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KG
11366
.663

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To reduce measures from gauge C, allow 0.011 inches for every eighth of an ounce, and add as follows.

Under 2 ounces	0.000	Under $13\frac{3}{4}$ ounces	0.003
" $5\frac{7}{8}$ "	0.001	" $17\frac{5}{8}$ "	0.004
" $9\frac{7}{8}$ "	0.002	" $21\frac{1}{2}$ "	0.005

Ar. co. log for reduction from gauge C 8.94575

Ar. co. log for reduction of snow measures

With glass tube $1\frac{7}{8}$ inches across inside 9.79770

" " " $1\frac{8}{10}$ " " " 9.83315

" " " $1\frac{13}{16}$ " " " 9.82714

gauge 31 take .003 of amt.

{Names of clouds on Poëy's system}	{Abbreviations used here}	
Cumulus	M	P is used to denote
Pallio-cumulus	Pm	clouds which may be
Fracto-cumulus	Fm	considered as either
Cirrus	R	Pm or Pr.
Pallio-cirrus	Pr	
Cirro-stratus	Rs	See book Q5, p. 4,
Cirro-cumulus	Rm	for further explanation.

Scale of wind

1	1 to 2 miles an hour.
2	3 " 5 " " " "
3	6 " 14 " " " "
4	15 " 29 " " " "
5	30 " 39 " " " "
6	40 " 59 " " " "
7	60 " 69 " " " "
8	70 " 79 " " " "
9	80 " 99 " " " "
10	100 or more

Formulas for declination of magnetic needle.
U. S. Coast Survey Report for 1879 pp. 163, 171.

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January 1886.

Day	Temp. 7 A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds
1	11.0	29.908	42.4	45.2	38.3	44.4	47.0	45.0	4 1/4	0.375	2 NW	1 M fm
2	10.9	30.338	38.8	37.8	30.1	37.1	46.0	38.0	0		2 N	0
3	10.2	30.425	41.2	39.1	36.9	38.4	43.5	39.7	0 1/2	0.044	2 SE	10 P
4	11.5	30.154	42.0	43.6	36.1	42.7	43.1	43.2	0 1/4	0.022	2 E	10 P
5	10.8	29.524	46.0	50.6	42.3	49.2	51.9	49.4	11	0.971	3 SE	10 Pm fm 11 ; some rain
6	10.4	29.460	41.4	35.2	30.0	34.9	51.2	36.0	0 1/2	0.044	2 W	0
7	10.0	29.552	32.6	17.9	15.4	17.1	37.6	20.0	0		3 NW	0 P fm
8	10.3	29.897	26.8	16.3	7.1	15.8	24.0	17.5	0		2 SW	0
9	11.0	28.763	25.1	11.2	6.0	10.3	25.4	13.0	sea fr. 4		4 N	10 P ; a little snow
10	10.1	29.147	24.4	11.1	5.6	10.2	25.4	13.0	sea fr. 4	1.339	3 SW	5 P2 Rs
11	10.7	29.739	not at 8 A.M. 15.0	9.5	0.5	8.9	14.9	11.0	0		2 W	2 P2 Rs
12	11.0	30.211	not at 8 A.M. 15.0	-5.5	-12.9	-6.0	14.3	-1.0	0		2 NW	0
13	11.3	30.476	not at 8 A.M. 15.0	7.4	-10.0	6.3	7.8	8.5	0		0 calm	6 P2 Rs
14	12.5 P.M. 12.5	30.664	"	17.2	-4.4	16.9	19.3	19.4	0		2 N.W.	none.
15	11.4	30.494	20.2	19.5	0.9	19.0	20.4	20.0	0		1 NW	4 Rs fm →
16	11.4	30.203	22.7	25.5	8.8	24.9	27.2	25.7	0		2 NW	10 P
17	11.0	29.660	30.2	34.9	24.4	34.1	34.5	34.5	0 3/8	0.033	1 SW	1 fm ⇒
18	10.8	30.024	29.8	24.2	19.0	23.5	38.9	25.0	0		2 NW	0
19	10.9	30.082	28.9	24.8	17.3	24.1	28.3	25.3	1 1/4	0.110	2 NE	10 P2
20	11.9	30.256	33.0	30.6	22.3	30.0	36.9	31.0	7 7/8	0.695	1 W	0
21	10.3	30.147	30.6	34.4	20.6	33.7	34.0	34.0	0		1 S E	10 P
22	10.4	29.902	34.9	34.4	31.1	33.9	38.6	34.5	2	0.177	3 N	10 P
23	10.2	30.050	34.1	23.6	23.0	23.0	35.1	24.8	0		3 NW	1 Rs
24	11.3	30.409	19.0	5.1	-1.9	4.5	25.0	7.0	sea fr. 5		2 N	10 R ; snowing
25	10.5	30.394	19.6	11.4	4.0	10.3	11.8	12.4	sea fr. 5		2 N	10 R ; snowing
26	11.0	30.617	27.0	31.8	10.4	30.8	31.4	31.3	sea fr. 5	1.090	1 N	10 P
27	10.0	30.202	31.3	29.8	28.0	29.0	37.6	30.0	0		3 NE	10 P
28	10.6	29.822	32.2	32.8	26.0	32.1	32.6	32.6	7 3/4	0.684	2 N	9 P ; raining
29	10.5	29.423	33.1	31.6	29.6	31.0	32.7	31.7	6 1/2	0.574	2 NE	9 P
30	10.5	29.416	34.7	34.6	30.9	33.9	34.2	35.0	6 3/4	0.596	1 SW	9 P fm —
31	11.4	29.686	34.0	27.9	18.3	26.5	36.0	28.5	sea fr. 5	0.604	~~~	~~~
	3358	13445	9160	7835	5443	7645	9866		sea fr. 4	7.358	60	169
	10.8	29.950	29.55	25.24	17.55	24.66	31.82			rainfall for month	5.0	5.6

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January 1886.

Date	Time P.M.	Barometer	Attached thermometer	Wet 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	9.0	30.128	43.7	36.1	1 W	0	Visible	None	None
2									Obsc.
3									Obsc.
4									Obsc.
5	8.4	29.452	46.8	40.1	2 S	1P	Visible	None	None
6	8.6	29.443	38.5	26.9	2 SW	2P	Visible	Cloudy	Obsc.
7	6.7	29.640	34.4	18.0	1 SW	0	Visible	None	None
8									Obsc.
9	8.7	28.835	28.1	12.5	2 SW	0 PRs	Visible	None	None
10	7.0	29.378	25.2	7.7	2 W	0	Moonlight	Moonlight	None
11	8.0	30.058	23.5	5.5	0 calm	0	Moonlight	Moonlight	None
12	8.5	30.316	(Ext. Ther.)	4.9	0	0	Moonlight.	Moonlight.	None
13	8.1	30.548	20.6	6.7	0	0	Moonlight	Moonlight	None
14	8.6	30.655	20.3	11.9	1 N	0	Moonlight	Suspected; moonlight	Suspected
15	9.4	30.407	26.1	16.6	1 NW	0 Rs	Moonlight	Moonlight	None
16				~~27.5~~	~~1 SW~~	~~0~~	~~Moonlight~~		Obsc.
17	8.4	29.730	32.9	27.5	1 SW	0	Moonlight	Moonlight	None
18									Obsc.
19									None
20									Obsc.
21									Obsc.
22									Obsc.
23	9.3	30.320	21.4	8.3	2 N	0	Moonlight	Moonlight	None
24									Obsc.
25									Obsc.
26	8.9	30.186	32.9	32.2	1 N	0	Visible	None	None
27									Obsc.
28									Obsc.
29									Obsc.
30									Obsc.
31									Obsc.
11	76	13096	3944	2451					
	84	12035	3034	1751					

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January, 1886.

1, 11.6 P.M. Day and evening clear and cool; no aurora seen.
2, 10.2 A.M. Yesterday mostly clear; evening cloudy.
4, 11.5 A.M. Yesterday cloudy day and evening.
5, 10.8 A.M. Yesterday cloudy day and evening; rain early today.
6, 10.4 A.M. Yesterday cloudy; evening partly clear, often cloudy; no aurora seen.
7, 10.0 A.M. Yesterday rather clear; evening mostly cloudy.
7, 10.8 P.M. Day and evening clear and rather cold; no aurora seen.
9, 11.0 A.M. Yesterday clear and rather cold; evening cloudy; snow early today, now estimated 6 inches deep.
10, 10.1 A.M. Yesterday cloudy with some snow; evening rather clear, thin clouds at times; no aurora seen.
10, 11.0 A.M. Snow measured in 5 places: 8, 8, 7½, 9 3/4, 8 3/4; mean 8.40 inches; 14 3/4 inches of this snow in cylinder 1 13/16 inches across weigh 3½ ounces: 7.82714 9.20742 / 0.54407 0.92628 / 8.83121 0.12670 hence rainfall to 1 inch of snow 0.1594 inches; total rainfall 1.339 inches. Gauge cleaned out.
10, 10.7 P.M. Day and evening clear and cold; no aurora seen.
11, 10.7 A.M. Thin cloudiness in southeast about 11 P.M. yesterday; night partly cloudy.
12, 11.0 A.M. Yesterday partly cloudy; evening mostly clear and cold; no aurora seen.
13, 11.3 A.M. Yesterday clear and cold day and evening; no aurora seen.
14, 8.6 P.M. Yesterday mostly clear and cold day and evening; no aurora seen.
14, 11.1 P.M. Day and evening clear and cold; aurora slightly suspected early in the evening, suspicion not confirmed by present appearances.
16, 12.5 A.M. Yesterday clear, rather cold; evening mostly clear, with some clouds at times; no aurora seen.
17, 11.0 A.M. Yesterday cloudy and chilly day and evening.
17, 10.3 P.M. Day mostly clear; evening clear with some passing clouds; no aurora seen.

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January, 1886.

19, 10.9 A.M. Yesterday clear at first, becoming cloudy; evening cloudy, lunar halo about 6 P.M.; snow early today.

20, 11.9 A.M. Yesterday cloudy with some rain; evening rather cloudy, clear later; no aurora seen.

21, 10.3 A.M. Yesterday mostly clear; evening rather clear at first, mostly cloudy after 6 P.M.

22, 10.4 A.M. Yesterday cloudy day and evening.

23, 10.2 A.M. Yesterday cloudy day and evening.

24, 12.7 A.M. Yesterday clear and cold day and evening; no aurora seen; Zodiacal light seen about 7½ P.M.

24, 11.3 A.M. Snow falling since 10 A.M.; little as yet on the ground.

25, 10.5 A.M. Yesterday cloudy day and evening, with light snow much of the time; snow also this morning.

26, 11.0 A.M. Yesterday cloudy day and evening, with snow, and later sleet. Snow measured in 5 places 4, 4, 4¾, 4¾, 4½; mean 4.40 inches; 20 inches of this snow in cylinder 1 13/16 inches across weigh 7⅜ ounces; 9.82744 9.39387 / 8.67877 0.43345 / 0.86771 0.03732 hence rainfall to 1 inch of snow 0.2477 inches; total rainfall 1.090 inches. Gauge cleaned out.

26, 11.7 A.M. No. 4 in snow and water since 11 A.M., reads 3.2.3

26, 10.6 P.M. Day cloudy at first, afternoon and evening mostly clear; no aurora seen.

28, 10.6 A.M. Yesterday cloudy day and evening, with a few snowflakes, and rain later.

29, 10.5 A.M. Yesterday cloudy day and evening, with rain.

30, 10.5 A.M. Yesterday cloudy day and evening with some rain and a little sleet.

31, 11.8 A.M. Yesterday cloudy, with snow in the evening. Snow measured in 5 places 6, 6½, 7½, 6, 6; mean 6.40 inches; 16 inches of this snow in cylinder 1 13/16 inches across weigh 2¼ ounces; 9.82714 8.97520 / 8.79586 0.81018 / 0.35218 9.78138 hence rainfall to 1 inch of snow 0.0944 inches; total rainfall 0.604 inches. Gauge cleaned out.

Feb. 1, 10.0 A.M. Yesterday clear becoming cloudy in the afternoon; evening cloudy; a little light snow on the ground this morning.

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January 1886.

Bar. max., 14, 12.5 P.M., 30.664, attached thermometer probably about 15, mercury not visible; min., 9, 11.0 A.M., 28.763, 25.1; C. 13399, max., 5, 51.9; G. 2205, min., 12, −12.9. Observations Jan. 12, 8.5 P.M. and Jan. 14, 12.5 P.M., by O. C. Wendell.
Freezing point of No. 4, Jan. 26, 32.3.

Report to Signal Service, sent Feb. 2, 1886.

Aurora looked for every clear evening; slightly suspected early in the evening of Jan. 14, but not apparent at 11 P.M.

Zodiacal light visible Jan. 1, 5, 6, 7, 9, 23, 26; observations on other evenings hindered by moonlight or clouds.

Lunar halo seen Jan. 18 about 6 P.M.

Usual report sent to New England Meteorological Society Feb. 2, 1886.

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February 1886.

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds
1	10.0	29.812	32.0	25.9	14.9	25.0	30.4	26.4	0 1/2	0.022	1 NW	8 P Fm
2	10.4	30.040	25.2	13.2	7.1	12.3	28.2	14.6	0		1 W	0
3	10.3	30.220	24.3	12.7	6.4	11.9	22.0	14.0	0		1 W	10 P2
4	10.4	29.885	out of sight est. 15.0	1.1	−0.2	0.4	16.1	4.0	sep. 10		3 N	10 P2
5	10.3	30.124	out of sight est. 12.0	−4.6	−8.8	−4.9	7.8	−1.0	sep. 10		3 N	0
6	10.5	30.226	out of sight est. 12.0	5.7	−5.5	5.1	6.2	6.2	sep. 10		1 NW	1 Rs
7	10.3	30.022	18.6	20.9	4.9	19.8	20.7	20.7	sep. 10	0.240	0 W	9 P Fm
8	10.4	29.848	26.0	29.9	19.3	29.0	29.7	30.0	0		2 SW	1 P Rs
9	10.2	30.000	31.1	37.4	27.9	36.5	37.8	37.0	0		1 W	1 Rs
10	10.3	30.481	35.0	37.3	28.7	36.6	48.0	37.0	0		2 NE	10 P Fm
11	10.8	30.648	36.1	35.3	33.7	34.6	39.7	35.6	1	0.088	2 NE	10 P; raining
12	10.9	30.120	36.8	37.4	33.3	36.5	37.1	37.2	28	2.471	0 W	10 Pm; raining
13	10.6	29.471	42.0	51.4	35.0	50.0	52.0	49.0	sep. 10	3.122	2 S	10 P fog; raining
14	10.7	29.767	41.0	43.1	36.0	42.1	51.8	43.0	0 1/4	0.022	2 SW	1 Rs Fm
15	10.2	29.966	41.6	44.4	35.9	43.1	48.8	43.9	0		1 SE	10 P Fm
16	10.5	30.018	40.0	32.7	30.1	32.0	51.2	33.4	0 5/8	0.055	3 W	3 M Fm
17	11.9	30.298	33.9	25.8	16.0	24.9	35.7	27.5	0		1 S	4 P Rs
18	10.9	30.018	33.4	36.5	21.3	35.6	36.0	36.2	0		1 W	3 P Rs
19	11.6	29.896	37.0	45.5	26.9	44.1	44.8	43.9	0		3 S	5 P Rs Fm
20	10.5	29.200	39.0	37.5	33.7	36.8	47.8	38.0	7 1/4	0.640	1 W	10 Pm Fm →
21	11.6	29.844	23.5	18.0	7.6	17.1	37.9	19.1	0		3 W	10 P2
22	10.6	30.035	27.8	22.1	15.1	21.2	24.0	23.0	0 1/4	0.011	1 NE	0 M
23	10.6	29.828	32.2	36.2	21.2	35.1	35.8	35.7	0		2 SW	1 P Fm
24	11.2	30.360	27.0	15.5	11.1	14.8	40.3	17.2	0		3 NW	0
25	10.9	29.985	26.1	28.3	10.4	27.4	28.0	28.0	0		3 SE	10 P
26	10.3	28.933	34.8	23.5	22.6	22.6	43.1	24.3	12 7/8	1.136	4 W	10 P; a little snow
27	10.7	29.299	out of sight est. 15.0	7.2	3.2	6.3	24.6	9.0	0 1/8	0.011	5 NW	6 P2 Fm
28	12.0	29.518	19.9	18.2	6.1	17.2	18.2	18.7	0		5 NW	0
	2996	25862	8183	4939	7381	7131	9437		Sep 10	7.818	57	153
	10.7	29.924	29.22	17.64	26.36	25.47	33.70			Rainfall for month	2.6	5.5

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February 1886.

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	8.8	29.860	29.0	15.5	1 W	2 P haze	Cloudy	None	None
2	8.5	30.062	29.5	17.9	1 SW	0	Visible	None	None
3									Obsc.
4									Obsc.
5	8.5	30.226	out of sight est. 12.0	-3.7	1 NW	1 R	Cloudy	None	None
6									Obsc.
7									Obsc.
8	8.5	29.810	32.2	33.5	1 S	0	Moonlight	Moonlight	None
9	8.5	30.155	37.4	36.1	0 NW	0	Moonlight	Moonlight	None
10									Obsc.
11									Obsc.
12									Obsc.
13									Obsc.
14									Obsc.
15	8.2	29.663	45.7	50.3	4 S	10 P 7m N	Cloudy	Cloudy	Obsc.
16	8.6	30.199	38.1	23.8	2 W	0	Moonlight	Moonlight	None
17	8.9	30.104	33.9	29.6	1 SW	5 P Rs	Moonlight and clouds	Moonlight and clouds	Obsc.
18	8.3	30.105	38.7	32.5	0 NW	5 P Rs	Moonlight and clouds	Moonlight and clouds	Obsc.
19									Obsc.
20	9.1	29.462	30.4	17.7	4 NW	9 R	Cloudy	Cloudy	None
21									Obsc.
22	8.7	30.020	31.1	23.3	1 S	1 haze	Suspected; hazy	Suspected; hazy	Suspected
23	8.5	30.014	35.8	28.5	2 NW	0	Visible	None	None
24	8.7	30.323	26.0	15.0	1 N	2 haze	Hazy	Hazy	None
25									Obsc.
26									Obsc.
27	8.7	29.530	out of sight est. 12.0	8.9	4 NW	0 Rs	Visible	None	None
28	8.6	29.703	20.1	12.4	3 NW	0	Visible	None	None
	129	142 36	4519	3353					
	8.1	29.949	30.13	22.35					

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February, 1886

1, 10.7 P.M. Day cloudy at first, afternoon mostly clear; evening rather clear with some clouds and haze, which became thick about 10 P.M.; no aurora seen; zodiacal light visible about 7 P.M.

2, 10.7 P.M. Day and evening mostly rather clear and cold; no aurora seen.

4, 10.4 A.M. Yesterday cloudy day and evening, with a little snow later. New snow this morning cannot be measured; about 1½ inches by estimate.

5, 10.3 A.M. Yesterday cloudy and cold, beginning to clear off during the evening.

5, 10.6 P.M. Day clear and cold; evening rather clear, but with frequent irregular haze and thin clouds; no aurora seen; No. 4 now −3.9; zodiacal light visible at 7 P.M.

7, 10.8 A.M. Yesterday rather clear, becoming cloudy; evening cloudy, clouds thin. Cleared out gauge, over which the snow of Feb. 3 drifted too much to make measurement by gauge useful. Average density of snow by collection of results in book Q 5 is 0.16 inches rainfall to 1 inch snow. Estimated depths of snow as above was 1½ inches; hence rainfall 0.240 inches.

8, 10.4 A.M. Yesterday mostly cloudy day and evening.

9, 10.2 A.M. Yesterday clear day and evening; a few clouds; no aurora seen.

9, 11.2 P.M. Day and evening mostly clear, rather warm; no aurora seen.

11, 10.8 A.M. Yesterday cloudy day and evening.

12, 11.2 A.M. Yesterday cloudy; heavy rain after dark.

12, 4.8 P.M. Gauge now 8¾ ounces; 0.772 inches; rain heavy at times during the day.

13, 10.6 A.M. Yesterday cloudy day and evening with rain in heavy showers; gauge now 26⅝ ounces; 2.350 inches; total rainfall for last 24 hours 3.122 inches.

14, 10.7 A.M. Yesterday cloudy day and evening a little [illegible]

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15, 10.2 A.M. Yesterday clear, becoming cloudy; evening cloudy.
15, 11.4 P.M. Day warm and mostly cloudy; evening mostly cloudy, with a little rain; clouds broken at times.
16 10.9 P.M. Day and evening clear, rather cold; no aurora seen.
17, 10.7 P.M. Day and evening rather clear, but with some thin clouds, especially after 8 P.M.; lunar halos and coronas at times in the evening.
19, 11.6 A.M. Yesterday rather clear; thin clouds frequent in the evening.
20, 10.5 A.M. Yesterday rather clear, becoming cloudy; rain in the evening.
20, 11.2 P.M. Day cloudy becoming colder with a few snowflakes; evening rather cloudy, becoming clear; no aurora seen.
22, 10.6 A.M. Yesterday mostly cloudy; a little snow in the evening.
22, 11.3 P.M. Day clear, rather cold; evening mostly clear; a few clouds and some haze; aurora suspected more strongly at about $8^h 50^m$ than before, but not apparent at $9^h 30^m$ or later; zodiacal light distinct about 7 P.M. with apparent distinction of outer and inner cone, and considerable fluctuations in brightness and height; but there was evidently some haze and passing cloud, to which the effect may perhaps have been due.
23, 11.3 P.M. Day rather cloudy; evening clear; no aurora seen.
24, 10.0 P.M. Day clear and cold; evening rather clear, with haze and some clouds; no aurora seen; zodiacal light visible about 7 P.M.
26, 10.3 A.M. Yesterday cloudy with a little snow; afternoon warmer, with rain, continuing through the evening; colder with snow early today; perhaps $0\frac{3}{4}$ inches snow now on the ground. Result for rainfall by gauge only.
27, 10.7 A.M. Yesterday cloudy; day and evening with high wind and a little snow

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February 1886

Measure by gauge probably too small, but snow so irregularly distributed that no good estimate can be made.

27, 10+ P.M. Day cloudy, windy, and cold, becoming clear; evening clear; some clouds about 10 P.M. and later; no aurora seen.

28, 10.4 P.M. Day and evening clear, windy, and cold; no aurora seen.

28, 10.5 P.M. Band south of Leo and from Leo to Coma Berenices rather easily seen; body of Leo certainly dark as compared with this band; Mars and Jupiter prevent observation of light in zodiac beyond Leo, or in following part of that constellation.

Bar. max., 11, 10.8 A.M., 30.648, 36.1; min. 26, 10.3 A.M., 28.933, 34.8; C. 13399, max., 13, 52.0; G. 2205, min., 5, −8.6.

Report to Signal Service, sent March 1, 1886:

Aurora looked for every clear evening; suspected Feb. 22, between 8½ and 9 P.M.

Zodiacal light visible Feb. 1, 2, 5, 22, 23, 24, 27, 28; observations on other evenings hindered by moonlight or clouds.

Lunar halos and coronas at times during the evening of Feb. 17.

Usual report sent to New England Meteorological Society March 1, 1886.

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14

March 1886.

Date	Time 9 A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting	Maximum before and after setting	Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.5	29.720	out of sight cal. 12,0	4.2	−0.9	3.9	21.1	6.2	0		4 NW	0	1
2	10.7	29.326	out of sight cal. 12,0	12.9	−0.8	12.1	13.2	13.8	0		3 NW	10 P	2
3	10.5	29.550	21.7	23.5	11.9	22.9	23.6	23.8	0		3 NW	10 P	3
4	9.8	29.760	26.0	31.6	20.8	31.0	31.3	31.0	0		3 NW	0 Rs	4
5	11.5	29.743	31.6	33.4	24.2	32.8	38.2	33.3	0		3 NW	1 M 7m →	5
6	10.2	29.716	31.8	32.5	25.9	32.0	37.1	32.5	0		3 N	0 Rs 7m	6
7	11.4	29.860	29.3	28.0	18.9	27.1	36.2	28.2	0		2 NW	0	7
8	10.9	29.806	30.2	35.1	20.3	34.1	34.2	34.2	0		1 SE	10 P	8
9	10.6	29.726	33.0	22.2	21.0	21.4	36.3	24.0	0 3/4	0.066	3 N	10 P 7m	9
10	10.7	29.921	28.3	26.3	14.8	25.4	26.3	26.7	0		1 N	0 Rs	10
11	10.4	29.924	30.4	33.4	20.2	32.6	33.9	33.5	0		1 W	0 Rs R	11
12	11.0	29.556	35.9	41.8	32.4	41.0	42.0	40.7	0		3 SW	10 Pm	12
13	10.5	29.307	36.9	40.8	33.0	40.0	44.9	40.3	0 1/2	0.044	1 S	10 Pm	13
14	11.1	29.727	35.3	33.1	24.5	32.3	41.6	33.4	3 1/4	0.287	2 NW	0	14
15	10.6	30.076	37.2	37.5	31.3	36.6	40.9	37.6	0		3 E	10 Pm	15
16	10.6	29.750	37.0	37.8	29.7	36.6	39.3	37.3	0 1/2	0.044	1 NW	10 Pm	16
17	10.4	30.174	35.5	36.6	26.9	36.0	46.0	36.7	0		3 N	1 M 7m	17
18	11.4	30.098	37.5	43.6	25.8	42.6	43.0	43.0	0		1 NW	2 P Rs	18
19	11.5	30.088	37.8	37.9	25.6	36.8	47.8	38.3	0		1 SE	6 P 7m →	19
20	10.6	29.859	37.1	35.0	30.0	34.2	38.5	35.6	6 1/2	0.574	2 E	10 P mist	20
21	10.4	29.345	38.1	38.7	33.6	38.0	38.2	38.3	16	1.412	3 NE	10 Pm	21
22	10.1	29.238	38.0	40.3	30.9	39.5	40.0	40.0	0 1/2	0.044	2 SW	10 Pm 7m	22
23	11.3	29.388	41.0	37.8	32.1	37.0	45.2	38.4	0		2 W	8 Pm M 7m →	23
24	11.0	29.732	34.4	30.3	22.0	29.4	40.0	31.0	0		3 NW	5 P Rs R	24
25	11.2	29.998	36.3	39.7	25.1	38.8	39.1	39.0	0		2 S	10 P	25
26	8.5	29.858	40.3	44.0	37.6	43.0	44.6	43.8	0		2 SW	10 P	26
27	10.3	30.179	42.7	48.3	34.9	47.0	51.0	47.9	0		2 SW	10 P	27
28	10.3	30.259	40.8	37.5	32.4	36.6	51.1	38.0	3 3/4	0.331	2 NE	10 P	28
29	10.3	30.515	40.0	40.3	28.2	39.2	44.0	40.4	0		3 NE	6 M 7m ←	29
30	11.0	30.068	41.1	39.2	36.3	38.2	43.3	39.3	4 3/4	0.419	0 calm	10 P, a little rain	30
31	10.6	29.982	41.8	49.6	36.5	48.2	49.1	48.2	3 1/2	0.309	0 N	10 P fog	31
321	25249	10510	10729	7851	10463	12030			40	3.5 37 Rainfall for month	65	199	
10,61	29.814	33.40	34.61	25.32	33.75	38.83					2.1	6.4	

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March 1886.

Date	Time P.M.	Barometer	Attached Thermometer	No.4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2									Obsc.
3									Obsc.
4	8.7	29.796	34.0	32.2	3 NW	0 Rs Fm	Visible	None	None
5	8.7	29.734	34.2	30.7	2 NW	9 P Fm	Cloudy	Cloudy	Obsc.
6	8.5	29.789	34.2	27.0	3 NW	0	Visible	None	None
7	8.3	29.880	32.2	26.4	1 NE	0	Visible	None	None
8									Obsc.
9	8.9	29.859	30.8	17.8	2 N	0	Moonlight	None	None
10	8.5	29.857	34.3	27.1	0 S	0	Moonlight	Moonlight	None
11	8.7	29.827	38.1	34.7	1 SW	9 P	Cloudy	Cloudy	Obsc.
12									Obsc.
13									Obsc.
14									Obsc.
15	8.5	29.981	40.0	33.9	0 NW	0 haze	Moonlight	Moonlight	None
16									Obsc.
17	8.6	30.208	39.7	30.1	1 SE	0 haze	Moonlight	Moonlight	None
18	9.2	30.077	42.2	37.0	1 N	0 Fm	Moonlight	Moonlight	None
19									Obsc.
20									Obsc.
21									Obsc.
22									Obsc.
23	8.6	29.489	40.2	31.3	3 NW	9 P	Cloudy	Cloudy	Obsc.
24	8.5	29.986	38.1	30.9	2 NW	0	Visible	None	None
25									Obsc.
26									Obsc.
27									Obsc.
28	8.5	30.440	45.5	35.1	1 E	0	Visible	Irregular	Aurora
29									Obsc.
30									Obsc.
31									Obsc.
	1122	11923	4835	3942					
	8.6	29.914	37.19	30.32					

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March 1886

2, 10.7 A.M. Yesterday clear, cold and windy; cloudy towards night; a few snowflakes in the evening.

3, 10.5 A.M. Yesterday mostly cloudy; clear for a time in the afternoon.

4, 9.8 A.M. Yesterday windy and cloudy day and evening, cold decreasing.

4, 11.9 P.M. Day and evening mostly clear and cool; no aurora seen; body of Leo dark, as on Feb. 28, compared with band below; no satisfactory observation of following part of Leo possible owing to presence of Mars.

6, 10.8 P.M. Yesterday rather clear, cloudy towards night; evening mostly cloudy. Today clear and cool day and evening; no aurora seen.

7, 10.4 P.M. Day and evening clear and cool; no aurora seen.

9, 10.6 A.M. Yesterday cloudy day and evening; a little snow after dark.

9, 11.3 P.M. Day cloudy with a few snowflakes, becoming clear; evening clear, becoming cloudy; no aurora seen.

10, 11.0 P.M. Day and evening clear and cool; no aurora seen.

11, 10.6 P.M. Day mostly clear till 7 P.M., afterwards mostly cloudy.

13, 10.5 A.M. Yesterday cloudy with a little rain; evening rather cloudy.

14, 11.1 A.M. Yesterday cloudy with a little rain; snow during following night.

15, 10.6 A.M. Yesterday rather clear; evening mostly cloudy.

15, 11.2 P.M. Day cloudy, becoming clear; evening clear with some haze; no aurora seen.

