29.522	29.863	30.176	.354	17.6	1.0	11.5	17.6	.094	.098	.098	.083	98	75	75	81	W b S	E b s	E b s	10.9	13.9	9.4	…	…	
28	30.350	30.194	.000	30.175	1.0	24.0	14.5	13.2	.021	.108	.075	.068	51	85	85	73	W b N	W b N	W b N	7.2	8.8	9.4	…	1.0	
M	29.859	29.834	29.850	29.850	1.5	16.4	7.3	8.1	.049	.083	.065	.065	70	79	74	74				10.3	11.3	10.2		43.9	

Highest Barometer at 2 p.m. on the 25th.......... 30.496 } Monthly Range, 1.325 in.
Lowest Barometer, at 2 p.m. on the 1st.......... 29.171 }
Maximum Thermometer, on the 1st.......... 36°.0 } Monthly Range, 60°.0
Minimum Thermometer, on the 5th.......... -24°.0 }
Mean Maximum Thermometer.......... 17°.0 } Mean Daily Range 22°.4
Mean Minimum Thermometer.......... -5°.4 }

Greatest Daily Range, on the 10th.......... 43°.1
Least Daily Range, on the 15th.......... 4°.0
Warmest Day, the 1st; mean temperature.......... 32°.0 } Climatic Difference, 46°.2
Coldest Day, the 5th; mean temperature.......... -14°.2 }
Possible to see Aurora on 13 nights.
Aurora visible on 9 nights.

Latitude, 46 deg. 49·2 min. North; Longitude, 71 deg. 16 min. West. Elevation above the level of the Sea, — Feet.

