R. Bell

TORONTO

GENERAL METEOROLOGICAL REGISTER

FOR THE YEAR 1898.

REMARKS ON THE METEOROLOGICAL RESULTS AT TORONTO FOR THE YEAR 1898.

TEMPERATURE.

The mean temperature of the year 1898 was 47°·15, being 2°·89 warmer than the average of 58 years and 1°·22 warmer than 1897. It is the warmest year during the period covered by the present record 1840-98.

The mean temperature of the several months was in ten instances above and in two below the average for the respective months, the average excess to the average defect being in the ratio of 3°·50 to 0°·15. On each of 247 days the mean temperature was above the normal of that particular day and below on 118 days. The mean temperature of each month, with the difference from the normal, was: January, 25°·39+2°·96; February, 24°·65+2°·12; March, 36°·29+7°·58; April, 43°·44+2°·36; May, 54°·97+2°·69; June, 65°·42+3°·01; July, 70°·50+2°·79; August, 69°·72+3°·48; September, 62°·80+4°·15; October, 50°·29+3°·87; November, 36°·06−0°·13; December, 26°·23−0°·17. Dividing the year into the ordinary seasons we have for Winter, 28°·78; Spring, 54°·61; Summer, 67°·67; Autumn, 37°·53. The thermic anomalies differ from the normal temperature proper to the latitude: Winter, −7°·00; Spring—3°·02; Summer, +1°·44; Autumn—6°·81. In four months during the year the observed temperature exceeded the normal value for the latitude, viz.: June, 0°·82; July, 1°·80; August, 1°·22; and September, 1°·30. The mean daily range for the year was 17°·48, the greatest monthly average occurring in July (22°·84) and the least in December (13°·10). The greatest daily range (34°·4) occurred on the 30th January, and the least (2°·2) on the 10th November. The warmest month relatively was March, estimated by its exccess (7°·58) above the normal, July, the warmest absolutely. The coldest absolutely was February (24°·65). December was the coldest relatively, its mean being 0°·17 below the normal.

The climatic difference was 45°·85, the warmest day was the 1st of September, mean temperature, 80°·72, and the coldest the 1st February,—0°·12; but the warmest day relatively was the 3rd October, it being 20°·4 above its proper normal, and the coldest the 13th December, which was 23°·4 below the normal. The average temperature of the warmest and coldest days from former years was 78°·02 and 2°·27 below zero. The highest temperature of the year (97°·1) occurred on the 2nd September, and the lowest (15°·0 below zero) on the 30th of January. The annual range from these extremes was 112°·1, being 11°·6 more than 1897 and 9°·0 more than the average annual range. There were 21 instances in which the temperature at the hour of observation was 20° above the normal and 23 when a defect of equal amount occurred. The most striking deviations from the daily normal curve of temperature have been as follows:

IN EXCESS.

			°
January	6,	Mean Deviation	13·68
do	7	do	12·77
do	8	do	13·73
do	12	do	17·28
do	20	do	14·90
do	21	do	12·40
do	22	do	12·95
do	23	do	12·32
February	9	do	13·63
do	10	do	14·72
do	11	do	17·52
do	12	do	12·17
March	10	do	14·18
do	11	do	16·25
do	12	do	13·42
do	16	do	17·12
do	19	do	16·13
do	22	do	13·60
do	28	do	12·58
April	11	do	12·03
April	14,	Mean Deviation	14·48
do	15	do	14·97
do	13	do	13·18
August	31	do	15·12
September	1	do	18·17
do	2	do	17·93
do	3	do	17·48
do	4	do	14·32
do	30	do	15·37
October	1	do	14·80
do	2	do	17·43
do	3	do	20·38
do	4	do	16·68
do	11	do	12·68
December	20	do	14·65
do	21	do	13·62
do	22	do	16·13
do	23	do	13·15
do	29	do	17·83

IN DEFECT.

January	1,	Mean Deviation	14·18
do	29	do	17·08
do	30	do	18·12
February	1	do	22·67
do	2	do	16·82
do	3	do	14·82
do	16	do	17·97
April	4,	Mean Deviation	15·75
November	11	do	13·55
do	27	do	12·89
December	12	do	12·02
do	13	do	23·38
do	31	do	17·47

BAROMETRIC PRESSURE.

