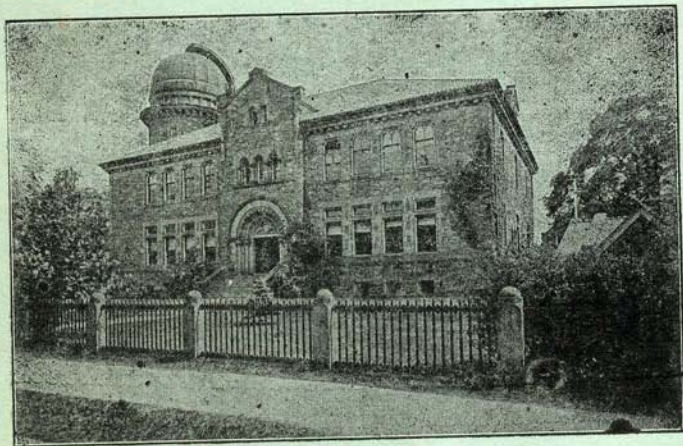


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DEPARTMENT OF MARINE AND FISHERIES
DOMINION OF CANADA.

TORONTO OBSERVATORY



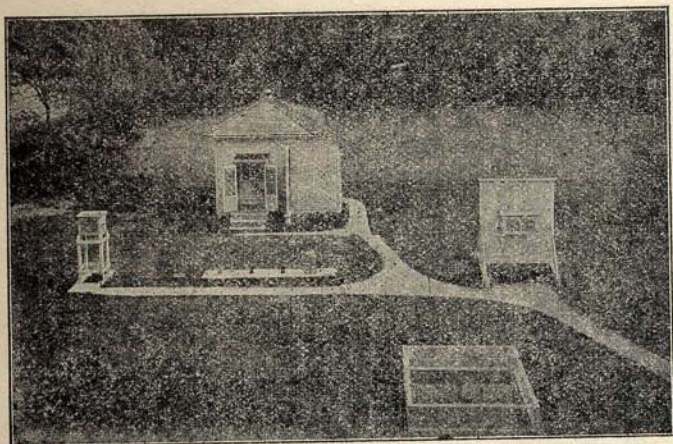
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and Seismological Observations,
1920.**

Published under the direction of
Sir Frederic Stupart, F.R.S.C.,
Director of the Meteorological Service, Toronto.

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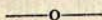


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TORONTO OBSERVATORY.

Lat. 43° 40' 0".8 N. Long. 5h. 17m. 35.6s. W. The observations are taken at 75th meridian time. Height of barometer cistern 379 feet above sea level. Height at the old Observatory 350 feet.

BAROMETER—Readings given are taken from the photographic barograph, and are the means of the 24-hour readings of each day. A correction has been employed to reduce these readings to the original height of the standard barometer in the old Observatory building, so as to make them comparable with previous Toronto registers. Capillarity and gravity corrections have been omitted.

TEMPERATURE—Adopted means are taken from the max. and min. of the thermometers in the Stevenson Screen. Extremes are also from the same screen. The 24-hour means are taken from the photographic thermograph, where the tubes are four feet above the ground.

On January 1st, 1899, the thermometers were removed from the old shed and placed in a shelter entirely clear of the buildings. This shed had a double back and roof with louver sides. The height of the thermometers varied little from the old position. Observations were taken at the same hours but at 75th meridian time. The thermometers in January 1907 were placed in the Stevenson shed and subsequent observations are from this shed.

HUMIDITY.—Means are taken from a Julien Friez Hygrometer and are from the 24 hour readings.

WIND—Direction and velocity are from the anemometer at the Eastern Gap on the Island, where the cups revolve at a height of 50 feet above the lake level.

GALE—A velocity of 30 miles and over.

CLEAR DAY—When the mean from six observations is below 0.2.

CLOUDY DAY—When the mean from six observations is above 0.8.

AURORA—Observations have been rendered doubtful owing to the large number of electric lights in the city.

Weather Synopsis for 1920.

JANUARY. The second coldest on record, 1857 being slightly colder. Temperature on only five days: 7th, 8th, 11th, 13th and 27th, was above the freezing point, but on ten days it was below zero; the maximum on the 31st was only -4° . The coldest periods were from the 1st to the 5th; 14th to 26th; 28th to 31st, with minimum readings of -10° on the 16th and 25th, and -17.8° on the 31st. There were many bright days. Precipitation, which was entirely snow, was slightly below normal, a 40-mile northeast blizzard on the 10th giving ten inches. Winds were high to the 20th, particularly on the first three days from the southwest and west reaching the force of a gale, and on the 20th with a velocity of 44 miles from the east. Nine inches of snow on the ground at the end of the month.

FEBRUARY. Mean was 2° below normal. On the 1st and 2nd temperature rose rapidly, reaching 48° , a rise of 54° in 38 hours. It continued comparatively mild to the 14th, and cold to the end of the month, excepting the 23rd and 24th. The minimum was -4° on the early morning of the 1st, and -2° was recorded on the 27th. The 16th to 18th and the last five days were the coldest periods; 3.6 inches of snow fell on the 17th, but the total was slightly below normal. There was a good percentage of bright sunshine and winds were generally strong, gales being recorded on the 8th (northwest), and on the 15th, 16th and 17th (west and southwest). Ice on the Credit River measured 24 inches in thickness, and snow on the ground at the end of the month 12 inches.

MARCH. Comparatively mild with a good percentage of bright sunshine. The first eight days, excepting the 4th, were cold with strong northeast and northwest winds. Minimum on the 2nd was -1° , and the maximum on the 4th, 45.4° . It was much warmer from the 9th to the afternoon of the 12th, when temperature fell rapidly from 57° to 11° next morning. Milder conditions prevailed from the night of the 15th to the end of the month. Maximums of 62° and over were recorded from the 23rd to the 26th. Winds were strong with highest velocities on the 16th and 19th of 46 miles west and 42 miles northeast respectively. Although four inches of snow fell during a northeast gale on the 19th, the monthly fall was 5.6 inches below normal, and by the 22nd the ground was bare. Grass showed green during the latter part of the month, and maple trees and crocus were in bloom on the 28th. A severe thunderstorm occurred during the early morning of the 29th. On the night of the 22nd a magnificent auroral display was observed. The colors were vivid and there was a continuous pulsation and bright flashes all over the sky.

APRIL. Wet and stormy with a mean temperature slightly below normal. The first three days recorded maximums of 50° and over, but from then winter conditions prevailed to the 13th, after which it was milder, the last week showing a tendency to lower temperatures with sharp white frosts. A minimum of 18° was recorded on the 8th, and the terrestrial thermometer fell to 22° on the 25th. Rainfalls of 0.97 and 0.46 inches were recorded on the 21st and 22nd, and 4.1 inches of snow on the 12th. Wind velocity reached 43 miles southwest on the 3rd; 39 miles northeast on the 4th; and 36 miles west on the 19th. A miniature blizzard from 18 to 18.30 hours on the 7th made it very dark, snow being so dense from north and northwest that objects at short distance were undiscernable. Fruit trees which were considerably advanced owing to the very warm weather of March 23rd-26th, suffered a severe setback, when an average of 8° of frost was recorded each morning from the 4th to 10th.

MAY. The first half of the month, except the 5th to the 8th, was cold and unseasonable, and white frosts were noted frequently up to the 16th. On the afternoon of the 16th the weather became warm, temperatures of 82° and 83° being recorded on the 27th and 31st. The monthly mean was 2° above

normal. Strong north and northeast winds were general during the early part of the month, with a good percentage of clear sky, and bright sunshine 67 hours in excess. There were few rainy days, the monthly fall being unusually light.

JUNE. Summer weather for the first 15 days, 93° and 86° being recorded on the 10th and 11th. However, early morning temperatures on the 4th and 7th fell to 48° , and the daily range on the 10th was 41° . A very cool period prevailed from the 16th to the 24th, with many north and northeast winds, temperature on the morning of the 23rd falling to 46° . Readings were high from the 25th onwards, frequently rising to 83° and over, and 87° and 86° were recorded on the 28th and 29th. Occasional rain from the 5th to the 23rd, but the total was about normal. The 21st recorded 0.87 inch. There were five thunderstorms, the most severe occurring on the early morning of the 11th, when heavy rain was reported to have fallen in Parkdale. Specimens of the Richmond Rose flowered on the 17th, which is rather late.

JULY. Cool for the first week, except the 3rd, on which it was oppressively hot with rapid hourly temperature fluctuations. It was warmer to the 14th, and 85° was recorded on the 13th, but a marked cool period then prevailed to the 29th, with the exception of 21st and 22nd. Temperatures of 44° and 47° were recorded on the 16th and 25th. On the 30th the maximum rose to 87° , but very cool weather again set in during the night of the 31st, the midnight reading being 54° . Bright sunshine was much below normal. Thunderstorms were numerous, and two on the 23rd were particularly severe and prolonged, with heavy hail in the first storm at 17.45h. Rain fell on 13 days, the total being somewhat above normal.

AUGUST. Warm and very cloudy. The first part of the month was cool, but from the 5th to the 21st daily mean temperatures were well above normals, with close, cloudy weather from the 8th to the 16th. After a thunderstorm on the night of the 21st it became much cooler, and the following two days continued so, temperature falling to 50° on the morning of the 23rd. On the 25th temperature rose to 82° , and warm weather continued to the end of the month. Rain was recorded on only eight days.

SEPTEMBER. A warm, dry month with many bright days. Excepting the first four days the mean daily temperatures were well above normals to the 18th, with some rapid fluctuations, maximum on the 12th being 87°. On the night of the 18th it became cool, the minimum next morning falling to 37.2°. It then became gradually warmer and readings of 82° and over were recorded from the 23rd to the 27th; and 85.8° on the 28th. Temperature again fell on the night of the 27th, a minimum of 42° being recorded on the 31st. No rain fell from the 21st to the 26th, and the total monthly fall showed a deficiency of over an inch. Heaviest falls were 0.62 and 0.69 inches on the 11th and 16th, during thunderstorms. Aurora Class II was noted from 22.30 to 24 hours of the 28th.

OCTOBER. Another very warm month with a large rainfall. Mean temperature during the first week ranged from 12° below normal on the 1st to 8° above on the 4th. From the 8th to the 22nd the temperature frequently rose to 75°; 79° was recorded on the 9th, 78° on the 14th and 15th, and 81° on the 21st. Cooler weather set in on the night of the 22nd, with northerly winds; and much cooler on the 28th, minimums on the 29th and 30th falling to 33°. The last day was warmer. Bright sunshine varied little from normal. Ten days rain gave a total over one inch above normal, the heaviest falls being 1.1 inches on the 1st, with strong north and west winds and 0.49 inch on the 27th. On two other days the falls were over half an inch.

NOVEMBER. Cloudy and dull, mean temperature slightly above normal. The weather was comparatively warm from the 1st to the 9th, and from the 25th to the end of the month, with a maximum of 62° on the 9th. The intervening days, with few exceptions, were much colder, minimums on the 12th and 13th falling to 20°. Heavy snow fell on the 17th, and rainfalls of 0.70 and 0.85 inches on the 1st and 2nd. Total precipitation was 0.76 inch greater than normal. Winds were fresh to strong during the greater part of the month, and 41 miles east was recorded on the 22nd.

