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TORONTO

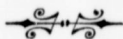
GENERAL METEOROLOGICAL REGISTER

FOR THE YEAR 1899.

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## REMARKS ON THE METEOROLOGICAL RESULTS AT TORONTO FOR THE YEAR 1899.



### TEMPERATURE.

The mean temperature of the year 1899 was 45°·83, being 1°·53 warmer than the average of 59 years and 1°·32 colder than 1898.

The mean temperature of the several months was in nine instances above and in three below the average for the respective months, the average excess to the average defect being in the ratio of 2°·72 to 2°·03. On each of 220 days the mean temperature was above the normal of that particular day and below on 145 days. The mean temperature of each month, with the difference from the normal, was: January, 22°·52 + 0°·04; February, 19°·28 - 3°·29; March, 27°·99 - 0°·85; April, 44°·99 + 3°·87; May, 55°·12 + 2°·80; June, 65°·28 + 2°·82; July, 68°·77 + 1°·01; August, 60°·37 + 3°·07; September, 56°·76 - 1°·06; October, 50°·45 + 3°·97; November, 40°·58 + 4°·40; December, 28°·89 + 2°·49. Dividing the year into the ordinary seasons we have for Winter, 23°·26; Spring, 55°·13; Summer, 64°·97; Autumn, 39°·97. The thermic anomalies differ from the normal temperature proper to the latitude: Winter, -12°·60; Spring, -2°·50; Summer, -1°·27; Autumn, -4°·36; In three months during the year the observed temperature exceeded the normal value for the latitude, viz: June, 0°·68; July, 0°·07; August, 0°·87. The mean daily range for the year was 17°·51, the greatest monthly average occurring in August (24°·02) and the least in December (12°·13). The greatest daily range (35°·1) occurred on the 23rd June, and the least (3°·9) on the 24th November. The warmest month relatively was November, estimated by its excess (4°·40) above the normal, August the warmest absolutely (60°·37). The coldest absolutely was February (19°·28). It also was the coldest relatively, its mean being 3°·29 below the normal.

The climatic difference was 50°·09, the warmest day was the 20th of August, mean temperature, 77°·43, and the coldest the 10th February, -5°·42; but the warmest day relatively was the 4th January, it being 24°·0 above its proper normal, and the coldest the 10th February, which was 28°·5 below the normal. The average temperature of the warmest and coldest days from former years was 78°·07 and 2°·24 below zero. The highest temperature of the year (92°·1) occurred on the 19th August, and the lowest (12°·0 below zero) on the 11th of February. The annual range from these extremes was 104°·1, being 8°·0 less than 1898 and 0°·8 more than the average annual range. There were 28 instances in which the temperature at the hour of observation was 20° above the normal and 53 when a defect of equal amount occurred. The most striking deviations from the daily normal curve of temperature have been as follows:

#### IN EXCESS.

Month	Day	Mean Deviation	°	Month	Day	Mean Deviation	°
January	3	Mean Deviation	0	October	12	Mean Deviation	13·4
do	4	do	14·4	do	13	do	13·6
do	13	do	13·2	do	14	do	13·1
do	14	do	14·7	do	16	do	13·7
do	15	do	15·2	do	24	do	12·2
do	16	do	16·2	do	25	do	17·5
do	21	do	12·0	do	26	do	14·2
February	20	do	15·6	November	18	do	18·8
do	21	do	12·8	do	19	do	12·3
do	26	do	14·7	do	28	do	14·1
March	11	do	16·0	do	29	do	14·2
April	27	do	12·0	do	31	do	16·9
do	28	do	13·1	December	1	do	17·6
do	29	do	15·6	do	10	do	13·7
do	30	do	19·1	do	11	do	19·4
May	1	do	14·1	do	12	do	13·6
do	2	do	17·7	do	18	do	15·0
June	5	do	15·5	do	19	do	13·5
do	6	do	16·0	do	20	do	12·4
do	7	do	13·4	do	21	do	12·9
do	13	do	12·7	do	23	do	13·6
do	14	do	12·3				