The mean height of the Barometer was 29·622 inches, being 0·0021 inches above the average. The month which showed the greatest deviation from the normal was March, 0·140 in excess; October, showing the least, 0·0015. Average deviation without reference to sign was small, being only 0·048. The highest reading was 30·218 inches at 10 p.m. of December 31st, and the lowest 28·732 at 2 p.m. of January 23rd, giving a range of pressure of 1·486 inches.

The number of days of large abnormal variation in which the average pressure differed by two-tenths and upwards from the normal was 116, the greatest number (17) occurring in March and December and the least (3) in May.

HUMIDITY.

The mean humidity of the year was 76 being equal to the average, the greatest monthly humidity was 86, in February, and the least, 58, in April. There were 39 cases of complete saturation at the hour of observation: 5 in January, 13 in February, 4 in March, 1 in June, 3 in October, 8 in November, and 5 in December. The least humidity of the year at the hour of observation was 18 on the 16th of April, at 2 p.m.

CLOUDS.

The extent of the sky clouded was on the average of the year six-tenths of the whole. July was the clearest month and January the most cloudy. During the year there were 56 days completely clouded, being 8 less than the average (1853-97), the greatest number (11) occurring in February, none being registered in the month of August.

WIND.

The resultant direction of the wind was S. 65° W., showing 26° more southing than in 1897, and 34° more southing than in the seventeen years to 1890. The mean velocity of the wind without reference to direction was

10·12 miles. The most windy month was December, with an average of 16·54 miles per hour, and the least windy was September, with an average of 6·48 miles. The windiest day was December 23rd, average velocity 28·70 miles per hour, and the day of least velocity was November 28th, average velocity 2·12 per hour The highest velocity in one hour was 55·0 miles, 5 to 6 p.m. of the 2nd of January.

RAIN AND SNOW.

The total depth of rain that fell during the year was 23·820 inches, being 3·406 inches less than the average, and 3·917 less than the rainfall of 1897. The depth of snow, 71·3 inches, was 3·3 inches more than the average, and 23·9 inches more than the snowfall of 1897. July was the most rainy month as to quantity (5·770), and also with reference to the number of rainy days. February was the least rainy month, only 0·610 inches having fallen.

The day of greatest rainfall was the 11th of June, when 1·300 inches fell. There was only one other day during the year on which over one inch fell.

The heaviest fall of snow in one day was 16·0 inches on the 4th and 5th December. Rain fell on 98 days, being 16 less than the average number, and 12 less than in 1897. Snow fell on 53 days, being 12 less than the average and 10 more than in 1897. There were 196 days on which neither rain nor snow fell; in 1897 the number was 173. The rain occupied 465 hours, and the snow 239 hours in its fall, giving a total of 704 hours, or 29 days and 8 hours when rain or snow was actually falling.

THUNDER-STORMS.

Of the 34 thunder-storms occurring during the year, the first was on the 12th of January, and the latest on October 14th, 3 in March, 1 in April, 4 in May, 5 in June, 6 in July, 9 in August, 4 in September and 1 in October. The most severe storms were on the 11th of June, 28th of July, 16th, 23rd and 24th of August, September 18th and 26th, October 4th. Lightning alone on November 8th.

AURORA.

Auroral displays were more numerous than in the previous year. Of the 7 observed, none were of the first class, 1 of the second class, 1 of the third class and 5 of the 4th class. There were 210 nights favourable for observation. The most brilliant display occurred on the 14th of March.

SUNSHINE.

The total duration of bright sunshine during the year was 2128·9 hours; number of hours the sun was above the horizon, 4463·3; ratio of registered to possible, 0·48.