Date	Barometer corrected and reduced to 32 degrees, Fahr.				Temperature of Air				Elasticity of Air				Humidity of Air				Direction of Wind			Velocity of Miles			Rain in feet	Snow in feet	REMARKS
	6 A.M.	2 P.M.	10 P.M.	MEAN	6 A.M.	2 P.M.	10 P.M.	MEAN	6 A.M.	2 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.			
1	29.920	29.871	29.887	29.893	10.0	33.8	32.0	25.2	.058	.164	.166	.126	79	85	87	84	W b S	W S W	W S W	6.9	6.9	8.0	...	...	
2	30.062	30.099	30.156	30.105	24.5	25.5	21.5	20.5	.116	.109	.058	.094	87	78	75	80	E b N	E N E	E N E	5.2	7.2	12.4	...	6.0	
3	29.943	29.704	29.622	29.756	19.5	20.5	21.5	20.5	.095	.092	.098	.095	80	87	81	83	E N E	E N E	E N E	21.2	21.2	16.0	...	4.0	
4	.580	.902	.452	.647	24.0	29.6	25.5	26.3	.116	.143	.134	.131	87	81	95	88	E	E N E	E N E	6.2	8.0	5.2	...	...	
5	.408	.584	.605	.515	25.0	38.0	23.5	28.8	.112	.140	.117	.127	81	87	86	76	S W	S W	S W	5.2	5.2	5.2	...	...	7th. Snowing slightly.
6	.804	.808	.882	.895	18.0	31.0	24.6	24.5	.082	.117	.117	.105	80	67	88	78	W b S	S W	S W	5.2	10.1	8.0	...	...	8th. Heavy fog during the morning.
7	.897	.765	.702	.738	21.4	39.8	23.2	28.1	.100	.156	.122	.120	84	64	88	78	Calm	S W	Calm	5.2	5.2		...	0.5	
8	.685	.480	.386	.517	10.4	29.3	25.0	21.6	.060	.111	.111	.110	88	80	89	87	E b S	E b S	E b S		13.9	31.2	...	...	16th. Thunder and lightning, accompanied with hail and rain.
9	.401	.720	.788	.703	25.4	31.4	21.6	26.3	.115	.140	.189	.131	82	80	88	82	E b S	E b S	E b S	13.9	21.2	12.4	...	5.0	
10	.659	.592	.415	.529	27.8	32.8	28.0	30.2	.135	.145	.134	.188	93	93	80	80	N b W	N W	N W	13.9	16.0	16.0	...	7.0	20th. Clear, but no Aurora observed.
11	.473	.717	.897	.696	27.4	43.0	38.6	36.3	.141	.169	.204	.171	87	62	95	81	N W b W	N	N W b W	11.3	10.9	10.1	...	...	21st. Aurora observed. A luminous arch with dark segment, but no streamers.
12	.399	.681	.677	.586	26.5	42.5	38.8	35.8	.128	.176	.186	.163	79	66	95	78	N W b W	E b S	E b S	8.0	8.0	7.2	...	1.0	22nd. Aurora observed. Two mock suns seen, 10 p.m.
13	.722	.774	.915	.803	37.5	35.4	30.6	35.0	.178	.187	.171	.159	81	90	98	90	E b S	E b S	S E	5.2	6.2	8.0	...	0.5	23rd and 24th. Very heavy fall of snow.
14	.975	.732	.630	.779	28.0	25.6	26.2	24.9	.104	.128	.142	.125	90	91	90	84	S W	S W	S W	13.9	22.1	12.4	0.04	...	
15	.653	.658	.442	.591	28.6	46.0	35.5	36.7	.145	.188	.188	.184	91	93	68	74	Calm	W	N W	8.9	8.0	8.0	...	0.3	28th. Aurora visible through the clouds.
16	28.932	28.829	28.910	28.890	38.5	48.8	38.0	41.8	.209	.213	.153	.158	84	97	84	88	W b N	W b N	W b N		10.1	9.6	0.00	0.3	29th. A comet visible just after sunset. A very remarkable Aurora, consisting of three arches; one in the north, another passing through the zenith, and a third in the south.
17	29.021	29.131	28.987	29.046	30.0	40.3	28.5	32.9	.141	.241	.184	.172	94	83	84	86	W N W	W N W	N W b N	11.3	14.0	13.9	...	9.0	30th. Aurora observed. A great deal of motion.
18	28.781	28.948	29.446	.058	7.0	17.6	13.5	15.8	.053	.103	.107	.081	79	81	73	78	N W b N	N W b N	N W b N	19.7	32.1	27.8	...	4.0	
19	29.678	29.570	.567	.605	7.5	22.8	8.5	12.9	.052	.082	.050	.058	78	72	81	73	N W h N	N W b N	N W h N	10.1	11.3	10.9	...	...	
20	29.730	.818	.980	.843	0.0	17.0	10.5	9.1	.036	.037	.049	.039	80	94	81	81	N W h N	N W b N	N W h N	11.3	11.3	3.8	...	...	
21	30.061	.977	30.008	30.012	1.3	24.0	10.0	11.7	.036	.040	.040	.041	83	98	81	92	S E	S E	S E	8.0	4.2	10.1	...	...	
22	29.800	.804	29.618	29.801	26.0	26.0	19.2	14.9	.093	.163	.091	.140	88	88	95	84	W	W	E E	10.1	13.9	20.2	...	9.0	
23	.465	.377	.819	.387	28.3	32.3	31.0	27.1	.137	.163	.165	.136	93	83	83	84	W	W	W	21.2	27.8	10.1	...	2.0	
24	.179	.088	.014	.093	28.6	30.8	28.0	29.1	.080	.144	.128	.123	93	83	86	92	W S W	W S W	W S W	11.3	19.7	16.0	...	2.0	
25	.081	.047	.063	.064	16.3	23.0	17.0	18.7	.090	.123	.045	.045	87	67	82	79	W b N	W S W	W b N	19.7	19.7	19.7	...	...	
26	.121	.201	.330	.217	8.0	28.0	19.8	16.9	.059	.098	.092	.079	93	89	82	79	W b N	W b N	W b N	16.0	16.0	11.3	...	...	
27	.409	.460	.571	.480	12.8	21.8	18.0	18.0	.078	.092	.057	.089	88	79	82	93	W b N	W b N	W b N	11.3	13.9	11.3	...	...	
28	.638	.724	.864	.742	13.0	34.3	21.0	22.7	.075	.158	.102	.112	82	72	82	85	Calm	S W	Calm	10.1	7.2	5.2	...	...	
29	.924	.993	30.080	.999	13.0	27.2	13.5	17.9	.052	.124	.071	.082	62	59	95	75	Calm	E S E	E S E		5.2		...	...	
30	30.134	30.070	30.148	30.117	8.8	31.3	16.3	18.8	.053	.092	.092	.083	76	83	95	77				8.0			...	...	
31	30.163	30.073	29.871	30.036	18.0	26.2	29.9	24.4	.097	.113	.148	.119	91	79	94	89							...	...	
M	29.615	29.618	29.684	29.619	18.3	30.6	23.9	24.3	.096	.136	.118	.116	84	77	85	82				10.2	13.1	10.9	0.15	53.9	