DECEMBER. Unusually mild and cloudy. Except for the moderately cold weather on the 8th and from the 25th to the 29th, the mean temperature was above normal, readings of 48°, 47°, 51° and 43° being recorded on the 4th, 5th, 14th and 23rd. The minimum of the month was only 9.6° on the 29th. Rapid barometric oscillations were noted on the 3rd from 11.30 to 11.50. Rainfall was slightly in excess and snowfall 1.5 inches in defect of normal. The heaviest snow was 5.3 inches on the 27th, other falls being light. Winds were unusually heavy from east and west, and seven gales were recorded.

J. Y.

The Great Kansu-Shensi Earthquake.

The earthquake of December 16th caused an appalling loss of life and property in Northwest China. Whole towns were swallowed up in the Provinces of Shansi, Shensi, Kansu and Szechwan. Hills collapsed and big valleys opened up engulfing hundreds of human beings. At one place a caravan of camels disappeared in the earth's opening. Part of the Kingchow City wall and one city gate fell, besides many houses; 2,000 were killed in Pingliang and district. Tsingningchow has a death list of 1,000 within that city alone; for the streets opened and caused the houses on each side to fall together. Kuyuan also suffered much and black water spouted from the ground. The earthquake was very severe in Fukiang, Chingan and Chinghsui counties. Fires, which began after the shocks, destroyed many places. "Since the night of the 16th," reads a letter from Tsinchow, "we have had shocks almost every day and night. In nine hours after the first one, which was the severest, we had 35 distinct tremors." Approximately, the epicentre of the earthquake was in Latitude 37° North, Longitude 110 East.

Meteorological Report.

January

Results of Observations.		1920	Mean for 70 years.
BAROMETER	— Mean reading, 32 F. inches	29.800	29.647
"	Highest on 31st at 10.56h	30.636	30.271
"	Lowest on 1st at 3.57h	28.989	28.913
"	Range	1.647	1.358
TEMPERATURE	— Highest (7th)	36.6	44.9
"	Lowest (31st)	-17.8	-6.8
"	Range for the month	54.4	51.7
"	Mean of the highest readings	21.3	29.1
"	Mean of the lowest readings	4.7	15.2
"	Mean daily range	16.6	13.9
"	Mean from max. and min.	13.0	*21.9
"	Mean from 24 hourly observations	12.9	‡21.8
"	Mean daily range from 24 hourly observations	16.4	
"	Highest daily mean (7th)	34.0	
"	Lowest daily mean (31st)	-9.7	
"	Highest solar (black bulb in vacuum (not in use)		
"	Lowest radiation (31st)	-20.3	
HUMIDITY	— Mean	76	83
RAINFALL	— Total fall (inches)	0	1.14
"	Heaviest fall "	0	
"	No. of days on which rain fell	0	4.9
SNOWFALL	— Total fall inches	24.2	17.3
"	Heaviest fall (16th) "	10.0	
"	No. of days on which snow fell	15	14.2
CLOUD	— Mean amount of (0-10)	.58	.74
	*1840—1898		‡1881—1908

Results of Observations—January (Continued)

WINDS	—	Mean velocity	15.4 miles
"		Highest velocity (20th) at 14h from E.	44 "
"		Highest daily average velocity (1st)	25.3 "
"		Lowest " " (25th and 29th)	9.8 "
"		Days on which gales occurred	10

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
	129	100	8	24	12	192	106	173	0	744
No. of miles registered from each direction.	1355	1669	252	405	127	3550	1851	2276	—	11485

Snow on 1st, 2nd, 3rd, 7th, 9th, 10th, 12th, 13th, 16th, 17th, 19th, 20th, 23rd, 29th and 31st. Solar parhelia 14th. Blizzard on 31st. Clear days 6. Cloudy days 10.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1866 (8th)	30.940	inch.
"	Lowest reading, 1870 (2nd)	28.166	"
Temperature	— Highest, 1874 (4th) 1876 (1st)	57.5°	
"	Lowest, 1859 (10th)	-26.5°	
"	Highest daily mean (during 40 yrs)		
"	1906 (22nd)	49.6°	
"	Lowest daily mean, (during 40 yrs)		
"	1914 (13th)	-15.2°	
"	Highest monthly mean, 1880	32.7°	
"	Lowest monthly mean, 1857	12.8°	
Rainfall	— Greatest fall, 1843	4.30	in.
"	Least fall, 1852-56-1918-1920	0	"
"	Greatest for 24 hours, 1843 (31st)	2.50	"
"	Greatest number of days rain fell, 1890	14	
Snowfall	— Greatest fall, 1871	43.6	in.
"	Least fall, 1916	3.1	"
"	Greatest for 24 hours, 1873 (5th)	15.3	"
"	Greatest No. days snow fell 1861-71-93	23	
"	Least No. days snow fell, 1847	5	

February

Results of Observations.		1920	Mean for 70 years.
BAROMETER	— Mean reading, 32 F. inches	29.625	29.638
"	Highest on 1st at 0.02h	30.465	30.226
"	Lowest on 17th at 13.50h	29.059	28.945
"	Range	1.406	1.281
TEMPERATURE	— Highest (2nd)	46.0	44.3
"	Lowest (1st)	-9.0	-7.1
"	Range for the month	55.0	51.4
"	Mean of the highest readings	28.0	29.2
"	Mean of the lowest readings	12.3	14.1
"	Mean daily range	15.7	15.1
"	Mean from max. and min.	20.2	*22.5
"	Mean from 24 hourly observations	20.2	†21.0
"	Mean daily range from 24 hourly observations	15.1	
"	Highest daily mean (2nd)	31.9	
"	Lowest daily mean (26th)	5.5	
"	Highest solar (black bulb in vacuum (not in use)		
"	Lowest radiation (18th)	-11.0	
HUMIDITY	— Mean	76	81
RAINFALL	— Total fall (inches)	0.01	0.93
"	Heaviest fall (3rd) "	0.01	
"	No. of days on which rain fell	1	4.7
SNOWFALL	— Total fall (inches)	15.7	16.5
"	Heaviest fall (17th) "	3.6	
"	No. of days on which snow fell	10	12.4
CLOUD	— Mean amount of (0-10)	.58	.76
	*1840—1898	†1881—1908	

Results of Observations—February (Continued)

WINDS	— Mean velocity	13.6 miles
"	Highest velocity (15th) at 18h from W.	38 "
"	Highest daily average velocity (15th)	29.8 "
"	Lowest " " (22nd)	6.7 "
"	Days on which gales occurred	6

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
	57	107	34	46	11	111	138	190	2	696

No. of miles registered from each direction.	489	1322	479	541	105	1689	2126	2699	—	9,450

Rain on 3rd. Snow on 1st, 6th, 9th, 10th, 12th, 14th, 15th, 17th, 23rd and 28th. Lunar corona 4th. Parhelia 16th. Fog on 28th. Clear days 5. Cloudy days 11.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1887 (4th)	30.522 inch.
"	Lowest reading, 1918 (25th)	28.346 "
Temperature	— Highest, 1890 (4th)	53.8°
"	Lowest, 1855 (5th)	-25.4°
"	Highest daily mean (during 40 yrs) 1906 (24th)	44.1°
"	Lowest daily mean, (during 40 yrs) 1895 (6th)	-11.9°
"	Highest monthly mean, 1882	30.3°
"	Lowest monthly mean, 1875	10.2°
Rainfall	— Greatest fall, 1842	3.63 in.
"	Least fall, 1841-46-56-73-77-1901-16	0 "
"	Greatest for 24 hours, 1855 (13th)	1.71 "
"	Greatest number of days rain fell, 1857	11
Snowfall	— Greatest fall, 1846	46.1 in.
"	Least fall, 1851	2.4 "
"	Greatest for 24 hours, 1883 (5th)	16.0 "
"	Greatest number days snow fell 1843,	21
"	Least No. days snow fell, 1851	4

March

Results of Observations.		1920	Mean for 70 years.
BAROMETER	— Mean reading, 32 F. inches	29.543	29.609
	“ Highest on 18th at 9.58h	30.025	30.129
	“ Lowest on 12th at 15.00h	28.868	28.919
	“ Range	1.157	1.210
TEMPERATURE	— Highest (26th)	66.4	52.1
	“ Lowest (2nd)	-1.0	-2.6
	“ Range for the month	67.4	54.7
	“ Mean of the highest readings	43.1	36.3
	“ Mean of the lowest readings	24.6	21.9
	“ Mean daily range	18.5	14.4
	“ Mean from max. and min.	33.9	*28.7
	“ Mean from 24 hourly observations	32.6	±29.1
	“ Mean daily range from 24 hourly observations	17.9	
	“ Highest daily mean (26th)	51.7	
“ Lowest daily mean (6th)	10.2		
“ Highest solar (black bulb in vacuum (not in use)			
“ Lowest radiation (2nd)	-10.5		
HUMIDITY	— Mean	69	78
RAINFALL	— Total fall (inches)	1.72	1.50
	“ Heaviest fall (5th) “	0.42	
	“ No. of days on which rain fell	10	6.7
SNOWFALL	— Total fall inches	5.9	11.5
	“ Heaviest fall (19th) “	4.0	
	“ No. of days on which snow fell	5	10.4
CLOUD	— Mean amount of (0-10)	.50	.67
		*1840—1898	†1881—1908

Results of Observations—March (Continued)

WINDS	— Mean velocity	15.7 miles
“	Highest velocity (16th) at 22h from W.	46 “
“	Highest daily average velocity (19th)	26.5 “
“	Lowest “ “ (11th)	5.4 “
“	Days on which gales occurred	8

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	C.	Totals.
		23	156	48	20	30	226	94	146	1

No. of miles registered from each direction.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	C.	Totals.
		321	2606	627	143	242	3340	1786	2639	—

Rain on 4th, 5th, 11th, 12th, 15th, 16th, 26th, 27th, 29th and 31st. Snow on 12th, 13th, 19th, 20th and 27th. Thunderstorm on 29th. Aurora I on 22nd. Fog on 11th, 12th and 28th. Lunar corona 3rd and 28th. Clear days 7. Cloudy days 7.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1906 (24th)	30.508	inch.
	“ Lowest reading, 1859 (19th)	28.286	“
Temperature	— Highest, 1910 (28th)	75.2°	
	“ Lowest, 1868 (3rd)	-15.6°	
“	Highest daily mean (during 40 yrs)		
	1910 (30th)	58.1°	
“	Lowest daily mean, (during 40 yrs)		
	1885 (17th)	-0.4°	
“	Highest monthly mean, 1903	38.9°	
	Lowest monthly mean, 1885	18.5°	
Rainfall	— Greatest fall, 1859	4.05	in.
	“ Least fall, 1856, 1889	0	“
	“ Greatest for 24 hours, 1881 (19th)	1.72	“
	“ Greatest number of days rain fell, 1878	17	
“	Least number of days rain fell, 1856-89		
Snowfall	— Greatest fall, 1870	62.4	in.
	“ Least fall, 1858 and 1903	0.2	“
	“ Greatest for 24 hours, 1876 (28th)	16.2	“
	“ Greatest number days snow fell 1877,	21	
“	Least No. days snow fell, 1895-1898	1	