GENERAL METEOROLOGICAL

MAGNETICAL OBSERVATORY,

Latitude 43° 39′·4 N. Longitude 5h. 17m. 34s·65 W. Elevation

	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.
Average Temperature	25°·39	24°·67	36°·29	43°·44	54°·97	65°·42	70°·50
Difference from average (58 years)	+ 2·96	+ 2·12	+ 7·58	+ 2·36	+ 2·69	+ 3·01	+ 2·79
Thermic anomaly (Lat. 43° 40′)	− 7·41	−10·05	− 3·81	− 6·76	− 3·13	+ 0·82	+ 1·80
Highest temperature	44·9	47·1	63·0	68·1	75·2	90·5	95·5
Lowest temperature	−15·0	− 5·2	7·3	15·7	35·2	44·6	42·1
Monthly and Annual ranges	59·9	[illegible]	55·7	52·4	40·0	45·9	53·4
Average Maximum temperature	32·56	[illegible]	45·96	52·93	65·48	76·18	82·96
Average Minimum temperature	18·39	17·56	28·66	34·98	46·64	56·51	69·12
Average Daily range	14·17	14·40	17·30	17·95	18·84	19·67	22·84
Greatest Daily range	31·4	30·0	27·7	25·5	30·0	29·4	33·2
Average height of barometer at 32° Fahr.	29·5715	29·6682	29·7472	29·6199	29·5469	29·5943	29·6147
Difference from average (57 years)	− ·0781	+ ·0300	+ ·1400	+ ·0187	− ·0285	+ ·0228	+ ·0575
Highest barometer	30·088	31·074	30·072	29·908	29·826	29·969	30·047
Lowest barometer	28·732	29·053	29·023	29·162	29·246	29·014	29·342
Monthly and annual ranges	1·306	1·021	1·049	0·746	0·580	0·955	0·705
Average humidity of the air	83	86	77	58	72	73	68
Difference from average	0	+ 5	0	− 12	+ 2	0	− 4
Average elasticity of aqueous vapour	0·124	0·124	0·172	0·161	0·318	0·464	0·517
Average temperature of dew point	23·2	23·2	30·7	29·1	46·6	56·9	60·0
Average of cloudiness	0·81	0·72	0·57	0·47	0·54	0·50	0·36
Difference from average (44 years)	+ ·07	+ ·03	− ·06	− ·11	− ·03	− ·02	− ·14
Resultant direction of wind	N 67° W	N 62° W	N 1° E	N 20° W	N 20° E	N 43° W	N 33° W
Resultant velocity of wind	1·89	2·39	2·41	4·05	1·91	1·59	0·75
Average velocity (miles per hour)	12·32	12·04	10·1	10·37	8·49	8·94	7·28
Highest velocity in month and year	55·0	39·0	35·0	40·0	32·0	31·0	23·0
Total amount of rain in inches	2·420	0·610	2·400	1·645	2·305	1·945	0·690
Difference from average (58 years)	+1·250	−0·288	+0·973	+0·510	−0·736	−0·904	−2·303
Number of days of rain	6	7	11	4	7	8	9
Total amount of snow in inches	12·3	24·5	*	0·5	....	....	....
Difference from average (58 years)	− 5·01	+ 7·43	−12·13	− 1·93	− 0·12	....	....
Number of days of snow	12	12	1	3	....	....	....
Number of fair days	11	10	20	20	21	17	20
Number of days completely clouded	11	12	3	4	4	1	1
Number of auroras observed	1	1	1	0	0	1	2
Possible to see aurora (No. of nights)	7	11	16	18	20	21	25
Number of thunderstorms	1	0	3	1	4	5	6
Number of fogs	2	4	3	0	2	2	2
Number of hours of bright sunshine	74·9	72·8	170·2	237·8	216·6	259·9	323·1
Number of hours of possible sunshine	285·7	291·4	369·9	406·5	461·1	465·7	470·9

REGISTER FOR THE YEAR 1898.

TORONTO, ONTARIO.