~~16, 10.6 A.M. Yesterday~~

17, 10.4 A.M. Yesterday mostly cloudy; evening cloudy.

17, 11.0 P.M. Day and evening clear and cool; no aurora seen.

18, 10.9 P.M. Day mostly clear; evening cloudy, clear later; no aurora seen.

20, 10.6 A.M. Yesterday cloudy with snow towards night. Lunar halos on evenings of March 14 and 18.

21, 10.4 A.M. Yesterday cloudy day and evening, with rain.

22, 10.1 A.M. Yesterday cloudy day and evening, with a little rain.

23, 11.2 A.M. Yesterday cloudy day and evening; a few snowflakes about 2 A.M. today

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March 1886.

24, 11.0 A.M. Yesterday cloudy day and evening; partly clear at times.
25, 12.3 A.M. Yesterday clear day and evening; no aurora seen; some thin clouds at present.
26, 8.5 A.M. Yesterday mostly cloudy day and evening; a few drops of rain.
27, 10.3 A.M. Yesterday partly clear and warm; evening cloudy.
28, 10.3 A.M. Yesterday cloudy; rain in the evening; a little snow later.
28, 10.8 P.M. Day cloudy, becoming clear; irregular aurora at 8.5 P.M., not now seen.
30, 11.0 A.M. Yesterday cloudy day and evening; a little rain.
31, 10.6 A.M. Yesterday cloudy day and evening, with some rain.
31, 10.3 P.M. Day cloudy with a little rain; evening cloudy and warm.

Bar. max. 29, 10.3 A.M., 30.515, 40.0; min. 22, 10.1 A.M. 29.238, 38.0.
Casella 13399, max, 28, 51.1; G. 2205, min, 1, −0.9.

Report to Signal Service, sent April 1, 1886.

Aurora looked for every clear evening; irregular aurora seen March 28 at 8½ P.M., not visible at 10¾ P.M.

Zodiacal light visible March 4, 6, 7, 24, 28; observations on other evenings hindered by moonlight or clouds.

Luminous clouds on the evenings of March 14 and 18.

Usual report sent April 1, 1886, to the New England Meteorological Society.

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April 1886

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.6	29.739	51.3	53.8	48.2	52.6	61.6	53.1	0 1/2	0.044	3 SW	10 P	1
2	10.7	29.853	46.0	51.9	35.6	50.8	54.1	51.0	0		3 W	0 M 7m	2
3	10.7	30.102	42.0	34.1	33.0	33.3	54.3	34.9	0 1/4	0.022	1 NE	10 P; snowing	3
4	10.9	30.184	39.3	33.3	25.6	32.8	38.0	34.0	0 1/2	0.044	1 E	10 P M 7m; a few snowflakes	4
5	10.7	30.245	40.4	40.9	30.1	39.8	40.1	40.3	0		1 E	9 P 7m	5
6	11.0	29.911	40.0	35.6	34.3	35.0	42.5	36.0	4 1/4	0.375	3 NE	10 P; raining	6
7	10.6	29.702	40.7	38.4	34.6	37.9	40.7	38.3	{see f. 20}	1.456	1 NE	10 P	7
8	11.3	29.938	41.1	38.3	31.0	37.2	38.6	38.5	0 1/4	0.022	2 NE	10 P m	8
9	10.5	30.118	41.9	45.8	29.5	44.6	45.1	45.2	0		1 NW	0	9
10	10.6	30.061	49.0	59.1	41.5	58.1	60.2	58.0	0		3 W	6 P 7m	10
11	10.6	30.530	46.1	40.7	31.9	40.0	63.8	42.0	0		2 E	1 Rs	11
12	10.9	30.493	45.9	51.1	32.2	50.1	50.4	50.2	0		2 S	10 P	12
13	10.5	30.204	53.5	58.4	49.4	57.2	60.0	57.8	0 1/8	0.011	2 SW	10 Pm; raining	13
14	10.8	30.279	55.2	57.3	48.8	56.1	61.9	56.7	0 1/2	0.044	2 E	10 Pm M Rs	14
15	11.6	30.284	54.5	63.2	36.1	62.0	62.2	61.9	0		2 S	2 P Rs 7m	15
16	10.8	30.569	49.7	43.4	38.2	42.3	66.0	43.7	0		2 E	10 P	16
17	10.7	30.550	49.8	50.8	40.2	49.4	50.2	50.2	0		1 SE	4 P 7m	17
18	11.1	30.373	52.1	64.4	39.0	63.3	63.0	62.8	0		1 SW	0	18
19	10.6	30.215	57.2	73.3	49.0	72.1	72.5	72.0	0		2 NE	3 P Rs M 7m	19
20	10.6	30.331	58.7	54.9	52.3	53.9	44.2	53.0	0		3 E	9 Pm 7m	20
21	10.7	30.092	56.0	66.8	44.2	65.7	65.8	65.0	0		1 SW	0 haze	21
22	10.4	30.073	59.3	63.9	53.9	63.0	75.0	63.1	0		3 E	0 M	22
23	10.6	29.867	62.2	70.0	45.8	68.8	69.0	69.0	0		2 SW	0	23
24	10.7	29.776	63.1	66.4	58.3	65.2	79.9	65.8	0		2 N	10 Pm 7m	24
25	11.1	30.094	56.1	51.0	42.1	50.1	66.3	52.0	0 1/8	0.011	2 E	0 Rs	25
26	11.3	29.892	57.2	60.2	45.0	59.2	59.8	59.7	0		2 S	1 haze	26
27	10.8	29.962	54.7	54.6	39.8	53.6	66.4	54.3	0		2 E	5 P Rs	27
28	11.3	29.845	54.0	57.8	43.6	56.3	57.0	57.0	0 1/2	0.044	1 NW	10 Pm M	28
29	11.0	29.982	53.9	53.2	45.0	52.2	59.5	53.2	0		3 E	2 Rs 7m	29
30	10.8	30.019	51.7	52.4	40.8	51.4	54.3	52.7	0		3 E	4 Pm M 7m Rs	30
									See f. 20 23 1/2	2.073 Rainfall for month 2.07 inches			
	10.82	30.110	50.75	52.83	40.63	51.80	57.41				61 2.0	166 55	

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April 1886

Date	Time P.M.	Barometer	Attached Thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	8.3	29.841	50.1	44.6	2 SW	2 P Rs haze	Visible	None; some clouds	None
2	7.9	30.012	49.0	39.3	1 W	0	Visible	None	None
3	8.3	30.072	44.8	33.3	0 calm	0	Visible	None	None
4									Obsc.
5									Obsc.
6									Obsc.
7									Obsc.
8									None
9	8.2	30.116	51.3	50.9	1 SW	0	Suspected; moonlight	Moonlight	None
10	8.4	30.212	54.4	45.1	3 N	0	Moonlight	Moonlight	None
11	8.4	30.580	48.7	35.6	1 E	4 Rs	Moonlight and clouds	Moonlight and clouds	Obsc.
12	8.6	30.341	53.8	50.7	2 S	1 P Fm	Moonlight and clouds	Moonlight and clouds	None
13									Obsc.
14	8.5	30.276	55.2	45.8	0 E	1 haze	Moonlight	Arch suspected	Aurora
15									Obsc.
16									Obsc.
17	8.7	30.470	54.8	48.5	1 S	0	Moonlight	Moonlight	None
18	9.0	30.300	61.7	55.0	1 SE	0	Moonlight	Moonlight	None
19	8.7	30.240	62.6	57.2	1 W	1 PRs Fm	Moonlight and clouds	Moonlight and clouds	Obsc.
20									Obsc.
21	8.6	30.023	63.0	61.3	2 S	1 P Fm haze	Suspected; hazy	None; some clouds	None
22	8.5	30.033	60.3	51.1	0 calm	0	Visible	None	None
23	8.5	29.749	68.8	67.1	2 S	1 haze	Visible	None	None
24									Obsc.
25									Obsc.
26	8.8	29.891	64.5	57.2	2 N	0	Visible	None	None
27									Obsc.
28									Obsc.
29	8.1	29.970	54.2	46.4	1 NE	1 P Rs	Suspected; some clouds	None; some clouds	None
30	9.1	29.998	53.8	43.3	1 N	0 Rs haze	Visible	None	Aurora
	8.51	30.125	55.71	48.76					

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April, 1886

1, 11.3 P.M. Day cloudy, becoming clearer; evening hazy with some clouds, becoming clear; no aurora seen.

2, 11.2 P.M. Day and evening mostly rather clear; no aurora seen.

3, 10.9 P.M. Day cloudy with a little snow, becoming clear in the afternoon; evening clear, with increasing haze; no aurora seen.

5, 10.7 A.M. Yesterday cloudy day and evening.

6, 11.0 A.M. Yesterday cloudy; some rain in the evening.

6, 5.7 P.M. Day rainy with strong northeast wind; gauge now 12 ounces; 1.059 inches.

7, 10.5 A.M. Yesterday evening cloudy; gauge now 4½ ounces; 0397 inches; total rainfall 1.456 inches.

8, 11.3 A.M. Yesterday cloudy day and evening.

8, 10.8 P.M. Day cloudy till 9½ P.M., afterwards mostly clear; no aurora seen.

9, 11.6 P.M. Day and evening mostly clear and warm, now cloudy; no aurora seen.

10, 11.7 P.M. Day and evening mostly clear and warm; no aurora seen.

11, 8.4 P.M. Day clear, rather cool; now somewhat cloudy, with lunar halo.

12, 10.9 A.M. Clouds increasing yesterday evening.

13, 10.6 A.M. Yesterday mostly clear; clouds increasing after 6½ P.M.; no aurora seen.

14, 10.8 A.M. Yesterday cloudy and warm; a little rain; evening mostly cloudy.

14, 10.8 P.M. Day and evening clear and rather warm; faint aurora arch 8½ to 9 3/4 P.M., then brighter and broken, with streamers; clouds below; little or no aurora now.

16, 10.8 A.M. Yesterday rather clear and warm; clouds increasing in the evening.

17, 10.7 A.M. Yesterday mostly cloudy and cool day and evening.

17, 11.6 P.M. Day and evening mostly clear and warm; no aurora seen.

18, 11.1 P.M. Day and evening clear and warm; no aurora seen.

19, 10.1 P.M. Day clear and rather hot; clouds increasing in the evening.

21, 10.7 A.M. Yesterday rather cloudy; evening mostly clear

21, 10.1 P.M. Day and evening warm and rather clear with passing clouds; no aurora seen.

22, 10.4 P.M. Day and evening rather warm and clear; no aurora seen.

23, 11.8 P.M. Day rather hot; evening warm, hazy; no aurora seen.

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April, 1886.

25, 11.1 A.M. Yesterday mostly cloudy and warm; a little rain afternoon and evening.

26, 11.3 A.M. Yesterday rather clear and cool; evening cloudy.

26, 11.0 P.M. Day and evening clear, rather warm; no aurora seen.

28, 11.3 A.M. Yesterday rather clear becoming cloudy; a little rain in the evening.

29, 11.0 A.M. Yesterday mostly cloudy day and evening.

29, 10.8 P.M. Day rather cloudy at first, later clear; cloudy again after about 9 3/4 P.M.; no aurora seen.

May 1, 1.8 A.M. Yesterday clear and cool; aurora at 10 P.M., low and irregular with some appearance of streamers; dark sky below; later, a rather faint arch; ended by 11 P.M.

Bar. max. 11, 8.4 P.M., 30.580, 48.7; min., 7, 10.6 A.M., 29.702, 40.7; C. 18399, max., 24, 799; Green 2205, min., 4, 25.6.

Report to Signal Service, sent May 1, 1886.

Aurora looked for every clear evening; results as follows:
April 14. Faint auroral arch 8 1/2 to 9 3/4 P.M., then brighter and broken, with streamers; clouds below; little or no aurora at 10 3/4 P.M.
April 30. Aurora at 10 P.M. low and irregular, with some appearance of streamers; dark sky below; later, a rather faint arch; ended by 11 P.M.

Zodiacal light visible April 1, 2, 3, 22, 23, 26, 30; suspected April 9 (some moonlight), April 21 (sky hazy) and April 29 (some clouds); observations on other evenings hindered by moonlight or clouds.

Remarks: April 11 about 8 1/2 P.M.

Supply of stationery remaining: 29 blanks, 2 stamped envelopes.

Usual report sent May 1, 1886, to the New England Meteorological Society.

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May 1886.

22

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after wetting		Maximum before and after wetting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.5	29.942	50.0	56.2	34.4	55.1	55.6	55.1	0		2 SE	1 Rs	1
2	10.2	29.928	50.0	50.1	37.2	49.1	59.0	50.2	0		3 E	1 PRs	2
3	10.9	30.050	49.7	54.4	35.1	53.2	53.9	53.9	0		2 SE	0 haze	3
4	10.8	29.955	53.9	67.2	47.1	65.9	66.0	64.5	0		1 SW	1 Fm haze	4
5	10.6	29.766	57.7	68.7	51.1	67.1	74.3	66.3	0 ½	0.044	1 SW	10 Pm Fm	5
6	10.7	29.883	59.0	61.9	48.2	60.7	76.5	61.1	2 ½	0.199	1 W	10 P M Fm	6
7	10.2	29.944	57.9	65.3	46.0	64.1	68.2	64.1	0		2 SW	0 M Fm	7
8	11.7	29.729	58.1	49.9	48.6	49.1	70.2	58.1	See 1/4 24		2 NE	10 Pm; raining	8
9	10.0	29.680	53.6	57.6	45.8	53.6	57.1	58.8	See 24	1.522	3 NW	3 M Fm	9
10	10.7	30.050	56.1	60.9	46.0	60.0	66.0	60.0	0		2 E	2 PRs M Fm	10
11	10.8	30.066	54.3	46.9	46.0	46.0	64.9	48.0	3	0.265	3 E	10 Pm; fine rain	11
12	10.8	29.996	51.7	49.5	43.3	48.4	49.4	49.2	0 ½	0.044	1 E	10 Pm	12
13	11.8	29.962	53.5	50.1	42.9	49.1	52.6	50.2	0		2 E	10 P	13
14	11.0	30.024	55.2	56.4	44.0	55.2	56.1	56.0	0 ¼	0.022	2 E	1 PRs Fm	14
15	10.8	30.002	53.2	52.1	44.9	50.9	57.2	52.0	0		2 E	10 Pm	15
16	10.5	29.757	57.0	53.9	50.0	54.6	59.7	55.4	7 ¾	0.684	1 N	10 Pm; a few drops of rain	16
17	10.9	30.104	55.4	57.2	43.9	56.1	66.9	58.8	0 ⅛	0.011	3 NW	5 M Fm →	17
18	10.5	30.312	55.8	62.1	41.0	61.0	61.1	60.9	0		2 S	4 M Fm ↗	18
19	10.3	30.201	57.2	62.8	49.2	61.9	64.4	62.0	0		3 SW	5 PRs M Fm →	19
20	10.8	29.913	59.1	68.4	50.2	67.1	67.7	67.0	0		3 S	8 PRs M Fm	20
21	10.2	29.893	60.3	61.8	52.3	60.9	74.3	61.2	0 ¼	0.022	3 NW	0	21
22	10.3	29.849	60.4	69.7	49.8	68.2	70.0	67.9	0		1 SW	10 Pm	22
23	10.1	29.757	64.8	74.1	56.5	72.8	77.0	72.8	0		1 W	2 haze	23
24	10.3	29.742	64.9	65.9	55.3	64.7	81.0	65.0	0		0 NE	10 P	24
25	10.2	29.507	62.2	59.8	54.9	58.9	70.8	59.9	See 1. 24		0 S	10 P; raining	25
26	10.4	29.577	55.4	54.3	44.0	53.2	59.9	54.2	See 25	0.265	3 W	6 M Fm	26
27	10.2	29.700	59.0	62.8	48.0	61.7	61.9	61.7	0		3 S	4 PRs	27
28	10.5	29.751	59.0	60.4	50.3	57.8	65.6	60.0	1	0.088	2 N	4 M Fm	28
29	10.4	29.946	57.8	65.7	47.9	64.4	68.0	64.8	0		2 NW	2 M Fm haze	29
30	10.9	29.806	64.3	76.1	55.9	74.6	75.0	74.0	0		2 SW	3 PRs M Fm	30
31	10.4	29.924	66.3	66.9	59.3	65.8	81.5	66.3	0 ½	0.044	2 NE	4 haze Fm	31
	329	297.16	1772.8	1891.1	1465.8	1836.2	2031.8		36 ⅜ See 1, 24	3.200 Rainfall for month in inches	60	166	
	10.6	29.894	57.18	60.36	47.28	59.23	65.54				1.9	5.4	

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May 1886.

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	9.0	29.936	55.0	45.0	1 NE	0 Rs haze	Suspected; some haze	None; some clouds	Suspected
2	8.2	29.969	54.0	42.0	1 NE	0 P haze	Suspected; twilight	None	None
3									Obsc.
4									Obsc.
5									Obsc.
6	8.4	29.928	63.3	57.8	0 calm	0 Pm	Moonlight	Moonlight	None
7									Obsc.
8									Obsc.
9	8.6	29.890	59.7	57.0	1 NW	0 Rs 7m	Moonlight	Moonlight	Aurora
10									Obsc.
11									Obsc.
12									Obsc.
13									Obsc.
14									Obsc.
15									Obsc.
16									None
17	8.5	30.232	57.5	52.9	0 calm	5 Rs 7m	Moonlight and clouds	Moonlight and clouds	Obsc.
18									Obsc.
19	9.2	30.134	61.2	53.7	2 S	0	Moonlight	Moonlight	None
20									Obsc.
21	8.6	29.957	64.8	61.6	1 W	1 Pm	Twilight and clouds	Twilight and clouds	Obsc.
22	8.5	29.802	67.4	66.1	1 W	2 P haze	Twilight	Twilight and clouds	None
23									Obsc.
24									Obsc.
25									Obsc.
26									Obsc.
27									Obsc.
28	9.4	29.847	62.3	57.0	0 calm	1 haze	Hazy	Hazy	None
29									Obsc.
30									Obsc.
31	9.2	29.986	66.7	57.8	0 calm	1 haze	Twilight and haze	None; some haze	None

8.6 29.883 1190 5290
8.8 29.968 6119 5529

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May, 1886.

1, 11.0 P.M. Day and evening mostly clear and cool; no aurora seen.
2, 11.1 P.M. Aurora now suspected among low clouds in north.
3, 10.9 A.M. Yesterday mostly clear; evening partly cloudy at times; no aurora seen.
4, 10.8 A.M. Yesterday rather clear and cool; evening somewhat cloudy.
5, 10.8 A.M. Yesterday rather clear; evening cloudy.
6, 10.7 A.M. Yesterday rather cloudy, with a little rain, especially in the evening.
6, 11.1 P.M. Day cloudy and warm, afterwards clear; some clouds in the evening; no aurora seen; zodiacal light suspected about time of moon setting.
8, 11.7 A.M. Yesterday clear becoming cloudy; evening cloudy.
8, 3.2 P.M. Gauge 13 3/8 ounces; 1.180 inches.
9, 10.0 A.M. Yesterday cloudy day and evening, with rain. Gauge now 3 7/8 ounces; 0.342 inches; total rainfall 1.522 inches.
9, 10.8 P.M. Day clear and warm; a few clouds in the evening; auroral arch now visible; sky rather dark below; some appearance of streamers.
11, 10.8 A.M. Yesterday rather clear at first; cloudy later; evening cloudy with rain.
12, 10.8 A.M. Yesterday cloudy day and evening, with some rain.
13, 11.8 A.M. Yesterday cloudy, rather clear about sunset; evening mostly cloudy.
14, 11.0 A.M. Yesterday cloudy and cool day and evening.
15, 10.8 A.M. Yesterday rather clear, becoming cloudy; evening cloudy.
16, 10.5 A.M. Yesterday mostly cloudy; evening cloudy; rain later.
17, 10.9 A.M. Yesterday mostly cloudy; evening partly clear; no aurora seen.
18, 10.8 A.M. Yesterday mostly rather clear; evening generally somewhat cloudy.
19, 10.3 A.M. Yesterday mostly rather cloudy; evening cloudy.
19, 11.3 P.M. Day rather cloudy, clear later; evening clear; no aurora seen.
21, 10.2 A.M. Yesterday rather cloudy; slight thunder shower 5½ to 6 P.M.; evening cloudy.
22, 10.3 A.M. Yesterday mostly clear and warm; evening mostly cloudy.
23, 10.1 A.M. Yesterday mostly rather cloudy; evening partly clear; no aurora seen.
24, 10.3 A.M. Yesterday mostly rather hot and hazy; evening rather cloudy.
25, 10.2 A.M. Yesterday cloudy day and evening.
25, 12.5 P.M. Gauge now 2 ounces; 0.177 inches.

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May 1886

26, 10.4 A.M. Yesterday mostly cloudy with some rain; gauge now 1 ounce; 0.088 inches; total rainfall 0.265 inches

27, 10.2 A.M. Yesterday mostly rather cloudy; evening cloudy.

28, 10.5 A.M. Yesterday cloudy day and evening; a little rain.

28, 11.0 P.M. Day partly cloudy; evening mostly rather clear, with haze; no aurora seen.

30, 10.9 A.M. Yesterday warm and hazy; evening cloudy.

31, 10.4 A.M. Yesterday mostly rather clear; thunder and lightning between 6 and 7 P.M., with showers passing in the north and northeast; evening cloudy.

31, 10.7 P.M. Day and evening rather clear, with haze; no aurora seen.

Bar. max., 18, 10.8 A.M., 30.312, 55.8; min., 25, 10.2 A.M., 29.507, 62.2; C. 13399, max., 31, 81.5; L. 2205, min., 1, 34.4.

Report to Signal Service, sent June 1, 1886.

Aurora looked for every clear evening; results as follows:

May 1. Aurora suspected soon after 11 P.M. among low clouds in the north.

May 9. Auroral arch visible about 10¾ P.M.; sky rather dark below; some appearance of streamers.

Zodiacal light suspected May 1 and 2; also May 6, about the time of the setting of the Moon; weather generally unfavorable to observation.

Thunder and lightning. May 20. Slight thunder shower 5½ to 6 P.M.

May 30. Thunder and lightning between 6 and 7 P.M.; showers visible to the north and northeast.

Usual report sent June 1, 1886, to the New England Meteorological Society.

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June 1886

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds
1	10.2	30.124	62.0	67.1	49.6	66.0	70.0	66.0	0		2 SE	0 Fm
2	10.5	30.074	63.3	71.0	50.4	69.5	69.9	69.4	0		2 S	2 Rs Fm
3	10.5	29.794	66.0	67.0	62.2	66.0	75.1	66.5	see p. 28		1 SW	10 Pm; raining
4	10.6	30.093	62.2	65.9	50.1	64.9	68.7	65.0	see p. 28	0.574	2 SE	4 M Fm
5	10.4	30.068	62.0	67.8	49.2	66.3	70.0	66.3	0		2 SW	1 M Fm
6	11.2	30.078	61.9	70.1	45.0	68.7	74.0	68.6	0		1 S	2 Pr R Rs
7	10.2	30.165	64.7	67.7	55.2	66.6	77.6	67.0	0		2 S	9 P Fm
8	10.2	30.010	63.0	66.1	56.1	65.1	72.3	65.5	0		3 NW	0
9	10.8	29.983	65.5	72.5	53.3	71.0	74.3	71.0	0		2 S	5 Pr R Rs
10	10.5	29.662	67.0	70.2	56.1	69.1	77.9	69.6	0 3/8	0.033	1 NW	6 Pr R R
11	10.6	29.869	69.0	71.7	61.1	70.2	78.4	70.8	0 1/2	0.044	2 NE	2 M Fm — haze
12	8.9	30.130	64.0	59.3	54.0	58.2	73.2	59.6	0		3 N	10 P
13	10.3	30.134	61.9	56.1	51.1	55.1	66.6	56.2	see p. 28		0 calm	10 Pm; raining
14	10.0	30.087	59.7	57.7	52.8	56.9	57.1	57.3	see p. 28	0.331	2 E	10 Pm
15	10.2	30.032	59.3	58.3	54.6	57.3	57.8	57.9	1 1/2	0.132	2 E	10 Pm fog
16	10.3	29.872	61.9	70.0	53.1	68.4	68.7	68.3	0		1 S	10 Pm Fm
17	9.9	29.616	68.2	77.1	65.2	75.3	76.2	74.8	0		3 SW	10 Pm M Fm — Fm
18	10.5	29.674	69.3	71.4	64.6	70.1	78.0	70.6	0 1/4	0.022	3 NW	10 Pm M Fm
19	11.7	30.108	63.7	65.0	48.1	64.0	70.9	64.5	0		0 N	9 P R Rs Fm
20	10.3	30.197	62.0	69.9	47.3	68.6	69.0	68.7	0		1 N	0 Fm
21	10.5	30.279	65.6	74.4	54.1	73.0	73.2	73.0	0		1 NW	0 Fm
22	10.2	30.138	68.0	74.8	56.7	73.5	81.3	73.8	0		2 W	7 P Rs
23	10.0	29.975	68.9	67.2	61.3	66.1	80.0	67.0	0		2 E	10 Pm
24	10.4	29.974	64.7	60.1	58.0	59.3	67.8	60.1	0 5/8	0.055	3 E	10 Pm; fine rain
25	10.4	29.900	63.9	63.2	58.1	62.2	62.6	62.6	2 1/8	0.188	1 NE	10 Pm
26	10.2	29.710	65.9	72.2	58.6	71.1	71.3	71.2	0 1/2	0.044	2 W	4 M Fm
27	10.7	29.731	69.0	73.3	61.0	72.0	77.6	72.3	0		3 NW	5 Pm M Fm
28	10.3	30.010	65.5	61.5	55.9	60.4	74.2	61.5	0 1/4	0.022	2 N	10 Pm M
29	10.7	29.862	66.0	73.9	53.9	72.6	73.0	72.9	0		3 NW	0 Rs M
30	10.2	30.122	66.7	67.5	54.9	66.3	80.6	67.0	0		3 NW	0 Rs Fm
34	14	29591	1414	2800	1512	1940	673		see p. 28	1.445	57	176
	10.4	29.986	64.72	67.67	55.04	66.47	72.24			Rainfall for month 1.44 inches	1.9	5.9

29.890
-.026

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Date	Time P.M.	Barometer	Attached Thermometer	No.4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	8.9	30.142	66.8	59.9	1 SE	1 PRs	Twilight and clouds	None; some clouds	None
2									Obsc.
3									Obsc.
4	8.6	30.084	66.0	56.6	1 S	0 Rs	Twilight	Twilight	Aurora
5	8.7	30.086	66.7	57.0	1 S	0	Twilight and moonlight	Twilight and moonlight	Aurora
6									None
7									Obsc.
8	8.6	30.052	70.1	65.7	0 S	0 Rs	Twilight and moonlight	Twilight and moonlight	None
9									Obsc.
10	7.8	29.716	73.1	68.3	0 calm	8 Pm M Fm	Cloudy	Cloudy	Obsc.
11	8.0	29.957	70.6	59.8	1 E	5 PRs haze	Twilight and clouds	Twilight and clouds	Obsc.
12									Obsc.
13									Obsc.
14									Obsc.
15									None
16									Obsc.
17									Obsc.
18	8.3	29.928	68.0	59.4	2 N	4 Pm Fm	Twilight	Twilight	Obsc.
19	8.5	30.124	65.9	57.1	1 E	0 Rs	Twilight	Twilight	None
20	8.7	30.240	68.9	64.8	1 E	1 Rs	Twilight and clouds	Twilight	None
21									Obsc.
22									Obsc.
23									Obsc.
24									Obsc.
25									Obsc.
26	8.8	29.693	72.3	68.3	1 SW	1 Pm Fm	Twilight	Twilight	Aurora
27	8.3	29.906	71.0	63.1	2 E	3 Pm RS Fm	Twilight	Twilight	Obsc.
28	8.6	30.030	68.7	62.4	1 SE	0	Twilight	Twilight	None
29	9.1	29.898	73.6	72.1	2 NW	1 PRs Fm	Twilight	Streamers visible	Aurora
30	8.9	30.160	70.6	65.2	1 NW	0	Twilight	Twilight	Aurora
	80	016	1323	397					
	8.57	30.001	69.45	62.84					

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June, 1886.

1, 11.9 P.M. Day and evening mostly clear, somewhat hazy; no aurora seen.
2, 10.5 A.M. Yesterday rather clear; evening mostly cloudy.
3, 11.9 A.M. Gauge 6½ ounces; 0.574 inches.
4, 10.6 A.M. Yesterday mostly cloudy; rain before noon; evening rather cloudy.
4, 10.5 P.M. Day and evening mostly clear; auroral arch visible as soon as twilight had disappeared, distinct at 9 P.M., over narrow bands of cloud; streamers appearing at 9½ P.M., and arch becoming irregular; streamers at times long and bright; slight pinkish color sometimes apparent in the northwest; aurora still visible, not now conspicuous.
5, 11.4 P.M. Day and evening clear; faint bow aurora now visible.
7, 10.2 A.M. Yesterday rather clear; some thin clouds and haze in the evening; no aurora seen.
8, 10.2 A.M. Yesterday mostly cloudy day and evening.
8, 11.8 P.M. Day and evening clear and warm; no aurora seen.
10, 10.5 A.M. Yesterday rather cloudy; evening cloudy.
10, 10.5 P.M. Day mostly rather cloudy, with some showers; evening rather cloudy.
11, 10.4 P.M. Day and evening rather cloudy; much fog at present.
13, 10.3 A.M. Yesterday mostly cloudy; clouds thin most of the evening.
13, 5.6 P.M. Day cloudy and cool, with light continuous rain; little now falling; gauge 3½ ounces, 0.309 inches.
14, 10.0 A.M. Yesterday evening cloudy; gauge now 0¼ ounces, 0.022 inches; total rainfall 0.331 inches.
15, 10.2 A.M. Yesterday cloudy day and evening.
16, 10.3 A.M. Yesterday cloudy; rather clear late in the evening; no aurora seen.
17, 9.9 A.M. Yesterday mostly cloudy day and evening.
18, 10.5 A.M. Yesterday cloudy day and evening; a little rain.
19, 11.7 A.M. Yesterday partly cloudy; evening mostly rather cloudy; no aurora seen.
19, 11.0 P.M. Day cloudy, becoming clear; evening clear; no aurora seen.
20, 10.7 P.M. Day clear and warm; some thin clouds in the evening; no aurora seen.

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June, 1886.