April

Results of Observations.		1920	Mean for 70 years.
BAROMETER	— Mean reading, 32 F. inches	29.411	29.600
	“ Highest on 25th at 9.00h	29.924	30.073
	“ Lowest on 5th at 13.02h	28.866	29.040
	“ Range	1.058	1.033
TEMPERATURE	— Highest (19th)	60.0	68.3
	“ Lowest (8th)	18.0	19.6
	“ Range for the month	42.0	48.7
	“ Mean of the highest readings	47.6	49.6
	“ Mean of the lowest readings	32.7	33.3
	“ Mean daily range	14.9	16.3
	“ Mean from max. and min.	40.1	*41.2
	“ Mean from 24 hourly observations	39.7	‡42.1
	“ Mean daily range from 24 hourly observations	14.9	
	“ Highest daily mean (20th)	49.3	
“ Lowest daily mean (8th)	29.0		
“ Highest solar (black bulb in vacuum (not in use)			
“ Lowest radiation (8th)	15.0		
HUMIDITY	— Mean	70	70
RAINFALL	— Total fall (inches)	2.67	2.15
	“ Heaviest fall (21st)	0.97	
	“ No. of days on which rain fell	13	9.9
SNOWFALL	— Total fall (inches)	5.9	2.5
	“ Heaviest fall (12th)	4.1	3.5
	“ No. of days on which snow fell	5	
CLOUD	— Mean amount of (0-10)	.60	.58

*1840—1898

‡1861—1903

Results of Observations—April (Continued)

WINDS	— Mean velocity	14.6 miles
“	Highest velocity (3rd) at 16h from S. W.	43 “
“	Highest daily average velocity (3rd)	27.2 “
“	Lowest “ “ (19th)	4.4 “
“	Days on which gales occurred	6

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
		57	153	35	15	52	162	112	131	3

No. of miles registered from each direction.	536	2667	374	58	456	2468	1920	2001	—	10480

Rain on 1st, 2nd, 4th, 5th, 11th, 12th, 15th, 21st, 22nd, 23rd, 26th, 27th and 28th. Snow on 4th, 6th, 7th, 11th and 12th. Thunderstorm on 2nd and 22nd. Fog on 27th. Blizzard on 7th. Hail on 23rd. Lunar corona, 25th. Lunar halo, 30th. Clear days 4. Cloudy days 9.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1897 (20th)	30.308	inch.
	“ Lowest reading, 1863 (2nd), 1887 (28th)	28.704	“
Temperature	— Highest, 1842 (22nd)	89.8°	
	“ Lowest, 1857 (2nd)	5.9°	
“	Highest daily mean (during 40 yrs)		
	1915 (25th)	70.4°	
“	Lowest daily mean, (during 40 yrs)		
	1919 (1st)	19.6°	
“	Highest monthly mean, 1873	48.8°	
	Lowest monthly mean, 1874	34.2°	
Rainfall	— Greatest fall, 1910	4.90	in.
	“ Least fall, 1881	0.08	“
“	Greatest for 24 hours, 1850 (3rd)	2.35	“
	Greatest number of days rain fell, 1871	17	
“	Least number of days rain fell, 1841-81	3	
	Snowfall		
“	— Greatest fall, 1857	12.9	in.
	“ Least fall, 1843-56-58-70-87-88-90-91	0.1	“
“	Greatest for 24 hours, 1901 (20th)	8.3	“
	Greatest number days snow fell 1857,	11	
“	Least No. of days snow fell, 1878-95-1900	0	

May

Results of Observations.		1920	Mean for 70 years.
BAROMETER	— Mean reading, 32 F. inches	29.696	29.577
"	Highest on 18th at 8.00h	30.138	29.967
"	Lowest on 9th at 17.56h	29.404	29.153
"	Range	0.734	0.814
TEMPERATURE	— Highest (31st)	82.6	77.9
"	Lowest (2nd)	31.0	30.9
"	Range for the month	51.6	47.0
"	Mean of the highest readings	65.2	62.0
"	Mean of the lowest readings	43.7	43.3
"	Mean daily range	21.5	18.7
"	Mean from max. and min.	54.5	*52.4
"	Mean from 24 hourly observations	54.5	53.4
"	Mean daily range from 24 hourly observations	21.2	
"	Highest daily mean (27th)	66.5	
"	Lowest daily mean (1st)	40.6	
"	Mean of dew point	41	
"	Highest solar (black bulb in vacuum (30th)	142.2	
"	Lowest radiation (5th)	26.0	
"	Monthly range	116.2	
HUMIDITY	— Mean	61	70
FORCE of VAPOUR	— Mean	0.265	0.280
RAINFALL	— Total fall (inches)	0.39	2.97
"	Heaviest fall (20th) "	0.28	
"	No. of days on which rain fell	4	12.4
SNOWFALL	— Total fall inches	0	0.1
"	No. of days on which snow fell	0	0.4
CLOUD	— Mean amount of (0-10)	.36	.57
	*1840—1898		†1881—1908

Results of Observations—May (Continued)

WINDS	— Mean velocity	9.1 miles
"	Highest velocity (1st, 3rd, 24th) at 13h, 17h and 24h from N. W., N. W., and N. E.	21 "
"	Highest daily average velocity (14th)	15.9 "
"	Lowest " " (26th)	2.8 "
"	Days on which gales occurred	0

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
	90	164	63	40	67	61	66	188	5	744
No. of miles registered from each direction.	735	1596	523	184	532	431	406	2351	—	6,758

Rain on 9th, 19th, 20th, 23rd. Thunderstorm on 19th. Fog on 24th and 25th. Eclipse of moon on 2nd. Hoar frost, 12th and 16th. Dew, 27th. Clear days 8. Cloudy days 4.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1849 (2nd)	30.241	inch.
"	Lowest reading, 1861 (6th),	28.644	"
Temperature	— Highest, 1895 (30th)	93.4°	
"	Lowest, 1867 (3rd)	24.6°	
"	Highest daily mean (during 40 yrs) 1895 (30th)	80.9°	
"	Lowest daily mean, (during 40 yrs) 1911 (2nd)	34.1°	
"	Highest monthly mean, 1911	61.3°	
"	Lowest monthly mean, 1867	46.6°	
Rainfall	— Greatest fall, 1894	9.37	in.
"	Least fall, 1920,	0.39	"
"	Greatest for 24 hours, 1894 (21st)	2.70	"
"	Greatest number of days rain fell, 1890	23	
"	Least number of days rain fell, 1920	4	
Snowfall	— Greatest fall, 1875	3.1	in.
"	Least fall, 1910 and 1913 to 1920	0	"
"	Greatest for 24 hours, 1875 (1st)	3.0	"
"	Greatest number days snow fell 1905,	5	

June

Results of Observations.		1920	Mean for 70 years.
BAROMETER	— Mean reading, 32 F. inches	29.594	29.572
"	Highest on 26th at 9.00h	29.975	29.909
"	Lowest on 21st at 7.00h	29.227	29.165
"	Range	0.748	0.744
TEMPERATURE	— Highest (10th)	92.8	86.4
"	Lowest (23rd)	46.2	40.1
"	Range for the month	46.6	46.3
"	Mean of the highest readings	76.0	72.4
"	Mean of the lowest readings	55.4	52.9
"	Mean daily range	20.6	19.5
"	Mean from max. and min.	65.7	*62.4
"	Mean from 24 hourly observations	65.2	†64.0
"	Mean daily range from 24 hourly observations	20.4	
"	Highest daily mean (29th)	75.9	
"	Lowest daily mean (21st)	54.8	
"	Mean of dew point	55	
"	Highest solar (black bulb in vacuum (11th)	147.0	
"	Lowest radiation (7th)	41.8	
"	Monthly range	105.2	
HUMIDITY	— Mean	71	73
FORCE of VAPOUR	— Mean	0.441	0.418
RAINFALL	— Total fall (inches)	2.90	2.76
"	Heaviest fall (21st)	0.87	
"	No. of days on which rain fell	14	11.7
CLOUD	— Mean amount of (0-10)	.55	.53

*1840—1898

†1881—1908

Results of Observations—June (Continued)

WINDS	— Mean velocity	8.4 miles
"	Highest velocity (21st), at 8h from East and (12th) at 23h from northeast	27 "
"	Highest daily average velocity (21st)	19.8 "
"	Lowest " " (10th)	3.9 "
"	Days on which gales occurred	0

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
	111	147	75	33	154	83	73	36	8	720

No. of miles registered from each direction.	1903	1357	738	114	1128	650	571	454	—	6,015

Rain on 1st, 5th, 8th, 11th, 12th, 13th, 15th, 16th, 17th, 18th, 21st, 22nd, 23rd, 28th. Thunderstorm on 11th, 12th, 15th, 18th and 23rd. Heavy dew on 9th, 19th, 20th, 26th. Clear days 5, Cloudy days 7.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1913 (10th)	30.160	inch.
"	Lowest reading, 1902 (25th)	28.875	"
Temperature	— Highest, 1901 (27th)	97.1°	
"	Lowest, 1842 (10th)	28.1°	
"	Highest daily mean, 1901 (27th)	82.0°	
"	Lowest daily mean, 1910 (5th)	44.8°	
"	Highest monthly mean, 1919	72.4°	
"	Lowest monthly mean, 1842	56.5°	
Rainfall	— Greatest fall, 1870	8.09	in.
"	Least fall, 1864	0.57	"
"	Greatest for 24 hours, 1892 (19th)	2.42	"
"	Greatest number of days rain fell, 1869	22	
"	Least number of days rain fell, 1864	5	
Snowfall	— Flurries on two days, 1859		

July

Results of Observations.		1920	Mean for 70 years.
BAROMETER	— Mean reading, 32 F. inches	29.577	29.585
"	— Highest on 10th at 8.00h	29.824	29.889
"	— Lowest on 23rd at 21.20h	29.143	29.420
"	— Range	0.681	0.469
TEMPERATURE	— Highest (30th)	86.6	89.8
"	— Lowest (16th)	43.8	47.5
"	— Range for the month	42.8	42.3
"	— Mean of the highest readings	76.7	77.9
"	— Mean of the lowest readings	56.1	58.2
"	— Mean daily range	20.6	19.7
"	— Mean from max. and min.	66.4	*67.8
"	— Mean from 24 hourly observations	65.3	†68.9
"	— Mean daily range from 24 hourly observations	20.5	
"	— Highest daily mean (30th)	72.2	
"	— Lowest daily mean (16th)	57.9	
"	— Mean of dew point	56	
"	— Highest solar (black bulb in vacuum (11th)	146.6	
"	— Lowest radiation (16th)	38.0	
"	— Monthly range	108.6	
HUMIDITY	— Mean	73	72
FORCE OF VAPOUR	— Mean	0.453	0.488
RAINFALL	— Total fall (inches)	3.64	3.04
"	— Heaviest fall (23rd) "	1.40	
"	— No. of days on which rain fell	13	11.2
CLOUD	— Mean amount of (0-10)	.49	.49
	*1840—1898		†1881—1908