## IN DEFECT.

January	1	Mean	Deviation	.....	14.7	February	10	Mean	Deviation	.....	28.5
do	9	do	do	.....	16.5	do	11	do	do	.....	28.2
do	10	do	do	.....	23.8	do	12	do	do	.....	26.3
do	27	do	do	.....	14.2	do	13	do	do	.....	22.2
do	29	do	do	.....	15.6	March	20	do	do	.....	15.4
do	30	do	do	.....	17.1	September	14	do	do	.....	12.6
do	31	do	do	.....	19.8	do	26	do	do	.....	12.6
February	1	do	do	.....	12.3	do	30	do	do	.....	14.2
do	7	do	do	.....	14.4	October	1	do	do	.....	13.6
do	8	do	do	.....	16.0	do	2	do	do	.....	17.6
do	9	do	do	.....	24.6						

## BAROMETRIC PRESSURE.

The mean height of the Barometer was 29.637 inches, being 0.017 inches above the average. The month which showed the greatest deviation from the normal was October, 0.153 in excess; August showing the least, 0.003. Average deviation without reference to sign was small, being only 0.152. The highest reading was 30.403 at 10 a.m. of January 1st, and the lowest 28.657 at 4 p.m. of December 24th, giving a range of pressure of 1.746 inches.

The number of days of large abnormal variation in which the average pressure differed by two-tenths and upwards from the normal was 111, the greatest number (18) occurring in December and the least (0) in July.

## HUMIDITY.

The mean humidity of the year was 76, being equal to the average, the greatest monthly humidity was 84, in October, and the least, 70, in June. There were 25 cases of complete saturation at the hour of observation: 2 in January, 12 in February, 1 in March, 3 in May, 4 in October, 1 in November, and 2 in December. The least humidity of the year at the hour of observation was 29 on the 4th of May, at 4 p.m.

## CLOUDS.

The extent of the sky clouded was on the average of the year six-tenths of the whole. June and August were the clearest months and November the most cloudy. During the year there were 44 days completely clouded, being 20 less than the average (1853-98), the greatest number (9) occurring in December, none being registered in the months of July and August.

## WIND.

The resultant direction of the wind was S. 77° W., showing 12° less southing than in 1898, and 22° more southing than in the seventeen years to 1890. The mean velocity of the wind without reference to direction was 10.14 miles. The most windy month was January, with an average of 16.08 miles per hour, and the least windy was August, with an average of 5.97 miles. The windiest day was January 7th, average velocity 31.13 miles per hour, and the day of least velocity was October 12th, average velocity 1.50 per hour. The highest velocity in one hour was 50.0 miles, 1 to 2 p.m. of the 12th of December.

## RAIN AND SNOW.

The total depth of rain that fell during the year was 25.795 inches, being 1.343 inches less than the average, and 1.975 more than the rainfall of 1898. The depth of snow, \*31.8 inches, was 36.3 inches less than the average, and 39.5 inches less than the snowfall of 1898. September was the most rainy month as to quantity (5.150), and October with reference to the number of rainy days. August was the least rainy month, only 0.270 inches having fallen.

The day of greatest rainfall was the 1st of September, when 1.755 inches fell. There were only three other days during the year on which over one inch fell.

\* This is the smallest yearly snow fall in the records of the Observatory.

The heaviest fall of snow in one day was 4.7 inches on the 10th of March. Rain fell on 105 days, being 1 more than the average number, and 7 more than in 1898. Snow fell on 40 days, being 26 less than the average and 13 less than in 1898. There were 185 days on which neither rain nor snow fell; in 1898 the number was 196. The rain occupied 466 hours, and the snow 202 hours in its fall, giving a total of 668 hours, or 27 days and 20 hours when rain or snow was actually falling.