22, 10.2 A.M. Yesterday rather clear and hot; evening cloudy.

23, 10.0 A.M. Yesterday cloudy day and evening.

24, 10.4 A.M. Yesterday cloudy day and evening, with a little rain.

25, 10.4 A.M. Yesterday cloudy day and evening, with a little rain.

26, 10.2 A.M. Yesterday cloudy day and evening, with a little rain.

26, 11.2 P.M. Day and evening rather clear; some clouds; faint light among clouds in the north, apparently auroral, 10 to 11 P.M.; some appearance of streamers about 10¾ P.M.

28, 10.3 A.M. Yesterday mostly clear and warm; cloudy after about 8½ P.M.

28, 11.3 P.M. Cloudy, clearing in the afternoon; evening clear; no aurora seen.

29, 10.1 P.M. Mostly rather clear and hot; early evening cloudy, rather clear between 8½ and 10 P.M.; extensive irregular aurora with streamers among clouds in the north; clouds now increasing.

30, 11.1 P.M. Day and evening clear and warm; low auroral arch with some streamers first seen about 9¼ P.M.; arch still continues.

Bar. max. 21; 10.5 A.M.; 30.279, 65.6; min., 17, 9.9 A.M.; 29.616, 68.2; C. 13399, max 2281.3; G. 2205; min., 6, 45.9.

Report to Signal Service, sent July 1, 1886.

Aurora looked for every clear evening; results as follows:

June 4. Auroral arch visible as soon as the twilight had disappeared, distinct at 9 P.M., over narrow bands of cloud: streamers appearing at 9¼ P.M. and arch becoming irregular; streamers at times long and bright; slight pinkish color sometimes apparent in the northwest; aurora still visible at 10½ P.M., but not conspicuous.

June 5. Faint low aurora visible about 11½ P.M.

June 26. Faint light among clouds in the north, apparently auroral, 10 to 11 P.M.; some appearance of streamers about 10¾ P.M.

June 29. Evening mostly cloudy, rather clear between 8½ and 10 P.M.; extensive irregular aurora with streamers among clouds in the north.

June 30. Low auroral arch with some streamers, first seen about 9¼ P.M.; arch continuing at 11 P.M.

Zodiacal light not seen; slightly suspected June 30.

Usual report sent July 1, 1886, to the New England Meteorological Society.

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30

July 1886

Date	9 a.m.	Barometer	Attached thermometer	No. 4	Minimum before and after wetting	Maximum before and after wetting		Gauge	Rainfall in inches	Wind	Clouds
1	11.5	30.220	68.0	74.7	57.3	73.1	73.7	73.5	0		2 W	0
2	10.3	30.141	68.0	74.8	56.0	73.2	79.8	73.4	0		2 SW	5 P. thin
3	9.7	30.028	70.1	79.8	60.0	78.3	80.2	78.2	0		0 calm	2 haze
4	3.0 P.M.	30.140	76.0	81.5	60.0	79.9	86.0	81.0	0		2 E.S.E.	Some fog and haze.
5	11.6	30.200	74.0	79.2	62.8	77.9	81.3	78.6	0		2 E.	2 R.Rs. Some haze.
6	9.8	30.100	73.1	82.7	62.6	81.7	82.0	82.6	0		1 N.N.E.	3 R Rs. Some haze.
7	10.2	29.782	78.0	86.9	71.9	85.2	92.9	84.9	0		3 W	7 haze Fm
8	10.1	29.991	78.0	78.4	70.5	77.0	93.0	77.8	0		2 N	8 Pm M Fm —
9	10.3	30.126	72.3	71.7	57.1	70.6	83.6	71.2	0		2 E	8 R Fm
10	10.6	29.888	69.0	68.0	55.8	67.0	74.1	68.0	0		2 E	10 Pm
11	10.9	29.773	69.8	78.0	57.1	76.8	76.8	76.3	0 1/4	0.022	3 W	5 R Rs Rs M Fm
12	10.8	29.920	67.9	69.3	50.3	68.1	81.9	69.0	0		1 NW	0 M Fm
13	11.0	30.010	69.1	76.5	53.9	75.1	77.1	75.0	0		2 W	6 M Fm —
14	10.7	30.101	69.7	69.2	57.1	68.1	81.0	69.0	0		3 E	10 Pm
15	10.7	29.960	68.7	67.4	63.0	66.2	69.0	66.9	16 1/8	1.423	2 E	10 Pm fog
16	10.3	29.949	72.1	71.7	66.0	70.4	77.5	71.0	11 1/4	0.993	1 S	10 Pm; raining
17	10.5	29.930	73.0	78.1	67.1	76.9	77.0	76.5	0 1/2	0.044	1 SW	5 M Fm
18	9.8	29.970	73.6	77.7	64.4	76.1	83.3	76.0	0		1 S	9 P Fm
19	10.6	29.800	73.4	74.0	63.0	72.8	81.8	73.3	0 1/8	0.011	1 SW	6 M Fm
20	10.3	29.740	71.3	71.8	59.4	70.3	78.8	71.0	0		1 NW	5 M Fm
21	10.4	29.849	70.3	71.0	60.0	70.0	78.0	70.2	0		1 E	10 Pm —
22	10.4	29.812	69.7	73.0	57.2	71.3	75.0	72.0	0		1 W	0 M Fm
23	10.1	30.057	68.4	69.4	55.3	68.2	80.7	69.0	0		1 N	0 Fm
24	10.2	30.104	67.9	70.8	54.1	69.7	74.9	70.1	0		2 W	2 M Fm
25	11.8	30.019	71.1	77.7	57.7	76.1	77.4	76.1	0		2 SW	9 P
26	10.4	29.899	72.2	73.7	63.8	72.2	77.9	73.0	0		2 SW	10 Pm Fm
27	10.3	29.744	73.1	73.8	69.2	72.2	75.0	73.1	6 1/4	0.552	1 SW	10 Pm Fm; a little rain
28	10.2	29.819	71.2	74.1	62.1	73.0	76.9	73.0	0 1/4	0.022	1 N	0 haze
29	10.5	29.884	73.6	79.9	63.1	78.3	78.4	78.2	0		2 S	0 haze Fm
30	10.5	29.919	75.6	79.1	67.2	77.9	85.0	78.0	1 3/4	0.154	1 SW	10 P
31	10.1	29.971	73.9	70.1	67.2	69.1	83.6	70.0	0 1/8	0.011	1 W	10 Pm
	325.6	898.403	2146.1	2242.5	2126.2	2202.4	2387.6		36 5/8	3.202 Rainfall for month 3.23	47	173
	10.5	29.057	71.54	74.75	70.87	73.43	79.59				1.6	5.8

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July 1886

Date	Time P.M.	Barometer	Attached Thermometer	No. 4	Wind	Clouds	Zodiacal Light	Aurora	Abstract
1	8.5	30.177	73.2	68.0	1 SW	0 P Rs	Twilight	Twilight	None
2									Obsc.
3									None
4									None
5									None
6	9.7	29.949	81.0	79.2	2 SW	4 P 7m	Moonlight and clouds	Moonlight and clouds	None
7									Obsc.
8	8.6	30.059	80.0	71.7	1 NE	4 P 7m →	Moonlight and twilight	Moonlight and twilight	None
9	8.6	30.059	72.9	65.4	1 E	7 Pz Rm	Cloudy	Cloudy	Obsc.
10	8.4	29.872	70.0	61.7	1 SE	0 haze	Moonlight and twilight	Moonlight and twilight	None
11	10.0	29.855	74.1	65.3	3 NW	0 7m	Moonlight	Moonlight	None
12	9.3	29.950	72.5	64.9	0 SE	4 M 7m	Moonlight	Moonlight	None
13	8.8	30.068	73.9	66.9	1 SE	1 Rs	Moonlight	Moonlight	None
14									Obsc.
15									Obsc.
16									Obsc.
17	8.3	29.960	78.2	74.5	1 S	6 P Rs 7m	Cloudy	Cloudy	Obsc.
18									Obsc.
19	8.5	29.772	77.1	69.8	1 SW	0 Rs	Twilight	Twilight	None
20	8.4	29.765	76.1	70.1	0 calm	0 Rs	Twilight	Twilight	None
21	9.0	29.816	73.7	65.5	1 SE	1 P haze	None; some clouds	None; some clouds	None
22	8.5	29.948	76.0	70.9	0 N	1 P 7m	Twilight	Twilight	None
23	8.6	30.190	72.8	64.9	1 N	4 P 7m →	Twilight and clouds	Twilight and clouds	None
24	8.1	30.079	75.0	71.7	0 calm	0 Rs 7m	Twilight	Twilight	None
25	8.5	29.995	74.2	68.3	1 SE	0 P 7m	Twilight	Twilight and clouds	None
26									Obsc.
27									Aurora
28	8.4	29.859	76.4	71.0	1 S	1 P 7m	Twilight	Twilight and clouds	None
29	8.7	29.862	77.3	71.8	2 S	0 P haze	Twilight and haze	Twilight and haze	None
30	8.4	29.903	80.2	77.2	0 calm	5 P M 7m	Twilight and clouds	Twilight and clouds	None
31	8.2	29.979	76.9	70.9	1 S	5 P 7m	Twilight and clouds	Twilight and clouds	None

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July, 1886.

3, 10.8 P.M. Day and evening clear and warm; no aurora seen.

4, 9.7 A.M. Yesterday rather hot and cloudy; evening cloudy.

4. 3.0 P. M. Yesterday very warm and somewhat foggy, with haze. Much haze in evening. No aurora seen. F.

5. 11.6 A.M. Yesterday very warm, with considerable haze. Quite comfortable in evening. No aurora seen. H.

6. 9.0 A. M. Yesterday forenoon very warm. Wind shifted to easterly about noon. Afternoon and evening quite comfortable. Some haze. No aurora seen. H.

8, 10.1 A.M. July 6 and 7 hot and rather clear; evening of July 6 partly clear; no aurora seen; evening of July 7 cloudy.

8, 10.5 P.M. Day rather cloudy at first, clear later; evening rather clear, but with many passing clouds; no aurora seen.

9, 10.5 P.M. Day mostly rather clear; clouds increasing in the evening.

10, 10.7 P.M. Day cloudy with a little rain, clear towards night; evening clear with some haze; no aurora seen.

11, 11.6 P.M. Day and evening mostly clear and warm; no aurora seen.

12, 11.7 P.M. Day and evening rather clear and warm; no aurora seen.

13, 11.4 P.M. Day and evening rather clear and warm; no aurora seen.

15, 10.7 A.M. Yesterday cloudy day and evening; thunder showers after 6 A.M. today.

16, 10.3 A.M. Yesterday cloudy day and evening, with rain in showers.

17, 10.5 A.M. Yesterday cloudy day and evening, with some rain.

18, 9.8 A.M. Yesterday hot and somewhat cloudy; much thin cloud in the evening.

19, 10.6 A.M. Yesterday rather hot and cloudy; much thin cloud in the evening.

19, 10.1 P.M. Day mostly clear and warm; thin clouds after 9 P.M.; no aurora seen.

20, 11.0 P.M. Day rather cloudy; evening mostly clear; no aurora seen.

21, 11.0 P.M. Day mostly cloudy; evening mostly clear; some scattered clouds at present; no aurora seen.

22, 11.0 P.M. Day and evening mostly clear and warm; no aurora seen.

23, 11.3 P.M. Day and evening mostly rather clear and warm; no aurora seen.

24, 11.1 P.M. Day and evening mostly clear and warm; no aurora seen.

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July, 1886.

25, 11.0 P.M. Day mostly cloudy; evening mostly clear; no aurora seen.

27, 10.3 A.M. Yesterday cloudy day and evening; some rain in showers; a little thunder about 2½ P.M.

27, 11.0 P.M. Day cloudy with some rain; early evening cloudy; now clear, with very extensive, not very brilliant aurora; streamers meeting at $10^h\ 57^m$ about δ Sagittae.

27, 11.3 P.M. Much flashing and occasional very slight reddish tint in places for last 15 minutes; aurora now less extensive.

28, 10.9 P.M. Day and evening mostly clear and warm; broken clouds early in the evening; no aurora seen.

29, 11.1 P.M. Day clear becoming cloudy with rain; evening clear, becoming hazy; lightning without thunder in the west; no aurora seen.

30, 10.5 A.M. Thunder storm during previous night.

30, 10.8 P.M. Day and evening hot and somewhat cloudy; no aurora seen.

31, 10.1 A.M. Lightning without thunder yesterday evening in various parts of the horizon.

31, 10.4 P.M. Day rather cloudy and hot; evening rather clear; no aurora seen.

Bar. max. 1, 11.5 A.M., 30.220, 68.0; min. 20, 10.3 A.M., 29.740, 71.3; C. 13399
max., 8, 9 3.0; G. 22205; min., 12, 50.3. O.C. Wendell obs. 4, 3.0 P.M. to 6, 9.8 A.M. inclusive.

Report to Signal Service, sent August 1, 1886.

Aurora looked for every clear evening; results as follows:

July 27. Early evening cloudy; afterwards very extensive aurora; streamers meeting at $10^h\ 57^m$ P.M. about δ (Delta) Sagittae; much flashing later, with occasional very slight reddish tint in places.

Zodiacal light not seen.

Thunder and lightning. July 15. Thundershowers after 6 A.M.
July 26. A little thunder about 2½ P.M.
July 29. Lightning without thunder in the west during the evening.
July 30. Thunder storm during previous night. During the evening lightning without thunder in various parts of the horizon.

Usual report sent August 4 to the New England Meteorological Society.

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August 1886

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum		Maximum		Gauge	Rainfall in inches	Wind	Clouds
					before and after sitting		before and after sitting					
1	10.4	29.948	73.9	77.3	64.6	76.1	78.5	76.1	0		2 S	6 M Fm haze
2	10.6	29.549	76.3	78.0	67.2	76.8	81.9	77.1	5 1/8	0.452	2 NW	7 PM Fm → Fm
3	10.4	29.650	68.2	62.9	53.4	62.0	80.4	62.8	0		3 W	9 Pm M Fm →
4	10.6	29.930	66.2	68.8	58.1	67.6	68.1	68.2	0		3 NW	0 M Fm →
5	10.6	30.049	68.0	69.5	56.4	68.4	74.0	68.9	0		2 W	4 M Fm R Rs
6	10.3	30.048	69.3	68.1	59.8	67.0	75.4	67.9	3 1/8	0.276	2 SW	6 M Fm →
7	10.5	30.096	69.8	71.2	58.1	70.0	75.0	70.2	0		3 SE	9 Pm M Fm
8	10.6	30.100	67.3	67.1	55.7	66.1	71.1	67.0	12 7/8	1.136	2 N	4 M Fm
9	10.9	30.391	70.9	77.0	61.9	75.3	75.4	75.3	0		1 SW	1 haze
10	10.5	30.224	74.7	77.7	62.1	76.1	81.9	76.8	0		1 SW	0 R haze
11	10.1	29.874	73.3	78.4	63.8	76.8	82.5	76.8	0		1 SW	8 P Rm
12	10.7	29.797	76.3	79.1	70.2	77.8	83.4	78.2	0		3 NW	4 P Rs M haze
13	10.2	30.028	73.0	74.0	61.0	72.9	82.3	73.2	0 1/2	0.044	2 SE	2 Fm →
14	10.4	29.690	74.9	76.4	67.0	75.2	80.0	75.9	0		2 S	10 Pm Fm
15	9.7	29.999	67.1	63.6	56.8	62.7	81.0	63.4	4 1/8	0.364	3 NW	0 Rs
16	10.7	30.082	68.0	71.2	52.0	70.0	71.9	70.2	0		2 S	1 Rs Fm
17	10.5	29.839	69.1	62.7	60.6	61.6	75.7	63.0	5 1/2	0.485	2 N	10 Pm Fm
18	10.4	30.154	66.3	66.0	54.3	65.0	65.6	65.6	0		2 E	4 M Fm
19	10.6	30.227	66.7	68.1	54.6	67.0	68.2	67.6	0		1 N	7 PM Fm
20	10.8	30.382	66.0	67.4	49.2	66.1	70.8	66.7	0		1 E	1 M Fm ← haze
21	10.3	30.322	64.6	65.4	48.1	64.3	70.0	65.0	0		1 S	0 Fm
22	10.4	30.080	63.1	65.7	47.0	64.9	70.8	65.1	0		3 NE	0
23	10.7	29.908	62.9	68.7	45.7	67.7	68.2	67.8	0		2 W	0
24	10.4	29.996	70.6	74.7	56.6	73.2	78.9	74.1	0		1 S	0 Fm
25	10.4	30.086	69.7	64.7	61.8	63.8	81.9	64.7	0 1/8	0.011	2 NE	10 Rm
26	11.7	29.960	69.2	75.9	55.2	74.7	74.9	74.9	0		2 W	0 haze
27	11.4	29.956	72.8	79.9	63.6	78.2	80.6	78.3	0		1 N	2 haze
28	10.6	29.911	73.7	79.9	63.1	78.6	85.0	79.0	0		1 N	3 haze
29	9.7	29.948	72.7	72.7	64.1	71.2	82.4	72.0	0		3 E	1 haze
30	11.0	29.956	70.1	68.7	61.4	67.3	75.6	68.3	0		2 E	10 Rm
31	9.6	29.750	72.1	74.7	64.0	73.3	73.9	74.2	0 1/2	0.044	2 S.S.W	10 Pm
	325.4	929.850	2166.8	2215.3	1747.7	2177.7	2360.8		317/8	2.812	60	129
	10.5	29.995	69.89	71.46	56.38	70.25	76.32			Rainfall for month 3.812 inches	19	

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August 1886

Date	Time P.M.	Barometer	Attached thermometer	No 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2	8.1	29.582	78.0	72.8	1 W	5 M Fm	Twilight and clouds	Twilight and clouds	None
3	8.6	29.772	69.0	61.3	1 SW	5 Pm Fm	Moonlight and clouds	Twilight and clouds	None
4	8.8	30.002	72.9	66.1	0 calm	1 Pm Fm	Moonlight	Twilight and clouds	None
5									Obsc.
6	8.6	30.054	73.1	66.3	0 S	0	Moonlight	Moonlight	None
7									Obsc.
8	8.5	30.196	74.0	68.7	2 SE	0	Moonlight	Moonlight	None
9	9.2	30.328	76.9	72.5	3 S	1 haze	Moonlight	Moonlight	None
10	8.7	30.074	78.0	72.5	2 S	0 haze	Moonlight	Moonlight	None
11	8.6	29.772	79.0	76.2	1 S	3 P Rs Fm	Moonlight	Moonlight	None
12	8.6	29.904	78.7	72.5	0 calm	0 Fm	Moonlight	Moonlight	None
13	8.6	29.937	78.0	72.2	2 S	0 haze	Moonlight	Moonlight	None
14	8.2	29.786	78.1	73.1	2 N	2 R Rs Fm	Moonlight	Moonlight	None
15	8.6	30.056	71.7	63.3	0 calm	0	Moonlight	Moonlight	None
16									Obsc.
17	8.5	30.000	70.0	60.0	1 N	3 Pm Fm haze	Twilight and clouds	None; some clouds	None
18	8.3	30.189	70.3	60.7	1 SE	0 Pm Fm	Twilight	None	None
19	8.5	30.313	70.1	61.9	0 calm	0 haze	Twilight	None	None
20	8.5	30.352	70.1	60.7	1 SE	0	Twilight	None	None
21	8.3	30.239	68.3	60.1	2 S	0 haze	Twilight	None	None
22	8.1	29.948	68.2	57.8	0 E	0	Twilight	None	None
23	8.5	29.950	71.1	66.4	0 S	0 Fm	Bright aurora	Triple arch and streamers	Aurora
24									Obsc.
25	8.5	30.070	69.1	60.3	1 NE	0 haze	None	None	None
26									Obsc.
27	8.7	29.934	78.2	74.2	1 SE	2 haze	Hazy	Hazy	None
28	8.2	29.884	78.1	73.2	0 calm	2 haze	Hazy	Hazy	None
29	8.4	29.997	75.7	65.0	1 NE	2 haze	Hazy	Hazy	None
30									Obsc.
31									Obsc.

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August 1886.

2, 11.5 P.M. Yesterday cloudy day and evening with rain during the night. Today partly cloudy day and evening; no aurora seen.

3, 10.4 A.M. Rain gauge moved yesterday afternoon to place about 40 feet north of west wing of Observatory; as in its former place it would have been too near the building for the Draper telescope now in course of construction. (see note Aug. 30)

3, 11.2 P.M. Day and evening rather cloudy, clear after 9 P.M.; no aurora seen.

5, 10.6 A.M. Yesterday rather cloudy; evening partly clear; no aurora seen.

6, 10.3 A.M. Yesterday rather clear and warm; evening cloudy, with a little rain.

6, 10.8 P.M. Day mostly clear and warm; evening partly cloudy; no aurora seen.

8, 10.6 A.M. Yesterday cloudy, with rain in the evening.

8, 11.0 P.M. Day and evening clear and warm; no aurora seen.

9, 11.0 P.M. Day and evening mostly clear, rather hot; thin clouds early in the evening; no aurora seen.

10, 11.2 P.M. Day and evening clear, rather hot; no aurora seen.

12, 9.5 P.M. Yesterday somewhat cloudy day and evening; no aurora seen; today rather cloudy, with a little rain and thunder about 3½ P.M.; evening rather clear at first, then rather cloudy; no aurora seen.

13, 10.5 P.M. Day mostly clear, rather hot; evening clear at first, some haze and bands of cloud later; no aurora seen.

14, 11.0 P.M. Day mostly rather cloudy with showers; one flash of lightning and clap of thunder about 1½ P.M.; evening mostly clear; no aurora seen.

15, 11.1 P.M. Day and evening clear and warm; no aurora seen.

17, 10.5 A.M. Yesterday clear, becoming cloudy, with rain in the evening.

17, 10.5 P.M. Day mostly cloudy; evening partly clear; no aurora seen.

18, 10.9 P.M. Day mostly clear; evening clear; no aurora seen.

19, 10.9 P.M. Day mostly clear; evening clear; no aurora seen.

20, 11.1 P.M. Day mostly clear; evening clear; no aurora seen.

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August, 1886.

21, 11.4 P.M. Day and evening clear; no aurora seen.

22, 11.7 P.M. Day and evening clear; no aurora seen.

23, 11.1 P.M. Day and evening clear and warm; extensive and very variable aurora throughout the evening; curtain-like forms frequent; sky very dark below.

25, 10.4 A.M. Yesterday clear and warm; evening cloudy.

25, 11.2 P.M. Day cloudy; evening clear after 8 P.M.; no aurora seen.

27, 11.4 A.M. Yesterday hot and hazy; thick haze in the evening.

27, 11.5 P.M. Day hot and hazy; evening rather hazy; no aurora seen.

28, 11.1 P.M. Day and evening hot and hazy; no aurora seen.

29, 9.4 P.M. Day rather hazy, with east wind; haze now thicker; no aurora seen.

30, 12.5 P.M. By rough measurement, rain gauge a little over 60 feet north of west wing of Observatory, about on the meridian of the west dome, and 44 feet northeast of the northeast corner of the Coast Survey transit-shed. Rim of funnel 10 inches above ground.

31. 9.6 A.M. Yesterday sultry, and cloudy. Clouds broken for a few minutes last evening. Then clouded again, with some rain at intervals in the early part of evening. Cloudy apparently during night. No aurora or zodiacal light seen. Gauge emptied. W.

Bar. max. 20, 10.8 A.M. 30.382, 66.0; min. 2, 10.6 A.M. 29.549, 76.3; C. 13399, max., 28, 85.0; G. 220'5, min., 23, 45.7. O. C. Wendell obs. 31, 9.6 A.M.

Report to Signal Service, sent Sept. 2, 1886.

Aurora looked for every clear evening; on Aug. 23 extensive and very variable aurora throughout the evening; curtain-like forms frequent; sky very dark below.

Zodiacal light not seen.

Thunder and lightning. Aug. 12; a little rain and thunder about 3½ P.M.; Aug. 14; one flash of lightning and clap of thunder about 1¼ P.M.

Usual report sent Sept. 2 to the New England Meteorological Society; Observations of maximum entered under the date previous to that on which they were made as in recent reports, (in accordance with the directions of the Society).

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September 1886

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds
1	9.5	30.082	67.1	64.8	56.0	63.7	80.3	65.6	3 3/4	0.331	3 N. W.	0 Some fog.
2	11.3	30.450	63.9	63.4	46.8	62.2	68.3	63.0	0		2 E	2 M Fm →
3	10.7	30.473	64.1	67.5	49.2	66.2	67.7	67.0	0		3 E	0 Fm
4	10.3	30.493	63.0	64.6	49.3	63.4	68.4	64.0	0		2 E	9 P M Fm
5												
6	9.7	30.426	66.4	71.2	57.0	69.7	70.2	70.7	0		0 E.	10 Fm Pm. Some fog.
7	9.6	30.404	70.2	74.2	65.2	72.9	74.2	73.9	0		1 N.E.N.	6 Fm.
8	10.6	30.230	73.2	76.1	65.7	75.0	81.0	75.4	0		3 S	0 Fm
9	10.4	30.062	74.0	77.1	66.2	75.8	81.0	76.0	0		3 SW	3 R Rs M Fm
10	10.4	29.950	71.1	64.9	61.9	63.9	82.0	65.0	6	0.530	2 NE	10 Pm
11	10.4	29.853	71.1	75.1	63.9	74.0	74.8	74.7	0		2 NW	6 Pm Fm →
12	10.2	29.900	68.0	71.8	57.1	70.6	77.1	70.9	0		3 S	3 P Rs Fm
13	10.6	29.851	67.0	62.4	54.6	61.7	78.0	62.1	4 1/4	0.375 ~~0.515~~	2 W	0 M Fm
14	10.6	30.066	65.3	67.3	45.0	66.1	67.5	67.0	0		3 SW	1 Pm M Fm
15	10.1	30.248	67.0	69.7	58.2	68.7	71.4	69.0	0		2 NE	0
16	10.2	30.339	65.7	61.4	58.0	60.6	70.6	61.3	0 1/4	0.022	2 NE	10 Rn
17	11.0	30.086	72.1	76.8	59.9	75.1	75.9	75.8	2 1/2	0.221	3 S	1 M Fm 1
18	10.2	30.296	68.0	64.6	59.2	63.9	78.3	64.5	1 3/4	0.154	3 N	0
19	10.5	30.257	64.4	66.7	47.5	65.7	69.7	66.0	0		3 S	9 P Rs M Fm
20	11.7	29.889	64.4	62.6	56.1	61.7	69.2	62.2	0 1/2	0.044	3 NW	6 M Fm
21	11.1	30.056	58.5	58.9	40.1	58.0	63.0	58.7	0		3 NW	0 M Fm
22	11.0	30.274	56.0	51.5	39.8	50.7	61.4	51.8	0		2 N	0
23	10.6	30.125	57.0	51.3	45.1	50.2	57.0	52.1	See p. 41		2 E	10 Pm Fm ≤ ; raining
24	10.7	30.213	57.1	56.0	48.7	55.0	55.7	55.8	See p. 41	1.324 ~~1.811~~	1 NW	0
25	10.7	30.362	54.0	54.0	47.7	52.9	66.7	54.2	0		2 E	1 M Fm
26	9.3	30.017	62.0	69.7	51.0	68.7	69.0	68.2	0		3 SW	6 P Rs R Fm
27	10.4	29.883	67.2	71.6	64.2	70.5	75.0	70.8	0		2 NW	1 Pm M Rm Fm
28	10.3	29.968	63.0	60.6	54.3	59.9	74.8	60.2	4 1/2	0.397	1 E	10 P Fog
29	10.3	29.929	63.4	61.7	56.0	57.8	63.2	58.0	0 5/8	0.055	2 NW	10 Pm Fm /
30	10.6	30.003	58.0	59.8	42.5	58.8	62.3	59.0	0		1 E	10 Pm Fm
30	10.4	~~30.185~~	1472	1633	15302	14634	20547		See p. 41	3.453 Rainfall for month 3.45 inches	64	124
	10.5	30.144 −.098	65.08	65.63	52.77	50.46	70.85				2.2	4.3

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September 1886

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract.
1	8.3	30.300	68.8	58.8	1 E	0	None	None	None
2	8.7	30.420	67.7	58.0	1 E	0	Moonlight	None	None
3	8.5	30.501	67.9	58.9	1 NE	0	Moonlight	Moonlight	None
4									None
5									Obsc.
6	10.2	30.390	71.2	66.2	0 S.	10 Fog.	Moonlight.	Moonlight.	None
7	8.4	30.329	75.9	72.1	1 S	0	Moonlight	Moonlight	None
8	8.6	30.135	77.0	71.8	3 S	0	Moonlight	Moonlight	Suspected
9	8.7	30.015	77.0	72.1	1 S	5 Pm Fm M	Moonlight	Moonlight and clouds	None
10									Obsc.
11	8.3	29.969	73.1	66.1	0 calm	0	Moonlight	Moonlight	None
12									Obsc.
13									None
14									Obsc.
15									Obsc.
16									Obsc.
17									Obsc.
18	9.0	30.363	68.1	57.1	1 S	0	None	None	None
19									Obsc.
20	8.0	30.049	62.2	48.9	0 calm	0	None	Light near horizon	Aurora
21	8.7	30.100	61.0	53.2	2 NW	0	None	None	Suspected
22	9.0	30.218	59.0	47.4	0 calm	3 P	None	Cloudy	None
23									Obsc.
24	8.6	30.166	63.0	58.9	0 calm	1 haze	None	None	None
25									Obsc.
26	9.3	29.802	68.7	68.9	3 S	1 P haze	Cloudy	Cloudy	Obsc.
27									Obsc.
28									Obsc.
29	8.7	30.020	62.6	55.2	0 calm	0 haze	None	None	Aurora
30	8.6	29.826	60.8	54.1	2 NE	10 Pm	Cloudy	Cloudy	None

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September 1886.

Sept. 1. 9.4 a.m. Yesterday rather cool, and cloudy. Some rain at intervals. Cloudy last evening. No aurora seen. Gauge emptied. H.

1, 10.7 P.M. Day and evening clear and cool; no aurora seen.

2, 10.9 P.M. Day and evening clear and cool; no aurora seen.

3, 11.3 P.M. Day and evening clear and cool; no aurora seen.

6. 9.7 A. M. Saturday rather cool with East wind. Heavy masses of fog with some underlying thin cloud, during most of day and evening. No aurora seen. Yesterday cool with East wind. Generally cloudy during day, clearing some towards night, but cloudy again during evening. No aurora seen. H.