Results of Observations—June (Continued)

WINDS	— Mean velocity	8.4	miles
"	— Highest velocity (21st), at 8h from East and (12th) at 23h from northeast	27	"
"	— Highest daily average velocity (21st)	19.8	"
"	— Lowest " " (10th)	3.9	"
"	— Days on which gales occurred	0	

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	C.	Totals.
	111	147	75	33	154	83	73	36	8	720
No. of miles registered from each direction.	1003	1357	738	114	1128	650	571	454	—	6,015

Rain on 1st, 5th, 8th, 11th, 12th, 13th, 15th, 16th, 17th, 18th, 21st, 22nd, 23rd, 28th. Thunderstorm on 11th, 12th, 15th, 18th and 23rd. Heavy dew on 9th, 19th, 20th, 26th. Clear days 5, Cloudy days 7.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1913 (10th)	30.160	inch.
"	— Lowest reading, 1902 (25th)	28.875	"
Temperature	— Highest, 1901 (27th)	97.1°	
"	— Lowest, 1842 (10th)	28.1°	
"	— Highest daily mean, 1901 (27th)	82.0°	
"	— Lowest daily mean, 1910 (5th)	44.8°	
"	— Highest monthly mean, 1919	72.4°	
"	— Lowest monthly mean, 1842	56.5°	
Rainfall	— Greatest fall, 1870	8.09	in.
"	— Least fall, 1864	0.57	"
"	— Greatest for 24 hours, 1892 (19th)	2.42	"
"	— Greatest number of days rain fell, 1869	22	
"	— Least number of days rain fell, 1864	5	
Snowfall	— Flurries on two days, 1859		

July

Results of Observations.		1920	Mean for 70 years.
BAROMETER	— Mean reading, 32 F. inches	29.577	29.585
"	Highest on 10th at 8.00h	29.824	29.889
"	Lowest on 23rd at 21.20h	29.143	29.420
"	Range	0.681	0.469
TEMPERATURE	— Highest (30th)	86.6	89.8
"	Lowest (16th)	43.8	47.5
"	Range for the month	42.8	42.3
"	Mean of the highest readings	76.7	77.9
"	Mean of the lowest readings	56.1	58.2
"	Mean daily range	20.6	19.7
"	Mean from max. and min.	66.4	*67.8
"	Mean from 24 hourly observations	65.3	†68.9
"	Mean daily range from 24 hourly observations	20.5	
"	Highest daily mean (30th)	72.2	
"	Lowest daily mean (16th)	57.9	
"	Mean of dew point	56	
"	Highest solar (black bulb in vacuum (11th)	146.6	
"	Lowest radiation (16th)	38.0	
"	Monthly range	108.6	
HUMIDITY	— Mean	73	72
FORCE of VAPOUR	— Mean	0.453	0.488
RAINFALL	— Total fall (inches)	3.64	3.04
"	Heaviest fall (23rd) "	1.40	
"	No. of days on which rain fell	13	11.2
CLOUD	— Mean amount of (0-10)	.49	.49
	*1840—1898		†1881—1908

Results of Observations—July (Continued)

WINDS	—	Mean velocity	10.1 miles
"	Highest velocity (3rd), at 17h from northwest	30	"
"	Highest daily average velocity (4th)	18.4	"
"	Lowest " " (9th)	4.7	"
"	Days on which gales occurred	1	

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
	46	85	68	22	42	197	116	161	7	744
No. of miles registered from each direction.	454	1113	633	108	393	1778	870	2182	—	7,531

Rain on 2nd, 3rd, 6th, 7th, 8th, 9th, 12th, 14th, 18th, 23rd, 24th, 29th and 31st. Thunderstorms on 2nd, 3rd, 7th, 8th, 9th, 18th, 23rd and 29th, Thunder alone on 13th. Fog on 9th. Heavy dew on 28th. Clear days 6. Cloudy days 4.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1892 (7th)	30.192	inch.
"	Lowest reading, 1911 (24th)	29.006	"
Temperature	— Highest, 1911 (3rd)	103.2°	
"	Lowest, 1843 (12th)	38.7°	
"	Highest daily mean, 1916 (30th)	87.0°	
"	Lowest daily mean, 1891 (7th)	56.4°	
"	Highest monthly mean, 1916	76.0°	
"	Lowest monthly mean, 1884	64.0°	
Rainfall	— Greatest fall, (1841)	8.15	in.
"	Least fall, (1916)	0.36	"
"	Greatest for 24 hours, 1897 (27th)	3.88	"
"	Greatest number of days rain fell, 1861, 1866-70-80, 1902, 1917	16	
"	Least number of days rain fell, 1849	4	

August

Results of Observations.		1920	Mean for 70 years.
BAROMETER	— Mean reading, 32 F. inches	29.673	29.617
"	Highest on 19th at 1.00h	29.968	29.909
"	Lowest on 31st at 5.07h	29.288	29.257
"	Range	0.680	0.652
TEMPERATURE	— Highest (7th)	88.7	87.0
"	Lowest (1st)	47.7	45.7
"	Range for the month	41.0	41.3
"	Mean of the highest readings	79.6	76.1
"	Mean of the lowest readings	60.1	57.1
"	Mean daily range,	19.5	19.0
"	Mean from max. and min.	69.8	*66.3
"	Mean from 24 hourly observations	68.4	‡66.9
"	Mean daily range from 24 hourly observations	18.2	
"	Highest daily mean (8th)	74.1	
"	Lowest daily mean (1st)	58.1	
"	Mean of dew point	60	
"	Highest solar (black bulb in vacuum (17th)	140.0	
"	Lowest radiation (1st)	43.3	
"	Monthly range	96.7	
HUMIDITY	— Mean	76	74
FORCE OF VAPOUR	— Mean	0.530	0.483
RAINFALL	— Total fall (inches)	1.00	2.77
"	Heaviest fall (21st) "	0.46	
"	No. of days on which rain fell	8	10.9
CLOUD	— Mean amount of (0-10)	.45	.49
	*1840—1898		‡1881—1908

Results of Observations—August (Continued)

WINDS	Mean velocity	7.9 miles
"	Highest velocity (22nd), at 1h from north	26 "
"	Highest daily average velocity (31st)	17.2 "
"	Lowest " " (7th and 10th)	2.9 "
"	Days on which gales occurred	0

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
	154	116	201	16	80	76	69	19	13	744
No. of miles registered from each direction.	1245	818	1825	77	548	485	635	209	—	5,842

Rain on 1st, 9th, 13th, 14th, 21st, 28th, 29th and 31st.
Thunderstorms on 13th, 14th, 21st. Dew on 7th, 12th, 15th, 20th. Clear days 8. Cloudy days 4.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1918 (19th)	30.104 inch.
"	Lowest reading, 1912 (22nd)	29.028 "
Temperature	— Highest, 1918 (13th)	102.2°
"	Lowest, 1855 (18th), 1870 (27th)	40.0°
"	Highest daily mean, 1900 (8th) and 1916 (21st)	84.8°
"	Lowest daily mean, 1912 (30th)	52.4°
"	Highest monthly mean, 1900	72.5°
"	Lowest monthly mean, 1866	60.8°
Rainfall	— Greatest fall, 1915	8.14 in.
"	Least fall, 1876	0 "
"	Greatest number of days rain fell, 1872	19
"	Least number of days rain fell, 1920	8

September.

Results of Observations.		1920	Mean for 70 years.
BAROMETER	Mean reading, 32 F., inches	29.624	29.667
"	Highest on 20th at 8.02h	29.912	30.037
"	Lowest on 12th at 16.28h	29.130	29.187
"	Range	0.782	0.850
TEMPERATURE	Highest (12th)	86.7	82.7
"	Lowest (19th)	37.2	35.7
"	Range for the month.	49.5	47.0
"	Mean of the highest readings	74.8	68.2
"	Mean of the lowest readings.	52.8	50.2
"	Mean daily range.	22.0	18.0
"	Mean from max. and min.	63.9	*58.8
"	Mean from 24 hourly observations	61.8	†60.5
"	Mean daily range from 24 hourly observations	20.3	
"	Highest daily mean (26th)	71.1	
"	Lowest daily mean (20th)	46.8	
"	Mean of dew point	53	
"	Highest solar (black bulb in vacuum (7th)	133.7	
"	Lowest radiation (19th)	34.0	
"	Monthly range	99.7	
HUMIDITY	Mean	77	78
FORCE of VAPOUR	Mean	0.423	0.393
RAINFALL	Total fall (inches)	2.00	3.18
"	Heaviest fall (16th) "	0.69	
"	No. of days on which rain fell	10	11.4
CLOUD	Mean amount of (0-10)	.32	.50
	*1840—1898	†1881—1908	

Results of Observations—September (Continued)

WINDS—Mean velocity		9.7 miles
"	Highest velocity (12th), at 18h from west	31 "
"	Highest daily average velocity (16th)	16.9 "
"	Lowest " " " (25th)	3.3 "
"	Days on which gales occurred	2

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
	239	34	171	3	84	16	147	15	11	720

No. of miles registered from each direction.	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
	1882	302	1590	28	801	172	1973	251	—	6,999

Rain on the 5th, 6th, 9th, 11th, 12th, 16th, 20th, 27th, 29th and 30th. Thunderstorms on the 6th, 11th, 12th, 16th and 27th. Fog on 27th. Aurora II. on 28th. Dew on 9th, 11th, 14th, 15th, 22nd, 23rd, 24th, 25th, 26th and 28th. Clear days 13. Cloudy days 3.

Extreme Readings

DURING 81 YEARS.