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

AUG.	SEPT.	OCT.	NOV.	DEC.	1898.	1897.	1896.	1895.	1894.	1893.	1892.
69°72	62°80	50°29	36°06	26°23	47°15	45°93	45°36	44°28	46°75	43°53	44°61
+ 3·48	+ 4·15	+ 3·87	− 0·13	− 0·17	+ 2·89	+ 1·67	+ 1·10	+ 0·02	+ 2·49	− 0·73	+ 0·35
+ 1·22	+ 1·30	− 3·51	− 7·14	− 9·77	− 3·87	− 5·09	− 5·66	− 6·74	− 4·27	− 7·49	− 6·41
96·0	97·1	82·0	68·0	44·8	97·1	93·3	91·3	93·4	90·7	93·3	93·5
46·5	38·3	26·6	8·0	− 5·2	−15·0	7·2	17·9	21·2	9·9	17·8	10·2
49·5	58·8	55·4	50·0	50·0	112·1	100·5	109·2	114·6	100·6	111·1	103·7
81·84	73·90	58·49	43·59	32·86	....	....	....	....	....	....	....
59·84	54·61	43·38	28·53	19·76	....	....	....	....	....	....	....
22·00	19·29	15·11	15·06	13·10	17·48	16·21	17·58	17·26	16·27	17·15	15·58
31·4	32·3	25·0	25·4	26·3	34·4	36·0	38·9	36·9	34·3	36·3	38·6
29·5716	29·6288	29·6593	29·6442	29·5637	29·6216	29·6319	29·6382	29·6171	29·6246	29·5996	29·6325
− ·0457	− ·0386	+ ·0151	+ ·0193	− ·0876	+ ·0021	+ ·0124	+ ·0187	− ·0024	+ ·0051	− ·0199	+ ·0139
29·867	30·180	30·028	30·045	30·218	30·218	30·353	30·422	30·240	30·516	30·467	30·356
29·322	29·160	28·988	28·973	28·942	28·732	28·779	28·734	28·746	29·035	28·227	28·846
0·545	1·020	1·040	1·072	1·266	1·486	1·574	1·688	1·494	1·481	2·240	1·510
71	77	82	82	83	76	76	75	75	76	77	77
− 3	0	+ 4	+ 2	+ 1	0	0	− 1	− 1	0	+ 1	+ 1
0·516	0·448	0·317	0·182	0·127	0·289	0·274	0·254	0·253	0·277	0·262	0·272
59·9	55·9	46·5	32·1	23·7	44·1	42·7	38·9	41·3	42·9	41·5	42·5
0·52	0·43	0·65	0·67	0·78	0·58	0·61	0·60	0·57	0·60	0·59	0·61
+ ·02	− ·07	+ ·03	− ·08	+ ·02	− ·03	·00	− ·01	− ·04	− ·01	− ·02	·00
S 56° W	S 82° E	S 82° E	S 81° W	S 69° W	N 65° W	N 89° W	N 88° W	S 78° W	N 78° W	N 66° W	N 54° W
1·63	1·08	4·96	1·57	10·38	1·78	2·42	0·75	1·36	1·10	1·95	1·81
7·62	6·48	11·86	9·35	16·54	10·12	12·33	8·41	5·60	5·67	8·59	8·17
27·0	29·0	37·0	35·0	44·0	55·0	51·0	50·0	60·0	58·0	60·0	44·0
1·080	2·790	5·770	1·455	0·710	23·860	27·737	21·770	22·532	25·785	31·145	25·285
−1·750	−0·466	+3·435	−1·228	−0·879	−3·406	+0·531	−5·436	−4·674	−1·421	+3·939	−1·921
8	9	16	8	5	98	110	104	101	114	105	119
....	....	*	15·6	18·4	71·3	47·4	73·3	54·8	37·8	85·7	42·2
....	....	−0·69	+11·04	+ 4·73	+ 3·32	−20·58	+ 5·38	−13·18	−30·18	+17·72	−25·78
....	....	1	10	14	53	43	43	48	32	64	43
20	17	13	15	12	196	173	174	196	179	156	165
0	1	4	4	11	56	58	55	48	43	50	57
0	1	0	0	0	7	3	18	11	23	18	33
26	24	17	15	10	210	179	194	195	199	208	195
9	4	1	0	0	34	19	25	23	36	41	40
0	4	3	3	1	26	28	30	33	30	31	36
239·2	227·7	140·2	95·9	70·6	2128·9	1987·6	2146·7	2159·7	2017·7	2052·4	2054·4
434·5	376·3	340·2	286·9	274·3	4463·3	4463·3	4474·4	4463·3	4463·3	4463·3	4474·4

TEMPERATURE.

	1898.	Average of 58 years.	Extremes.	
	°	°	°	°
Average temperature of the year	47·15	44·25	47·09 in 1878	40·77 in 1873
Warmest month	July	July	July, 1868	Aug., 1860
Average temperature of the warmest month	70·50	67·71	75·80	64·46
Coldest month	February	January	Feb., 1875	Feb., 1848
Average temperature of the coldest month	24·65	22·43	10·16	26·00
Difference between the temperature of the warmest and coldest months	45·85	45·28	.....	
Average of deviations of monthly means from their respective averages of 58 years, signs of deviations being disregarded	2·94	2·74	3·58	
Month of greatest deviation without regard to sign	March	January	Feb., 1875	
Corresponding magnitude of deviation	7·58	4·04	12·37	
Warmest day	1 Sep.	.....	July 14, '88	July 31, '44
Average temperature of the warmest day	80·72	78·02	84·50	72·75
Coldest day	1 Feb.	.....	Feb. 6, 1855	Dec. 22, '42
Average temperature of the coldest day	−0·12	−2·27	Jan. 22, '59 −14·33	9·57
Date of the highest temperature	2 Sep.	.....	Aug. 24, '54	Aug. 19, '80
Highest temperature	97·1	90·92	99·2	82·4
Date of lowest temperature	30 Jan.	.....	Jan. 10, '59	Jan. 2, 1842
Lowest temperature	−15·0	−12·19	−26·5	1·9
Range of the year	112·1	103·11	118·2	87·0

BAROMETER.