6. 10.2 P. M. Day moderately warm but comfortable. Generally cloudy, but clearing towards evening. Became foggy about 10 P. M. Thickly foggy at present time. No aurora seen. H.

7, 11.6 P.M. Day and evening mostly clear and warm; no aurora seen.

8, 10.4 P.M. Day clear and warm till near 10 P.M.; afterwards broken clouds from the southwest; aurora slightly suspected at times in the evening; moonlight strong

10, 10.4 A.M. Yesterday hot and rather cloudy with a little rain; clear for a time about 8 P.M.; no aurora seen; more clouds later.

11, 10.4 A.M. Yesterday cloudy day and evening.

11, 10.8 P.M. Day and evening mostly clear; no aurora seen.

13, 10.6 A.M. Yesterday cloudy and warm, with rain in the evening.

14, 10.6 A.M. Yesterday mostly clear, becoming cool; thin clouds most of the evening; no aurora seen.

15, 10.1 A.M. Yesterday clear, cloudy towards night; evening cloudy.

16, 10.2 A.M. Yesterday clear, with thin clouds in the evening.

17, 11.0 A.M. Yesterday cloudy day and evening; some rain.

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September 1886

18, 10.2 A.M. Yesterday mostly cloudy and warm; thunder shower in the evening.

19, 12.5 A.M. Yesterday clear and rather warm; no aurora seen.

20, 11.7 A.M. Yesterday mostly cloudy; slight thundershower in the evening.

20, 11.0 P.M. Day rather clear and cool; evening clear; auroral light near horizon at 8 P.M., distinct low arch later, still visible at 10½ P.M., when the moon rose.

21, 11.9 P.M. Day and evening clear and cool; low faint auroral arch sometimes thought to be visible.

22, 10.3 P.M. Day mostly clear and cool; evening partly cloudy, clouds variable ~~cloudy~~ in place and appearance; no aurora seen.

23, 2.3 P.M. Still raining. Gauge 13¾ ounces; 1.21 ¼ inches.

24, 10.7 A.M. Yesterday cloudy day and evening, with rain. Gauge now 1¼ ounces; 0.110 inches; total rainfall ~~1.324~~ 1.324 inches.

24, 11.0 P.M. Day and evening rather clear and warm; no aurora seen.

26, 9.3 A.M. Yesterday mostly rather cloudy; evening cloudy.

27, 10.8 A.M. Yesterday mostly cloudy and warm; frequent thin clouds in the evening.

28, 10.3 A.M. Yesterday rather clear and warm; foggy about 5 P.M. and later; rain early today.

29, 10.3 A.M. Yesterday cloudy day and evening.

29, 11.9 P.M. Day cloudy, becoming clear. Auroral light visible at present over low clouds in the north. Gegenschein slightly suspected with centre half way from ε Piscium to 20 Ceti.

20 Ceti	$0^h\ 46^m.9$	$-1^\circ\ 48'$
ε Piscium	0 56.7	+7 15
Gegenschein	0 51.8	+2 43

30, 11.2 P.M. Day rather cloudy; evening partly clear, cloudy soon after 8 P.M.; no aurora seen.

Bar. max. 3, 8.5 P.M., 30.501, 67.9; min. 26, 9.3 P.M., 29.802, 68.7; C. 13399, max. 10, 82.0; C. 2205, min., 22, 39.8. C. C. Wendell obs. 1, 9.5 A.M., 6, 9.7 A.M. and 10.2 P.M., 7, 9.6 A.M.

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Report sent Oct. 1, 1886, to Signal Service.

Aurora looked for every clear evening; results as follows:
Sept. 8. Aurora slightly suspected at times in the evening.
Sept. 20. Auroral light near horizon at 8 P.M.;
district low arch later, still visible at
10½ P.M., when the Moon rose.
Sept. 21. Low faint auroral arch sometimes thought
to be visible this evening.
Sept. 29. Auroral light visible over low clouds in
the north about 11h 55m P.M.

Zodiacal light not seen.

Thunder and lightning. Sept. 17. Thunder shower in the evening.
Sept. 19. Slight thunder shower in the evening.

Usual report sent Oct. 1, 1886, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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October 1886.

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting	Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.8	29.699	59.1	61.4	47.9	60.9	61.0	61.0	0		2 SW	0	1
2	10.8	30.164	52.0	50.7	34.2	50.0	66.0	51.0	0		2 SW	1 M Fm \	2
3	10.4	30.421	51.2	49.9	32.9	49.0	54.0	50.4	0		1 W	0 Fm	3
4	10.5	30.082	53.6	57.0	40.3	55.9	57.0	56.0	0		1 SW	9 Pr Rs Rm R	4
5	11.0	30.163	56.1	58.7	45.9	58.0	65.6	58.2	0		2 NE	7 M Fm /	5
6	10.6	30.100	54.2	56.3	36.9	55.2	59.5	56.0	0		1 NW	0 Rs	6
7	10.4	30.238	54.6	56.4	43.0	55.2	62.4	56.2	0		3 NE	9 P M Fm	7
8	10.9	30.250	54.0	55.4	37.2	54.3	57.9	55.3	0		1 SW	0 R Fm	8
9	10.6	30.130	58.0	66.8	49.0	65.9	65.9	65.4	0 1/8	0.011	0 W	0	9
10	10.1	30.248	61.0	63.7	52.9	62.9	74.2	62.8	0		2 E	3 Pr Rs	10
11	9.9	30.234	58.8	63.4	46.9	62.5	64.4	62.8	0		1 SW	6 Pm Fm →	11
12	10.5	29.988	62.0	68.9	52.1	67.9	72.5	68.0	0		2 W	2 Pr Rs	12
13	10.5	30.128	60.0	52.4	50.1	51.5	75.8	53.2	0 1/8	0.011	3 NE	10 Pm	13
14	10.5	30.184	56.3	54.7	41.1	53.7	54.2	54.2	0		2 E	3 Fm	14
15	10.6	29.698	64.0	69.4	53.3	68.2	68.6	68.6	0 1/2	0.044	3 SW	4 M Fm → ↑ / →	15
16	10.6	30.098	51.1	42.4	37.0	41.8	69.7	43.3	0		3 W	6 M Fm →	16
17	10.2	30.421	45.3	37.3	23.8	36.7	44.0	38.6	0		1 SE	0	17
18	10.7	30.291	51.0	50.0	36.8	49.0	49.6	49.8	0 3/4	0.066	1 N	10 Pm Fm	18
19	10.3	30.579	52.0	47.5	35.3	46.6	52.0	47.5	0		0 N	10 Pm Fm ←	19
20	10.5	30.430	53.1	53.5	34.2	52.2	53.3	53.7	0		2 SW	1 Pm M Fm	20
21	10.9	29.916	60.0	62.6	50.2	61.7	61.9	61.9	0		2 SW	10 Pm	21
22	10.3	30.079	54.0	51.1	35.1	50.1	63.6	51.2	0		1 SW	0	22
23	10.5	30.132	53.5	53.3	46.1	52.5	60.4	53.8	0		3 N	0	23
24	10.2	30.453	49.0	45.1	30.9	44.4	54.3	45.9	0		3 E	0 Fm	24
25	10.7	30.209	51.9	53.6	31.4	52.5	53.0	53.0	0		3 SW	10 Pr Fm →	25
26	11.0	30.398	55.0	51.1	47.3	50.1	58.8	51.4	0		3 NE	10 P	26
27	10.7	30.299	53.3	47.0	43.4	46.1	51.6	47.2	5 1/2	0.485	3 NE	10 Pm	27
28	10.3	29.948	50.8	44.8	40.1	44.0	47.5	45.1	7 3/4	0.684	2 N	10 Pm	28
29	10.7	29.986	55.0	50.3	43.9	49.3	51.0	50.5	Snow 1/2 in. 48		3 NE	10 Rm: raining	29
30	10.6	30.038	51.6	47.8	45.5	47.0	50.7	48.0	3 3/4	0.331	3 NE	10 Rm	30
31	11.9	29.870	54.2	52.7	43.0	51.7	52.3	51.8	12 3/4	1.092	2 NE	10 Pm	31
	327.2	4874	1697.9	1674.9	1287.7	1644.8	1832.7		30 7/8	2.71 Rainfall for month	61	161	
	10.5	30.157	54.77	54.03	41.54	53.12	59.12				2.0	5.2	

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October 1886.

Date	Time P.M.	Barometer	Attached thermometer	No.4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	8.5	29.935	59.2	47.1	2 W	0 Rs	None	None	None
2	8.3	30.308	55.5	44.9	0 W	0 Pm 7m	Moonlight	Moonlight and clouds	None
3	9.0	30.260	56.3	46.7	2 SW	0	Moonlight	Moonlight	None
4									Obsc.
5	8.7	30.172	58.0	49.0	0 calm	0 fog	Moonlight	Moonlight	None
6	8.7	30.077	59.0	50.0	0 N	1 Pc Rs	Moonlight	Moonlight and clouds	None
7	8.5	30.275	56.6	46.6	1 N	0	Moonlight	Moonlight	None
8	8.7	30.165	59.3	53.2	1 S	0	Moonlight	Moonlight	Aurora
9	8.3	30.119	66.9	66.0	1 W	0	Moonlight	Moonlight	None
10	8.3	30.232	62.6	54.8	0 calm	2 fog	Moonlight and fog	Moonlight and fog	None
11	9.0	30.240	64.8	59.5	2 SW	0 Rs 7m	Moonlight	Moonlight	None
12									Obsc.
13									None
14									Obsc.
15	8.5	29.784	61.1	53.0	3 W	0	Moonlight	Moonlight	None
16	8.7	30.310	49.0	33.9	2 W	0 Pm 7m	Moonlight	Moonlight	None
17									Obsc.
18									Obsc.
19	8.5	30.534	54.9	43.4	0 SE	0	None	None	None
20	8.5	30.250	58.0	52.6	2 SW	0 haze	Suspected	None	None
21	8.4	30.084	49.9	50.0	1 NW	0	Suspected	None	None
22	7.9	29.931	59.1	53.0	2 SW	0	Visible	None	None
23	8.7	30.302	55.8	42.0	1 N	0	Visible	None	None
24	7.8	30.422	55.0	39.2	1 NE	0 fog	Suspected; some fog	None	None
25	8.6	30.189	55.8	51.8	1 SW	0 haze	Suspected; hazy	None	None
26									Obsc.
27									Obsc.
28									Obsc.
29									Obsc.
30									Obsc.
31									Obsc.

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October, 1886.

1, 11.7 P.M. Day partly cloudy; evening clear and cool; no aurora seen. No change in the appearance of the region where Gegenschein was suspected Sept. 29; the brightest part of the band continues as then described.

2, 11.6 P.M. Day cool, sometimes cloudy; evening mostly clear; no aurora seen. Brightest part of band from Aquila to Pleiades still the same as on Sept. 29 and Oct. 1.

3, 11.2 P.M. Day and evening clear and cool; no aurora seen. Band from Aquila to Pleiades as previously.

5, 10.0 A.M. Yesterday rather clear and warm; thin clouds most of the evening.

5, 10.5 P.M. Day mostly cloudy; evening clear; no aurora seen.

6, 10.2 P.M. Day clear and warm; evening rather clear, but many thin bands and patches of cloud; no aurora seen.

7, 11.1 P.M. Day somewhat cloudy; evening mostly clear; some clouds at present; no aurora seen.

8, 10.7 P.M. Day and evening mostly clear and rather warm; many thin clouds at present; auroral streamers seen by O. C. Wendell about 7 P.M.

9, 10.9 P.M. Day and evening clear and warm; no aurora seen.

11, 11.0 P.M. Yesterday clear and warm; evening rather foggy; no aurora seen. Today clear and warm; evening rather clear; no aurora seen.

13, 10.5 A.M. Yesterday warm; clouds increasing; a few drops of rain in the evening.

14, 10.5 A.M. Yesterday mostly cloudy; nearly clear about 11 P.M.; no aurora seen.

15, 10.6 A.M. Yesterday somewhat cloudy; evening cloudy with a little rain.

15, 11.1 P.M. Day rather cloudy; evening clear between 8 and 11 P.M.; no aurora seen.

16, 11.0 P.M. Day and evening mostly clear and cool; no aurora seen. No. 4 now 31.1.

18, 10.7 A.M. Yesterday clear and cool; cloudy towards night; a little rain in the evening.

19, 10.3 A.M. Yesterday mostly cloudy day and evening.

19, 11.4 P.M. Day and evening mostly clear; no aurora seen.

20, 10.5 P.M. Day and evening rather clear and warm; no aurora seen;

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October, 1886

21, 11.7 P.M. Day and evening clear; no aurora seen. Region of Gegenschein suspected Sept. 29 and Oct. 1 and 2 does not now seem as bright as three weeks ago: still, it is a somewhat bright portion of the band to the Pleiades. 1 Band rather bright between this region and the Pleiades, but no definite appearance of Gegenschein.

22, 10.7 P.M. Day and evening clear and rather warm; no aurora seen; region where Gegenschein was suspected Sept. 29 and Oct. 1 and 2 seems fainter than it did then, although now on the meridian. See similar remark yesterday.

23, 11.4 P.M. Day and evening clear; no aurora seen. Region between ε Piscium and 20 Ceti seems decidedly not the brightest part of the band to the Pleiades; it is difficult to believe that no change has taken place there since Sept. 29. The whole of the band in Aries is decidedly bright, the brightest part about half way between η Tauri and ξ¹ Ceti. No definite appearance of Gegenschein as a round or elliptical spot.

η Tauri	H.P. 618	3 h 40.4 m	+23° 44′
ξ¹ Ceti	H.P. 352	2 6.6	+ 8 17
Gegenschein		2 53.5	+15 6

24, 11.5 P.M. Day and evening clear; no aurora seen; appearance of zodiac about as last night, but sky more hazy than yesterday; band certainly much brighter between ξ¹ Ceti and the Pleiades than below ε Piscium.

25, 10.5 P.M. Day cloudy, becoming warmer; evening mostly clear but hazy; no aurora seen.

27, 10.7 A.M. Yesterday cloudy; a little rain in the evening.

28, 10.3 A.M. Yesterday cloudy day and evening with some rain.

29, 10.7 A.M. Yesterday cloudy day and evening.

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October 1886

30, 10.6 A.M. Yesterday cloudy day and evening with some rain.
Bottle not removed from rain gauge yesterday.

31, 11.9 A.M. Yesterday cloudy day and evening with rain.

31, 11.1 P.M. Day and evening cloudy; a little rain at times.

Bar. max. 19, 10.3 A.M. 30.579, 52.0; min. 15, 10.6 A.M., 29.698, 64.0; see also min. 1, 10.8 A.M., 29.699, 59.1; C. 13399, max., 13, 75.8; G. 2205, min., 17, 23.8.

Aurora — Report to Signal Service sent Nov. 2, 1886. Looked for every clear evening; auroral streamers seen Oct. 8, about 7 P.M.

Zodiacal light — visible on the evenings of Oct. 22 and 23; suspected Oct. 20, 21, 24, 25.

Frost — Minimum thermometer below the freezing point Oct. 17, 24, 25; the minima for these dates were 23.8, 30.9, 31.4.

Usual report sent Nov. 2 to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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November 1886

Date	Sidereal Time	Barometer	Attached thermometer	No. 14	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
	10.6	29.943	54.0	50.0	46.8	49.1	52.0	50.2	0 1/2	0.044	2 N	10 Pm	
2	10.6	30.099	53.0	56.3	41.8	53.4	56.7	55.6	0		1 N	6 Pm Rs R	2
3	10.4	30.062	54.7	56.5	44.0	55.4	58.7	56.0	0 1/8	0.011	2 S	10 Pm Fm ∫ Fm↑	3
4	11.6	29.898	57.8	53.4	51.8	54.5	62.0	55.6	0 1/8	0.011	3 W	1 P Rs R	4
5	10.6	30.261	51.2	49.0	32.2	48.0	55.9	49.3	0		2 S	1 Rs Fm	5
6	10.5	30.094	53.6	51.1	42.1	50.0	54.9	51.2	0		1 NE	10 Pm Fm↑ fog	6
7	10.4	29.456	56.0	40.0	39.0	39.6	56.8	41.3	8 7/8	0.783	4 W	4 M Fm →	7
8	11.1	29.824	48.1	37.5	26.4	36.9	42.0	38.9	0		3 W	8 Pr Rs	8
9	10.6	30.058	46.2	42.2	28.9	41.2	42.0	42.3	0		2 SW	5 P Rs Fm →	9
10	10.6	30.102	47.7	48.7	34.2	47.7	48.0	48.0	0		2 SW	10 Pm Fm ↑	10
11	11.0	30.017	48.2	48.1	36.7	46.9	51.0	48.2	1 5/8	0.143	1 SW	9 Pm Fm	11
12	10.4	30.134	47.1	43.2	35.1	42.1	52.7	43.5	0		1 N	9 P Rs	12
13	10.3	29.413	48.3	40.7	38.2	40.0	47.0	40.9	see p. 52		2 NW	10 Pm; raining	13
14	10.2	29.642	42.9	33.9	28.2	33.1	40.9	34.6	see p. 52	1.170	4 W	4 Pm Rs Fm	14
15	10.4	29.989	44.4	40.5	31.0	40.0	40.3	40.7	0		2 W	0 Rs	15
16	11.6	30.359	45.2	36.7	29.2	35.9	43.3	37.2	0		2 W	2 Rs R	16
17	11.5	30.210	42.0	35.9	26.0	35.0	39.0	36.3	see p. 52		0 NE	10 Pm; raining	17
18	10.1	29.618	47.4	62.2	35.1	60.5	61.1	57.0	see p. 52	0.243	4 SW	10 Pm Fm ↑	18
19	10.5	29.647	45.0	36.0	34.7	35.1	62.8	36.8	6 5/8	0.585	3 SW	4 R Pm Rs M Fm →	19
20	10.3	29.793	43.0	40.8	32.6	40.0	40.8	41.0	0		2 W	8 Pm Rs Fm →	20
21	9.9	29.900	44.1	42.3	34.7	41.5	46.0	42.7	0		2 W	0	21
22	9.8	30.150	44.0	38.9	29.8	38.1	47.2	39.3	0		2 NW	0 M Fm	22
23	11.4	29.800	44.1	43.1	32.1	42.2	43.7	43.2	see p. 53		1 SE	10 Pm; raining	23
24	10.5	29.543	54.8	54.0	42.0	53.2	60.0	54.3	see p. 53	0.563	3 W	0 P M Fm	24
25	11.0	30.009	45.6	37.4	33.1	36.1	54.5	38.1	0 1/8	0.011	0 calm	10 Pm; a little rain	25
26	10.7	30.000	43.8	36.4	33.0	35.9	43.2	37.4	3 7/8	0.342	3 W	0 M Fm	26
27	10.6	30.249	40.4	33.2	23.9	32.2	38.0	33.5	0		1 SW	6 Pm Fm →	27
28	11.0	30.100	39.0	33.1	20.7	32.6	37.3	34.0	0		2 SW	1 P Rs	28
29	11.4	29.893	41.8	48.8	27.8	47.2	47.9	47.3	0		2 S	8 P M Fm ∫ Fm↑	29
30	10.8	29.830	45.3	41.1	33.3	40.1	50.9	41.2	0		0 N	10 P fog	30
	3204	898223	14187	13130	10244	12855	14766		see p. 52, 53	3.906	59	176	
	10.7	29.941	47.29	43.77	34.15	42.85	49.22			Rainfall for month 3.91 inches	2.0	5.9	

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November 1886.

Date	Time P.M.	Barometer	Attached thermometer	No.4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	8.5	29.971	56.3	45.1	0 calm	8 Fog	Fog and moonlight	Fog and moonlight	None
2	8.5	30.114	56.3	46.5	0 calm	8 Fog	Fog and moonlight	Fog and moonlight	Aurora
3	8.6	29.945	58.0	53.5	2 S	8 Pm Fm	Cloudy	Cloudy	Obsc.
4	8.4	30.134	55.0	44.2	0 W	0 Rs	Moonlight	Moonlight	None
5	8.5	30.201	56.1	46.3	2 S	0 P Rs	Moonlight	Moonlight and clouds	None
6									Obsc.
7	8.8	29.736	53.0	34.3	2 W	0	Moonlight	Moonlight	None
8	9.2	29.970	46.2	30.4	1 W	0	Moonlight	Moonlight	None
9	8.4	30.116	51.0	39.0	0 S	0 P Fm	Moonlight	Moonlight	None
10	8.2	30.024	50.0	42.2	1 N	3 Pm Fm —	Moonlight and clouds	Moonlight and clouds	None
11	9.6	30.082	51.2	46.1	1 W	1 Pm Fm	Moonlight	Moonlight	None
12									Obsc.
13									Obsc.
14	8.5	29.794	46.5	32.7	2 W	0	Moonlight	Moonlight	None
15									Obsc.
16	6.6	30.391	45.8	33.0	1 NW	0	Visible; joins band to Pleiades	None	None
17									Obsc.
18	5.9	29.489	53.6	49.1	2 SW	0	Visible	None	None
19	8.3	29.775	44.9	35.0	3 SW	5 P Fm	Cloudy	None; some clouds	None
20									Obsc.
21	8.4	30.018	48.7	38.1	0 calm	0 P haze	Visible	None; some clouds	None
22	6.7	30.208	47.1	36.1	0 NW	0 P Fm	Visible	None; some clouds	None
23									Obsc.
24	8.8	29.889	51.0	36.7	2 W	0	Visible	None	None
25									Obsc.
26	9.0	30.215	46.4	30.8	1 SW	0	Visible	None	None
27	9.1	30.192	43.9	29.7	1 SW	0	Visible	None	None
28	8.5	30.053	41.7	32.9	2 SW	0	Visible	None	None
29									Obsc.
30									Obsc.

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November, 1886.

1, 10.7 P.M. Day cloudy at first, becoming clear; evening mostly rather foggy; no aurora seen.

2, 10.4 P.M. Day mostly clear and warm; evening mostly foggy; triple auroral arch visible about 6¾ P.M.

3, 9.7 P.M. Day warm and rather clear; clouds increasing in the evening.

4, 10.7 P.M. Day and evening mostly clear and cool; no aurora seen.

5, 10.9 P.M. Day clear and cool; evening mostly clear; some thin clouds in the north; no aurora seen.

7, 10.4 A.M. Yesterday cloudy and rather warm with rain in showers; some thunder and lightning about 4 P.M. and later; also in the evening.

7, 10.9 P.M. Day and evening clear and cool; no aurora seen.

9, 10.6 A.M. Yesterday clear and rather cold; no aurora seen.

9, 10.7 P.M. Day and evening mostly clear and cool; no aurora seen.

11, 11.0 A.M. Yesterday cloudy with some rain; nearly clear for a time about 8 P.M.; no aurora seen.

12, 10.4 A.M. Yesterday mostly cloudy; evening partly clear; no aurora seen.

13, 10.3 A.M. Yesterday cloudy; evening rainy.

13, 11.4 A.M. Gauge now 11¼ ounces; 0.993 inches.

14, 10.2 A.M. Yesterday cloudy with rain and in the evening snow. Gauge now 2 ounces; 0.177 inches; total rainfall 1.170 inches.

14, 11.0 P.M. Day and evening clear and rather cold; no aurora seen.

16, 11.6 A.M. Yesterday mostly clear; evening mostly cloudy.

17, 11.5 A.M. Yesterday mostly clear; evening partly cloudy; no aurora seen.

17, 3.1 P.M. Gauge now 0½ ounces; 0.044 inches.

18, 10.1 A.M. Yesterday cloudy day and evening, with a little rain. Gauge now 2¼ ounces; 0.199 inches; total rainfall 0.243 inches.

18, 12.4 P.M. Barom. 29.460; attached therm. 50.2.

18, 1.6 P.M. Barom. 29.415; attached therm. 52.0; No. 41, 62.7.

18, 2.2 P.M. Barom. 29.389; attached therm. 52.6; No. 41, 62.5.

19, 10.5 A.M. Yesterday cloudy with rain and much wind. Rather clear towards night; evening partly cloudy; no aurora seen. A few snowflakes today.

19, 10.8 P.M. Day somewhat cloudy at times; evening rather clear, but with occasional clouds and haze; no aurora seen.

21, 9.9 A.M. Yesterday rather cloudy; evening cloudy.

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November, 1886.

21, 11.4 P.M. Day and evening mostly clear, with clouds at times; no aurora seen. Region between ξ¹ Ceti and the Pleiades does not seem now as bright as it did Oct. 23 and 24; near ξ¹ Ceti it does not seem brighter than between ε Piscium and 20 Ceti; near d Arietis it is rather bright, as usual.

22, 9.8 P.M. Day mostly clear; evening somewhat cloudy at times; no aurora seen.

23, 3.7 P.M. Gauge now 4⅛ ounces; 0.364 inches.

24, 10.5 A.M. Yesterday cloudy day and evening, with rain becoming warm. Gauge now 2¼ ounces; 0.199 inches; total rainfall 0.563 inches.

24, 10.5 P.M. Day and evening mostly clear; some clouds now; no aurora seen.

26, 10.7 A.M. Yesterday cloudy day and evening, with some rain.

26, 10.8 P.M. Day and evening clear and cool; no aurora seen.

27, 11.9 P.M. Day and evening clear and cool; no aurora seen.

28, 11.0 P.M. Day and evening clear and cool; no aurora seen; some haze at present.

30, 11.5 A.M. Yesterday cloudy; evening mostly cloudy, some stars seen at times.

Dec. 1, 11.3 A.M. Yesterday cloudy and rather foggy day and evening.

Bar., max., 16, 6.6 P.M., 30.391, 45.8; min., 18, 2.2 P.M., 29.389, 52.6; C. 13399, max., 19, 62.8; C. 2205, min., 28, 20.7.

Report to Signal Service, sent Dec. 1, 1886.

Aurora looked for every clear evening; triple auroral arch visible Nov. 2, about 6¾ P.M.

Zodiacal light visible in the evenings of Nov. 16, 18, 21, 22, 24, 26, 27, 28; observations on other evenings hindered by moonlight or clouds.

Thunder and lightning Nov. 6, about 4 P.M. and later; also in the evening; day cloudy and warm, with rain in showers.

Usual report sent Dec. 1 to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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December 1886

Date	Time A.M.	Barometer	Attached thermometer	N.4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	11.3	29.570	48.0	40.1	38.9	39.1	48.0	41.0	1 3/4	0.154	3 SW	0 P Fm	1
2	10.1	29.465	41.0	23.4	22.5	22.5	42.1	25.0	0 1/8	0.011	4 W	9 R M Fm	2
3	10.7	29.786	28.1	19.1	11.1	18.1	25.7	20.2	0		4 W	3 M Fm →	3
4	10.9	30.348	31.0	19.1	12.0	18.3	20.9	20.3	0		3 NW	0	4
5	9.8	30.530	24.2	10.3	5.3	9.2	24.0	12.0	See p. 56		2 N	10 R; snowing	5
6	10.8	30.109	25.8	23.0	9.0	22.0	22.7	23.0	See p. 56	1.003	2 N	10 P Fm	6
7	11.0	30.009	27.3	19.2	15.8	18.4	29.2	21.0	See p. 56		4 N	10 P; snowing	7
8	10.9	30.051	30.1	25.8	16.9	24.9	26.0	26.0	See p. 56	0.534	1 W	0	8
9	10.6	30.258	34.5	36.0	24.5	35.0	35.6	36.0	0		2 SW	0 Rs Fm	9
10	10.6	30.328	31.8	27.0	11.6	26.0	39.0	27.8	0		1 SW	1 R Rs R	10
11	10.8	30.090	39.1	43.3	26.0	42.1	43.1	43.2	0		1 SW	7 P Fm →	11
12	10.1	30.176	40.0	41.8	31.5	41.0	47.6	41.5	0		1 NE	10 P	12
13	10.6	29.663	36.8	31.4	28.0	30.9	42.7	32.1	0 5/8	0.055	2 NE	10 P mist	13
14	10.3	29.384	37.8	37.1	30.7	36.4	37.1	37.2	1 1/4	0.110	2 W	0 Fm	14
15	10.3	29.602	38.1	38.0	23.3	37.0	38.0	37.9	0		2 S	10 R Fm /	15
16	10.9	29.379	31.3	14.3	13.2	13.2	42.7	16.3	See p. 57		3 N	10 P; snowing	16
17	11.0	30.200	29.0	19.8	6.5	18.6	20.3	21.0	See p. 57	0.520	2 SW	0 Rs	17
18	10.9	30.015	29.8	37.8	14.2	36.2	37.2	36.5	0		3 SW	10 P	18
19	9.7	29.954	37.2	37.2	34.2	36.9	42.0	37.3	12 1/4	1.081	1 SW	0 Rs	19
20	10.6	30.114	36.7	31.2	29.2	30.6	41.3	31.9	0		1 N	9 R Fm /	20
21	10.3	30.124	34.9	28.9	16.8	28.2	34.9	30.0	0		2 SW	0 P Rs	21
22	11.5	30.174	36.3	37.4	26.9	36.2	37.0	37.0	0		1 SW	10 P	22
23	11.0	30.433	36.0	33.2	25.3	32.7	38.8	33.9	0		1 NE	1 Fm	23
24	11.0	29.983	39.0	43.2	32.2	42.0	42.8	42.2	See p. 57	0.022	1 S	10 P Fog	24
25	11.3	29.815	41.8	33.5	32.5	33.0	49.1	34.3	14 1/2	1.280	2 NW	0 Fm	25
26	10.1	30.241	29.8	20.0	12.4	19.2	34.8	21.1	0		2 N	10 P Fm	26
27	10.8	29.863	31.4	32.6	19.0	32.0	32.4	32.5	0		1 S	10 R; snowing	27
28	11.7	30.150	30.3	22.3	13.1	21.7	34.0	24.0	0 1/2	0.044	2 W	0	28
29	—	—	—	—	—	—	—	—	—	—	—	—	29
30	10.6	30.398	22.2	7.8	4.0	7.1	24.2	9.7	See p. 58		3 N	10 R; snowing	30
31	11.6	30.126	21.2	16.0	6.8	15.1	16.4	17.0	See p. 58	0.232	3 N	10 R; snowing	31
	321.8	900.328	1000.5	849.8	593.4		1049.6		See p. 58	5.046 Rainfall for month	62	170	
	10.7	30.011	33.35	28.3	19.8		35.0				2.1	5.7	

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December 1886

Date	Time P.M.	Barometer	Attached Thermometer	No. 14	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	9.2	29.639	47.2	31.3	1 S	0	Suspected; moonlight	Moonlight	None
2	6.8	29.524	37.0	20.5	4 W	1 Rs	Moonlight	Moonlight	Suspected
3	8.6	29.997	31.0	15.7	3 W	1 R Rs Fm	Moonlight	Moonlight and clouds	None
4									None
5									Obsc.
6									Obsc.
7									Obsc.
8	8.5	30.108	34.0	27.7	1 SW	1 Fm ↘	Moonlight	Moonlight	None
9	8.7	30.350	37.1	27.0	0 SW	0	Moonlight	Moonlight	None
10		8							None
11	8.8	30.157	42.2	37.9	1 N	1 Rs Fm	Moonlight	Moonlight	None
12									Obsc.
13									Obsc.
14	8.6	29.686	41.0	27.8	2 SW	0 Rs	Moonlight	Moonlight	None
15									Obsc.
16	8.9	29.842	26.7	9.0	1 W	0 P	See page 57	None	None
17									Obsc.
18									Obsc.
19									None
20									None
21	8.0	30.095	39.0	32.0	2 SW	0 P	Visible	None	None
22									Obsc.
23									Obsc.
24									Obsc.
25	9.2	30.152	37.0	18.8	2 N	0	Visible	None	None
26									Obsc.
27	7.9	30.050	34.3	24.2	2 W	0 P Fm haze	Visible	None	None
28	8.9	30.148	33.0	16.1	1 W	0 Rs	Visible	None	None
29									Obsc.
30									Obsc.
31									

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December, 1886.