Barometer	Highest reading, 1904 (22nd)	30.243	inch.
"	Lowest reading, 1848 (29th)	28.863	"
Temperature	Highest, 1898 (2nd),	97.1°	
"	Lowest, 1896 (23rd)	27.6°	
"	Highest daily mean, 1881 (6th)	81.3°	
"	Lowest daily mean, 1883 (30th) and 1888 (30th)	41.4°	
"	Highest monthly mean, 1865	64.5°	
"	Lowest monthly mean, 1848	53.4°	
Rainfall	Greatest fall, 1843	9.76	in.
"	Least fall, 1897	0.40	"
"	Greatest number of days rain fell, 1907	19	
"	Least number of days rain fell, 1840, 1844	4	

October

Results of Observations.		1920	Mean for 70 years.
BAROMETER	— Mean reading, 32 F. inches	29.686	29.651
	“ Highest on 6th at 10.11h	30.034	30.112
	“ Lowest on 27th at 17.05h	29.066	29.066
	“ Range	0.968	1.046
TEMPERATURE	— Highest (21st)	81.0	70.3
	“ Lowest (29th)	33.0	25.5
	“ Range for the month	48.0	44.8
	“ Mean of the highest readings	64.3	54.9
	“ Mean of the lowest readings	45.5	39.1
	“ Mean daily range,	18.8	15.8
	“ Mean from max. and min.	54.9	*46.6
	“ Mean from 24 hourly observations	53.1	‡48.1
	“ Mean daily range from 24 hourly observations	16.8	
	“ Highest daily mean (21st)	64.5	
	“ Lowest daily mean (29th)	37.1	
“ Mean of dew point	46		
“ Highest solar (black bulb in vacuum (4th)	126.0		
“ Lowest radiation (30th)	30.8		
“ Monthly range	95.2		
HUMIDITY	— Mean	82	70
FORCE OF VAPOUR	— Mean	0.330	0.258
RAINFALL	— Total fall (inches)	3.65	2.40
	“ Heaviest fall (1st) “	1.11	
	“ No. of days on which rain fell	10	12.4
SNOWFALL	— Total fall inches	0.3	0.6
	“ No. of days on which snow fell	1	1.6
CLOUD	— Mean amount of (0-10)	.46	.6
	*1840—1898	‡1881—1908	

Results of Observations—October (Continued)

WINDS	— Mean velocity	9.5 miles
“	Highest velocity (1st), at 2h from north	33 “
“	Highest daily average velocity (1st)	21.9 “
“	Lowest “ “ (15th)	2.7 “
“	Days on which gales occurred	1

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
		129	32	121	1	133	40	247	23	18

No. of miles registered from each direction.	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
		1297	331	1003	8	1059	484	2488	412	—

Rain on 1st, 2nd, 11th, 16th, 18th, 19th, 25th, 26th, 27th and 31st. Snow on 1st. Fog on 14th, 15th, 17th, 18th, 19th, 20th, 21st, 28th and 27th. Dew on 3rd, 4th, 5th, 9th, 10th, 13th, 15th, 21st, 22nd, 24th. Hoar frost on 6th, 7th, 8th. Thunder on 24th. Clear days 9. Cloudy days 7.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1847 (28th)	30.396 inch.
“	Lowest reading, 1893 (14th)	28.227 “
Temperature	— Highest, 1897 (15th)	85.7°
“	Lowest, 1844 (31st)	15.9°
“	Highest daily mean, 1897 (15th)	71.0°
“	Lowest daily mean, 1887 (30th)	27.8°
“	Highest monthly mean, 1900	55.7°
“	Lowest monthly mean, 1841	41.8°
Rainfall	— Greatest fall, (1849)	5.97 in.
“	Least fall, (1901)	0.56 “
“	Greatest for 24 hours, 1849 (6th)	3.16 “
“	Greatest number of days rain fell, 1864	22
“	Least number of days rain fell, 1841	6
Snowfall	— Greatest fall, 1844	12.0 in.
“	Least fall, 1916-18-19	0
“	Greatest for 24 hours, 1875 (17th)	3.3 “
“	Greatest number days snow fell, 1869	7

November

Results of Observations.		1920	Mean for 70 years.
BAROMETER	— Mean reading, 32 F. inches	29.713	29.627
"	Highest on 6th at 11.02h	30.170	30.169
"	Lowest on 2nd at 16.00h	29.063	28.975
"	Range	1.107	1.194
TEMPERATURE	— Highest (9th)	62.4	57.9
"	Lowest (13th)	19.7	13.5
"	Range for the month	42.7	44.4
"	Mean of the highest readings	42.0	42.5
"	Mean of the lowest readings	31.5	30.1
"	Mean daily range,	10.5	12.4
"	Mean from max. and min.	36.7	*36.0
"	Mean from 24 hourly observations	36.0	‡37.1
"	Mean daily range from 24 hourly observations	9.7	
"	Highest daily mean (9th)	48.7	
"	Lowest daily mean (12th)	24.2	
"	Highest solar (black bulb in vacuum (8th)	107.0	
"	Lowest radiation (13th)	15.2	
"	Monthly range	91.8	
HUMIDITY	— Mean	84	80
RAINFALL	— Total fall (inches)	2.62	2.49
"	Heaviest fall (2nd) "	0.85	
"	No. of days on which rain fell	9	10.3
SNOWFALL	— Total fall (inches)	10.9	4.6
"	Heaviest fall (17th) "	6.2	
"	No. of days on which snow fell	8	7.3
CLOUD	— Mean amount of (0-10)	.70	.74
	*1840—1898		‡1881—1908

Results of Observations—November (Continued)

WINDS	— Mean velocity	13.8 miles
"	Highest velocity (22nd), at 14, 15 and 16h from East	41 "
"	Highest daily average velocity (22nd)	26.3 "
"	Lowest " " (27th)	4.2 "
"	Days on which gales occurred	7

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
	172	24	151	3	60	45	259	5	1	720
No. of miles registered from each direction.	1442	539	2629	36	617	778	3798	93	—	9,932

Rain on 1st, 2nd, 7th, 9th, 19th, 21st, 23rd, 24th and 27th.
Snow on 12th, 17th, 20th, 21st, 23rd, 24th and 27th. Fog on 2nd, 9th, 19th, 22nd, 24th, 27th and 30th. Clear days 0. Cloudy days 16.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1887 (30th)	30.592 inch.
"	Lowest reading, 1913 (9th)	28.327 "
Temperature	— Highest, 1903 (3rd)	70.2°
"	Lowest, 1875 (30th)	-5.0°
"	Highest daily mean, 1882 (11th)	58.0°
"	Lowest daily mean, 1891 (29th)	11.4°
"	Highest monthly mean, 1902	42.9°
"	Lowest monthly mean, 1873	27.6°
Rainfall	— Greatest fall, (1846)	5.80 in.
"	Least fall, (1904)	0.08 "
"	Greatest for 24 hours, 1861 (2nd)	3.13 "
"	Greatest number of days rain fell, 1877,	16
"	Least number of days rain fell, 1904	4
Snowfall	— Greatest fall, 1873	19.6 in.
"	Least fall, 1847 and 1850 (not measurable)	
"	Greatest for 24 hours, 1873 (27th)	9.5 "
"	Greatest number days snow fell 1869, 1873, 1892	18
"	Least No. days snow fell, 1850 and 1899	1

December

Results of Observations.		1920	Mean for 70 years.
BAROMETER	Mean reading, 32 F. inches	29.515	29.627
"	Highest on 21st at 9.03h	30.123	30.169
"	Lowest on 14th at 7.03h	28.776	28.975
"	Range	1.347	1.194
TEMPERATURE	Highest (14th)	50.7	57.9
"	Lowest (29th)	9.6	13.5
"	Range for the month	41.1	44.4
"	Mean of the highest readings	36.6	42.5
"	Mean of the lowest readings	26.3	30.1
"	Mean daily range	10.3	12.4
"	Mean from max. and min.	31.5	*36.0
"	Mean from 24 hourly observations	31.2	‡37.1
"	Mean daily range from 24 hourly observations	10.0	
"	Highest daily mean (4th)	45.9	
"	Lowest daily mean (25th)	15.6	
"	Highest solar (black bulb in vacuum (20th)	86.6	
"	Lowest radiation (29th)	5.2	
"	Monthly range	81.4	
HUMIDITY	Mean	81	80
RAINFALL	Total fall (inches)	1.89	2.49
"	Heaviest fall (14th) "	0.66	
"	No. of days on which rain fell	7	10.3
SNOWFALL	Total fall inches	11.5	4.6
"	Heaviest fall (27th) "	5.3	
"	No. of days on which snow fell	9	7.3
CLOUD	Mean amount of (0-10)	.81	.74
	*1840—1898	‡1881—1908	

Results of Observations—November (Continued)

WINDS	Mean velocity	13.8 miles
"	Highest velocity (22nd), at 14, 15 and 16h from East	41 "
"	Highest daily average velocity (22nd)	26.3 "
"	Lowest " " (27th)	4.2 "
"	Days on which gales occurred	7

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S. W.	W.	N. W.	C.	Totals.
	172	24	151	3	60	45	259	5	1	720
No. of miles registered from each direction.	1442	539	2629	36	617	778	3798	93	—	9,932

Rain on 1st, 2nd, 7th, 9th, 19th, 21st, 23rd, 24th and 27th.
Snow on 12th, 17th, 20th, 21st, 23rd 24th and 27th. Fog on 2nd, 9th, 19th, 22nd, 24th, 27th and 30th. Clear days 0. Cloudy days 16.

Extreme Readings

DURING 81 YEARS.

Barometer	Highest reading, 1887 (30th)	30.592 inch.
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"	Greatest number of days rain fell, 1877,	16
"	Least number of days rain fell, 1904	4
Snowfall	Greatest fall, 1873	19.6 in.
"	Least fall, 1847 and 1850 (not measurable)	
"	Greatest for 24 hours, 1873 (27th)	9.5 "
"	Greatest number days snow fell 1869, 1873, 1892	18
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TEMPERATURE	— Highest (14th)	50.7	57.9
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"	Mean daily range	10.3	12.4
"	Mean from max. and min.	31.5	*36.0
"	Mean from 24 hourly observations	31.2	†37.1
"	Mean daily range from 24 hourly observations	10.0	
"	Highest daily mean (4th)	45.9	
"	Lowest daily mean (25th)	15.6	
"	Highest solar (black bulb in vacuum (20th)	86.6	
"	Lowest radiation (29th)	5.2	
"	Monthly range	81.4	
HUMIDITY	— Mean	81	80
RAINFALL	— Total fall (inches)	1.89	2.49
"	Heaviest fall (14th) "	0.66	
"	No. of days on which rain fell	7	10.3
SNOWFALL	— Total fall (inches)	11.5	4.6
"	Heaviest fall (27th) "	5.3	
"	No. of days on which snow fell	9	7.3
CLOUD	— Mean amount of (0-10)	.81	.74

*1840—1898

†1881—1908

Results of Observations—December (Continued)

WINDS	Mean velocity	16.2 miles
"	Highest velocity (23rd), at 12h and 17h from West	40 "
"	Highest daily average velocity (23rd)	28.8 "
"	Lowest " " (11th)	5.8 "
"	Days on which gales occurred	8

No. of hours in the month in which the wind was	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	C.	Totals.
	117	14	170	1	65	67	289	19	2	744

No. of miles registered from each direction.	1009	230	3179	9	721	1603	5040	249	—	12040
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Rain on 1st, 4th, 5th, 13th, 14th, 22nd and 23rd. Snow on 5th, 10th, 22nd, 23rd, 24th, 26th, 27th, 29th and 30th. Fog on 9th, 13th. Lunar halo on 25th. Clear days 1. Cloudy days 18.

Extreme Readings

DURING 81 YEARS.

Barometer	— Highest reading, 1887 (1st)	30.594	inch.
"	Lowest reading, 1855 (9th), 1856 (14th)	28.459	"
Temperature	— Highest, 1875 (31st)	61.0°	
"	Lowest, 1871 (21st)	-21.0°	
"	Highest daily mean, 1911 (11th)	51.9°	
"	Lowest daily mean, 1917 (29th)	-9.7°	
"	Highest monthly mean, 1889	34.3°	
"	Lowest monthly mean, 1876	17.2°	
Rainfall	— Greatest fall, 1841	6.60	in.
"	Least fall, 1840, 1845, 1876	0	"
"	Greatest for 24 hours, 1870 (6th)	1.95	"
"	Greatest number of days rain fell, 1889 and 1911	14	
"	Least number of days rain fell, 1876	0	
Snowfall	— Greatest fall, 1872	38.0	in.
"	Least fall, 1877	0.3	"
"	Greatest for 24 hours, 1898 (4-5)	16.0	"
"	Greatest number days snow fell 1872,	24	
"	Least No. days snow fell, 1895	3	

Summary of Observations.