	1898.	Average of 57 years.	Extremes.	
	in.	in.	in.	in.
Average pressure of the year	29·6216	29·6195	29·6779 in 1849	29·5602 in 1864
Month of the highest average pressure	March	Sep.	Jan., 1849	June, 1864
Highest monthly average pressure	29·7472	29·6674	29·8046	29·6525
Month of the lowest average pressure	May	June	March, 1859	Nov. 1859
Lowest monthly average pressure	29·5469	29·5715	29·4143	29·5886
Date of the highest pressure in the year	31 Dec.	.....	Jan. 8, 1866	Mar. 7, 1878
Highest pressure	30·218	30·357	30·940	30·139
Date of the lowest pressure in the year	23 Jan.	.....	Jan. 2, 1877	June 2, 1894
Lowest pressure	28·732	28·702	28·166	29·035
Range for the year	1·486	1·655	2·240 in 1893	1·303 in 1845

RELATIVE HUMIDITY.

	1898.	Average of 57 years.	Extremes.	
Average humidity of the year	76	76	82 in 1851	73 in 1858
Month of greatest humidity	February	January	Jan., 1857	Dec., 1858
Greatest average monthly humidity	86	83	89	81
Month of least humidity	April	May	Feb., 1843	April, 1849
Least average monthly humidity	58	70	58	76

EXTENT OF SKY CLOUDED.

	1898.	Average of 45 years	Extremes.	
Average cloudiness of the year	0·61	0·61	0·66 in '69 '77	0·57 in 1856
Most cloudy month	January	Dec.	....	....
Greatest monthly average of cloudiness	0·81	0·76	0·89	0·73
Least cloudy month	July	July	....	....
Least monthly average of cloudiness	0·36	0·50	0·29	0·50

WIND.

	1898.	Average of 17 years.	Extremes.	
Resultant direction	S. 6° W.	N. 6° W.		
Resultant velocity in miles	1·78	2·51	.....	.....
Average velocity without regard to direction	10·12	9·64	.....	.....
Month of greatest average velocity	Dec.	March.	12·33 in '97	8·32 in '78
Greatest monthly average velocity	16·54	11·49	April, 80	Dec. 1875
Month of least average velocity	Sept.	July.	13·88	10·42
Least monthly average velocity	6·48	7·56	July, '78	July, 1881
Day of greatest average velocity	Dec. 23.		5·93	8·43
Greatest daily average velocity	28·70	28·98	Nov. 17 '70	Feb 10 '85
Day of least average velocity	Nov. 28.		41·67	23·79
Least daily average velocity	2·12		.....	.....
Hour of greatest absolute velocity	2nd Jan., 5-6 p.m.		April 20 '95 8 to 9 a.m.	Jan. 17, '85 10 to 11 a.m.
Greatest velocity	55·0	45·67	60·0	39·0

NOTE.—During the year 1898, 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.

	1898.	Average of 58 years.	Extremes.	
Total depth of rain in inches	23·820	27·226	43·555 in '43	17·574 in '74
Number of days on which rain fell	98	114	145 in 1890	80 in 1841
Month on which the greatest depth of rain fell	October	Sept.	Sept., 1843	June, 1887
Greatest depth of rain in one month	5·770	3·256	9·760	2·655
Month in which the days of rain were most frequent	October	Oct.	Jan., '69 Oct., '90	May, 1841
Greatest number of rainy days in one month	16	13	23	11
Day on which the greatest amount of rain fell	June 11.		July 27, '97.	Sept. 14, '84
Greatest amount of rain in one day	1·300	1·939	3·881	1·000

SNOW.

	1898.	Average of 55 years.	Extremes.	
Total depth of snow in inches	71·3	68·0	122·9 in '70	34·6 in '88
Number of days on which snow fell	53	65	87 in 1859	33 in'48
Month in which the greatest depth of snow fell	February	January	March '70	Jan., 1895
Greatest depth of snow in one month	24·5	17·3	62·4	10·5
Month in which the days of snow were most frequent	Decemb'r	January	Dec., 1872	Feb., 1848
Greatest number of days of snow in one month	14	14	24	8
Day in which the greatest amount of snow fell	4-5 Dec.	—	Feb. 5, 6	4-6Jan'88
Greatest fall of snow in one day	16·0	8 8	Mar. 27, '70 16·0	3 0

SUNSHINE.