1, 10.0 P.M. Day clear at first, afterwards rather cloudy; evening rather cloudy, then clear, now rather cloudy; no aurora seen.

2, 10.1 A.M. Some snow last night.

2, 9.9 P.M. Day and evening mostly clear and cool; very slight suspicion of aurora at present.

3, 10.3 P.M. Day clear and cold; evening rather clear, with many thin passing clouds; no aurora seen.

5, 9.8 A.M. Yesterday clear and cold; evening rather clear, with many thin clouds; no aurora seen; snow began falling about 9 A.M. today.

6, 11.3 A.M. Yesterday cloudy day and evening, with snow; snow now measured in 5 places $8\frac{1}{2}$, $6\frac{3}{4}$, $6\frac{3}{4}$ $6\frac{3}{4}$, $5\frac{1}{4}$; mean 6.80 inches; $16\frac{1}{2}$ inches of this snow in cylinder $1\frac{13}{16}$ inches across weigh $3\frac{5}{8}$ ounces; 9.827 14 9.16897 / 8.78252 10.83251 / 0.55931 0.00148; hence rainfall to 1 inch of snow 0.1476 inches; total rainfall 1.003 inches. Gauge cleaned out.

7, 11.0 A.M. Yesterday cloudy, somewhat clear in the northwest; evening cloudy; snow and sleet at times this morning.

8, 10.9 A.M. Yesterday cloudy day and evening, with some snow.

8, 12.7 P.M. New snow not easily distinguishable from old, but apparently about 3 inches deep; $16\frac{1}{2}$ inches of this snow in cylinder $1\frac{13}{16}$ inches across weighs $4\frac{3}{8}$ ounces; 9.827 14 9.25064 / 8.78252 6.47712 / 0.16409 8 0.77276; hence rainfall to 1 inch of snow 0.1781 inches; total rainfall 0.534 inches. Gauge cleaned out.

8, 9.3 P.M. Day clear and cool; evening rather clear, with many passing clouds; at times rather cloudy; no aurora seen.

9, 10.8 A.M. No. 4 in snow and water 32.3.

9, 1.3 P.M. No. 4 in snow and water still 32.3; taken out. External temperature about 39.

9, 11.0 P.M. Day clear and cool; evening somewhat cloudy at first, clear later; no aurora seen.

11, 10.8 A.M. Yesterday mostly clear; evening rather cloudy, mostly clear at times; no aurora seen.

11, 11.0 P.M. Day rather clear, thawing; early evening rather cloudy; clear later; no aurora seen.

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December, 1886

13, 10.6 A.M. Yesterday cloudy day and evening.

14, 10.3 A.M. Yesterday cloudy day and evening, with a little rain.

14, 10.1 P.M. Day mostly clear; evening rather cloudy after 9 P.M.; no aurora seen; zodiacal light visible about 7 P.M.

16, 10.9 A.M. Yesterday cloudy day and evening; snow early today.

16, 11.0 P.M. Day cloudy and cold, with snow; clear after 6 P.M.; no aurora seen; zodiacal light visible at 7 P.M., probably visible at 9 P.M., but not well distinguishable from usual band to the Pleiades; the band, however, was very distinct and perhaps wide.

17, 11.2 A.M. New snow measured in 5 places; 4, 4, $3\frac{3}{4}$, 3, $5\frac{1}{4}$; mean 4.00 inches; $15\frac{1}{2}$ inches of this snow in cylinder $1\frac{13}{16}$ inches across weight 3 ounces; 9.82714 9.11393 8.60467 0.60200 0.47712 9.71599
Hana rainfall to 1 inch of snow 0.1300 inches; total rainfall 0.520 inches. Gauge cleaned out.

18, 10.9 A.M. Yesterday clear and rather cold; became cloudy during the evening.

19, 9.7 A.M. Yesterday cloudy day and evening, with rain.

20, 10.6 A.M. Yesterday clear, thawing; evening cloudy at times; no aurora seen.

21, 10.3 A.M. Yesterday cloudy, becoming clear; evening clear; no aurora seen.

22, 11.5 A.M. Yesterday mostly clear day and evening; no aurora seen.

23, 11.0 A.M. Yesterday cloudy day and evening.

24, 11.0 A.M. Yesterday clear, becoming cloudy towards night; evening cloudy. Gauge this morning $0\frac{1}{4}$ ounces; 0.022 inches; but a little water lost; true amount perhaps $0\frac{3}{4}$ ounces, probably less than $0\frac{1}{2}$ ounces.

25, 11.3 A.M. Yesterday cloudy with a little rain; more rain in the evening.

26, 10.9 A.M. Yesterday clear day and evening; no aurora seen.

27, 10.8 A.M. Yesterday cloudy; a few snowflakes in the evening and early today.

28, 11.7 A.M. Yesterday mostly clear, with a little snow early; a few clouds in the evening; no aurora seen.

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December, 1886.

28, 10.0 P.M. Day and evening mostly clear; some irregular haze after 9 P.M.; no aurora seen.

29, 12.2 P.M. Barom. 30.147; attached therm., 28.0; No. 4, 20.7; minimum 15.0 (not set); maximum 24.2 (not set); gauge 0; wind 2 NW; clouds 9 Pr Rs M Fm. Yesterday evening became somewhat more cloudy after 10 P.M.

30, 10.6 A.M. Yesterday somewhat cloudy day and evening; clouds thin; about 1 inch of snow now on the ground.

31, 11.6 A.M. Yesterday cloudy day and evening with a little snow; about 2½ inches on the ground.

31, 5.5 P.M. Day cloudy with a little snow; a little rain at present; gauge $2\frac{5}{8}$ ounces; 0.232 inches; this is probably rather below the actual rainfall, but is as trustworthy as any result to be obtained.

31, 11.2 P.M. Evening cloudy, with a little freezing rain.

Bar. max., 5, 9.8 A.M., 30.530, 24.2; min., 16, 10.9 A.M., 29.379, 31.3; C. 13399, max., 25, 49.1; G. 2205, min., 30, 4.0.

Freezing point of No. 4, Dec. 9, 32.3.

Aurora — Report to Signal Service, sent Jan. 1, 1887, looked for every clear evening; very slightly suspected Dec. 2, at 10 P.M.

Zodiacal light visible Dec. 14, 16, 21, 25, 27, 28.

Usual report sent Jan. 1, 1887 to the New England Meteorological Society. Observations & maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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General remarks on observations for 1886.

Range of barometer and of temperature.

The highest and lowest (uncorrected) reading of the barometer for each month, with the corresponding reading of the attached thermometer, are given below. As the barometer was usually read only once or twice a day, these readings may differ considerably from the actual maxima and minima for the successive months. The highest reading for each month of the maximum thermometer (Casella 13399) and the lowest reading of the minimum thermometer (Green 2205), both uncorrected, are also given below. The times of observation are given in hours and tenths.

	Barometer								Temperature			
	Maxima				Minima				Max.		Min.	
	Date	Time	Barom.	Attached therm.	Date	Time	Barom.	Attached therm.	Date	C.13399	Date	G.2205
January	14	12.5 P.M.	30.664	Mercury not visible, about -45.0	9	11.0 A.M.	28.763	25.1	5	51.9	12	-12.9
February	11	10.8 A.M.	30.648	36.1	26	10.3 A.M.	28.933	34.8	13	52.0	5	-8.8
March	29	10.3 A.M.	30.515	40.0	22	10.1 A.M.	29.238	38.0	28	51.1	1	-0.9
April	11	8.4 P.M.	30.580	48.7	7	10.6 A.M.	29.702	40.7	24	79.9	4	25.6
May	18	10.8 A.M.	30.312	55.8	25	10.2 A.M.	29.507	62.2	31	81.5	1	34.4
June	21	10.6 A.M.	30.279	65.6	17	9.9 A.M.	29.616	68.2	22	81.3	6	45.0
July	1	11.6 A.M.	30.220	68.0	20	10.3 A.M.	29.740	71.3	8	93.0	12	50.3
August	20	10.8 A.M.	30.382	66.0	2	10.6 A.M.	29.549	76.3	28	85.0	23	45.7
September	3	8.5 P.M.	30.501	67.9	26	9.3 P.M.	29.802	68.7	10	82.0	22	39.8
October	19	10.3 A.M.	30.579	52.0	15	10.6 A.M.	29.698	64.0	13	75.8	17	23.8
November	16	6.6 P.M.	30.391	45.8	18	2.2 P.M.	29.389	52.6	19	62.8	28	20.7
December	5	9.8 A.M.	30.530	24.2	16	10.9 A.M.	29.379	31.3	25	49.1	30	4.0

Another barometer reading in October, near minimum, was as follows: Oct. 1, 10.8 A.M., 29.699; attached thermometer 59.1.

Range of barometer 30.664 Jan. 14 to 28.763 Jan. 9

" " temperature 93.0 July 8 to -12.9 Jan. 5.

Observers A. Searle usually. O. C. Wendell Jan. 12, 8.5 P.M., Jan. 14, 12.5 P.M.,

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July 4, 3.0 P.M. to July 6, 9.8 A.M., inclusive; Aug. 31, 9.6 A.M.; Sept. 1, 9.5 A.M.; Sept. 6, 9.7 A.M. and 10.2 P.M.; Sept. 7, 9.6 A.M.

Times of observation. The times of observation entered in the records apply to all observations entered on the corresponding lines. In general, one observation was made in the forenoon, another in the evening, if clear.

Manner of recording times. The times are ordinarily given in hours and tenths; Eastern Time, 5h slow of Greenwich, is employed.

Instruments. Barometer J. Newman, No. 68; external thermometer No. 4; maximum thermometer Casella 13399; minimum thermometer Green 2205; vane; rain gauge; all as described in book Q 5 just before the record for 1878. See also references given in the general remarks on the observations for 1882, book R 67, page 216. For removal of rain gauge to a new place, see this book, pages 36, 37, under dates of August 3 and 30.

Freezing point of No. 4. Freezing point of thermometer No. 4 tested Jan. 26 and Dec. 9; found on each occasion to be 32.3

Wind recorded as in 1880; see book R 67, pages 50, 51; also memorandum on inside of cover of this book.

Reductions. See general remarks on observations of 1882, book R 67, page 216. The reductions for 1886 were made largely by Miss L. B. Bond.

Phenomena. Heavy rainfall Feb. 11 to 14, causing some damage in Boston and its vicinity.

Reports. The results reported monthly to the U. S. Signal Service are also recorded in this book; see book R. 67, page 51. The final column of the second page of the record for each month has been filled, as before, with an abstract of observations relating to aurora, although this abstract is not now called for by the Signal Service.

For monthly reports made to the New England Meteorological Society see records for November 1884 and later (book R 86 pp. 143, 147, 152, 183).

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January 1887

Time P.M.	Barometer	Attached Thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
11.1	29.410	30.0	32.9	15.0	32.1	32.6	32.5	7 7/8	0.629	0 N	10 P mist	1
10.2	29.480	29.0	19.2	17.9	18.3	33.3	20.4	0 3/8	0.033	2 NW	10 P	2
11.4	30.277	20.0	6.8	0.4	6.0	20.9	9.0	0		2 NW	0	3
10.8	30.562	out of sight, est. 16.0	8.5	−2.2	7.9	10.7	10.0	0		1 NW	0 P Fm; a few snowflakes	4
10.7	30.301	23.4	23.5	7.5	22.9	23.5	23.8	0		1 N	10 P	5
10.8	29.838	30.0	32.6	21.5	31.8	35.0	32.0	see p. 64	0.695	3 N	10 P; a little snow	6
10.8	30.144	30.6	24.1	16.1	23.2	34.7	25.0	0		2 NW	0 Rs Fm	7
10.9	30.380	20.7	5.7	−2.4	5.0	26.8	8.0	0		2 N	1 Rs Fm	8
10.2	30.320	18.0	6.0	−2.0	5.1	11.3	7.7	0		1 N	10 R	9
11.3	29.365	23.0	18.9	5.1	18.0	19.0	19.4	see p. 64	0.214	0 calm	2 R R Rs Fm	10
10.9	29.782	21.7	15.8	1.9	15.1	24.8	17.3	0		2 SW	0	11
10.7	29.499	24.8	25.8	13.1	24.9	25.8	26.0	0		2 SW	10 P	12
11.3	30.018	30.8	30.6	24.6	30.0	31.0	30.9	0		2 W	3 Rs R	13
11.1	29.629	31.6	34.8	22.5	34.0	34.9	34.9	see p. 65	1.410	3 NE	10 P; raining	14
10.4	29.662	25.0	12.7	9.1	11.9	35.5	14.6	see p. 65		2 N	10 P; fine snow	15
11.4	29.918	25.1	15.7	5.9	15.0	16.9	17.0	see p. 65	0.463	0 calm	0 Fm	16
7.1	29.756	26.0	13.8	11.1	13.1	21.0	16.0	see p. 65		2 N	10 P; snowing	17
10.9	29.536	28.5	17.9	13.0	16.9	34.0	19.8	see p. 65	1.332	3 W	0 Fm	18
10.7	30.076	17.2	2.0	−11.1	1.3	20.0	7.0	0		2 SW	0 Rs	19
10.8	29.976	23.0	23.0	1.2	22.0	23.0	23.0	0		1 SE	4 P Fm	20
10.6	29.928	33.9	40.9	22.0	40.1	41.5	40.3	0		3 W	0 M Fm	21
11.5	30.358	28.2	22.4	11.9	21.0	40.3	23.5	0		0 calm	10 Rm	22
10.9	29.950	37.0	45.3	21.2	44.1	45.0	44.0	0		3 SW	3 Rm Rs Fm	23
7.0	29.587	44.4	46.9	42.9	46.0	47.5	46.6	0		3 S	10 Rm Fm	24
11.1	29.979	36.7	31.0	22.3	30.1	49.8	32.0	9/11	0.971 ~~1.121~~	1 SW	7 P Rs	25
11.0	29.748	40.0	40.8	30.1	39.9	40.7	40.5	0		0 NW	10 P	26
10.9	30.412	23.8	9.4	0.9	8.5	40.5	12.0	2 1/2	0.221	1 NW	0	27
11.0	30.309	28.1	35.8	8.0	34.3	35.4	35.0	0		3 S	10 R Rs Fm	28
10.8	29.824	41.1	51.1	34.2	50.1	51.0	50.1	0 1/4	0.022	4 SW	10 Rm Fm	29
10.4	29.813	39.0	35.9	34.0	35.1	52.4	36.1	11 5/8	1.026	1 E	10 P fog	30
10.4	30.068	36.9	27.3	25.1	26.7	38.1	28.7	0 7/8	0.077	4 W	1 P Rs Fm	31
	29.932 ± .000								7.093	56	171	
No. 62	~~29.414~~ 29.427	28.47	24.42	13.28	23.56	32.16			Rainfall for Month	1.8	5.5	

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January 1887

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2	9.2	29.876	24.9	4.9	2 NW	0	Moonlight	Moonlight	None
3	9.0	30.466	19.8	3.7	1 NW	0	Moonlight	Moonlight	None
4	8.4	30.513	23.0	14.1	1 NW	10 P Fm	Cloudy	Cloudy	None
5									Obsc.
6									Obsc.
7									Obsc.
8									Obsc.
9									Obsc.
10	8.5	29.490	26.9	13.2	2 NW	0	Moonlight	Moonlight	None
11	7.8	29.729	26.3	14.2	3 S	1 Cs Fm	Moonlight	Moonlight	None
12	7.2	29.600	30.0	28.2	2 SW	9 P	Cloudy	Cloudy	None
13	6.7	30.136	33.9	28.5	0 SW	10 P	Cloudy	Cloudy	Obsc.
14									Obsc.
15									None
16	7.7	29.957	29.0	13.4	0 calm	1 P	Visible; some clouds	None	None
17									Obsc.
18	8.3	29.859	27.1	3.2	2 W	0	Visible	None	None
19	9.2	29.941	23.8	14.7	1 S	0 Phaze	Visible	None	None
20									Obsc.
21	8.4	30.360	35.1	26.8	1 NW	2 P haze	Suspected; hazy	None	None
22									Obsc.
23	8.2	29.878	43.5	44.1	1 S	10 Pm	Cloudy	Cloudy	Obsc.
24									Obsc.
25	8.5	29.780	39.0	40.7	3 S	0 P haze	Visible	None	None
26									Obsc.
27	8.8	30.498	30.9	11.0	1 S	0	Visible	None	None
28									Obsc.
29									Obsc.
30									Obsc.
31									Obsc.

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2, 10.2 A.M. Yesterday cloudy day and evening, with a little mist.

2, 10.7 P.M. Day at first cloudy, afternoon and evening clear; no aurora seen.

3, 11.3 P.M. Day and evening clear and cold; no aurora seen.

5, 10.7 A.M. Yesterday mostly clear, with a few snowflakes most of the day; clouds from the northeast in the evening; cloudy after about 8 P.M.; no aurora seen.

6, 10.8 A.M. Yesterday cloudy day and evening; snow during the following night.

6, 2.2 P.M. Snow measured in 5 places: $4\frac{1}{2}$, $4\frac{1}{4}$, 4, $4\frac{1}{2}$, $4\frac{3}{4}$; mean 4.340 inches $21\frac{1}{2}$ inches of this snow in cylinder $1\frac{13}{16}$ inches across weigh $4\frac{3}{4}$ ounces

7.82714 9.17139
8.66756 9.64345
0.67869 9.81484

hence rainfall to 1 inch of snow 0.14841 inches; total rainfall 0.653 inches. Result by gauge $7\frac{7}{8}$ ounces, 0.695 inches; this result preferred, as there may have been some rain previous to the snow, last evening being mild. Little snow, if any, after 11 A.M. today.

7, 10.8 A.M. Yesterday afternoon and evening cloudy.

8, 10.9 A.M. Yesterday clear, becoming cloudy; clouds thin; lunar halo about 6 P.M.; evening cloudy.

9, 10.2 A.M. Yesterday mostly clear; thin clouds towards night and in the evening; lunar halo.

10, 11.3 A.M. Yesterday cloudy day and evening, with a little snow. Depth of new snow measured in 3 places $2\frac{1}{2}$, $2\frac{1}{2}$, $2\frac{1}{2}$; mean 2.50 inches; $16\frac{1}{2}$ inches in cylinder $1\frac{13}{16}$ inches across weigh $2\frac{1}{4}$ ounces;

0.82714 8.96484
8.78252 0.39794
0.35218 9.35978

; hence rainfall to 1 inch of snow 0.0916 inches; total rainfall 0.229 inches. Result by gauge $2\frac{1}{4}$ ounces, 0.199 inches. The difference of 0.030 is probably within the limits of error likely to occur in measuring light snow, and there is no reason to suppose that there was much wind during the fall of snow; but as the result for snow with the gauge must always be somewhat uncertain, the mean of the two results, 0.214 inches, is entered in the record.

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January, 1887

10, 11.6 P.M. Day and evening mostly clear; no aurora seen.

11, 9.3 P.M. Day clear; became cloudy after about 8 P.M.; no aurora seen; zodiacal light visible about 6 P.M.

12, 7.2 P.M. Zodiacal light visible about 6½ P.M.

12, 11.2 P.M. Day cloudy, becoming clear; evening mostly clear, cloudy at times; no aurora seen.

13, 6.7 P.M. Day mostly clear; zodiacal light visible about 6 P.M.; became cloudy later.

14, 10.7 A.M. Snow followed by rain; gauge clogged out. Snow 9 inches deep, measured in 3 places, allowing 2 inches for snow previously on ground, depth 7 inches; 20 inches in cylinder $1\frac{13}{16}$ inches across weigh 6 ounces: 9.82714/9.30426 8.69897/8.84510 0.12817/0.14936, hence rainfall to 1 inch of (wet) snow 0.2015 inches; total rainfall 1.410 inches.

14, 6.3 P.M. Early in the afternoon the weather became colder, and a little snow followed the rain. Gauge now $4\frac{3}{8}$ ounces, 0.386 inches.

15, 10.4 A.M. Yesterday evening cloudy with a few snowflakes.

16, 11.4 A.M. Yesterday cloudy with a little snow; evening cloudy, clear about 11 P.M.; no aurora seen. Cloudy early this morning, clear later. Gauge $0\frac{7}{8}$ ounces, 0.077 inches; total rainfall 0.463 inches.

16, 9.4 P.M. Day and early evening mostly clear; clouds after 8 P.M.; no aurora seen.

17, 12.7 P.M. Day snowy; snow now changed to rain; gauge $4\frac{5}{8}$ ounces, 0.408 inches; depth of new snow apparently 4 inches, by 3 measures; $15\frac{1}{2}$ inches of this snow in cylinder $1\frac{13}{16}$ inches across weigh $4\frac{5}{8}$ ounces; 9.82714/9.30192 8.69897/8.60206 0.66518/9.90398 hence rainfall to 1 inch of snow 0.2004 inches; total rainfall 0.802 inches.

18, 12.7 P.M. Yesterday afternoon somewhat rainy, evening colder with rain changing to snow. Gauge 6 ounces, 0.530 inches; taking this result and that found by snow measure yesterday, total rainfall 1.332 inch

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January 1887

19, 10.7 A.M. Yesterday clear, becoming cold; no aurora seen.
19, 10.6 P.M. Day cloudy; temperature rising; evening rather clear after 9 P.M. but somewhat hazy; no aurora seen.
21, 10.6 A.M. Yesterday cloudy, temperature rising; partly clear at times in the evening.
21, 8.7 P.M. Day clear, thawing; evening nearly clear at first; Zodiacal light visible about 6½ P.M.; afterwards more hazy; no aurora seen.
23, 10.9 A.M. Yesterday cloudy and thawing day and evening.
23, 8.2 P.M. Day mostly clear and warm; evening rather cloudy; zodiacal light visible among clouds about 6 P.M.
24, 7.0 A.M. Yesterday evening mostly cloudy.
25, 11.1 A.M. Yesterday cloudy day and evening with rain, ending with a little sleet.
25, 9.5 P.M. Day rather cloudy; evening rather clear, haze again increasing about 9 P.M.; no aurora seen.
27, 10.9 A.M. Yesterday cloudy day and evening, with rain, followed by snow; clearing off late in the evening;
27, 11.2 P.M. Day and evening clear; no aurora seen.
29, 10.8 A.M. Yesterday cloudy and warm day and evening.
30, 10.4 A.M. Yesterday cloudy day and evening, with rain.
31, 10.4 A.M. Yesterday cloudy and rather foggy day and evening.
31, 5.3 P.M. During the rain on January 24, some electrical phenomena were noticed. Professor Pickering heard the telephone bell sound as if affected by atmospheric electricity about 1¾ P.M., and about the same time, W. P. Garrish, in Boston, or on the way to Cambridge, noticed a flash of lightning and peal of thunder.
31, 11.5 P.M. Day and evening mostly cloudy.

Bar. max., 4, 10.8 A.M., 30.562, 15.0 by estimate; min., 10, 11.3 A.M., 29.365, 23.0; C. 13399, max., 30, 52.4; G. 2205, min., 19, −11.1.

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Report to Signal Service, sent Feb. 2, 1887.

Aurora looked for every clear evening; none seen.

Zodiacal light visible Jan. 11, 12, 13, 16, 18, 19, 21, 23, 25, 27; other evenings unfavorable to observation.

Lunar halos on the evenings of Jan. 7 and 8.

Thunder and lightning reported in this vicinity about 2 P.M. Jan. 24; telephone bell heard to sound at the Observatory about the same time, as if affected by atmospheric electricity.

Usual report sent Feb. 2, 1887, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

Report to Signal Service, sent March 1, 1887.

Aurora looked for every clear evening; results as follows:

Feb. 12. Auroral arch, double about 7 P.M.; some streamers later: aurora mostly low and faint; perhaps still slightly visible at 11 P.M.

Feb. 13. Faint low auroral arch and slight appearance of streamers about 9 P.M.; some auroral light near the horizon still visible at about 11½ P.M.

Feb. 14. Some auroral light visible about 7 P.M. and suspected about 9 P.M.

Feb. 19. Auroral arch all the evening; sky not dark below at 8½ P.M., but dark below about 12½ A.M. (Feb. 20).

Feb. 25. Low auroral arch with some appearance of streamers, about 11½ P.M.

Zodiacal light visible Feb. 9, 12, 13, 14, 16, 17, 19, 24, 25; other evenings unfavorable to observation.

Lunar halo, imperfect, Feb. 1, about 6½ P.M.

Thunder and lightning, with heavy rain, in the evening of Feb. 18.

Usual report sent March 1, 1887, to the New England Meteorological Society. Observations of maximum as stated above in memorandum of report sent Feb. 2.

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February 1887

Date	7 P.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting	Maximum before and after setting	Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.6	30.397	30.0	19.2	16.8	18.7	28.9	20.5	See p. 70	3 N	10 R; a little snow	1
2	10.5	30.650	26.3	16.1	14.0	15.2	23.2	17.3	See p. 70	3 N	10 R; snowing	2
3	10.9	30.202	24.0	17.4	8.0	16.3	23.0	18.2	See p. 70	0.956	1 NW	10 R	3
4	10.9	30.244	30.6	26.4	16.1	25.9	31.1	27.2	$0\frac{3}{8}$	0.033	3 W	1 R Rs Fm	4
5	10.7	30.862	23.0	10.6	2.9	10.0	28.3	13.0	0		1 SW	0 R R Rs Fm	5
6	10.6	30.304	27.0	28.4	9.5	27.2	28.3	28.6	$0\frac{1}{4}$	0.022	1 SW	10 P	6
7	10.6	30.373	33.0	27.7	26.1	26.9	37.9	28.0	$0\frac{1}{4}$	0.022	2 NE	10 P	7
8	10.9	30.220	32.4	33.2	23.2	32.3	33.2	33.4	$2\frac{5}{8}$	0.232	0 E	10 P; a few drops of rain	8
9	10.8	29.911	39.3	38.7	32.4	37.9	40.8	39.0	$2\frac{3}{4}$	0.243	3 NW	0 Rs Fm	9
10	10.6	30.182	32.6	30.6	17.1	29.9	39.0	31.1	0		2 SW	6 P	10
11	11.0	29.336	39.0	39.7	29.9	39.0	40.0	39.7	$2\frac{5}{8}$	0.232	1 NE	10 P fog	11
12	10.8	30.071	28.7	17.0	13.2	16.1	39.9	18.9	$1\frac{1}{4}$	0.110	3 NW	0 M Fm	12
13	10.6	30.540	25.0	10.9	6.8	10.1	22.1	13.0	0		3 N	0 Fm	13
14	11.1	30.767	23.8	15.9	3.7	15.1	16.4	17.0	0		1 N	0 Rs Fm	14
15	10.7	29.951	31.8	41.1	14.9	39.4	41.0	39.0	See p. 71		3 SW	10 Rm; raining	15
16	10.9	29.741	38.1	42.4	34.3	41.9	43.1	42.2	$1\frac{7}{8}$	0.165	1 N	4 Rm M Fm	16
17	10.6	29.634	39.0	38.8	34.0	38.0	45.1	38.8	0		2 NW	2 M Fm	17
18	10.6	30.090	35.0	32.8	23.9	32.1	40.6	33.2	See p. 71		3 E	10 P; snowing	18
19	12.0	29.695	39.0	40.8	31.9	40.2	39.0	39.0	See p. 71	1.831	1 W	2 Rm M Fm	19
20	12.0	30.156	37.0	31.8	26.8	31.1	42.6	32.3	0		2 NW	7 P Rs Fm	20
21	10.6	30.350	35.2	~~25.3~~	~~28.7~~	~~3.~~	~~29.8~~	(See p. 72 daily Feb. 23)	$0\frac{3}{8}$	0.033	2 N	10 P	21
22	10.6	30.278	36.0	33.0	28.2	32.1	33.0	33.0	See p. 72		2 SE	10 P; snowing	22
23	10.4	30.430	33.0	29.1	22.1	28.5	35.0	30.0	1	0.088	2 NW	1 Rs	23
24	10.7	29.360	35.8	36.9	28.3	36.1	36.6	36.6	See p. 72	0.552	0 calm	10 P fog; raining	24
25	10.9	30.130	27.6	17.2	12.8	16.3	43.5	18.8	0		3 NW	0	25
26	11.1	30.338	27.0	22.6	11.1	21.9	23.2	23.7	0		2 SE	10 P	26
27	11.7	29.188	37.2	37.3	21.3	36.3	37.3	37.7	5	0.441	3 W	9 Rm M Fm	27
28	10.5	29.649	27.1	16.1	10.9	15.2	37.9	18.0	0		3 W	9 R Rs	28
	10.87	843 249 30.116 -008 30.108	8937 31.9	7717 21.2	5262 19.3		9300 34.7		See p. p. 70, 71, 72	4.960 Rainfall for month 4.96 inches	59 2.1	171 6.1	

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February 1887

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	8.7	30.640	30.8	16.0	2 N	10 R	Cloudy	Cloudy	None
2									Obsc.
3									Obsc.
4	9.3	30.605	29.0	13.2	2 N	1 R Rs	Moonlight	Moonlight	None
5									Obsc.
6									Obsc.
7									Obsc.
8									Obsc.
9	8.6	30.162	39.0	28.7	2 W	0	Moonlight	Moonlight	None
10									Obsc.
11	9.6	29.184	38.0	32.8	1 W	1 P	Suspected; some moonlight	Moonlight	None
12	8.8	30.248	31.5	16.1	2 N	0	Visible	Low arch	Aurora
13	8.9	30.672	27.1	11.3	2 N	0	Visible	Faint arch and streamers	Aurora
14	9.0	30.532	30.8	21.0	1 SW	0 P Rs	Visible; some clouds	Suspected	Aurora
15									Obsc.
16	8.7	29.685	45.7	36.4	2 SW	2 P haze	Visible; some haze	Hazy	None
17	8.4	30.070	40.9	32.0	1 N	1 P haze	Visible; some haze	Weak	None
18									Obsc.
19	8.6	29.912	44.0	36.1	2 NW	0	Visible	Arch; sky not dark below	Aurora
20									Obsc.
21									Obsc.
22									None
23									Obsc.
24	8.3	29.602	39.7	33.2	3 W	0 P	Visible	None	None
25	8.6	30.322	31.8	17.0	2 NW	0	Visible	None	Aurora
26									Obsc.
27	8.5	29.382	36.7	23.9	3 W	7 Pm Fm	Cloudy	Cloudy	None
28	8.9	29.909	26.0	13.3	1 NW	0	Moonlight	Moonlight	None

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February 1887

2, 8.7 P.M. Day at first cloudy, with a little light snow; then rather clear; evening cloudy towards the southwest; and generally cloudy after 7 P.M.; no aurora seen; imperfect lunar halo about 6½ P.M.