Highest Barometer, at 6 a.m. on the 31st........ 30.163 } Monthly Range, 1.382 in.
Lowest Barometer, at 6 a.m. on the 18th........ 28.781

Maximum Thermometer, on the 18th.... 56°·0 } Monthly Range, 53°·0
Minimum Thermometer, on the 19th.... −2°·0

Mean Maximum Thermometer........ 31°·9 } Mean Daily Range 17·3
Mean Minimum Thermometer........ 14·4

Greatest Daily Range, on the 17th........ 35°·0
Least Daily Range, on the 14th........ 5°·8
Warmest Day, the 16th; mean temperature.... 41°·8 } Climatic Difference, 38°·7
Coldest Day, the 20th; mean temperature.... 9°·1
Possible to see Aurora on 12 nights.
Aurora visible on 16 nights.

Latitude, 46 deg. 49·2 min. North; Longitude, 71 deg. 16 min. West. Elevation above the level of the Sea, — Feet.

Date	Barometer corrected and reduced to 32 degrees, Fahr.				Temperature of Air.				Elasticity of Air.				Humidity of Air.				Direction of Wind.			Velocity of Miles.			Rain in Inch.	Snow in Inch.	REMARKS.
	6 A.M.	2 P.M.	10 P.M.	MEAN	6 A.M.	2 P.M	10 P.M	MEAN	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	6 A.M.	2 P.M.	10 P.M.			
1	29.476	29.215	29.341	29.344	32.0	39.2	35.0	35.40	.181	.206	.168	.192	90	95	83	93	E S E	Calm	E S E	3.8		10.1	0.25		2nd. Aurora visible, faint arch and dark segment underneath, at 10h. 15m. Bright streamers shot out suddenly.
2	29.637	29.877	30.120	29.878	23.3	31.3	17.2	23.93	.118	.139	.087	.113	87	79	87	84	E S E	W N W	W N W	5.2	8.8	7.2			
3	30.316	30.176	30.192	30.228	8.3	35.8	23.2	22.43	.054	.134	.109	.099	79	65	73	76	W N W	N N W	N W	6.2	7.2	8.0			
4	30.108	30.042	30.080	30.076	26.0	44.2	36.2	35.47	.130	.172	.134	.152	89	54	75	75	Calm	W	N W			7.2		0.2	10th. At 2 p.m. the clouds were arranged in and parallel to the magnetic meridian. The early part of the night hazy, and a very fine lunar halo, 40° in diameter, visible from 8 to 12. A magnificent Aurora observed:
5	30.089	29.846	29.602	29.849	34.3	47.6	41.5	41.18	.158	.178	.193	.176	79	59	73	69	Calm	Calm	W			8.0			
6	29.547	29.870	29.278	29.398	41.2	52.2	43.3	45.57	.236	.281	.253	.257	91	58	96	89	N N E	W	W S W		3.8	3.8	0.24		
7	29.683	29.846	29.398	29.863	32.2	37.3	25.3	31.93	.164	.129	.135	.143	86	57	88	88	N N W	W N W		10.1	8.0	8.8		0.3	
8	30.111	30.032	30.060	30.021	30.0	36.0	28.3	29.10	.108	.173	.160	.140	86	89	88	87	E N E	N W	E	8.0	8.0	3.8		0.3	
9	29.856	29.800	29.920	29.785	30.8	36.2	32.3	32.87	.134	.208	.166	.167	95	77	82	86	E	E	E	8.0	8.8	13.9		0.3	
10	.507	.491	.568	.522	31.0	39.8	31.2	37.00	.165	.198	.155	.169	86	82	89	87	E	E	Calm	11.3	10.1	5.2			
11	.717	.776	.775	.756	30.8	36.0	27.0	31.27	.159	.192	.198	.158	88	55	82	78	E	E	Calm	8.8	8.0				
12	.788	.720	.865	.791	23.3	50.0	38.3	37.20	.112	.194	.228	.178	78	85	94		W	E	N W	8.8	9.6	12.4			17th. At 2 p.m. a remarkable bunch of cirrous clouds at right angles to magnetic meridian, right across the sky.