	1898.	Average 1882 to 1897
Total duration of bright sunshine in hours	2128·9	2041·6
Ratio to possible amount	0 48	0 46
Month of greatest relative amount	July	July
Ratio to possible amount	0 69	0 59
Month of least relative amount	February	December
Ratio to possible amount	0·25	0 22
Number of days completely clouded	56	63
Day of greatest relative amount	May 7, 17	—
Ratio to possible amount	0·97	0·91

DIFFERENCES OF CERTAIN METEOROLOGICAL ELEMENTS FOR 1898 FROM THE NORMAL VALUES FOR EACH QUARTER AND YEAR.

	Bar.	Tem.	Rain.	Days Rain.	Snow.	Days Snow.	Clouded Sky.
	in.	°	in.		in.		p.c.
Winter	+ ·0306	+ 4 22	+ 1·935	+ 7·84	— 9·71	— 12·95	+ 1·33
Spring	+ ·0043	+ 2 69	— 2·150	— 15·25	— 2·05	— 0 86	— 5·33
Summer	— ·0089	+ 3·47	— 4·519	— 7·76	—	—	— 6·33
Autumn	— ·0177	+ 1·19	+ 1·328	— 0·73	— 15·08	+ 1·61	— 1·50
Year	+ ·0021	+ 2·89	— 3·406	— 15 90	+ 3·32	— 12·20	— 2·83

PERIODICAL OR OCCASIONAL EVENTS, 1898.

January .....12. First thunder storm of year. 25th, Furious storm of snow and drift.
February..... 2. Coldest day of year, mean 0°·12 below zero. 8th Crows noisy. 5th, Hawks. 6th Woodpeckers.
18. Rain freezing as it falls covering everything with ice. 21st, Furious snow storm, 11·6 in. fell. March 6th, Last sleighing.
March..... 9. Robins. 11th, Grey Birds. 12th Blue Birds. 13th, Worms above ground.
16. Bronzed Grackle, Juncoes, Navigation opened. 19th, Crocus in bloom, 25th, Soft Maple in bloom. Frogs piping. 28th, Golden Crowned Kinglet, Hepatica in bloom.
April ..... 6. Last snow of season. 12th, Meadow Lark. 13th, Swallow, Phœbe. 14th, Trailing Arbutus in bloom, Red Maple, Willow, Elm in bloom, Butterflies. 15th, Humble Bees. Wild Mustard in bloom.
18. Wax Wing, Gold Finch, Flickers, Elder in leaf. 23rd, Dandelions in bloom, Wilsons Thrush, Towhee. 24th, Brown Creepers. 26th, Kingfishers. 27th, Last ice, Apricot in bloom.
28. Chipping Sparrow, White Crowned Sparrow. 30th, Marsh Marigold,
30. Whippoorwill.
May ..... 1. Trilliums in bloom. 2nd, Brown Thresher, Wild Cherry in bloom. 4th, Chimney Swift. 8th, Yellow Bird. Wild Strawberry in bloom. 9th, Pear Trees, Plum in bloom, Elder in bloom; Forest Trees of all kind almost in full leaf. 10th, Baltimore Oriole.
12. Wrens. 15th, Humming Birds. 19th, Apple Trees in bloom. 22nd, Mountain Ash, Lilac, Horse Chestnut in bloom. 23rd, Night Hawk, Humming Birds numerous.
June.....10. Rock Doves. 11th, Heaviest rainfall of year—1·300 in.
July ..... 5. Large Meteor at 8.50 p. m., passing towards N. W., seen in many parts of Ontario.
August ..... 7. Leaves falling rapidly dried up with the drouth
September..... 1. Warmest day of year, mean temperature 80°·72. 23rd, Swallows last seen.
October..... 7. Wild geese in large numbers going south. 14th, Last thunder storm.
6. First Hoar Frost. 16th, First ice. 27th, First snow.
Nov..... 5. Lightning. 9th, First measurable Snow. 10th, First sleighing.
Dec..... ..... 4. From 5 p. m. to 10 a. m. of 5th, 16 in. of snow fell. 19th. Rain storm, freezing as it fell, rendering the streets almost impassable.
13. Bay frozen over.

The highest water in the bay during the year was 15 in. above zero on the 19th May, and the lowest was 9½ in. below zero on the 23rd December.