1, 10.7 P.M. Evening continued cloudy.

3, 10.9 A.M. Yesterday cloudy day and evening with snow and afterwards sleet.

3, 11.5 A.M. Snow measured in 5 places 4½, 4¼, 3½, 4, 3¼; mean 3.90 inches; 18½ inches in cylinder 1 23/16 inches across weigh 6 3/4 ounces 9.82714 9.38927 8.73183 0.59106 8.82930 9.98033; hence rainfall to 1 inch of snow 0.24571 inches; total rainfall 0.956 inches. Result by gauge 2⅞ ounces, 0.254 inches, rejected on account of wind accompanying the fall of snow.

4, 11.1 A.M. Yesterday cloudy day and evening, with a little sleet and rain.

4, 10.0 P.M. Day and evening mostly clear, but with some thin clouds; no aurora seen.

6, 10.6 A.M. Yesterday mostly clear, becoming cloudy in the evening. A little new snow on the ground today.

7, 10.6 A.M. Yesterday cloudy day and evening. Contents of gauge today were water.

8, 10.9 A.M. Yesterday cloudy day and evening. Snow in the evening; a little rain today.

8, 11.7 P.M. Day and evening cloudy, with some rain. No. 4 in snow and water 32.3; temperature of air about 40.

9, 8.6 P.M. Zodiacal light visible about 7 P.M.

9, 11.6 P.M. Day and evening clear; no aurora seen.

11, 11.0 A.M. Yesterday cloudy, afterwards somewhat clear; evening cloudy.

11, 11.2 P.M. Day cloudy with a little rain; nearly clear after 9 P.M. wind rising since about 10 P.M., now very strong (force 6); no aurora seen; barometer 29.294; attached thermr. 37.2, No. 4 31.4

12, 10.8 P.M. Day and evening clear; auroral arch, double about 7 P.M., some streamers later seen by C. C. Wendell; mostly low and faint; perhaps still slightly visible. Zodiacal light conspicuous at 7 P.M.; at 8.8 P.M. it did not seem to extend eastwards beyond Aries which was about its limit two hours before, excluding of course the band to the Pleiades, which was visible as usual.

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13, 11.4 P.M. Day and evening clear; faint low auroral arch and slight appearance of streamers about 9 P.M.; still some auroral light near horizon; zodiacal light at 9 P.M. extended perhaps 10° farther east than at 7 P.M.; no Gegenschein visible at present; the usual band from Cancer through σ Leonis and Septem to Coma Berenices; the band seems to have its lower edge about σ Leonis.

14, 10.5 P.M. Day and early evening clear and cool; some auroral light visible about 7 P.M., and suspected about 9 P.M.; clouds came on at 9½ P.M.

15, 10.7 A.M. Gauge contains a little ice and water; bottle not removed, as rain continues.

16, 10.9 A.M. Yesterday cloudy with a little rain; afternoon somewhat clear; evening mostly cloudy

16, 10.5 P.M. Day mostly rather clear; evening partly clear, with haze, thick about 10 P.M.; no aurora seen.

17, 11.5 P.M. Day mostly clear; evening rather hazy; haze at times thick; no aurora seen; zodiacal light at 8½ P.M. extended about 5° more to the east than at 7 P.M.

18, 10.6 A.M. Snow began falling about 9½ A.M.

19, 12.0 M. Yesterday cloudy with a little snow, rain later; heavy thunder shower in the evening. Gauge 20½ ounces; 1.83 inches

20, 12.5 A.M. Yesterday mostly clear day and evening. Auroral arch all the evening, still bright, sky dark below. Zodiacal light suspected about 3° farther east at 8.5 P.M. than at 7 P.M., but observation very doubtful. Gegenschein suspected about 12.3 A.M. today; the region of γ and ζ Leonis seems relatively brighter than on Feb. 13, and as bright as the band in Leo Minor; if Gegenschein is present,

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the centre may be half way from σ Leonis to ε Leonis.

σ Leonis	9h 34m.7	+10° 26′	
ε Leonis	9 39.0	+24 20	
Gegenschein	9 36.8	+17 23	

21, 10.6 A.M. Yesterday cloudy day and evening. A little snow now on the ground.

22, 10.6 A.M. Yesterday mostly cloudy day and evening. Snow today about 9 A.M. and later.

22, 10.9 P.M. Day cloudy with a little snow; early evening cloudy, now rather clear, but hazy; no aurora seen; electric lights on North Avenue illuminate the haze so that faint aurora would not be noticeable; too hazy for observation of Gegenschein.

23, 10.9 A.M. In the record for Feb. 21, the figures 25.3, 28.7, 34.1, 29.4 apparently relate to the minimum and maximum thermometers, and there is no observation of No. 4.

23, 9.5 P.M. Day at first clear, becoming cloudy; evening mostly rather cloudy and hazy; stars near zenith visible.

24, 10.7 A.M. Some snow on the ground this morning; raining at 9 A.M. and later; gauge not examined, as rain continues.

24, 2.2 P.M. Gauge 6¼ ounces; 0.552 inches.

25, 12.9 A.M. Yesterday afternoon and evening mostly clear and windy; no aurora seen; Gegenschein now suspected with centre half way from η to ι Leonis about as in sketch;

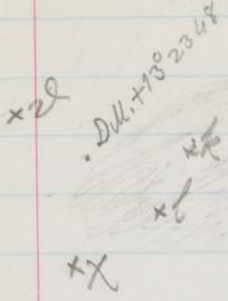
	η Leonis	10h 0m.8	+17° 21′
×η	ι Leonis	10 42.9	+11 11
×ι ×α ×p	Gegenschein	10 21.8	+14 16

25, 11.6 P.M. Day and evening clear; low auroral arch now visible; some appearance of streamers; Gegenschein suspected nearly as last night; centre thought to be half way between DM. +13° 2348 (a star on the atlas of Heis) and a point half way between α and η Leonis.

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Dll. +13° 2348	1855	10h 56.m9,	+13° 28′
l Leonis (Dll. +11° 2283)	1855	10 41.6,	+11 19
		15.3	2 9
l Leonis	1880	10 42.9	+11 11
Dll. +13° 2348	1880	10 58.2	+13 20
α Leonis	1880	10 2.0	+12 33
η Leonis	1880	10 0.8	+17 21
Intermediate point	1880	10 1.4	+14 57
Gegenschein		10 29.8	+14 8

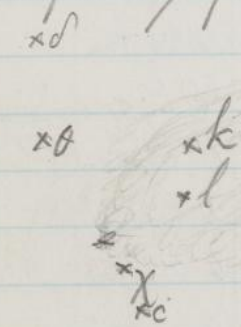
Mr. Wendell, looking independently, sees light in nearly the same region, and estimates the centre at about 1° south of m Leonis, a little preceding;

m Leonis		10 39.9	+19 32
Gegenschein about		10 38.0	+18 30

27, 11.7 A.M. Yesterday cloudy with snow in the afternoon and rain in the evening. Present depth of snow 2 to 2½ inches; result of gauge accepted, but likely to be somewhat too small.

27, 11.0 P.M. Day mostly clear; evening mostly hazy with clouds at times; part of the evening rather clear; no aurora seen.

28, 11.5 P.M. Day somewhat cloudy, becoming clear; evening mostly clear; no aurora seen; Gegenschein now suspected; centre about half way from ρ to k Leonis



ρ Leonis	10	26.5	+9 55
k Leonis	10	40.1	+14 51
Gegenschein	10	33.3	+12 23

Bar. max. 5, 10.7 A.M., 30.862, 23.0; min., 11, 9.6 P.M., 29.184, 38.0; C. 13399, max., 17, 45.1; G. 2205, min., 5, 2.9. Freezing point of No. 4, 32.3 Feb. 8.

For reports to Signal Service and New England Meteorological Society, see page 67.

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March 1887

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	11.0	29.916	25.4	18.1	7.1	17.2	20.4	19.0	0		2 W	1 Rs	1
2	10.7	29.870	28.7	35.0	16.2	34.0	34.8	34.1	0		3 SW	10 P	2
3	11.3	30.206	34.7	27.4	24.0	26.9	39.1	28.3	0		2 NW	5 Rs	3
4	11.3	30.356	30.3	29.2	16.9	28.3	29.1	29.3	0		2 NW	10 P Fm	4
5	11.2	30.768	28.6	19.0	8.2	18.0	32.4	20.1	0		2 NE	6 M Fm ←	5
6	11.9	30.175	31.2	31.8	18.0	31.1	31.7	32.0	See p. 76	1.544	2 E	10 P; snowing	6
7	11.1	30.039	32.7	31.0	22.9	30.0	33.1	31.2	See p. 76 1½	0.187	0 calm	10 P	7
8	11.0	30.109	36.7	40.8	27.0	40.0	40.3	40.4	0		1 NW	0	8
9	11.2	30.292	35.0	33.9	17.4	33.1	42.0	34.4	0		2 SE	0 Rs	9
10	11.6	29.696	37.0	35.3	32.0	34.7	37.8	37.5	See p. 76		1 N	10 P; raining	10
11	10.8	29.704	32.2	26.0	23.1	25.2	37.0	27.0	See p. 76	1.136	4 NW	3 P Rs Fm ← Fm ↓	11
12	11.3	29.694	32.0	34.5	22.2	34.0	34.3	34.5	0		3 NW	6 Pm Fm	12
13	10.0	29.833	36.2	37.4	31.8	36.3	38.0	37.3	0		1 NW	6 P Fm ↓	13
14	11.1	29.524	38.6	41.7	28.8	41.0	43.6	41.9	0		2 NW	0 Rs Fm	14
15	11.6	29.358	32.1	26.6	17.1	25.9	44.4	27.2	0 ⅛	0.011	3 NW	10 P	15
16	10.7	29.310	32.3	29.4	20.1	28.5	31.6	30.0	0		2 NW	10 P	16
17	11.1	29.204	34.8	35.8	24.6	35.0	35.3	35.5	0 ⅛	0.011	2 NW	10 P	17
18	11.2	29.206	36.4	37.7	28.3	36.9	40.0	37.5	0 ¾	0.066	3 NW	10 P; a few snow flakes	18
19	11.0	29.430	39.0	41.2	33.5	40.2	41.0	41.0	1	0.088	2 NW	10 Pm M Fm	19
20	10.6	29.828	38.2	38.4	32.1	37.3	41.7	38.7	1½	0.032	3 N	10 Pm M Fm ↓	20
21	10.2	29.954	38.6	40.1	26.1	39.5	41.0	40.3	0		2 SW	0 Rs Fm	21
22	10.7	29.224	39.5	37.1	33.2	36.1	48.5	37.2	See p. 77		4 NE	10 P; raining	22
23	10.5	29.350	35.8	28.8	26.0	28.0	36.0	29.2	See p. 77	0.892	3 W	10 P Fm	23
24	10.7	29.756	33.0	30.9	18.1	30.2	30.8	31.0	0		3 SW	0 Rs	24
25	10.8	29.438	42.0	39.9	30.1	39.2	42.9	40.2	0 ¼	0.022	4 W	0 M Fm	25
26	11.0	30.031	35.9	26.9	22.9	26.1	40.4	28.5	0		4 W	0	26
27	11.0	30.356	32.2	29.6	17.1	28.8	30.6	30.0	0		2 NW	5 Pm Fm →	27
28	10.6	29.557	36.0	34.4	28.4	33.9	34.6	34.8	15½	1.368	1 NW	10 Pm; raining	28
29	10.6	29.280	35.1	27.8	24.6	27.0	39.8	28.5	2¼	0.199	3 NW	4 P Rs Fm ↘	29
30	11.0	29.786	27.7	22.8	12.6	22.1	29.8	23.9	0		3 NW	2 M Fm ↘	30
31	11.1	30.218	32.0	33.1	19.1	32.3	32.7	33.0	0		1 NW	0	31
	340.1	923.470	1059.9	1001.6	709.5		1136.7		See p. 76, 77	5.656 Rainfall for month 56 inches	72	182	
	11.0	29.789	34.2	32.3	22.9		36.7				2.3	5.9	

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March 1887

Date	Sims P.M.	Barometer	Attached thermometer	No. 14	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2	8.6	29.970	34.1	37.1	2 SW	4 P Rs haze	Moonlight and clouds	Moonlight and clouds	None
3	8.9	30.310	34.8	34.0	2 NW	5 P Fm	Moonlight	Moonlight	None
4	9.5	30.436	36.0	25.2	0 calm	0	Moonlight	Moonlight	None
5									Obsc.
6									Obsc.
7									Obsc.
8	8.9	30.294	39.5	30.0	1 NW	0	Moonlight	Moonlight	None
9									Obsc.
10									Obsc.
11									Obsc.
12	9.4	29.837	37.6	32.3	3 NW	7 P Fm	Cloudy	Cloudy	Obsc.
13	8.8	29.668	41.7	35.3	1 W	0	Visible	None	None
14									Obsc.
15									Obsc.
16									Obsc.
17									Obsc.
18									Obsc.
19									Obsc.
20	8.6	29.942	41.8	32.7	0 calm	0 haze	Visible	None	None
21	8.4	29.882	43.8	38.0	2 S	3 P haze	Cloudy	None	None
22									Obsc.
23									Suspected
24	8.3	29.690	41.4	35.1	2 SW	0 haze	Visible	None	None
25	9.0	29.861	39.2	27.2	3 SW	0	Visible	None	None
26	8.7	30.194	37.0	23.2	2 W	0	Visible	None	None
27									Obsc.
28									Obsc.
29	9.2	29.552	33.8	21.0	3 NW	3 P Fm	Moonlight and clouds	Moonlight and clouds	None
30	8.8	29.999	33.0	24.0	2 W	1 P Fm	Moonlight and clouds	Moonlight and clouds	None
31	8.8	30.270	40.8	31.1	1 SE	6 P Rs	Moonlight and clouds	Moonlight and clouds	None

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2, 10.7 A.M. Yesterday mostly rather clear; evening mostly cloudy.

3, 11.3 A.M. Yesterday mostly cloudy; evening partly clear; no aurora seen.

4, 12.3 A.M. Yesterday mostly clear; evening cloudy till 9 P.M., then rather clear with some thin clouds; faint lunar halo about 9¼ P.M.; no aurora seen.

4, 11.3 P.M. Day cloudy ~~a~~ part of forenoon; clear towards night; evening clear; no aurora seen.

5, 11.3 P.M. Day rather cloudy; clouds increasing; snow in the evening.

6, 12 M. Snow still falling; gauge cleared out at 11.7 A.M.

6, 1.1 P.M. Snow now turning to rain; measured in 5 places 8, 8, 8, 9, 8½; mean 8.30 inches; 17½ inches in cylinder 1 13/16 inches across weigh 5 ounces; 9.82714 9.28207 / 8.75696 8.91908 / 0.69897 0.20215; hence rainfall to 1 inch of snow 0.1915 inches; total rainfall 1.589 inches; gauge 0 5/8 ounces, 0.055 inches since 11.7 A.M.; deducting this, rainfall 1.544 inches previous to 11.7 A.M., 0.055 inches since. Gauge emptied.

6, 9.7 P.M. Light rain during the afternoon, now cloudy without rain.

7, 11.1 A.M. Gauge this morning 1½ ounces, 0.132 inches; add 0.055 for rainfall 11.7 A.M. to 11 P.M. March 6; total 0.187 inches.

7, 11.5 P.M. Day and evening cloudy.

8, 11.0 P.M. Day and evening clear; no aurora seen.

10, 11.6 A.M. Yesterday clear, becoming cloudy; evening cloudy; rain part of the night.

10, 5.5 P.M. Rain followed by snow; gauge now 1 3/8 ounces, 1.004 inches; snow mostly melting as it falls; little new snow on the ground.

11, 10.8 A.M. Yesterday evening cloudy with snow; gauge this morning 1½ ounces, 0.132 inches; total rainfall 1.136 inches.

12, 11.3 A.M. Yesterday rather cloudy; evening cloudy.

12, 9.4 P.M. Day and evening mostly rather cloudy.

13, 11.3 P.M. Day rather cloudy; evening clear; no aurora seen.

15, 11.6 A.M. Yesterday rather clear; evening cloudy; a little snow early today.

16, 10.7 A.M. Yesterday rather cloudy; evening rather cloudy especially in the north.

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17, 11.1 A.M. Yesterday cloudy; a little snow in the evening.

18, 11.2 A.M. Yesterday cloudy day and evening; a little snow in the afternoon and night.

19, 11.0 A.M. Yesterday cloudy day and evening; a little rain.

20, 10.6 A.M. Yesterday cloudy day and evening with a little rain; a little snow in the night.

20, 11.3 P.M. Day cloudy, becoming clear; evening clear; no aurora seen; sky in Leo thought to be rather dark as compared with band in Lepus and between Praesepe and Regulus; sky east of Leo too bright with artificial light for observation.

22, 10.7 A.M. Yesterday mostly clear; evening rather cloudy after 8 P.M.; no aurora seen; heavy rain this morning after 9 A.M.

22, 11.6 A.M. Barom. 29.187; attached therm. 39.5; No. 4, 37.7

22, 3.4 P.M. Barom. 28.950; attached therm. 40.0; No. 4, 34.0; Not now raining; gauge 9 ounces, 0.793 inches.

22, 5.7 P.M. Barom. 28.922; attached therm. 40.1; No. 4, 36.9; little rain since 3.4 P.M.

23, 10.5 A.M. Yesterday evening cloudy; some snow later; gauge now 1 1/8 ounces, 0.099 inches; total rainfall 0.892 inches.

23, 11.2 P.M. Day rather cloudy; a few snowflakes; evening rather clear at times with much variable haze; now clearer; aurora suspected among clouds.

24, 10.9 P.M. Day mostly clear; evening somewhat hazy, with a few clouds; now becoming cloudy; no dekroza seen.

25, 11.6 P.M. Day and evening clear; no aurora seen; body of Leo now seems rather dark; zodiac further east too bright with artificial light for observation.

26, 3.8 A.M. Gegenschein slightly suspected at 3.1 A.M. with centre half way between β & χ Virginis;

β	11h 44m.4	+2° 26′
χ	12 33.0	−7 20
Gegenschein	12 8.7	−2 27

Mr. Wendell saw auroral arch about 2 A.M. March 24.

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26, 11.5 P.M. Day and evening clear and cool; no aurora seen.

27, 10.6 A.M. Evening of March 27 cloudy, with rain later; rain rather heavy early March 28; afternoon cloudy with little rain; some snow in the evening.

29, 11.5 P.M. Day mostly cloudy; evening rather cloudy, becoming clear; no aurora seen.

30, 11.1 P.M. Day and evening mostly clear, rather cold; no aurora seen.

31, 11.2 A.M. No. 4 in snow and water 32.3.

31, 11.3 A.M. No. 4 in snow and water continues at 32.3.

31, 10.7 P.M. Day mostly clear; thin clouds frequent in the evening; imperfect lunar halo about 8½ P.M.; no aurora seen.

Bar. max. 5, 11.2 A.M., 30.768, 28.6; min. 22, 5.7 P.M., 28.922, 40.1; C. 13399, max., 22, 48.5; G. 2205, min., 1, 7.1. Freezing point of No. 4, 32.3 March 31.

Report to Signal Service, sent April 1, 1887.

Aurora looked for every clear evening; suspected among clouds about 11¼ P.M. March 23; arch seen three hours later, about 2 A.M. March 24.

Zodiacal light visible on the evenings of March 13, 20, 24, 25, 26; ~~on~~ other evenings unfavorable to observation.

Lunar halos. Faint lunar halo visible March 3, about 9¼ P.M.; imperfect lunar halo March 31, about 8½ P.M.

Usual report sent April 1, 1887, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society. In the instructions printed on the blank forms for reports, the ordinary cases of precipitation during cold weather, as measured by gauge, are not well provided for. The thawing out of the contents of a gauge by artificial heat is not generally due to the fact that some snow has fallen during a storm, but to the freezing of water (either rain or melted snow) in the gauge itself. At this place, the contents of the gauge (and of the funnel when necessary) are weighed. The result is entered in one column or the other according to the general character of the precipitation.

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April 1887

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting	Maximum before and after setting	Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.7	30.072	36.1	36.8	26.5	36.1	39.8	37.1	0		3 E	10 P Fm ←	1
2	10.9	29.620	34.9	28.9	28.2	28.2	38.0	29.0	see p. 82		3 N	10 P; snowing	2
3	10.9	29.779	37.2	42.6	27.2	41.9	42.2	42.1	see p. 82	1931	3 NW	0	3
4	10.6	29.778	45.1	50.8	37.4	49.6	50.1	50.1	0		1 SW	5 PRs Fm	4
5	10.1	29.709	43.3	42.3	35.2	41.4	59.6	42.2	0 3/4	0.066	2 SW	10 P	5
6	10.6	29.999	35.1	30.3	22.0	29.9	45.6	31.0	0		3 NW	0	6
7	10.6	30.347	38.0	36.0	25.2	35.2	36.6	36.2	0		3 NW	0	7
8	10.7	30.597	37.2	37.2	23.0	36.5	38.9	37.4	0		1 SW	0 PRs	8
9	10.7	30.286	44.5	51.7	30.6	50.5	51.0	50.8	0		2 SW	5 PR Fm	9
10	11.3	29.950	53.3	67.5	47.9	66.7	66.8	66.5	0		2 NW	2 PR	10
11	10.6	29.861	56.2	62.4	51.2	61.3	75.0	61.0	0 1/8	0.011	2 SW	5 Pm Fm → hage	11
12	10.7	30.300	49.2	44.9	33.8	44.1	71.8	45.1	0		3 SE	1 Pm Rs Fm	12
13	10.8	30.368	46.0	41.0	31.6	40.1	45.4	41.2	0		3 NE	0 Rs	13
14	10.7	30.190	42.2	43.9	28.2	43.0	44.8	43.5	0		3 N	5 PRs Fm →	14
15	10.9	30.050	42.0	44.8	27.3	44.0	51.5	44.1	0		2 SE	4 PRs hage	15
16	10.8	29.564	43.1	38.9	36.3	38.4	50.2	39.3	see p. 83	0.552	1 NE	10 Pm; raining	16
17	10.6	29.755	42.0	41.1	34.9	40.2	41.2	41.1	0		3 NW	5 Pm Fm /	17
18	11.3	29.874	39.8	33.9	24.1	38.4	45.8	34.7	0		1 E	10 P	18
19	10.9	29.728	37.7	36.8	26.3	36.0	36.5	36.7	see p. 83	0.871	3 N	1 Pm Fm \	19
20	10.6	30.005	41.0	46.1	30.7	45.2	46.0	46.0	0		1 NW	0 Fm	20
21	10.4	30.086	45.8	50.2	32.6	49.3	52.1	50.0	0		1 E	0 Fm hage	21
22	10.8	30.122	49.2	60.1	39.5	59.0	59.2	59.0	0		1 N	0 Fm	22
23	10.6	29.970	51.0	57.7	39.9	56.4	63.3	56.1	0		1 S	10 Pm Fm	23
24	11.5	29.777	52.3	56.4	43.0	55.7	56.7	56.0	1 1/2	0.132	2 NW	7 M Fm →	24
25	11.0	30.012	51.6	53.4	36.2	52.4	63.4	53.2	0		3 SE	0 Fm	25
26	10.3	29.613	46.0	40.2	34.2	40.0	59.3	41.0	12	1.059	3 N	10 Pm Fm; a few drops of rain	26
27	10.8	29.858	51.2	53.0	39.2	52.1	53.1	52.8	0		3 W	4 M Fm →	27
28	10.8	29.830	52.2	53.8	40.6	53.1	56.6	53.9	0		2 S	10 Pm; a few drops of rain	28
29	10.0	29.198	53.1	55.3	46.1	54.1	55.8	55.1	6 1/2	0.574	2 S	10 Pm	29
30	10.6	29.252	54.4	54.6	47.0	53.7	59.0	54.2	3	0.265	3 NW	10 Pm M Fm →	30
	321	897550	13507	13926	10259		15553		see pp. 82, 83	5.461 Rainfall for month 5.46 inches	66	144	
	10.7	29.918 −044 29.874	45.0	46.4	34.2		51.8				2.2	4.8	

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Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2									Obsc.
3									Obsc.
4									Obsc.
5	8.3	29.840	44.0	30.2	2 W	0 Rs	Moonlight	Moonlight	None
6	8.4	30.167	41.0	31.7	2 W	0 Rs	Moonlight	Moonlight	None
7	8.9	30.186	41.9	31.2	1 W	0	Moonlight	Moonlight	None
8	8.5	30.451	43.7	37.0	1 SW	0 PRs	Moonlight	Moonlight	None
9									Obsc.
10	8.7	29.948	66.2	61.3	2 SW	1 haze	Visible	None	None
11	8.4	30.072	58.9	48.0	3 NW	4 P haze	Cloudy	Cloudy	None
12	7.8	30.255	50.0	37.1	0 SE	1 haze Fm	Visible	None	None
13	10.7	30.289	46.4	34.7	2 NE	0	None	None	None
14	8.5	30.130	49.5	37.8	1 SE	0	Visible	Light near horizon	Aurora
15									Obsc.
16									Obsc.
17	8.6	29.898	46.0	34.1	2 N	0	Visible	None	None
18									Obsc.
19	8.7	29.900	42.9	38.1	2 NW	0	Visible	None	None
20	8.7	30.003	49.2	45.1	1 W	0	Visible	None	None
21	8.5	30.090	52.0	46.6	1 SE	0 haze	Visible	None	None
22	8.4	30.084	56.0	50.2	1 SE	0 haze	Visible	None	None
23									Obsc.
24	9.5	29.912	55.0	45.5	0 calm	0	Visible	None	None
25									Obsc.
26	8.4	29.798	51.7	48.0	1 S	2 Pm Fm	Moonlight and clouds	Moonlight and clouds	None
27	9.2	29.923	54.8	46.3	1 SW	1 Fm →	Moonlight	Moonlight	None
28									Obsc.
29									Obsc.
30									Obsc.

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2, 10.9 A.M. Yesterday cloudy day and evening; with a few snowflakes. Snow later; now about 1½ inches deep.

2, 6.2 P.M. Snowing violently, wind north, strong, 4, (in gusts 5); gauge cleared out; snow on ground too much drifted for good measure; thought to be 10 inches deep on the average. Barom. 29.362; att. therm. 34.3; external thermometers partly buried in snow; temperature outside about the freezing point.

3, 10.9 A.M. Yesterday evening cloudy with snow. Path dug 66 feet on part of grounds where it seemed likely that a good average of the present depth of snow could be obtained; 10 measures of snow at equal distances along the path give 12½, 12¼, 10, 9¼, 8½, 9, 7½, 7, 11½, 12½; mean 10.0 inches; 20 inches in cylinder 1 13/16 across weigh 5 3/4 ounces; 9.82714 9.28578 8.69897 0.75796; hence rainfall to 1 inch of snow 1.931 inches; total rainfall 1.931 inches. Gauge cleared out.

4, 10.6 A.M. Yesterday mostly clear; evening cloudy.

5, 10.1 A.M. Yesterday rather cloudy; somewhat clear about sunset; evening cloudy.

5, 10.7 P.M. Day cloudy, becoming clear; evening mostly clear; no aurora seen.

6, 11.3 P.M. Day and evening clear; no aurora seen.

7, 10.9 P.M. Day and evening clear; no aurora seen.

8, 8.5 P.M. At 8h 25m P.M., meteor from near zenith, about as bright as Sirius, with short trail, towards δ Cassiopeiae, vanishing about 5° from that star.

8, 10.8 P.M. Day clear; evening rather clear, with some thin clouds; no aurora seen.

10, 11.3 A.M. Yesterday rather clear; thin clouds; evening cloudy.

10, 11.3 P.M. Day and evening warm, rather clear; some haze; no aurora seen.

12, 10.7 A.M. Yesterday partly cloudy day and evening; no aurora seen.

13, 10.7 P.M. Yesterday partly cloudy; evening clear at first, cloudy after 8½ P.M.; no aurora seen. [illegible]

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aurora seen; zodiacal light visible about 8 P.M.

14, 11.0 P.M. Day and evening clear; light, apparently auroral, near north horizon at 8½ P.M.; some time afterwards not visible; but at present faint auroral arch, sky somewhat dark below; slight appearance of streamers.

16, 10.8 A.M. Yesterday rather clear, becoming cloudy; evening cloudy; rain later.

16, 5.1 P.M. Little rain after noon; gauge now 6/17 ounces, 0.552 inches.

17, 10.6 A.M. Yesterday rainy at first, cloudy later with a little mist; evening cloudy.

17, 11.3 P.M. Day and evening rather clear, with some thin clouds; no aurora seen.

19, 10.9 A.M. Yesterday cloudy with snow after 11½ A.M. Gauge 3⅛ ounces, 0.276 inches. Present depth of snow in 10 places 4, 4, 2½, 2½, 2¼, 3, 3, 2¾, 3¾, 2¾; mean 3.05 inches; 20 inches in cylinder 1 13/16 inches across weigh 8½ ounces; 9.82714 9.45552 / 8.69897 0.48430 / 0.92942 9.93983

hence rainfall to 1 inch of snow 0.2854 inches; total rainfall 0.871 inches; this result preferred to that by the gauge, as the snow was accompanied by some wind.