13	30.070	30.143	30.257	30.157	25.0	27.5	29.5	24.77	.122	.131	.189	.124	82	88	84	85	E	E	N W	10.1	5.2	6.2			
14	30.292	30.175	30.181	30.199	11.0	33.8	28.0	29.93	.063	.169	.132	.118	88	70	82	80	N N W	W	N W	11.3	10.1	5.2			
15	30.055	29.980	29.898	29.958	21.8	32.0	24.5	28.60	.094	.127	.111	.117	78	73	88	80	Calm	W S W	E		5.2	3.4			
16	29.956	29.990	.980	.980	15.8	33.5	29.5	26.90	.082	.145	.131	.117	85	87	80	82	E S E	E S E	E	3.8	5.2	11.3			
17	.992	.873	.749	.872	29.8	38.5	36.5	32.27	.075	.145	.134	.151	81	78	80	65	E N E	W	E N E	11.3	20.2	8.0			
18	.711	.589	.609	.634	30.3	50.8	41.0	40.53	.132	.183	.172	.162	78	60	67	82	W	E S E	E S E	6.2	8.2	6.2			
19	.582	.507	.429	.506	29.8	48.6	40.0	40.53	.130	.188	.161	.165	85	52	64	65	E	S S W	S S E	7.2	7.2	7.2			
20	.517	.544	.596	.552	34.2	38.8	34.0	35.43	.167	.175	.141	.144	83	82	66	71	N W	E N E	E N E	6.2	4.2	8.0			
21	.720	.727	.749	.732	33.0	42.0	31.3	35.93	.150	.142	.161	.151	80	66	81	72	E N E	E N E	S N E	7.2	6.2	5.2			23rd. Aurora visible immediately after sunset, and as soon as stars of the first magnitude.
22	.762	.649	.593	.668	38.0	44.0	34.0	37.33	.134	.159	.094	.120	77	56	43	54	E N E	E N E	E N E	6.2	6.2	6.2			
23	.668	.744	.794	.735	38.0	40.0	34.0	40.00	.138	.159	.163	.145	80	43	64	61	W S W	Calm	W S W	13.9	5.2			1.5	
24	.835	.711	.584	.710	28.5	50.5	41.0	43.90	.120	.153			83	88		83	S S W	W S W	Calm	5.2	6.2	6.2		1.0	24th. The ice opposite Quebec gave way, but that at Cape Rouge still firm.
25	.548	.546	.549	.549	34.0	54.7	43.0	43.90			.195	.199	72	88	83	79	E	W S W	Calm	8.0					25th. Swallows seen.
26	.546	.416	.303	.422	33.8	46.0	38.0	39.60	.140	.281	.151	.162	72	73	74	79	E	Calm	Calm	3.4			0.9		26th. Wheel carriages employed in the town.
27	.450	.685	.303	.646	37.3	37.0	35.0	36.43	.158	.176	.175	.169	90	79	81	87	E	N	Calm	8.4				1.5	
28	.996	30.166	30.205	30.102	32.8	38.8	34.0	35.20	.169	.179	.191	.158	85	65	80	77	E	N	Calm	10.1	13.4	21.2	1.1		
29	30.240	30.246	30.081	30.189	33.8	39.6	36.0	36.13	.164	.156		.193	79	69	92	87	E	E	E	11.3	16.0	21.2	0.9		
30	30.000	29.930	29.812	29.914	36.3	38.5	37.0	37.27	.169	.220				95	81		E	E	E	23.1	19.7				
M	29.8243	29.7887	29.7792	29.7974	28.73	40.82	33.19	34.23	.139	.176	.155	.156	86	76	81	81				7.92	7.85	9.25	3.89	8.3	

Maximum Barometer, at 6 a.m. on the 3rd......... 30.316 } Monthly Range, 1.101 in.
Minimum Barometer, at 2 p.m. on the 1st......... 29.215 }
Maximum Thermometer, on the 25th......... 55°·0 } Monthly Range, 40°·0
Minimum Thermometer, on the 2nd......... 6°·0 }
Mean Maximum Thermometer......... 41°·0 } Mean Daily Range 17°·7
Mean Minimum Thermometer......... 23°·3 }

Greatest Daily Range, on the 12th......... 31°·0
Least Daily Range, on the 14th......... 2°·5
Warmest Day, the 6th; mean temperature ... 45°·57 } Diurnal Difference, 23°·14
Coldest Day, the 3rd; mean temperature ... 22°·45 }
Possible to see Aurora on 17 nights.
Aurora visible on 16 nights.