#### THUNDER-STORMS.

Of the 29 thunder-storms occurring during the year, the first was on the 15th of March, and the latest on October 24th, 2 in March, 4 in April, 4 in May, 5 in June, 6 in July, 1 in August, 5 in September and 2 in October. The most severe storms were on the 14th April, 29th May, 5th June, 7th July and 23rd September. Lightning alone on 4th July and 26th August.

#### AURORA.

Auroral displays were more numerous than in the previous year. Of the ten observed 1 was of the first class, 1 of the second class, 1 of the third class and 7 of the 4th class. There were 226 nights favourable for observation. The most brilliant display occurred on the 3rd of May.

#### SUNSHINE.

The total duration of bright sunshine during the year was 2148.2 hours; number of hours the sun was above the horizon, 4463.3; ratio of registered to possible, 0.48.



## MEAN METEOROLOGICAL RESULTS.

GENERAL METEOROLOGICAL  
MAGNETICAL OBSERVATORY.

Latitude 43° 39' 4 N. Longitude 5h 17m 34.65 W. Elevation

	JAN.	FEB.	MAR.	APRIL	MAY.	JUNE.	JULY.
Average temperature .....	22.52	19.28	27.99	44.99	55.12	65.28	68.77
Difference from average (59 years).....	+ 0.04	- 3.29	- 0.85	+ 3.87	+ 2.80	+ 2.82	+ 1.01
Thermic Anomaly (Lat. 43° 40').....	-10.28	-15.42	-12.11	- 5.21	- 2.98	+ 0.68	+ 0.07
Highest temperature.....	50.8	46.2	57.8	78.7	80.0	87.7	87.5
Lowest temperature.....	- 8.0	-12.0	4.3	22.0	33.0	44.3	50.4
Monthly and annual ranges.....	58.8	58.2	53.5	56.7	47.0	43.4	37.1
Average maximum temperature.....	31.13	26.66	35.35	53.68	65.55	77.64	80.62
Average minimum temperature.....	15.34	12.3	21.77	36.19	46.52	54.32	57.95
Average daily range.....	15.79	14.33	13.59	17.49	19.03	23.32	22.67
Greatest daily range.....	32.4	22.2	25.3	28.6	30.4	35.1	32.3
Average height of barometer at 32° Fahr.	29.6750	29.6207	29.5314	29.6555	29.6443	29.6460	29.5708
Difference from average (58 years).....	+ .0267	- .0181	- .0783	+ .0549	+ .0693	+ .0742	- .0174
Highest barometer.....	30.403	30.225	30.120	30.035	29.944	29.865	29.832
Lowest barometer.....	28.845	28.994	28.714	29.251	29.372	29.331	29.341
Monthly and annual ranges.....	1.558	1.231	1.406	0.784	0.572	0.534	0.491
Average humidity of the air.....	79	80	79	72	72	70	71
Difference from average.....	- 4	- 1	+ 1	+ 2	+ 2	- 3	- 1
Average elasticity of aqueous vapour.....	0.111	0.098	0.127	0.225	0.315	0.439	0.496
Average temperature of dew point.....	20.6	18.0	23.7	37.6	46.3	55.4	58.8
Average of cloudiness.....	0.65	0.57	0.70	0.53	0.57	0.37	0.39
Difference from average (45 years).....	- .09	- .12	+ .07	- .05	.00	- .15	- .11
Resultant direction of wind.....	S 69° W	S 89° W	N 5° W	N 38° W	N 16° W	S 84° W	S 65° W
velocity of wind.....	8.56	6.60	2.90	6.03	0.47	0.22	0.84
Average velocity (miles per hour).....	16.08	13.20	15.60	7.82	9.28	7.33	7.88
Total amount of rain in inches.....	2.370	1.180	2.795	1.435	3.290	0.655	1.020
Difference from average (59 years).....	+1.178	+0.287	+1.351	-0.711	+0.262	-2.183	-1.934
Number of days of rain.....	5	6	9	8	12	8	11
Total amount of snow in inches.....	5.0	5.5	14.8	1.8	.....	.....	.....
Difference from average (59 years).....	-12.23	-11.70	+ 2.88	- 0.60	- 0.12	.....	.....
Number of days of snow.....	9	7	11	5	.....	.....	.....
Number of fair days.....	13	4	8	16	16	17	15
Number of days completely clouded.....	5	2	7	1	2	1	0
Number of auroras observed.....	0	6	0	0	1	2	0
Possible to see aurora (No. of nights)...	14	18	12	20	19	29	25
Number of thunderstorms.....	0	0	2	4	4	5	6
Number of fogs.....	1	0	2	2	3	1	2
Number of hours of bright sunshine.....	98.0	140.3	128.4	227.8	216.4	291.1	319.9
Number of hours of possible sunshine....	285.7	291.4	369.9	406.5	461.1	467.7	470.9