READINGS OF BAROMETER IN INCHES.	1920	Mean for 70 years
Mean of the year	29.621	29.619
Highest monthly mean, January	29.800	
Lowest " April	29.411	
Highest reading, January 31st	30.636	30.371
Lowest " December 14th	28.776	28.707
Range	1.860	1.664
THERMOMETER, FAHRENHEIT.		
Highest monthly mean temperature, August	69.8	
Lowest " " January	13.0	
Highest daily mean temperature, August 8th	74.1	
Lowest " " " January 31st	-9.7	
Highest temperature, June 10th	92.8	91.2
Lowest " " January 31st	-17.8	-12.0
Range for the year	110.6	103.2
Mean from max. and min.	45.9	*44.2
Mean from 24 hourly observations	45.1	†45.0
Mean humidity	75	77
Highest solar (black bulb in vacuum) June 11th	147.0	
Lowest (radiation) on January 31st	-20.3	
Yearly range	167.3	
Total fall of rain	inches 22.49	26.86
Greatest monthly rainfall, October	" 3.65	
Least " " January	" 0	
Greatest rainfall in 24 hrs, July 23rd	" 1.40	112.9
Number of days rain fell	99	66.1
Total fall of snow	inches 74.4	
Greatest monthly snowfall, January	" 24.2	
Greatest snowfall in 24 hrs., January 16th	" 10.0	62.9
Number of days on which snow fell	53	62
Mean amount of cloud (0-10)	.54	
	*1840-1898	†1881-1908

Wind Summary.

Total mileage for year	105,318
Greatest monthly mileage, December.	12,040
Greatest mileage in 24 hours (Feb. 15th)	716
Greatest mileage in 1 hour (March 16th)	46
Number of gales	49
Average velocity for year	12.0
Prevailing direction, west. Mileage, 23,464. Total hours, 1,716.	

Harbor Notes.

The following table gives the dates on which the ice formed and left Toronto harbor for the past 25 years.

(This table has been kindly furnished by the Toronto Harbor Master.)

Winter	Frozen over	Clear of ice	No. of days
1895-96	December 9th	March 28th	110
1896-97	" 22nd	" 11th	79
1897-98	" 24th	" 16th	82
1898-99	" 13th	April 8th	116
1899-00	" 28th	" 8th	101
1900-01	" 14th	" 6th	113
1901-02	" 6th	March 20th	104
1902-03	" 15th	" 15th	90
1903-04	" 14th	April 22nd	130
1904-05	" 11th	" 5th	115
1905-06	January 8th	" 1st	83
1906-07	December 8th	March 28th	110
1907-08	January 28th	" 29th	61
1908-09	" 7th	" 31st	83
1909-10	December 29th	" 20th	81
1910-11	" 10th	" 31st	111
1911-12	January 6th	April 16th	101
1912-13	" 9th	March 20th	70
1913-14	" 14th	April 2nd	78
1914-15	December 15th	" 2nd	108
1915-16	" 27th	" 3rd	98
1916-17	" 11th	March 28th	107
1917-18	" 11th	April 5th	115
1918-19	January 5th	January 9th	4
1919-20	December 17th	March 28th	103
longest time frozen, 1831-32,	Nov. 10th to Apr. 15th,		162 days
shortest " " 1918-19	January 5th to 9th.		4 "

Absolute Extremes

DURING 81 YEARS

Readings of the barometer, in inches.

Highest yearly mean, 1849,	29.668
Lowest " " 1864,	29.560
Highest monthly mean, February, 1906,	29.819
Lowest " " April, 1920,	29.411
Greatest monthly range January, 1870,	2.04
Least " " June, 1841,	0.42
Highest reading, January 8th, 1836,	30.94
Lowest " January 2nd, 1870,	28.16
Extreme range	2.77

Temperatures.

Highest reading on July 3rd, 1911	103.
Lowest reading on January 10th, 1859,	-28.
Highest daily mean temperature, July 3rd, 1911,	90.
Lowest " " " " Jan. 13th, 1914,	-16.
Highest monthly mean, July, 1916,	76.
Lowest " " February, 1875,	10.
Highest yearly " 1919,	48.
Lowest " " 1875,	40.

Rainfall, in inches.

Greatest fall in 24 hours, July 27th, 1897,	3.3
Greatest rainfall in a month, September, 1843,	9.7
Greatest rainfall in a year, 1843,	43.1
Least " " " " 1874,	17.4
Greatest number of rainy days in a month, May, 1890,	11
Greatest number of rainy days in a year, 1890,	11
Least " " " " " " " 1841,	6

Absolute Extremes

DURING 81 YEARS—(Continued)

Snowfall in Inches.

Greatest fall in 24 hours, March 28th. 1876,	16.2
Greatest fall in a month, March, 1870,	62.4
Greatest fall of snow in a year in 1870,	122.9
Least " " " " " " " 1919,	28.7
Greatest fall in any winter, 1869-70,	123.5
Least fall in any winter, 1877-78 and 1905-06,	30.2
Greatest No. of days of snow in a month, Dec. 1870 and December 1872	24
Greatest number of days of snow in a year, 1859,	87
Least " " " " " " " " 1848,	33

Dates of Certain Periodic Events.

	EXTREME	1920
Latest snow.....	June 4, 1859	April 12th
Earliest snow.....	Sept. 25, 1860	Oct 1st
Latest hoar frost.....	June 20, 1862	May 16th
Earliest hoar frost.....	Aug. 26, 1863	Oct. 6th
Earliest thunder & lightning	Jan. 12, 1898	March 29th
Latest thunder and lightning	Dec. 23, 1871	Oct. 24th

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY—1920.

Month.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
January.	3.4	4.8	5.5	8.0	2.4	0	0	0	0	3.3	2.7	0.3	2.4	3.6	7.8	0	5.1
February.	2.2	4.3	2.6	1.4	0	7.2	0	5.3	2.4	2.9	0.6	0	1.6	0	0.3	7.5	0
March.	9.3	6.3	6.4	7.3	0	8.8	9.0	5.7	1.4	6.9	0	1.6	0	10.2	5.3	4.3	0.6
April.	4.0	0.7	11.0	0	0	8.1	4.0	8.3	4.2	2.8	0	0	4.6	4.9	7.2	9.1	11.9
May.	6.9	9.9	8.9	9.7	13.5	12.7	12.8	8.3	4.3	0.1	7.1	10.5	3.6	11.8	13.4	12.6	9.7
June.	8.3	7.4	12.4	8.2	T.	6.8	9.8	6.6	9.7	13.1	4.0	3.4	6.5	12.0	10.5	0	2.1
July.	4.9	5.8	11.1	10.4	12.0	2.6	2.5	8.1	5.4	14.2	8.6	5.0	8.4	4.3	14.3	11.9	12.9
August.	4.7	1.3	13.3	13.2	6.6	11.3	7.7	10.2	0.6	3.9	10.4	5.1	0.4	1.8	10.7	3.0	8.2
September.	12.6	12.6	11.5	9.7	3.4	6.5	8.3	9.0	4.5	8.6	2.3	9.7	6.5	9.7	10.2	10.9	11.2
October.	0	2.6	2.2	8.3	7.6	10.4	10.5	9.1	9.1	9.0	1.2	8.7	8.6	7.5	8.3	2.7	2.9
November.	0	0.7	2.3	0.7	4.8	2.9	0	6.5	2.4	4.1	4.4	6.0	0	7.2	3.7	0	0
December.	0	8.0	2.2	0	0	0	0.9	1.9	3.5	0	0	3.1	0	1.5	0	0	0.9

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY—1920. (Continued).

Month.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Monthly Total	Monthly Percentage.
January.	8.4	0.8	0	6.7	3.0	0	1.9	8.7	2.7	0	8.9	0	0.7	6.8	97.9	34
February.	8.1	7.0	9.7	7.0	9.5	0	9.4	10.0	9.1	9.1	0	10.3			127.5	42
March.	10.5	0	6.0	9.6	10.5	10.4	10.2	8.6	5.7	1.6	7.1	0.5	8.6	9.6	182.0	49
April.	12.3	10.8	0.7	0	1.3	4.0	13.1	12.3	5.0	0	1.4	2.2	3.2		147.2	37
May.	2.5	6.2	10.0	10.8	11.3	1.5	0.1	9.9	14.0	11.9	13.1	14.3	14.3	10.1	285.8	63
June.	3.9	12.7	10.1	0	0.2	10.4	13.5	14.1	13.1	9.1	6.7	5.2	14.3		224.1	48
July.	1.1	7.4	12.6	10.1	8.4	3.3	5.8	10.8	10.6	13.4	5.9	2.8	11.5	8.4	254.5	55
August.	12.7	11.0	10.1	6.8	7.7	12.7	8.7	12.2	5.9	6.8	0	9.3	10.4	5.3	232.0	54
September.	7.6	11.3	0	10.8	9.9	9.3	10.0	9.5	9.7	5.4	10.4	1.8	0		242.9	65
October.	0	4.8	2.8	5.9	8.0	9.2	1.9	2.0	0	1.3	3.9	3.2	7.2	0	158.9	46
November.	1.1	0	0	0	0	0	0	0	0	0	0	0	1.7		48.5	17
December.	1.5	3.8	6.4	0.1	0	0	1.4	4.0	0	1.2	5.1	0	0	0.7	46.2	16

MONTHLY TABLES FOR EACH HOUR OF RECORDED SUNSHINE—1920

HOURS ENDING. Local time	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
January.	0	0	0	0	0.2	6.7	10.0	12.9	13.7	14.7	11.5	13.8	10.3	4.1	0	0	0
February.	0	0	0	0	4.5	12.7	14.3	13.4	14.9	15.6	16.4	13.5	10.4	9.8	2.0	0	0
March.	0	0	0	0.1	9.0	16.9	17.9	18.7	20.3	20.0	18.8	20.6	18.5	14.9	6.3	0	0
April.	0	0	1.5	9.3	15.4	15.3	15.7	14.9	15.6	12.0	11.1	9.4	10.1	8.4	6.3	2.2	0
May.	0	0	8.1	18.4	19.8	21.4	21.8	21.9	21.7	22.0	22.6	23.2	23.0	22.6	20.9	16.5	1.9
June.	0	0	6.6	14.3	15.5	16.4	18.7	18.9	19.0	19.2	17.7	18.7	16.7	14.6	15.3	10.7	1.8
July.	0	0	8.9	17.7	19.3	20.3	20.5	18.6	18.2	18.0	19.4	19.6	16.3	17.2	17.6	17.0	5.9
August.	0	0	1.0	10.7	18.2	20.5	19.5	20.3	20.0	20.2	20.1	21.0	21.2	17.4	14.6	7.3	0
September.	0	0	0.1	4.8	15.6	21.8	22.8	25.0	27.8	23.9	23.9	24.1	23.6	22.1	9.3	1.1	0
October.	0	0	0	0.4	7.3	14.5	17.5	17.2	19.0	15.9	17.0	20.4	19.1	9.3	1.3	0	0
November.	0	0	0	0	1.8	5.2	6.8	6.4	7.2	6.4	6.7	4.8	2.9	0.3	0	0	0
December.	0	0	0	0	0.1	2.1	3.0	6.0	7.9	8.2	6.5	6.7	4.9	0.8	0	0	0
	0	26.2	75.7	126.7	173.8	188.5	194.2	205.3	196.1	191.7	195.8	177.0	141.5	93.6	54.8	9.6	

SUMMARY OF SUNSHINE.