19, 11.3 A.M. No. 4 in snow.

19, 12.4 P.M. External temperature 39; No. 4, in melting snow, 32.3

19, 10.7 P.M. Day and evening clear; no aurora seen.

20, 11.6 P.M. Day and evening clear; no aurora seen.

21, 11.5 P.M. Day mostly clear; evening clear somewhat hazy; no aurora seen.

22, 11.3 P.M. Day and evening clear, somewhat hazy; no aurora seen.

24, 11.5 A.M. Yesterday cloudy day and evening.

24, 11.2 P.M. Day and evening clear; no aurora seen.

26, 10.3 A.M. Yesterday clear, becoming cloudy; rain late in the evening; a few snowflakes early today; barometer Green 2995 29.713; att. therm. 45.6; by and by examination a few minutes later the reading should (perhaps) have been 29.613 instead of 29.713; readings on subsequent days make a difference of about 0.05.

26, 8.4 P.M. Barometer Green 2995 29.812; attached therm. 51.7; reading of barometer difficult.

27, 10.8 A.M. Yesterday cloudy, becoming rather clear; many thin clouds

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in the evening; no aurora seen. Barometer Green 2995 now 29.900; att. therm. 52.0.

27, 9.2 P.M. Barometer Green 2995, 29.970; attached therm. 54.0

27, 10.7 P.M. Day mostly clear; evening clear with some haze and passing clouds; no aurora seen.

28, 10.8 A.M. Barometer Green 2995, 29.884; attached therm. 52.0

29, 10.0 A.M. Yesterday cloudy day and evening, with some rain. Barometer Green 2995, 29.240; attached therm. 53.0

30, 10.6 A.M. Yesterday cloudy day and evening, with a little rain; thunder heard at times during the afternoon. Barometer Green 2995, 29.298; attached therm., 54.2

May 1, 9.8 A.M. Yesterday cloudy day and evening, with a few drops of rain.

Bar. max. 8, 10.7 A.M., 30.597, 37.2; min. 29, 10.0 A.M., 29.198, 53.1; C. 13399; max., 11, 75.0; Gr. 2205, min., 6, 22.0. Freezing point of N. 4, 19, 32.3.

Report to Signal Service, sent May 2, 1887.

Aurora looked for every clear evening; on April 14, at 8½ P.M., light, apparently auroral, near north horizon; some time afterwards not visible; but at 11 P.M. faint auroral arch, sky somewhat dark below; slight appearance of streamers.

Zodiacal light visible April 10, 12, 13, 14, 17, 19, 20, 21, 22, 24; other evenings unfavorable to observation.

Thunder heard at times during the afternoon of April 29; day cloudy, with a little rain.

Meteor April 8, at $8^h 25^m$ P.M., from near zenith; about as bright as Sirius, with short trail towards δ (Delta) Cassiopeiae, vanishing about 5° from that star.

Usual report sent May 2, 1887, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, in accordance with the direction of the Society.

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Comparisons between barometers Green 2995 and Newman 68.

Date 1887	Time A.M.	Green 2995 Barometer	Green 2995 Attached thermometer	Newman 68 Barometer	Newman 68 Attached thermometer	G–N uncorrected	Time P.M.	Green 2995 Barometer	Green 2995 Attached thermometer	Newman 68 Barometer	Newman 68 Attached thermometer	G–N uncorrected	62 A.M. observations
April 26							8.4	29.812	51.7	29.798	51.7	.014	Mean .0488
27	10.8	29.900	52.0	29.858	51.2	.042	9.2	29.970	54.0	29.923	54.8	.047	−7 +138
28	10.8	29.884	52.0	29.830	52.2	.054							+5 −153
29	10.0	29.240	53.0	29.198	53.1	.042							−7 Av. dev.
30	10.6	29.298	54.2	29.252	54.4	.046							−3 .0045
May 1	9.8	29.863	49.2	29.820	49.7	.043	8.4	30.082	56.0	30.028	56.3	.054	−6 P.E.
2	10.7	30.322	54.9	30.274	54.1	.048	8.5	30.419	57.5	30.350	58.7	.069	−1 1 obs.
3	10.2	30.372	56.1	30.327	55.7	.045							−4 .0038
4	10.0	30.094	60.7	30.048	59.5	.046							−3 P.E.
5	10.0	30.101	62.6	30.056	62.4	.045	8.1	30.133	66.0	30.088	67.9	.045	−4 Mean
6	10.0	30.290	60.0	30.245	60.2	.045							−4 .0005
7	10.7	30.404	56.0	30.362	56.8	.042							−7 P.E.
8	10.5	30.280	56.2	30.239	56.2	.041	8.5	30.227	61.2	30.179	62.2	.048	−8 1 obs.
9	10.2	30.276	61.9	30.230	61.0	.046	8.8	30.308	59.2	30.256	62.0	.052	−3 1 bar.
10	10.3	30.241	63.8	30.195	61.1	.046	8.4	30.160	71.2	30.063	73.9	.097	−3 .0027
11	10.0	30.114	63.2	30.062	64.2	.052							+3
12	10.3	30.032	59.9	29.978	60.3	.054	9.0	30.040	60.8	29.992	62.1	.048	+5
13	11.3	30.102	57.7	30.050	57.8	.052	9.0	30.117	55.0	30.170	56.0	[.047?]	+3
14	11.2	30.362	57.1	30.301	56.0	.061	8.6	30.376	56.1	30.304	58.0	.066	+11
15	10.7	30.342	56.0	30.288	55.5	.054	9.0	30.275	61.0	30.240	62.9	.035	+5
16	10.0	30.208	56.2	30.168	56.6	.040	8.9	30.152	59.2	30.088	61.1	.064	−9
17	10.6	30.043	58.0	29.984	57.3	.059	8.5	29.976	64.0	29.911	62.9	.065	+10
18	11.0	29.936	58.0	29.881	58.6	.057							+8
19	10.8	30.010	60.3	29.954	60.0	.056	8.5	30.066	67.0	30.015	68.0	.051	+7
20	10.7	30.115	65.0	30.069	64.5	.046	9.5	30.164	71.0	30.128	73.0	.036	−3
21	10.4	30.286	66.0	30.245	66.2	.041	8.5	30.300	65.0	30.260	57.1	.040	−8
22	10.0	30.308	62.0	30.264	62.5	.044	8.4	30.200	66.0	30.161	68.2	.039	−5
23	10.2	30.067	68.0	30.020	67.4	.047	8.5	30.000	71.1	29.952	73.7	.048	−2
24	10.0	29.964	69.0	29.916	68.7	.052							+3
25	10.3	29.811	67.3	29.759	69.3	.052	8.7	29.721	68.2	29.669	70.2	.052	+3
26	10.4	29.687	68.7	29.636	68.0	.051							+2
27	10.5	29.701	67.8	29.654	68.0	.047							−2
28	10.5	29.878	57.8	29.780	59.0	.098							+49
29	10.5	29.952	56.0	29.900	56.5	.052							+3
30	10.4	30.130	57.0	30.086	57.0	.044	8.8	30.271	60.1	30.199	62.0	.072	−5
31	10.1	30.412	59.2	30.363	59.6	.051							+2
June 1	10.4	30.304	55.0	30.257	56.1	.047							−2
2	10.3	30.090	58.3	30.047	59.0	.043	9.4	29.952	65.0	29.896	65.0	.056	−6
3	10.5	29.762	64.8	29.708	65.0	.054	8.3	29.756	67.0	29.696	67.9	.060	+5
4	10.9	29.992	61.1	29.948	62.1	.044							−5
5	9.9	30.308	57.0	30.264	59.1	.044							−5
6	10.7	30.267	62.0	30.219	61.7	.048	8.7	30.174	65.0	30.130	67.8	.044	−1
7	10.6	30.088	66.2	30.039	66.0	.049	8.5	30.066	70.3	30.018	72.0	.048	0
8	10.6	29.997	68.0	29.949	67.7	.048	8.7	29.840	68.8	29.786	70.7	.054	−1
9	10.4	29.694	70.0	29.647	69.4	.047							−2
10	10.4	30.120	63.8	30.072	64.0	.048	8.9	30.267	61.0	30.215	63.8	.052	−1
11	11.0	30.369	60.0	30.322	59.8	.047	8.6	30.333	64.5	30.288	66.5	.045	−2
12	10.0	30.286	61.0	30.245	60.8	.041	9.4	30.158	65.5	30.116	66.5	.042	−8
13	10.4	30.032	65.0	29.987	64.8	.045	8.5	29.946	73.0	29.888	73.2	.058	−4
14	9.5	30.183	65.8	30.145	67.0	.038	8.5	30.300	59.2	30.232	63.2	.068	−11
15	9.8	30.295	60.0	30.251	59.9	.044	8.5	30.203	64.8	30.170	66.8	.033	−5
16	10.4	29.932	62.3	29.882	62.2	.050							+1
17	11.0	29.800	69.3	29.750	69.9	.050							+1
18	11.0	29.828	67.9	29.779	68.4	.049							0
19	10.7	29.816	65.5	29.768	65.4	.048							−1
20	10.4	29.950	68.5	29.900	69.0	.050							+1
21	10.9	30.062	64.6	30.015	66.0	.047							−2
22	10.3	29.900	68.0	29.850	67.5	.050							+1
23	10.6	29.937	71.0	29.887	72.0	.050							+1
24	10.1	29.938	70.0	29.884	70.2	.054							+5
25	10.9	30.210	68.6	30.164	68.9	.046	8.7	30.224	68.4	30.190	71.6	.034	−3
26	10.3	30.303	67.3	30.252	67.7	.051	8.6	30.300	69.0	30.254	71.8	.046	+2
27	11.4	30.337	66.3	30.286	69.0	.051							+2

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May 1887

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting	Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	9.6	29.820	49.7	55.1	44.2	54.2	57.0	54.9	0		3 N	0	1
2	10.7	30.274	54.1	60.7	43.3	59.9	64.3	59.7	0		2 SE	0 Rs haze	2
3	10.2	30.327	55.7	64.2	43.9	62.9	63.2	62.3	0		2 SE	5 P Rs fm →	3
4	10.0	30.048	59.5	67.9	52.2	66.4	73.2	66.3	0		3 SW	6 P Rs haze fm →	4
5	10.0	30.056	62.4	66.6	52.6	65.3	81.2	66.0	0		0 NW	7 P Rs	5
6	10.0	30.245	60.2	59.0	48.3	58.0	73.3	58.8	0		0 E	10 P m M fm; a few drops of rain	6
7	10.7	30.362	58.8	55.1	47.7	54.1	62.6	55.2	0 1/8	0.011	1 E	10 P m	7
8	10.5	30.239	56.2	59.5	46.7	58.2	58.5	58.5	1 3/8	0.121	0 calm	10 P	8
9	10.2	30.230	61.0	67.9	50.0	67.0	67.4	67.0	0		2 NE	1 Rs fm	9
10	10.3	30.195	61.1	70.8	45.6	69.9	69.8	69.0	0		2 SW	0 Rs	10
11	10.0	30.062	64.2	69.3	62.2	68.8	83.7	68.8	0		3 NW	2 P Rs	11
12	10.3	29.978	60.3	63.6	55.1	62.8	75.9	63.0	0		3 N	2 haze	12
13	11.3	30.050	57.8	56.6	42.1	56.0	68.1	57.0	0		3 E	5 M fm →	13
14	11.2	30.301	56.0	61.2	39.0	60.3	60.8	60.9	0		2 E	1 P Rs M fm	14
15	10.7	30.288	55.5	63.5	41.5	62.2	62.8	62.5	0		1 W	0 haze	15
16	10.0	30.168	56.6	61.4	43.6	60.1	68.7	60.0	0		1 S	10 P	16
17	10.6	29.984	57.3	64.8	43.8	64.0	65.7	63.7	0		1 E	2 haze	17
18	11.0	29.881	58.6	56.7	49.7	55.9	66.4	56.5	0		0 calm	10 P fog	18
19	10.8	29.954	60.0	71.7	51.7	70.8	70.8	70.1	0		1 NW	0 haze	19
20	10.7	30.069	64.5	79.7	56.8	78.1	78.6	76.1	0		2 W	2 haze	20
21	10.4	30.245	66.2	65.3	55.6	64.5	86.7	65.0	0		2 E	3 haze	21
22	10.0	30.264	62.5	63.9	50.4	63.0	67.0	63.4	0		2 E	2 haze	22
23	10.2	30.020	67.4	76.0	56.8	74.9	75.1	74.0	0		3 SW	6 P fm haze	23
24	10.0	29.916	68.7	75.0	62.0	73.8	84.0	73.0	0		3 SW	10 P m fm	24
25	10.3	29.759	69.3	68.2	65.0	67.3	77.3	68.0	See p. 89		1 S	10 P m; raining	25
26	10.4	29.636	68.0	72.4	60.8	71.1	72.7	71.2	See p. 89	0.121	2 E	6 P Rs	26
27	10.5	29.654	68.0	68.1	59.4	67.1	74.4	68.0	0 3/8	0.033	2 E	2 M fm / haze	27
28	10.5	29.780	59.0	49.0	46.7	48.2	69.9	49.4	13 1/2	1.191	3 NE	10 P m; a few drops of rain	28
29	10.4	29.900	56.5	51.0	46.6	50.1	50.6	51.0	2 1/4	0.199 0.221	3 NE	10 P m; a few drops of rain	29
30	10.4	30.086	57.0	61.1	47.8	59.9	60.0	59.8	0 1/8	0.011	2 E	10 P m	30
31	10.1	30.363	59.6	60.5	51.3	59.7	62.0	59.9	0		2 E	10 P m	31
	323.2	982 154	18.697	19858	15613		21517		see p. 89.	1.687	57	162	
	10.4	30.070	60.3	64.1	50.4		69.4			Rainfall for month	1.8	5.2	
		29.881	54.1	49.0	39.0		57.0			1887 inches			

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Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	8.4	30.028	56.3	57.0	1 NW	0 Rs	Moonlight	Moonlight	None
2	8.5	30.350	58.7	52.7	0 SE	2 P Rs	Moonlight	Moonlight	None
3									None
4									Obsc.
5	8.1	30.088	67.9	61.9	2 SE	9 Pm Rs Fm →	Cloudy	Moonlight	None
6									Obsc.
7									Obsc.
8	8.5	30.179	67.2	53.1	0 E	3 P Rs haze	Moonlight and clouds	Moonlight and clouds	None
9	8.8	30.256	62.0	50.4	1 E	0 haze	Visible	None	None
10	8.4	30.063	73.9	71.0	3 S	1 Fm	Twilight and clouds	Twilight and clouds	None
11									Obsc.
12	9.0	29.992	62.1	55.2	1 N	0	Visible	None	None
13	9.0	30.170	56.0	47.0	0 calm	0 Fm	Visible	None	None
14	8.6	30.304	58.0	50.8	0 calm	0 P	Visible	None	None
15	9.0	30.240	62.9	55.1	2 SE	1 haze	Visible	None	None
16	8.9	30.088	61.1	53.3	1 E	3 haze	Hazy	Hazy	None
17	8.5	29.911	62.9	53.8	0 W	2 haze	Visible	None	None
18									Obsc.
19	8.5	30.015	68.0	66.1	0 calm	1 P haze	Visible	None	None
20	9.5	30.128	73.0	72.5	2 S	4 haze	Hazy	Hazy	None
21	8.5	30.260	57.1		0 calm	3 haze	Hazy	Hazy	None
22	8.4	30.161	68.2	60.2	2 SE	3 haze	Hazy	Hazy	None
23	8.5	29.952	73.7	68.3	2 SW	2 P Rs haze	Twilight and clouds	Twilight and clouds	Suspected
24									Obsc.
25	8.7	29.669	70.2	65.8	1 SW	1 Pm Fm	Cloudy	None; some clouds	None
26									Obsc.
27									Obsc.
28									Obsc.
29									Obsc.
30	8.8	30.199	62.0	55.1	2 SE	1 P Fm	Moonlight	Moonlight	None
31									Obsc.

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May, 1887.

1, 9.8 A.M. Barometer Green 2995, 29.863; attached therm. 49.2
1, 8.4 P.M. Barometer Green 2995, 30.082; attached therm. 56.0
1, 11.1 P.M. Day and evening clear and warm; no aurora seen.
2, 10.7 A.M. Barometer Green 2995, 30.322; attached therm. 54.9
2, 8.5 P.M. Barometer Green 2995, 30.419; attached therm. 57.5
2, 10.3 P.M. Day mostly clear; thin irregular clouds in the evening; no aurora seen.
3, 10.2 A.M. Barometer Green 2995, 30.372; attached therm. 56.1
3, 11.3 P.M. Day rather clear and warm; clouds increasing in the evening; no aurora seen.
4, 10.0 A.M. Barometer Green 2995, 30.094; attached therm. 60.7
5, 10.0 A.M. Yesterday warm, rather clear; evening rather cloudy.
Barometer Green 2995, 30.101; attached therm. 62.6
5, 8.1 P.M. Barometer Green 2995, 30.133; attached therm. 66.0
5, 11.0 P.M. Day rather clear; evening generally rather cloudy; no aurora seen.
6, 10.0 A.M. Barometer Green 2995, 30.290; attached therm. 60.0
7, 10.7 A.M. Yesterday cloudy with a few drops of rain; evening cloudy.
Barometer Green 2995, 30.402; attached therm. 58.0
8, 10.5 A.M. Yesterday cloudy day and evening, with a little rain.
Barometer Green 2995, 30.280; attached therm. 56.2
8, 8.5 P.M. Barometer Green 2995, 30.227; attached therm. 61.2
9, 10.2 A.M. Yesterday cloudy at first; afternoon and evening rather clear; some thin clouds; no aurora seen; barometer Green 2995, 30.276; attached therm. 61.9
9, 8.8 P.M. Barometer Green 2995, 30.308; attached therm. 59.2
9, 11.0 P.M. Day and evening rather clear; no aurora seen.
10, 10.3 A.M. Barometer Green 2995, 30.241; attached therm. 63.8
10, 8.4 P.M. Barometer Green 2995, 30.160; attached therm., 71.2
10, 11.0 P.M. Day and evening warm and rather clear; no aurora seen; Zodiacal light visible about 8½ P.M.
11, 10.0 A.M. Barometer Green 2995, 30.114; attached therm., 63.2.
12, 10.3 A.M. Yesterday rather clear and warm; evening rather cloudy and hazy.
13, 12.9 A.M. Yesterday rather clear, evening somewhat hazy; no aurora seen;
13, 11.7 P.M. Day cool and rather clear; heavier clouds in the evening; no aurora seen.

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May, 1887.

14, 10.9 P.M. Day mostly clear and cool; evening somewhat hazy; no aurora seen.
15, 10.1 P.M. Day rather clear; evening hazy; no aurora seen.
17, 11.1 P.M. Yesterday rather clear; evening hazy; no aurora seen.
Today rather clear; evening hazy, becoming cloudy; no aurora seen.
19, 10.8 A.M. Yesterday cloudy and foggy day and evening.
19, 11.3 P.M. Day clear and warm; evening hazy; no aurora seen.
21, 10.4 A.M. Yesterday rather hot and hazy; evening hazy; no aurora seen.
22, 10.0 A.M. Yesterday hazy day and evening; no aurora seen.
23, 10.2 A.M. Yesterday hazy day and evening; no aurora seen.
23, 10.7 P.M. Day and evening rather clear; some clouds; light, possibly auroral, over bank of clouds in the north.
25, 10.3 A.M. Yesterday mostly cloudy day and evening. Some rain today.
25, ~~2.0~~ P.M. Gauge @ 1¼ ounces; 0.110 inches.
25, 10.6 P.M. Day mostly cloudy; evening rather clear at first, then hazy with frequent clouds; lightning without thunder among clouds in the west about 9 P.M.; no aurora seen; electric lights to the north reflected in haze sometimes resemble aurora.
26, 10.4 A.M. Gauge ⅛ ounces; 0.011 inches; total rainfall 0.121 inches.
29, 10.4 A.M. Last three days generally cloudy, with some rain, in showers.
30, 10.4 A.M. Yesterday cloudy day and evening, with a little rain.
30, 11.0 P.M. Day cloudy, clear towards night; evening rather clear, with some thin clouds; no aurora seen.
31, 10.5 P.M. Day and evening cloudy.

Bar. max. 31, 10.1 A.M., 30.363, 59.6; (see also 7, 10.7 A.M., 30.362, 56.8); min. 26, 10.4 A.M., 29.636, 68.0; C. 1.3399, max. 21, 86.7; G. 2205, min., 14, 39.0.

Report to Signal Service, sent June 1, 1887.

Aurora looked for every clear evening; suspected May 23.
Zodiacal light visible May 9, 10, 17, 13, 14, 15, 17, 19; other evenings unfavorable to observation.
Lightning without thunder, about 9 P.M. May 15, among clouds in the west.
Supply of stationery. There are seven blanks for reports and two envelopes remaining here.

Usual report sent June 1, 1887, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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June 1887.

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.4	30.257	56.1	51.1	48.3	50.2	60.0	51.5	see p. 92		2 E	10 Pm; raining	1
2	10.3	30.047	59.0	60.2	50.2	54.7	59.5	59.6	see p. 92	0.729	1 E	10 Pm fog	2
3	1.45	29.708	65.0	69.0	59.0	68.1	68.0	68.0	0 1/8	0.011	3 SW	9 Pm M Rs 7m /	3
4	10.9	29.948	62.1	57.4	54.4	56.8	72.8	57.4	0 7/8	0.077	2 NE	10 Pm	4
5	9.9	30.264	59.1	60.2	49.2	59.1	59.7	59.4	0		2 E	10 Pm	5
6	10.7	30.219	61.7	66.2	50.9	65.2	65.2	65.0	0		2 SW	5 P Rs R 7m \	6
7	10.6	30.039	66.0	72.9	56.0	71.5	75.0	71.2	0		2 SW	4 Rs M 7m →	7
8	10.6	29.949	67.7	71.8	58.1	70.7	79.3	70.7	0		2 E	9 P 7m haze	8
9	10.4	29.647	69.9	78.0	62.7	76.9	77.0	76.9	0		3 N	5 R M 7m → / 7m \	9
10	10.4	30.072	64.0	61.9	52.1	62.1	78.0	62.4	0		3 E	0 M 7m	10
11	11.0	30.322	59.8	64.9	43.5	64.0	64.0	63.8	0		2 NE	0	11
12	10.0	30.245	60.8	66.7	46.9	65.8	69.2	65.8	0		1 NE	0 haze	12
13	10.4	29.987	64.8	76.9	53.7	75.9	76.0	75.7	0		2 N	5 Pm Rs R M 7m \	13
14	9.5	30.145	67.0	60.3	59.0	59.9	82.1	60.2	0		3 E	10 Pm	14
15	9.8	30.251	59.9	61.3	45.1	60.6	62.8	61.0	0		2 S	0 Rg haze	15
16	10.4	29.882	62.2	69.6	50.1	68.6	70.0	68.5	0		4 SW	6 P 7m ↘	16
17	11.0	29.750	69.9	76.2	67.2	75.0	78.7	74.9	0		1 NW	6 R M 7m	17
18	11.0	29.779	68.4	63.5	61.9	62.9	75.8	63.8	0		3 E	3 Pm R 7m →	18
19	10.7	29.768	65.4	72.5	54.5	71.1	71.2	71.0	0		2 SW	3 P Rs M 7m	19
20	10.9	29.900	69.0	74.9	59.6	74.0	78.0	73.6	0		1 NW	8 Pm M 7m →	20
21	10.9	30.015	66.0	60.8	58.1	60.1	77.7	61.1	0		2 E	10 Pm; a little rain	21
22	10.3	29.850	67.5	70.7	60.0	69.7	69.9	69.9	0 1/4	0.022	1 E	10 P	22
23	10.6	29.867	72.0	74.8	68.0	74.0	79.0	73.9	2 1/4	0.199	3 S	10 Pm; a few drops of rain	23
24	10.1	29.884	70.2	73.9	65.1	72.6	74.0	72.9	9 3/4	0.860	2 W	9 P Rs	24
25	10.9	30.164	68.9	71.0	62.2	70.0	81.3	70.1	0		3 N	6 P Rs 7m	25
26	10.3	30.252	67.7	70.0	55.8	69.1	75.0	69.7	0		2 N	1 Pm M Rs 7m	26
27	11.4	30.286	69.0	72.0	57.0	70.9	75.0	71.0	0		2 E	7 Pm M 7m \	27
28	11.0	30.288	69.3	74.7	57.2	73.3	73.7	73.7	0		0 calm	0 Rs R M 7m \	28
29	10.8	30.228	73.0	80.1	60.1	79.0	80.0	79.0	0		1 SW	0 Rs 7m	29
30	9.0	30.180	74.1	77.9	66.0	76.8	87.2	77.0	0		1 W	2 Rs	30
	147	901205	19755	20614	16919		21951		see p. 92	1.898	60	168	
	10.5	30.040	65.8	68.7	56.4		73.2			Rainfall for month 1.90 inches.	2.0	5.6	
		180											
		29.940											

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Date	Time P.M.	Barometer	Attached thermometer	No. 14	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2	9.4	29,896	65.0	62.4	2 S	2 Pr Rs Fm	Moonlight	Moonlight	None
3	8.3	29.696	67.9	63.5	1 S	10 Pm Fm →	Cloudy	Cloudy	None
4									Obsc.
5									Obsc.
6	8.7	30.130	67.8	64.2	1 S	3 Pm Rs Fm	Twilight and clouds	Twilight	None
7	8.5	30.018	72.0	66.8	1 E	4 P Rs	Twilight and clouds	Twilight and clouds	None
8	8.7	29.786	70.7	66.1	2 S	0	Twilight	Twilight	None
9									Obsc.
10	8.9	30.215	63.8	52.3	0 calm	0	Twilight	Twilight	None
11	8.6	30.288	66.5	58.7	1 SE	0 Rs	Twilight	Twilight	None
12	9.4	30.116	66.5	60.8	0 calm	0 Pm	Twilight	Twilight	None
13	8.5	29.888	73.2	74.0	1 NW	5 Pr Rs Fm	Twilight	Twilight	None
14	8.5	30.232	63.2	54.3	1 E	0 Fm	Twilight	Twilight	None
15	8.5	30.170	66.8	58.9	2 SE	2 P Rs	Twilight	Twilight	None
16		2							Obsc.
17									Obsc.
18									Obsc.
19									Obsc.
20									Obsc.
21									Obsc.
22									Obsc.
23									Obsc.
24									None
25	8.7	30.190	71.6	66.2	1 SW	2 P Rs Fm	Twilight	Twilight and clouds	None
26	8.6	30.254	71.8	66.4	1 NW	1 Pm Fm	Twilight	Twilight	None
27	9.0	30.272	69.1	64.4	0 calm	0 P Rs	Moonlight and twilight	Moonlight, twilight and clouds	None
28	8.6	30.247	74.7	71.0	1 SE	1 Rs Fm	Twilight and moonlight	Twilight and moonlight	None
29	8.8	30.203	80.0	77.7	1 S	0 P	Moonlight and twilight	Moonlight and twilight	None
30	9.2	30.139	82.5	78.1	0 calm	3 P Rs	Moonlight and clouds	Moonlight and clouds	None

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June 1887

1, 5.5 P.M. Day cloudy, with showers; gauge now 6¼ ounces, 0.552 inches.
2, 10.3 A.M. Yesterday evening cloudy, with rain; gauge now 2 ounces, 0.177 inches.
2, 11.0 P.M. Day cloudy, becoming clear in the evening; no aurora seen.
3, 11.0 P.M. Day and evening mostly cloudy, sometimes partly clear, a little rain at times; no aurora seen.
6, 10.7 A.M. Yesterday and previous day mostly cloudy day and evening.
6, 10.9 P.M. Day and evening rather clear; some thin clouds; no aurora seen.
7, 10.7 P.M. Day and evening rather clear; some thin clouds; no aurora seen.
8, 11.8 P.M. Day cloudy, clear towards night; evening clear at first, with fog and clouds later; no aurora seen.
10, 10.4 A.M. Yesterday mostly cloudy day and evening.
10, 11.9 P.M. Day and evening clear and cool; no aurora seen.
11, 11.2 P.M. Day and evening clear, rather warm; no aurora seen.
12, 11.5 P.M. Day and evening clear; some clouds in the north; no aurora seen.
13, 10.9 P.M. Day hot, somewhat cloudy; evening rather clear; no aurora seen.
14, 11.5 P.M. Day and evening cool and clear; no aurora seen.
15d 8h.9 P.M. A very bright meteor at 8h 42½m. At the time, Spica was visible, and before making this record numerous stars came out as twilight retreated. As nearly as recollected the visible meteor started between ψ and δ Ursae Majoris, passed above β Leonis, near γ Virginis, and below Spica. Perhaps midway in its course it exploded, but the faintish trace continued the former course, increasing in brightness till it suddenly faded. It was hard to say how much the enlargement at explosion was due to irradiation. No branching. No sound. J. M. Edmands.
15d 9h 0 P.M. ~~At this time a very bright~~ At the time this meteor was observed a bright light was cast on the interior of the drapery dome through the open slit. The cause of the light was not known at the time but is supposed to have been the light of the above described meteor
Willard P. Gerrish

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June 1887.

16, 11.0 P.M. Day and evening clear, rather cool; no aurora seen.
17, 11.0 A.M. Yesterday rather cloudy; evening cloudy.
18, 11.0 A.M. Yesterday rather clear; evening cloudy.
20, 10.9 A.M. Last two days somewhat cloudy, with cloudy evenings.
21, 10.9 A.M. Yesterday mostly cloudy; evening cloudy and somewhat foggy.
22, 10.3 A.M. Yesterday cloudy day and evening, with a little rain.
23, 10.6 A.M. Yesterday cloudy day and evening, with slight thunder showers.
24, 10.1 A.M. Yesterday cloudy day and evening, with rain at times.
25, 8.7 P.M. Yesterday cloudy, becoming rather clear; evening partly clear; no aurora seen.
25, 10.8 P.M. Day mostly clear and warm; evening rather clear, with some clouds and haze; no aurora seen.
27, 11.4 A.M. Yesterday rather clear; evening partly clear; no aurora seen.
27, 11.5 P.M. Day rather clear, at times cloudy; evening rather clear, becoming somewhat cloudy; no aurora seen.
28, 11.0 P.M. Day and evening clear and warm; no aurora seen.
29, 11.1 P.M. Day and evening hot and rather clear; no aurora seen.
30, 11.2 P.M. Day and evening hot and rather clear; no aurora seen.