AT TORONTO FOR THE YEAR 1899.

REGISTER FOR THE YEAR 1899.  
TORONTO, ONTARIO.

above Lake Ontario, 108 feet. Elevation above the Sea, 350 feet.

AUG.	SEPT.	OCT.	NOV.	DEC.	1899	1898	1897.	1896.	1895.	1894.	1893.	
69°37' + 3°07' + 0 87	56°76' - 1 96 - 4 74	70°45' + 3 97 - 3 35	40°58' + 4 40 - 2 62	28°89' + 2 49 - 7 11	45°83' + 1 53 - 5 19	47°15' + 2 85 - 3 87	45°93' + 1 63 - 5 09	45°36' + 1 66 - 5 66	44°18' - 0 02 - 6 74	46°75' + 2 45 - 4 27	43°53' - 0 77 - 7 49	
92 1 46 3 45 8 82 31 58 29 24 02 34 6	84 6 31 4 53 2 67 12 18 35 32 2	73 7 24 7 49 0 59 33 42 38 16 95 26 3	61 8 21 6 40 2 46 98 34 51 12 47 22 5	52 7 - 5 6 5 3 46 98 35 15 23 02 25 0	92 1 - 12 0 104 1 17 51 35 0	97 1 - 15 0 112 1 17 48 34 4	93 3 - 7 2 100 5 16 21 36 0	91 3 - 17 9 109 2 17 58 38 9	93 4 - 21 2 114 6 17 26 36 9	90 7 - 9 9 109 6 16 27 34 3	93 3 - 17 8 111 1 17 15 35 3	
29 6139 - 0026	29 6385 - 0282	29 7974 + 1529	29 6648 + 0395	29 5838 - 0661	29 6368 + 0172	29 6216 + 0020	29 6319 + 0123	29 6382 + 0186	29 6171 - 0055	29 6246 + 0050	29 5996 - 0200	
29 901 29 255 0 646	30 005 29 243 0 762	30 240 29 369 0 871	30 058 29 164 0 894	30 163 28 657 1 506	30 403 28 657 1 746	30 218 28 732 1 486	30 353 28 779 1 574	30 422 28 734 1 688	30 240 28 746 1 494	30 516 29 035 1 481	30 467 28 227 2 240	
70 - 4	78 + 1	84 + 6	81 + 1	78 - 4	76 0	76 0	76 0	75 - 1	75 - 1	76 0	77 + 1	
0 493 58 7	0 373 50 9	0 319 46 7	0 211 35 7	0 140 31 1	0 279 43 1	0 289 44 1	0 274 42 7	0 254 38 9	0 253 41 3	0 277 42 9	0 262 41 5	
0 37 - 15	0 59 + 09	0 58 - 04	0 75 + 00	0 68 - 08	0 56 - 05	0 58 - 03	0 61 + 00	0 60 - 01	0 57 - 04	0 60 - 01	0 59 - 02	
S 26° E S 68° W S 88° E S 61° W S 68° W S 77° W N 65° W N 89° W N 88° W S 78° W N 78° W N 66° W	0 84 5 97	3 13 9 06	1 88 6 68	2 31 8 73	9 81 14 55	2 66 10 14	1 78 10 12	2 42 12 33	0 75 8 44	1 36 5 60	1 10 5 67	1 95 8 59
0 270 - 2 529 2	5 150 + 1 902 12	4 550 + 2 190 15	0 945 - 1 717 9	2 135 + 0 561 8	25 795 - 1 343 195	23 800 - 3 330 98	27 737 + 0 599 110	21 770 - 5 368 104	22 532 - 4 606 101	25 785 - 1 353 114	31 145 + 4 007 105	
.....	.....	.....	0 7 - 4 06 1	4 0 - 9 76 7	31 8 - 36 26 40	71 3 + 3 24 53	47 4 - 20 66 43	73 3 + 5 24 43	54 8 - 13 26 48	37 8 - 30 26 32	85 7 + 17 64 64	
26 0	18 6	14 6	17 5	11 9	185 44	196 56	173 58	174 55	196 48	179 43	156 50	
0 27	0 19	1 18	0 11	0 14	10 226	7 210	3 179	18 194	11 195	23 199	18 208	
1 1	5 1	2 8	0 6	0 4	29 31	34 26	19 28	25 30	21 33	36 30	41 31	
264 2 434 5	156 1 376 3	154 1 340 2	84 4 286 9	67 5 274 3	2148 2 4463 3	2128 9 4463 3	1987 6 4463 3	2146 7 4474 4	2159 7 4463 3	2017 7 4463 3	2052 4 4463 3	