BRIGHT SUNSHINE RECORDED.

	1920			Mean from 1882 to 1910.		
	Number of days.	Number of hours	Percentage of sunshine.	Number of days.	Number of hours.	Percentage of sunshine.
January	22	97.9	34	20	77.9	27
February	22	127.5	42	22	108.1	37
March	27	182.0	49	25	150.0	40
April	24	147.2	37	25	190.7	47
May	31	285.8	63	29	218.9	48
June	27	224.1	48	29	260.0	56
July	31	254.5	55	30	282.2	60
August	30	232.0	54	30	252.7	60
September	28	242.9	65	28	207.8	55
October	27	158.9	46	28	149.3	44
November	14	48.5	17	22	85.3	29
December	17	46.2	16	20	65.2	24
Year	300	2047.5	46	308	2048.1	46

EARTHQUAKE RECORDS BY MILNE SEISMOGRAPH.

P.T.—Preliminary Tremors. S.—Secondary Waves. L.W.—Large Waves. Time is Greenwich Civil Mean Time, and is given in hours, minutes, and decimals of minutes; 0 or 24h—Mid.

REGISTER FROM TORONTO, ONTARIO.

No.	Date 1920.	P.T.		S		L.W.		Max.		End.		Max Amplitude. MM.	REMARKS.
		H.	M.	H.	M.	H.	M.	H.	M.	H.	M.		
2085	Jan. 1					13	01.8	13	10.5	Micros		0.3	Micros mask early phases.
2086	" 1					13	6.4			Micros		0.2	Gradual thickening well mar'd. 3,610 km. Disastrous Mexican quake.
2087	" 4	4	27.6	4	33.0	4	41.9	4	47.8	5	23.6	1.	
2088	" 12		4 28.8			4	43.4					0.1	
2089	" 12					14	16.7					0.2	May not be seismic.
2090	" 13	23	27.5?			14	22.7	14	46.5			0.3	
2091	" 14					14	39.1					0.2	
2092	" 14	15	41.8			14	44.2					0.2	
2093	" 14					23	54.0	0	13.5		54.5?	0.3	
2094	" 15					0	0.1					0.2	
2095	" 20					1	2.1	1	19.8	1	22.6?	0.2	May not be seismic.
2096	" 22					1	18.6					0.8	
2097	" 22					15	49.2	15	54.7	16	51.6	0.3	Gradual thickening.
2098	" 24					15	50.5					0.2	
2099	" 30	18	37.0?	18	43.3	17	33.3					0.1	
2100	" 30					12	37.6	12	49.7			0.2	
2101	Feb 1					17	0.4	17	01.8	1	17.6	0.2	May not be seismic.
2102	" 2					22	25.1	22	30.2	22	45.0	0.3	Gradual thickening.
2103	" 2					23	58.3	23	59.3	0	6.4	0.2	
2104	" 3					7	17.9					0.1	May not be seismic.
2105	" 7					7	37.9					1.3	Small micros interfere with P. Micros going on.
2106	" 7					18	47.5	18	49.9			0.2	
2107	" 8											0.2	
2108	" 10											0.2	
2109	" 10											0.2	
2110	" 10											0.2	
2111	" 10	22	13.3	22	18.0							3.0	P well defined. Possibly West Indies. 2,990 km.
2112	" 12	0	31.1			22	20.4	22	25.2	1	26.3	0.2	
2113	" 15	0	33.1			0	42.1	0	44.2	1	15.2	0.2	
2114	" 20					15	47.1			15	50.5	0.05	May not be seismic.
2115	" 22					12	37.2?					0.05	Small micros going on.
2116	" 28					17	54.0	Changing paper				0.2	Gradual thickening.
2117	" 28					17	57.1	16	7.1	16	12.2	0.05	P. and S. not recorded.
2118	Mar 9					19	6.1	19	53.3			0.2	
2119	" 10					19	10.9					0.05	
2120	" 12					4	51.9					0.05	Micros at intervals.
2121	" 12					16	32.2					0.1	
2122	" 13					16	27.9?					0.2	Micros.
2123	" 15	12	25.1?	12	34.7	18	31.3					0.3	Micros.
2124	" 20					18	37.2	5	7.9			2.4	8,330 km.
2125	" 20					5	4.8	13	11.8	14	23.1	0.2	
2126	" 20					13	4.7					0.2	
2127	" 20					0	7.6	0	8.5	0	10.7	0.2	
2128	" 20	Att'g ins't		18	9.6?	18	12.4			18	22.2	0.2	May be West Indies.

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No.	Date 1920	P. T. Commence.	S. Commence.	L. W. Commence.	Max.	End	Max. Amplitude.	REMARKS
2126	Mar 20	18 42.8	18 54.8	19 7.6 19 17.2	19 18.6	20 59.3	1.4	Repeat 20h 45.5m.
2127	" 22			2 0.7 2 20.5			0.2	L waves abnormal.
2128	" 22		20 42.3?	20 58.5 21 2.1	21 5.7	21 40.8	0.5	
2129	" 23	15 25.2?	15 32.3	15 36.4 15 41.1	15 45.6	16 16.2	0.7	5,440? km.
2130	" 29		5 20.6	5 26.0 2 10.4	5 27.5 2 17.7	6 21.9?	2.2	4,414 km.
2131	April 2			2 11.5 2 9.9		2 47.3	0.2	
2132	" 6		17 3.2?	17 9.9 19 37.1?			0.05	Light turned down at 17h 13m.
2133	" 6			19 46.2 20 4.3	20 17.8		0.1	
2134	" 6			20 16.3 21 12.4	21 17.8	21 23.6	0.2	
2135	" 6			15 7.4 15 10.8			0.05	
2136	" 9			23 30.7 23 48.9			0.05	
2137	" 11			22 57.3 23 03.3	23 4.3	23 39.0	0.3	
2138	" 16			21 26.3?				Paper being paid out irregularly Reading doubtful.
2139	" 18							P very minute. May be a dual quake.
2140	" 19	21 13.4	21 17.6 21 19.0	21 30.0	21 33.0		0.4	
2141	May 7			6 50.5	7 8.4	7 44.7?	0.3	
2144	" 9			8 31.1			0.1	
2145	" 10	19 11.4?	19 18.3?	19 22.8 19 23.9	19 32.0			L 19 49.8
2146	" 10			20 3.6	20 5.6 20 20.0	20 36.4	0.4	L 20 16.9
2147	" 12		2 20.6?	2 26.9 2 44.9	3 9.3		0.5 2.8	Time of early phases doubtful. Repeat L 3 58.7.
2148	" 14			18 31.3?			0.05	
2149	" 19			13 39.4 13 52.5			0.1	
2150	" 20		7 56.4?	8 27.7 8 37.9	8 40.0	9 58.0	0.5	Repeat L 9 36.4.
2151	" 21			17 36.2 17 51.6			0.2	May not be seismic.
2152	" 22			17 13.1	17 15.3	17 20.3	0.2	
2153	" 26			13 17.6	13 21.6	13 48.1?	0.3	Thickening.
2154	" 30			21 4.3 21 18.1?			0.1	Micros going on.
2155	June 2			22 17.8 22 19.3	22 19.9	Micros	1.0	
2156	" 4			15 31.2 15 37.3			0.1	
2157	" 5	4 36.3?	4 47.3	5 1.4 5 23.5	5 24.9 5 26.2	7 30.8	3.0	10,056 km. P very minute and ill defined.
2158	" 9			11 56.1 12 18.1			0.2	No distinct phases.
2159	" 9			12 46.3	12 55.6	13 21.1	0.4	
2160	" 9			12 50.4 13 44.2 13 57.1			0.2	Doubtful as to being seismic,

No.	Date 1919	P.T. Commence.	S. Commence.	L.W. Commence.	Max.	End.	Max. Amplitude.	REMARKS.
2161	June 18			10 37.4?			0.05	
2162	" 22			3 4.9 to 3 23.9			0.1	
2163	" 30			4 56.4	4 58.6	5 9.3	0.4	Uniform thickening.
2164	" 30			5 30.9?			0.3	Doubtful as to being seismic.
2165	July 2			19 38.7	19 51.9	Micros	1.3	Thickening. P masked by micros
2166	" 2			19 43.6				
2167	" 3			21 42.2	21 52.1	22 7.8	0.2	
				16 52.5 to			0.2	Boom vibrating to 16h 51.5m from local causes. Light off till 16h 50.5m.
2168	" 4			16 58.7				
				0 52.6?			0.2	
				0 57.6				
	" 4	Between	15 23.7	&15 30.0	a marked	d oscillation	0.4	amp. Do not think it seismic.
2169	" 6			3 37.6		3 40.4	0.2	
2170	" 6			4 8.1	4 11.1	4 18.9	0.4	Gradual thickening.
2171	" 7			19 2.6	19 2.9	19 36.1	0.9	
2172	" 16			17 32.7	17 33.9	Micros	0.3	Marked micros.
2173	" 26			5 17.5?	5 30.5	5 35.0	0.3	Micros.
				5 29.2				
				3 20.8?			0.2	Micros going on.
2174	Aug 3			20 33.3	20 47.5	Micros	1.4	P preceded by minute micros.
2175	" 3	20 6.6?	20 19.2	20 42.5				
		20 11.4		20 13.4	20 15.6	Micros	0.8	
2176	" 11			6 39.5	6 42.1	6 45.9	0.2	Gradual thickening.
2177	" 12			2 22.0	2 23.3	2 32.5	0.2	
2178	" 13			8 46.9	8 49.7	10 45.5	0.7	
2179	" 15			17 2.4	17 10.3	17 38.8	0.7	Light off 16h 38m.
2180	" 20			22 53.8		22 59.8	0.2	May not be seismic.
2181	" 26						0.1	may not be seismic.
2185	" 4	15 12.9	15 19.7	15 27.5	15 29.5	16 0.7	0.3	
2186	" 7			6 31.3	6 33.4	6 41.1	0.2	
2187	" 8		2 12.1	2 14.9	2 15.9?	4 9.8?	0.5?	Faint trace. Italian quake.
					2 57.8		0.8	
2188	" 9	19 15.2?	19 25.1	19 54.9	20 16.6	21 32.6	0.5	P. preceded by minute micros.
				19 58.8				
2189	" 18			0 7.7	0 11.8	0 18.0	0.8	Difficult to interpret.
2190	" 20	14 57.7	15 8.5	15 15.3	15 49.8?	18 32.6	23.0?	Trace rather faint.
				15 40.3				
2191	" 21			3 38.9	3 46.4	3 51.2	0.3	Micros 3h 23.3m to 3h 25.1m.
2192	" 24		22 8.7	22 12.4	22 17.4	23 6.4	2.0	P. not recorded.
2193	" 24			23 46.6		23 49.9	0.2	
2194	" 27			5 30.9?	5 45.5	6 30.9	0.9	
				5 42.1				
2195	Oct. 1	Light off	at 19 06	to 19 10.	Quake missed.			Attending instrument.
2196	" 7		21 9.0	21 17.4	21 18.8?	Micros	0.6	Marked micros going on.
2197	" 8		17 4.5	17 8.8	17 9.9	Micros	0.4	Small micros going on.
2198	" 12			7 53.9		7 56.9	0.1	
2199	" 15			14 54.5		14 57.5	0.2	
		8 26.4?	8 34.7	8 42.8	9 5.9?	9 56.7	1.0	Faint record.
				8 58.4				
2200	" 18			13 12.9	13 22.1		0.4	Faint trace.
				13 20.1				
2201	" 20			11 7.6	11 10.5	11 28.5	0.3	
2202	" 22			12 5.7		12 8.8	0.1	May not be seismic,
2203	" 22		12 29.5		12 31.7	13 30.1?	1.2	P. indistinct.
2204	" 24			2 34.1	2 43.0		0.2	
				2 42.2				
2205	" 26			19 25.8		19 28.8	0.2	
2206	" 28			7 59.2	8 1.1	8 25.5	0.3	
2207	" 28	13 1.2	13 11.0	13 25.5	13 12.1	14 8.1	0.8	8560 km. Quake in Chili. SR1— 13 15.9. SR2—13 19.7.