MEAN METEOROLOGICAL RESULTS FOR 1899.

TEMPERATURE.

	1899.	Average of 50 years.	EXTREMES.	
Average temperature of the year .....	45 83	44 30	47 15 in 1808	40 77 in 1873
Warmest month .....	August.	July.	July, 18 8	Aug., 1860
Average temperature of the warmest month.....	69 37	67 76	75 80	64 46
Coldest month .....	February.	January.	Feb., 1875	Feb., 1848
Average temperature of the coldest month .....	19 28	22 48	10 16	26 00
Difference between the temperature of the warmest and coldest months.....	50 09	45 28		
Average of deviations of monthly means from their respective averages of 50 years, signs of deviations being disregarded .....	2 55	2 74	3 56	
Month of greatest deviation without regard to sign.....	November.	January.	Feb., 1875	
Corresponding magnitude of deviation .....	4 49	4 01	12 41	
Warmest day .....	20 Aug.		July 14, 1868	July 31, 1844
Average temperature of the warmest day .....	77 43	78 07	84 50	72 75
Coldest day .....	10 Feb.		Feb. 6, 1855	Dec. 22, '42
Average temperature of the coldest day.....	-5 42	-2 24	Jan. 22, 1859	9 57
Date of the highest temperature .....	19 Aug.		Aug. 24, 1854	Aug. 19, 1840
Highest temperature .....	92 1	91 02	99 2	82 4
Date of lowest temperature .....	11 F. b.		Jan. 10, 1859	Jan. 2, 1842
Lowest temperature .....	-12 0	-12 24	-26 5	1 9
Range of the year .....	104 1	103 26	118 2	87 0

BAROMETER.

	1899.	Average of 58 years.	EXTREMES.	
Average pressure of the year .....	29 6368	29 6196	29 6779	29 5602
Month of the highest average pressure.....	October.	September	Jan., 1849	in 1864
Highest monthly average pressure .....	29 7974	29 6667	29 8046	29 6525
Month of the lowest average pressure .....	March.	June	March, 1879	Nov., 1859
Lowest monthly average pressure.....	29 5314	29 5718	29 4143	21 5886
Date of the highest pressure in the year.....	10 Jan.		Jan. 8, 1866	Mar. 7, 1878
Highest pressure .....	30 463	30 355	30 940	30 189
Date of the lowest pressure in the year.....	24 Dec.		Jan. 2, 1877	June 2, 1894
Lowest pressure .....	28 657	28 702	28 166	29 635
Range for the year .....	1 746	1 653	2 240	1 303
			in 1893	in 1845

RELATIVE HUMIDITY.