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No.	Date 1920	P. T. Commence.	S. Commence.	L. W. Commence	Max.	End	Max. Amplitude.	REMARKS	
2208	Nov. 4			2 22.3			0.2		
				2 27.6					
2209	" 6			10 58.4	11 2.3	11 24.9	0.3	e10h 54.9m.	
				11 0.6					
2210	" 8	Micros	at intervals.	Fee	ble	shocks	reported	from	
	" 12			6 11.8	6 18.6	6 38.7	0.4	Joliette, Que. e6h 02m.	
				6 13.9					
2211	" 16		8 44.2?	8 47.2	8 51.3	9 35.6	1.2	P. not recorded. S. indistinct. Lat. 28° 24' N. Long. 115° W.	
				8 50.5					
2212	" 26			9 33.5	9 34.6	9 54.9	0.2		
2213	" 28			11 46.9		11 57.9	0.2		
2214	" 29		8 18.0	8 21.3	8 30.8	8 51.3	0.3	Alaska.	
				8 22.8					
2215	Dec. 5			10 40.7	10 43.8	11 18.2	0.6		
2216	" 7			15 33.7			0.3	Continuous L. waves.	
				15 41.0					
2217	" 7			15 52.1			0.2	" " "	
				15 56.8					
2218	" 7			16 25.9			0.2	" " "	
				16 30.7					
2219	" 10		4 49.1?	5 1.0	5 30.5	7 23.0	1.0	May be a dual quake.	
			4 52.2	5 12.4					
2220	" 11		21 34.4	21 40.6	21 42.6	22 8.0	1.0	S. not well defined.	
2221	" 13	e 4	42.3	4 47.5	5 4.3	5 19.7	0.3		
				5 3.0					
				12 30.3?	12 48.0	13 2.8	16 57.0	44.0?	Destructive. Kansu, China.
				12 49.1					
				19 35.9	19 53.3	20 14.0	0.4	Quake reported from Mendosa, also from Albania.	

Number of Seismic disturbances recorded at Toronto from 1899 to 1920 inclusive, and for the complete period of 22 years.

YEAR	Jan	Feb	Mar	Apr	M'y	J'ne	Jul	A'g	Sep	Oct	N'v	Dec	Year.
1899	6	4	6	6	2	9	23	13	31	13	18	9	140
1900	21	5	10	3	3	11	7	9	5	12	8	8	102
1901	8	8	7	8	7	2	3	6	4	6	10	16	85
1902	13	7	9	5	0	2	3	6	5	5	4	4	63
1903	7	9	3	6	2	5	5	5	4	4	4	4	58
1904	3	3	7	4	6	8	3	5	8	2	4	3	56
1905	4	5	8	8	4	5	8	0	4	5	7	10	68
1906	15	17	11	12	1	12	5	8	6	4	3	9	103
1907	5	2	4	9	9	6	2	7	2	4	5	3	58
1908	2	7	4	3	3	1	3	6	4	4	8	3	48
1909	5	4	2	8	9	3	5	5	1	7	4	3	56
1910	6	10	4	5	8	14	4	3	13	8	12	9	96
1911	5	9	3	6	7	8	7	5	7	13	10	10	90
1912	8	2	2	5	8	67	10	7	7	6	11	14	147
1913	8	4	10	9	6	6	13	9	5	14	5	4	93
1914	5	9	15	7	9	6	9	11	6	16	12	7	112
1915	15	4	6	9	19	16	4	8	13	8	7	9	118
1916	13	11	11	14	7	12	3	15	11	13	12	8	130
1917	6	9	6	6	18	20	20	8	3	9	12	13	130
1918	9	15	11	8	10	15	13	9	11	17	12	16	146
1919	8	5	10	12	21	8	16	10	12	8	10	12	132
1920	16	17	13	10	14	10	9	10	11	13	7	10	140
Total	188	166	162	165	173	246	175	165	173	191	185	184	2171

Of the total in June 1912, there were recorded: 6 on the 4th, 6 on the 6th, 17 on the 7th, 14 on the 8th, 9 on the 9th, 6 one the 10th. Total 58. These may not all be different quakes, some may be aftershocks. They were centred in Alaska.

Number of Seismic disturbances with amplitude of 5 mm. over, recorded at Toronto in each year from 1899 to 1920 inclusive.

Year.	5 mm. to 10 mm	10 mm to 15 mm.	15 mm to 25 mm.	25 mm. and over.	Total
1899	4	2	--	3	9
1900	3	-	2	1	6
1901	4	-	-	-	4
1902	4	-	1	1	6
1903	1	-	1	-	2
1904	2	1	1	-	4
1905	1	1	1	-	3
1906	-	-	4	1	5
1907	2	1	2	-	5
1908	2	-	-	-	2
1909	1	-	-	-	1
1910	1	-	2	-	3
1911	3	1	1	-	5
1912	7	-	1	-	8
1913	1	-	-	-	1
1914	1	-	-	-	1
1915	2	2	-	2	6
1916	4	2	-	1	7
1917	3	2	1	3	9
1918	3	3	-	1	7
1919	4	-	-	1	5
1920	1	-	1	1	3
Total.	54	15	18	15	102

Number of Seismic disturbances with amplitude of 5 mm. over recorded at Toronto from 1899 to 1920 inclusive, showing the months in which they occurred.

Month.	5 mm. to 10 mm.	10 mm. to 15 mm.	15 mm. to 25 mm.	25 mm. and over.
January.	9	-	5	2
February.	3	-	-	1
March.	2	-	1	-
April.	2	3	2	3
May.	8	1	-	1
June.	5	4	2	1
July.	5	1	2	-
August.	3	1	2	-
September.	1	1	2	3
October.	3	-	2	3
November.	6	1	-	-
December.	7	3	-	1

MAGNETIC SUMMARY FOR 1920

Toronto (Agincourt) Observatory. Latitude 43° 47' N. Longitude 79° 16' W.
 Mean values are from hourly measures of the photographic D, H and Z curves. H and Z are given in
 C. G. S. units. I is obtained by formula $H \tan I = Z$.

1920	MEANS.							EXTREMES.					
	D. West		H.		Z		I	D West		H		Z	
	Mean	Daily range	Mean	Daily range	Mean	Daily range	Mean	Max.	Min.	Max.	Min.	Max.	Min.
January	6 43.4	8.6	.15884	.00035	.58230	.00007	74 44.5	6 59.2	6 27.6	.15920	.15822	.58253	.58200
February	43.7	9.4	.15881	31	.58224	9	44.4	7 08.0	6 24.2	.15918	.15764	.58281	.58184
March	44.8	11.2	.15858	70	.58221	22	45.8	8 44.9	4 57.2	.16310	.15118	.58754	.57685
April	44.5	11.9	.15864	50	.58202	25	45.2	7 20.2	6 09.1	.16018	.15564	.58402	.57988
May	44.7	12.9	.15876	49	.58179	18	44.2	7 08.6	6 22.3	.15984	.15599	.58276	.58030
June	44.1	13.5	.15877	43	.58164	14	43.9	6 58.5	6 22.2	.15989	.15737	.58260	.58087
July	45.1	14.2	.15872	46	.58146	16	43.9	7 07.0	6 12.8	.15993	.15783	.58244	.58039
August	46.3	13.9	.15867	48	.58139	17	44.1	7 13.7	5 55.9	.16154	.15730	.58426	.58052
September	46.9	11.9	.15849	58	.58129	37	44.9	7 44.6	5 47.6	.16220	.15394	.58516	.57944
October	47.1	9.2	.15846	42	.58122	15	45.0	7 34.3	6 20.1	.15892	.15473	.58174	.57945
November	47.2	8.7	.15851	29	.58115	12	44.6	7 04.7	6 14.0	.15893	.15753	.58312	.58044
December	47.5	6.5	.15856	28	.58122	10	44.5	7 17.9	06.7	.15905	.15715	.58209	.58022
Year	45.4	11.0	.15865	.00044	.58166	.00017	74 44.6						

Phenological Observations, 1920

DATE WHEN FIRST SEEN.

Alder, shedding pollen.	April	1	Wild raspberry, in bloom	June
Canada Thistle in bloom	July	20	Cultivated currant "	May
Trailing Arbutus	"	May 3	Strawberry, wild "	May
Dandelion	"	May 12	Strawberry, wild, ripe	June
Violet, Blue	"	May 12	Apple trees, in bloom	May
Violet, White	"	May 13	Robins	March
Columbine	"	May 31	Meadow Larks	March
Trees appear green	May	20	Blue Birds.....	March
White Clover, in bloom	June	6	Flickers	April
Wild Rose	"	June 20	Song Sparrows.....	March
Trillium	"	May 15	Bobolinks	May
Maple	"	March 28	Swallows.....	May
Crocus	"	March 28	Orioles	May
Lilac	"	May 22	King Birds.....	May
Buttercup	"	June 18	Bronzed Gackles	March
Hepatica	"	April 4	Mourning Dove	May
Elm	"	April 19	Frogs Piping.....	April
Blood root	"	May 1	Frost out of ground.	March
Dutchman's pipe	"	May 12	Rivers open.....	March
Marsh marigold	"	May 11	Ploughing.....	April
Golden rod	"	Aug 4	Sowing.....	May
Plum	"	May 23	Hay Cutting.....	July
Cherry, wild	"	May 21	Grain Cutting.....	July
Cherry, cultivated	"	May. 19	Potato Planting	May