	1899.	Average of 58 years.	EXTREMES.	
Average humidity of the year .....	76	76	82 in 1851	73 in 1858
Month of greatest humidity .....	October.	January.	Jan., 1857	Dec., 1858
Greatest average monthly humidity.....	84	83	89	81
Month of least humidity .....	June & Aug	May	Feb., 1843	April, 1849
Least average monthly humidity.....	70	70	58	76



EXTENT OF SKY CLOUDED.

	1899.	Average of 46 years.	EXTREMES.	
Average cloudiness of the year.....	0 56	0 61	0 66 in '69 '77	0 57 in 1856
Most cloudy month.....	November	December		
Greatest monthly average cloudiness.....	0 75	0 76	0 89	0 73
Least cloudy month.....	June & Aug	July		
Least monthly average of cloudiness.....	0 37	0 50	0 29	0 50

WIND.

	1899.	Average of 17 years.	EXTREMES.	
Resultant direction.....	S. 77° W.	N. 61° W.		
Resultant velocity in miles.....	2 46	2 51		
Average velocity without regard to direction.....	10 14	9 64	12 33 in 1897	8 32 in 1878
Month of greatest average velocity.....	January	March	April, 1880	Dec., 1875
Greatest monthly average velocity.....	16 08	11 49	17 01	10 42
Month of least average velocity.....	August	July	July, 1878	July, 1881
Least monthly average velocity.....	5 97	7 56	5 93	8 43
Day of greatest average velocity.....	7 January		Nov. 17, 1870	Feb. 10, 1885
Greatest daily average velocity.....	31 13	28 98	41 67	23 79
Day of least average velocity.....	Oct. 12			
Least daily average velocity.....	1 50			
Hour of greatest absolute velocity.....	12 Dec. }		Dec. 1, 1895 }	Jan. 17, 1885 }
Greatest velocity.....	1-2 p.m. }	45 67 }	9 to 10 a. m. }	10 to 11 a. m. }
	50 0		64 0	39 0

NOTE.—During the year 1899, the wind has been obtained from the records of the anemograph at Stanley Barracks, and no comparison has been made with the results of former years.

RAIN.

	1899.	Average of 59 years.	EXTREMES.	
Total depth of rain in inches.....	25 795	27 138	43 555 in 1843	17 574 in 1874
Number of days on which rain fell.....	105	114	145 in 1890	80 in 1841
Month on which the greatest depth of rain fell.....	September	September	Sept., 1843	June, 1887
Greatest depth of rain in one month.....	5 150	3 248	9 760	2 655
Month in which the days of rain were most frequent.....	October	October	{ Jan., 1869 }	{ May, 1841 }
Greatest number of rainy days in one month.....	15	13	{ Oct., 1890 }	{ 11 }
Day on which the greatest amount of rain fell.....	Sept. 1st		July 27, 1897	Sept. 14, 1884
Greatest amount of rain in one day.....	1 755	1 928	3 881	1 000

SNOW.

	1899.	Average of 56 years.	EXTREMES.	
Total depth of snow in inches.....	31.8	68.1	122.9 in 1870	34.6 in 1888
Number of days on which snow fell.....	40	66	87 in 1859	33 in 1848
Month in which the greatest depth of snow fell.	March	January	March, 1870	Jan., 1895
Greatest depth of snow in one month.....	14.8	17.2	62.4	10.5
Month in which the days of snow were most frequent.....	March	January	Dec., 1872	Feb., 1848
Greatest number of days of snow in one month.	11	15	24	8
Day in which the greatest amount of snow fell.	19 March	—	Feb. 5, 1863	4.6 Jan. '88
Greatest fall of snow in one day.....	4.7	8.9	Mar. 27, 1870	3.0
			16.0	

SUNSHINE.

	1899.	Average 1882 to 1898.
Total duration of bright sunshine in hours.....	2148.2	2046.7
Ratio to possible amount.....	0.48	0.46
Month of greatest relative amount.....	July	July
Ratio to possible amount.....	0.68	0.60
Month of least relative amount.....	December	December
Ratio to possible amount.....	0.25	0.22
Number of days completely clouded.....	44	62
Day of greatest relative amount.....	May 24.	—
Ratio to possible amount.....	0.93	0.91

DIFFERENCES OF CERTAIN METEOROLOGICAL ELEMENTS FOR 1899 FROM THE NORMAL VALUES FOR EACH QUARTER AND YEAR.

	Bar.	Tem.	Rain.	Days Rain.	Snow.	Days Snow.	Cloud-ed sky.
	in	°	in		in.		p. c.
Winter.....	-0.232	-1.37	+2.816	+3.70	-21.05	-11.38	-4.67
Spring.....	+0.661	+3.16	-2.632	-5.97	-0.72	+1.09	-6.67
Summer.....	-0.161	+0.71	-2.561	-8.61	—	—	-5.00
Autumn.....	+0.421	+3.62	+1.034	+2.29	-14.49	-15.79	-4.00
Year.....	+0.172	+1.53	-1.343	-8.59	-36.26	-26.08	-5.09

## PERIODICAL OR OCCASIONAL EVENTS, 1899.

- January ..... 28. Cedar Wax Wings, Woodpeckers.  
February ..... 4. Red-headed Woodpeckers. 6th, Linnets. 9th, Lake nearly frozen across. 10th, coldest day of year mean temperature 5° 42 below zero. 24th, Chickadee.  
March ..... 13. Robins. 14th, first thunder storm. 21st, last sleighing. 24th, Blue Birds  
April ..... 2. Song Sparrows. 8th, Meadow Larks, Swallows, Bay clear of ice.  
10. Black birds, Golden Crowned Kinglet, Woodpeckers. 13th, Juncos.  
14. Flickers. Kingfishers. Frogs piping. 15th, Phoebe.  
16. Crane, Sparrow Hawk, a few Hepatica in bloom. Butterflies, last snow of season.  
17. Earth worms above ground 19th, Red Maple in bloom. May Beetles.  
21. Chipping Sparrows. Brown Threshers.  
24. Reed Birds. Willow and Hepatica in full bloom. 25th, Elm in bloom. Humble Bees.  
26. Cow Birds. 27th, Whip-poor-will. 28th, Arbutus in bloom, Swallows numerous.  
29. Chimney Swifts.  
May ..... 1. Baltimore Oriole. 2nd, Dandelion in bloom. Apple in bloom.  
6. Cherry in bloom. Wild Strawberry in bloom.  
8. A few leaves almost fully expanded on most trees.  
11. Apple and Pear generally in bloom.  
14. Cuckoo. Cat Birds, Veery, Tyrant Flycatchers.  
15. Hoar frost and thin ice. 16th, White Crowned Sparrows. 17th, White Throated Sparrows.  
20. Horse Chesnut in full bloom.  
26. Humming Birds.  
June ..... 4. Highest water in Bay, 15 in. above zero.  
July ..... 29. Great squall on Bay.  
September ..... 17. Humming Birds numerous. 18th, Black Birds very numerous.  
21. Swallows last noted. 23rd, Heavy Hoar frost.  
October ..... 2. Ice formed. 4th Great migration of Birds at night.  
5. Thousands of white crowned and white throated Sparrows in parks and gardens.  
24. Last thunder storm.  
November ..... 11. First measurable snow.  
December ..... 6. Lowest water in Bay, 12 in. below zero. 15th, first sleighing.  
28. Bay frozen over.