Bar. max., 11, 11.0 A.M., 30.322, 59.8; min., 9, 10.4 A.M., 29.647, 69.9; C. 13399, max., 30, 87.2; G. 2205, min., 11, 43.5.

Report to Signal Service, sent July 1, 1887.

Aurora looked for every clear evening; none seen.
Zodiacal light not seen.
Thunder and lightning; June 22; slight thunder showers.
Bright meteor June 15, $8^h\ 42.5^m$ P.M.

Usual report sent July 1, 1887, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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July 1887.

Date.	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds
1	9.3	30.120	76.7	81.5	67.0	80.2	90.1	80.3	0		1 N	4 P Rs
2	10.9	30.059	81.1	87.5	70.2	86.2	90.2	86.2	0 1/8	0.011	1 SW	0 P Rs
3	10.2	30.113	80.0	84.5	70.2	83.2	93.2	83.1	0		1 S	0 Rs Fm
4	10.4	30.196	79.2	82.0	68.1	80.7	90.3	81.0	0		3 SW	0 Rs M Fm
5	10.8	30.242	78.3	81.2	68.9	80.1	87.7	80.1	0		3 SW	6 M Rs Fm
6	9.8	30.034	77.5	80.4	71.0	79.1	84.9	79.8	0		4 SW	10 Pm
7	10.5	29.877	79.1	82.0	71.6	80.8	83.2	81.4	0 1/8	0.011	2 SW	2 M Rs Fm →
8	10.7	29.905	79.2	81.2	69.4	80.0	87.0	80.4	0		2 E	1 Rs M Fm
9	10.8	29.895	79.7	83.5	66.0	82.2	83.5	82.4	0		3 E	4 Pm Rs M Fm →
10	10.3	29.617	74.5	75.8	65.0	74.4	83.8	75.0	4 5/8	0.408	0 SE	10 Pm; a little fog
11	10.2	29.677	72.8	71.9	61.0	71.0	84.0	70.4	See p. 96		2 NW	10 Pm; a little rain
12	10.5	30.022	70.8	70.3	64.6	69.7	74.0	70.0	See p. 96	0.795	0 calm	10 Pm; a little fog
13	9.9	29.943	76.0	79.9	64.1	79.1	79.0	79.0	0		2 W	0 Rs
14	11.9	29.999	74.7	74.5	70.0	73.1	88.2	74.0	0		3 NW	0 Rs
15	10.0	30.024	71.1	73.2	63.0	72.2	78.1	72.6	0		4 NW	8 P Rs
16	10.5	29.946	70.3	71.8	62.2	70.6	75.9	71.0	0		2 S	10 Pm
17	9.8	29.928	74.2	75.4	68.3	74.2	80.6	75.0	0		1 E	10 Pm Fm →
18	10.5	29.842	73.0	71.4	67.2	70.4	79.2	71.0	See p. 96		1 S	10 Pm; raining
19	10.0	30.112	71.0	72.1	61.0	71.1	71.3	71.2	1 1/2	0.1 32/100	2 NE	5 M Rs Fm
20	10.5	30.215	72.1	73.2	63.2	72.3	75.9	72.3	0		2 SE	3 haze Fm
21	9.4	30.194	68.6	67.3	60.0	66.2	74.9	67.8	0		2 N.	10 Pm.
22	9.4	29.982	70.2	67.1	64.9	66.1	73.3	68.8	See p. 97		1 N.E.	10 Pm. Rain.
23	10.3	29.999	76.2	77.3	66.1	76.6	77.0	76.9	See p. 97	1.192	2 S	10 Pm Fm; a few drops of rain.
24	9.6	30.164	76.0	80.1	70.2	78.8	84.9	80.6	8 1/2 in.	0.728	2 S.S.W.	8 Pm. Pr. Fm.
25	9.5	30.208	77.1	78.3	72.5	77.2	82.5	78.5	4 1/2 in.	0.397	1 N.	7 Pm. Pr. Rs.
26	9.6	30.062	76.7	78.8	68.8	77.1	85.9	78.3	0		1 W.N.W.	7 Pm. Fm.
27	10.2	30.027	76.2	77.7	68.1	76.6	82.0	77.0	0		2 NE.	8 R M Fm
28	10.2	30.024	75.0	78.1	62.4	77.0	doubtful 83.1	77.0	0		2 S	3 M Fm
29	10.7	30.018	77.7	79.2	71.1	78.0	84.1	78.3	0		2 SW	10 P
30	10.4	30.088	76.9	76.9	67.9	76.8	86.0	75.4	5 1/2	0.485	0 calm	10 Pm haze
31	9.8	29.958	79.0	82.0	73.4	81.0	81.4	81.0	0		2 SW	10 Pm Fm →
376		930390	23409	23956	20774	25556				1.1 89	56	196
10.2		30.013	75.5	77.3	67.0	82.4				Rainfall for month in inches	1.8	6.3
		29.826										

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July 1887.

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract.
1	8.7	30.082	83.7	79.7	1 S	4 PRs	Moonlight, twilight and clouds	Moonlight, twilight, and clouds	
2									
3									
4	8.4	30.212	81.3	75.2	3 SW	0	Twilight and moonlight	Twilight and moonlight	
5									
6									
7	9.0	29.874	82.0	76.1	1 SW	0 Rs	Twilight	Twilight	
8	8.8	29.914	78.4	71.4	0 calm	3 Pm Fm	Cloudy	Twilight and clouds	
9									
10									
11									
12	8.6	30.006	74.0	68.2	1 SW	0 Rs Fm	Twilight	Twilight and clouds	
13	9.0	29.865	82.5	80.2	1 S	0	Twilight	Twilight	
14									
15	8.7	30.011	73.0	67.0	0 W	3 PRs Fm	Twilight and clouds	Twilight and clouds	
16	9.5	29.876	75.9	73.0	1 S	3 P Fm haze	Cloudy	Cloudy	
17									
18									
19	8.8	30.171	72.6	66.0	0 calm	0	Twilight	Twilight	
20									
21									
22									
23									
24									
25	9.3	30.132	80.8	74.3	1 S.	4 Pr. Rs.	None.	None.	
26									
27	9.0	30.044	76.0	66.4	0 E	0 Fm haze	Moonlight	Moonlight	
28	8.3	29.967	80.1	74.8	1 S	0 Pm Fm	Moonlight and twilight	Moonlight and twilight	
29									
30	9.1	30.010	80.6	77.3	1 S	0	Moonlight	Moonlight	
31									

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July, 1887

1, 10.5 P.M. Day hot rather clear; a little thunder about 6 P.M., and a little rain about 7 P.M.; evening rather clear, with some thin clouds; no aurora seen.

2, 10.4 P.M. Day hot and rather clear; cloudy towards night, becoming clearer during the evening; no aurora seen.

3, 10.4 A.M. Yesterday hot and rather clear; cloudy towards night; evening mostly cloudy, but clouds diminishing.

4, 10.0 P.M. Day and evening clear, rather hot; no aurora seen

6, 9.8 A.M. Yesterday warm and rather cloudy day and evening.

7, 10.5 A.M. Yesterday cloudy and rather sultry; a little rain in the evening.

8, 10.7 A.M. Yesterday clear and hot; no aurora seen.

9, 10.8 A.M. Yesterday rather clear and hot; evening partly clear; no aurora seen.

10, 10.3 A.M. Yesterday rather cloudy and hot; some showers; a little thunder.

11, 10.2 A.M. Yesterday cloudy and sultry, with showers; a little thunder.

11, 2 P.M. Some rain this forenoon; gauge now $6\frac{1}{4}$ ounces, 0.352 inches.

12, 10.5 A.M. Yesterday cloudy with some rain; gauge now $2\frac{3}{4}$ ounces, 0.243 inches; total rainfall 0.795 inches.

12, 11.8 P.M. Day cloudy, becoming clear; evening mostly clear; no aurora seen.

13, 11.0 P.M. Day and evening clear and hot; no aurora seen.

15, 10.0 A.M. Yesterday rather clear; evening rather cloudy; no aurora seen.

15, 10.4 P.M. Day and evening somewhat cloudy, clear at times; no aurora seen.

17, 9.8 A.M. Yesterday rather cloudy; a few drops of rain; evening at first rather clear, then cloudy with thunder and lightning; no aurora seen.

18, 10.5 A.M. Yesterday rather clear, afternoon and evening cloudy with rain.

19, 10.0 A.M. Yesterday cloudy day and evening, with a little rain.

19, 10.7 P.M. Day mostly rather cloudy; evening at first clear, now cloudy; no aurora seen.

21. 9.5 A.M. Yesterday some clouds during the day but mainly clear. Some large and light cloud during evening, becoming thickly cloudy later. Day generally comfortable. No aurora seen.

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22. 9.5 A.M. Yesterday rather cool and comfortable. Cloudy throughout day and evening. Some light rain in evening. Began raining very heavily about 4h 30m this morning. As it is raining hard at present time, gauge undisturbed. ~~for the present.~~ W.

22. 1 P.M. Not raining at present. 10½ oz. water in bottle. = 0.927 in. Gauge emptied. W.

23, 10.3 A.M. Gauge now 3 ounces, 0.265 inches; total rainfall 1.192 inches. Yesterday afternoon and evening cloudy; some showers.

24. 9.6 A.M. Yesterday very warm and close. Cloudy throughout day. Raing at intervals. Very heavy rain in evening. Rather warm and close this morning. No aurora seen last evening. W.

25. 9.5 A.M. Yesterday rather warm and sultry. Generally cloudy, with some clear sky at intervals, however. Heavy showers at intervals in the afternoon. Cloudy also in evening. No aurora seen. W.

25. 9.5 P.M. Day warm and very sultry. Gradually clearing. Rather clear early part of evening, but rather cloudy at present time. No aurora seen. W.

26. 9.6 A.M. Generally cloudy through the latter part of last evening, and, apparently, throughout night. W.

26, 10.8 P.M. Day rather cloudy. Evening mostly cloudy, especially in the north.

27, 10.3 P.M. Day rather cloudy, then nearly clear; evening at first nearly clear, haze and clouds increasing; no aurora seen.

28, 10.4 P.M. Day and evening rather clear; no aurora seen; some lightning without thunder during the evening among clouds in the north.

29, 11.6 P.M. Day rather cloudy; thunder showers about 6 P.M.; evening cloudy, becoming clearer; no aurora seen

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July 1887

30, 11.0 P.M. Day cloudy at first, clear later; evening clear; no aurora seen.
31, 10.3 P.M. Dry and evening hot and mostly cloudy.

Bar. max. 5 10.8 A.M. 30.242, 78.3; min. 10 10.3 A.M. 29.617, 74.5; C. 13399, max. 3, 93.2; fg. 2205, min. 21, 60.0. Observer, G. C. Wendell, July 21, 9.4 A.M. to July 26, 9.6 A.M., inclusive, except July 23, 10.3 A.M.; this and other observations not specially mentioned were made by A. Searle.

Report to Signal Service, sent Aug. 1, 1887.

Aurora looked for every clear evening; none seen.

Zodiacal light not seen.

Thunder and lightning: July 1; a little thunder about 6 P.M.; July 9; a little thunder; July 10; a little thunder; July 16; thunder and lightning in the evening; July 28; some lightning without thunder during the evening, among clouds in the north; July 29; thunder showers about 6 P.M.

Usual report sent Aug. 1, 1887, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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August, 1887

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.8	29.980	78.9	80.8	67.2	80.0	85.4	80.0	0		1 E	4 P Fm haze	1
2	10.4	30.012	75.1	71.0	68.2	70.1	81.4	71.0	see p. 102		0 calm	10 Pm fog; raining	2
3	10.3	30.131	74.2	73.5	67.0	72.7	73.5	73.0	see p. 102	0.408	2 NE	10 Pm	3
4	10.5	30.250	71.2	69.9	65.1	68.9	75.0	69.3	0		0 SE	10 P	4
5	10.5	30.108	73.0	74.2	63.1	73.1	74.3	73.8	0		1 S	8 Pm M Fm	5
6	11.0	29.812	80.8	84.0	70.2	82.8	83.0	82.8	0		3 S	8 Pm M Fm	6
7	10.8	29.998	70.2	65.9	61.0	65.1	84.0	66.1	1 1/2	0.132	3 N	0	7
8	10.3	30.276	67.0	67.0	53.1	66.0	70.2	66.8	0		2 E	0	8
9	11.0	30.275	69.2	71.7	53.3	70.6	72.3	71.0	0		1 W	1 R Fm	9
10	10.3	30.086	69.9	72.5	57.4	71.3	77.0	71.9	0		2 SW	7 P Rs Fm	10
11	10.5	29.963	73.1	76.8	64.9	75.3	80.0	75.6	0		2 SW	10 Pm	11
12	11.4	29.810	77.0	80.6	68.2	79.5	80.0	79.9	3 1/2	0.309 ~~0.334~~	2 SW	4 M Fm haze	12
13	10.7	30.077	68.0	63.6	56.1	62.7	83.3	63.5	0		1 N	0 Fm	13
14	10.3	30.065	65.5	65.9	51.2	65.3	69.7	65.3	0		1 SW	1 Rs R	14
15	10.5	29.932	69.2	72.0	55.1	71.2	73.0	71.2	0		2 SW	9 M Fm →	15
16	10.8	29.794	73.3	76.2	60.5	75.1	77.3	75.1	0		2 S	6 Pm M Rs Fm →	16
17	10.5	29.969	70.7	71.8	61.2	71.0	79.0	71.0	0		2 NW	0 haze	17
18	11.2	29.668	71.0	70.0	63.2	69.2	75.3	70.0	3 7/8	0.342	3 S	10 Pm Fm	18
19	10.7	29.869	72.1	75.7	61.2	74.3	76.5	74.8	1 1/4	0.110	3 W	1 Rs R haze	19
20	10.7	30.069	71.2	68.1	64.0	67.3	81.1	68.0	0		2 NW	10 Pm	20
21	Noon 12.0	30.000	68.8	72.4	57.0	71.2	71.6	71.8	See p. 102		Light W.SW	Thick haze with light cirrus above. Sun hardly fluctuating.	21
22	8.7	29.937	70.0	67.7	65.0	66.9	74.8	67.7	see p. 102	0.993	Calm Fm=SW	Completely overcast – raining fast.	22
23	9.8	29.816	68.7	62.0	61.2	61.2	75.3	62.2	See p. 102		2 NE	10 Pm; raining	23
24	10.2	29.841	65.9	62.7	58.0	61.8	62.4	62.2	see p. 103	0.640	1 NE	10 Pm; a little fog	24
25	10.1	29.826	65.6	62.8	60.1	62.1	63.1	61.6	8 3/4	0.772	3 N	7 P Rs Fm →	25
26	10.4	29.823	62.3	63.3	51.0	62.5	68.9	63.0	0		3 NW	0 R Rs M Fm	26
27	10.1	30.000	63.2	64.6	52.5	63.9	68.9	64.2	0		2 W	0 M Fm	27
28	10.9	30.007	64.0	65.8	51.5	65.1	69.9	65.2	0 1/8	0.011	3 N	5 Rs R M Fm	28
29	10.6	30.108	64.4	66.3	53.0	65.7	69.0	66.0	0		2 N	0 M	29
30	10.1	30.206	63.4	63.2	51.7	62.1	69.8	63.0	0 1/8	0.011	2 NE	9 Pm M Fm	30
31	10.2	30.346	62.8	62.4	51.1	61.8	67.5	62.1	0		2 NE	6 M Fm	31
	166	930.054	215.97	216.44	184.33		231.25		see p. 102, 103	3.729 Rainfall for month.	55	156	
	10.5	30.002	69.7	69.8	59.5		74.6				1.8	5.0	

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August 1887

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									None
2									Obsc.
3	8.6	30.200	75.8	67.9	1 E	0 R	Moonlight	Moonlight	None
4									None
5									Obsc.
6									None
7									None
8									None
9									None
10									Obsc.
11									Obsc.
12									None
13									None
14									None
15									None
16	8.5	29.802	76.9	72.2	0 calm	1 haze	Nan	Nan	None
17									None
18	8.4	29.732	73.0	68.8	0 SE	0	Twilight	None	None
19	8.5	29.950	77.8	73.2	0 calm	1 haze	Hazy	Hazy	None
20	8.7	29.972	70.4	62.0	N.E. faint	Heavy—complete.	Very heavy shower for perhaps ten minutes near 7 P.M. with lightning. It is raining moderately now.	J. R. E. obser.	Obsc.
21	8.5	30.013	73.0	68.1	S	Complete cloud	and haze—brighter stars barely discernible.		Obsc.
22									Obsc.
23									Obsc.
24									Obsc.
25	8.0	29.849	68.7	61.0	3 N	0	Moonlight	Moonlight	None
26									None
27									None
28									Obsc.
29									None
30	9.0	30.279	66.2	57.8	1 NE	0	Moonlight	Moonlight	None
31	8.6	30.300	66.1	57.0	0 calm	0	Moonlight	Moonlight	None

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August, 1887.

2, 10.4 A.M. Yesterday rather cloudy; evening partly clear; no aurora seen.
2, 1.2 P.M. Gauge now 4 5/8 ounces; 0.408 inches.
3, 10.3 A.M. Yesterday afternoon and evening cloudy; no additional rain.
3, 10.2 P.M. Day cloudy, becoming clear; evening clear; no aurora seen.
5, 10.5 A.M. Yesterday cloudy becoming clear; evening rather clear; no aurora seen.
6, 11.0 A.M. Yesterday partly clear; evening cloudy.
7, 10.8 A.M. Yesterday cloudy and sultry with showers, and some thunder and lightning; evening cloudy, clear later; no aurora seen.
8, 10.3 A.M. Yesterday clear and cool day and evening; no aurora seen.
8, 11.0 P.M. Day clear and cool; evening clear; no aurora seen.
9, 10.8 P.M. Day clear and warm; evening clear; no aurora seen.
10, 11.4 P.M. Day rather cloudy; evening rather cloudy, especially near the horizon.
12, 11.4 A.M. Yesterday cloudy; afternoon and evening somewhat rainy, with thunder.
12, 10.8 P.M. Day rather cloudy; evening clear; no aurora seen.
13, 10.5 P.M. Day and evening clear and cool; no aurora seen.
14, 10.0 P.M. Day rather clear and warm; evening partly clear; no aurora seen.
15, 11.2 P.M. Day rather clear and warm; evening rather cloudy, later rather clear but hazy; no aurora seen.
16, 10.6 P.M. Day somewhat cloudy and hot; evening rather clear, with haze; no aurora seen.
17, 10.9 P.M. Day clear and warm; evening rather hazy, with some clouds at first. no aurora seen.
18, 11.3 P.M. Day cloudy with showers; some thunder in the afternoon; evening clear; no aurora seen.
19, 11.4 P.M. Day clear and warm; evening rather clear at first, with increasing haze; no aurora seen.
20 Evening. Some thunder and light shower in day. More thunder and heavy shower in early evening.
21 Noon Rain gauge and bottle weighed 1 lb 6 1/2 oz. – water left in bottle; hence water 6 ounces, 0.530 inches.
22 forenoon. Several light distant thunder sounds between 7 & 8 A.M.
22, 11.9 A.M. Gauge now 11 1/4 ounces; 0.993 inches; hence 0.463 inches additional to that recorded above on Aug. 2d.
23, 9.8 A.M. Yesterday afternoon and evening cloudy with some rain.

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August, 1887.

23, 3.7 P.M. Gauge now $6\frac{3}{4}$ ounces, 0.596 inches.

24, 10.2 A.M. Yesterday cloudy day and evening, with rain. Gauge now $0\frac{1}{2}$ ounces, 0.044 inches; total rainfall 0.640 inches.

25, 10.4 A.M. Yesterday cloudy day and evening, with rain.

26, 11.2 P.M. Day cloudy, becoming clear; evening clear; no aurora seen.

27, 10.1 A.M. Yesterday clear and warm; evening rather cloudy, clearer at times, specially in the north; no aurora seen.

28, 10.9 A.M. Yesterday clear and warm; evening cloudy, with a little rain; clear later; no aurora seen.

29, 10.6 A.M. Yesterday rather clear and warm; evening rather cloudy.

30, 10.1 A.M. Yesterday rather clear and warm; evening rather cloudy; clearer about 10 P.M.; no aurora seen; slight shower between 2 and 3 P.M.

30, 10.6 P.M. Day and evening mostly clear; no aurora seen.

31, 11.5 P.M. Day and evening mostly clear; no aurora seen.

Bar. max., 31, 10.2 A.M., 30.346, 62.8; min., 18, 11.2 A.M., 29.668, 71.0; C. 13399, max., 1, 85.4; G. 2205, min., 26, 51.0. Observer, J. R. Edmands, 20, 8.7 P.M., to 22, 8.7 A.M., inclusive; other observations by A. Searle.

Report to Signal Service, sent Sept. 1, 1887.

Aurora looked for every clear evening; none seen.

Zodiacal light not seen.

Thunder and lightning. Aug. 6. Cloudy and sultry, with showers, and some thunder and lightning.

Aug. 11. Afternoon and evening somewhat rainy, with thunder.

Aug. 18. Cloudy, with showers; some thunder in the afternoon.

Aug. 20. Some thunder and light showers during the day.

Heavy shower about 7 P.M., with thunder and lightning.

Aug. 22. Several light rounds of thunder between 7 and 8 A.M.

Usual report sent Sept. 1, 1887, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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September 1887

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting	Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.3	30.232	61.9	62.0	45.7	60.9	65.3	61.2	0		1 E	0	1
2	10.8	29.920	66.4	70.0	53.1	69.0	69.0	69.0	0		2 SW	10 P	2
3	9.8	29.884	64.7	65.1	58.0	64.5	71.0	65.0	0 1/4	0.022	4 NW	4 M Fm	3
4	10.8	30.222	64.0	68.2	56.3	67.1	67.9	67.9	0		3 N	9 M Fm	4
5	10.2	30.245	65.0	68.3	52.2	67.1	70.9	67.5	0		0 calm	0 Rs Fm	5
6	10.8	30.008	69.4	72.6	56.1	71.3	74.8	71.7	0		2 SW	7 P Fm	6
7	10.5	29.624	71.0	74.5	65.1	73.2	76.0	73.7	3 3/8	0.298	4 SW	5 M Fm 1	7
8	10.4	29.792	66.5	63.3	57.6	62.2	78.9	63.1	2 1/8	0.188	3 W	5 M Fm	8
9	10.9	30.101	62.0	63.9	45.9	62.8	64.7	63.0	0		1 SW	1 M Fm	9
10	10.9	30.056	65.3	68.3	57.2	67.1	69.1	67.9	2 3/8	0.210	2 NW	10 Pm Fm	10
11	10.3	30.417	59.0	57.8	44.3	56.9	73.0	57.7	0		3 E	5 M R Rs Fm → Fm ←	11
12	10.8	30.301	59.0	57.5	47.7	56.3	59.5	57.2	0 1/4	0.022	2 E	10 Pm; a few drops of rain	12
13	10.5	30.137	61.2	61.5	54.9	60.7	61.1	61.1	2	0.177	2 NE	10 Pm	13
14	10.6	30.074	64.2	69.6	58.9	68.1	69.5	68.3	0		1 S	10 Pm	14
15	10.8	30.091	65.3	68.8	56.4	68.0	74.5	68.0	0		1 NW	0 Rs haze	15
16	10.8	30.144	63.0	62.3	52.9	61.2	73.0	62.0	0		3 NW	2 M Fm ≤ haze	16
17	10.9	30.371	56.1	55.5	52.2	54.4	62.1	55.2	0		2 SW	0	17
18	11.3	30.432	57.8	62.0	42.1	60.9	62.0	61.0	0		1 SE	1 haze	18
19	10.7	30.232	60.6	65.8	48.6	64.9	66.6	64.9	0		3 SW	1 R Rs Fm →	19
20	10.7	30.338	59.3	57.9	48.7	56.9	72.3	58.0	0		3 N	0 R Rs	20
21	10.6	30.130	59.0	64.8	43.3	63.8	63.5	63.5	0		3 SW	5 P Rs	21
22	10.8	29.726	64.9	67.0	62.1	66.0	72.2	66.3	1 1/2	0.132	2 W	9 P Rs Fm →	22
23	9.9	29.818	60.0	56.3	51.0	55.1	68.1	56.3	0 1/4	0.022	2 NW	10 P	23
24	10.7	30.030	53.3	51.9	36.9	50.4	58.0	52.0	0		3 NE	9 P R M Fm ∠	24
25									~~0~~		~~1 W~~	~~10 P~~	25
26													26
27	10.5	30.080	52.0	48.8	36.8	47.6	56.0	49.0	0		1 W	10 P	27
28	10.3	30.148	56.3	61.1	46.3	60.0	60.0	60.0	0		1 SW	10 Pm	28
29	10.9	30.137	57.1	61.9	50.9	60.7	65.9	61.0	0		0 SW	10 Pm; a little fine rain	29
30	10.4	30.119	59.2	59.4	56.0	58.5	61.8	59.0	0 1/2	0.044	2 NE	10 P	30
	169	842809	17245	17661	14372		18867		12 5/8	1.115	57	163	
	10.6	30.109	61.6	63.1	51.3		67.4			Rainfall for month 1.11 inches	2.0	5.8	
		-.088											
		30.012											

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September 1887

Date	Time P.M.	Barometer	Attached thermometer	No.4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	9.3	30.122	66.9	58.0	0 SE	0	Moonlight	Moonlight	None
2									Obsc.
3	8.5	30.036	65.9	59.0	1 N	1 P Fm	Moonlight	Moonlight	None
4	8.2	30.258	68.0	63.5	0 N	0	Moonlight	Moonlight	None
5	8.5	30.144	71.2	65.0	1 S	0	Moonlight	Moonlight	None
6									Obsc.
7									Obsc.
8	8.7	29.967	63.5	56.4	0 N	0	None	None	None
9	8.8	30.030	66.0	60.0	2 SW	1 P haze	None	None; somewhat cloudy	None
10	8.7	30.240	67.0	57.7	3 N	0 Rs	None	None	None
11	8.7	30.402	61.2	52.3	0 calm	1 P haze	None; some clouds	None; some clouds	None
12									Obsc.
13									Obsc.
14	8.3	30.043	69.8	68.4	0 S	0 haze	None	None	None
15	9.3	30.044	68.2	62.3	1 S	0	None	None	None
16	8.7	30.285	59.6	50.8	2 NW	0	None	None	None
17	9.1	30.384	59.7	51.8	0 calm	0	None	None	None
18	8.7	30.349	62.5	55.9	2 SE	0	None	None	None
19	8.8	30.152	67.2	63.3	1 SW	1 haze	Hazy	Hazy	None
20	8.8	30.280	61.3	54.1	0 calm	0	None	None	None
21									Obsc.
22									Obsc.
23	8.4	29.950	57.5	46.6	2 NW	1 Rs Fm	Moonlight	Moonlight	None
24									Blank
25									Blank
26									Obsc.
27									Obsc.
28	9.3	30.149	60.1	54.1	1 S	1 P haze	Moonlight	Moonlight	None
29									Obsc.
30									Obsc.

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September, 1887.

1, 11.8 P.M. Day and evening clear; no aurora seen.

2, 10.7 P.M. Day cloudy and warm; a little rain in the evening.

4, 10.8 A.M. Yesterday rather clear; evening rather cloudy, clear at times; no aurora seen.

4, 10.8 P.M. Day and evening mostly clear; no aurora seen.

5, 11.9 P.M. Day and evening mostly clear and warm; no aurora seen.

7, 10.5 A.M. Yesterday cloudy and warm day and evening. Rain later.

8, 11.5 P.M. Yesterday rather cloudy, with thunder showers towards night. Today clear and rather cool; no aurora seen.

9, 10.9 P.M. Day warm, somewhat cloudy; evening at first rather clear with some haze, especially in the north; clouds after 10½ P.M.; no aurora seen.

10, 11.0 P.M. Rain during previous night; day cloudy becoming rather clear; evening mostly clear; no aurora seen.

12, 10.8 A.M. Yesterday clear and cool; haze and clouds increasing during the evening; no aurora seen.

13, 10.5 A.M. Yesterday cloudy day and evening, with a little rain.

14, 10.6 A.M. Yesterday cloudy day and evening.

14, 11.5 P.M. Day cloudy and warm; evening mostly clear, with some haze and clouds; haze now thick; no aurora seen.

15, 11.6 P.M. Day clear, then cloudy; evening mostly clear; no aurora seen.

16, 11.6 P.M. Day rather cloudy and cool; evening clear; no aurora seen.

17, 11.2 P.M. Day and evening clear and cool; no aurora seen.

18, 10.6 P.M. Day and evening clear and cool; no aurora seen.

19, 10.4 P.M. Day clear and warm; evening rather hazy, haze increasing, now thick; no aurora seen.

20, 11.6 P.M. Day and evening clear and cool; no aurora seen.

22, 10.8 A.M. Yesterday warm, becoming cloudy; evening cloudy.

23, 9.9 A.M. Yesterday cloudy day and evening; a little rain.

23, 11.2 P.M. Day cool and rather cloudy; evening mostly clear; no aurora seen.

27, 10.5 A.M. Sept. 24 rather cloudy with a few drops of rain. Sept. 25 (at Dunstable, Mass.) partly clear. Sept. 26 cloudy day and evening.

28, 10.3 A.M. Yesterday cloudy and cool day and evening.

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September, 1887.

29, 10.9 A.M. Yesterday cloudy; evening rather clear, with frequent thin clouds; no aurora seen.

30, 10.4 A.M. Yesterday cloudy day and evening, with a little fine rain.

30, 10.8 P.M. Day and evening cloudy.

Bar. max. 18, 11.3 A.M., 30.432, 57.8; min. 7, 10.5 A.M., 29.624, 71.0; C. 13399, max., 8, 78.9; Green 2205, min., 25 to 27, 36.8.

Report to Signal Service, sent Oct. 3, 1887.

Aurora. looked for every clear evening; none seen.

Zodiacal light not seen.

Thunder and lightning. Thunder showers Sept. 7, towards night.

Usual report sent Oct. 3, 1887, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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October 1887.

Date	Time A.M.	Barometer	Attached thermometer	No. 41	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.6	30.071	58.7	57.1	53.0	56.1	61.8	57.1	2 1/2	0.221	2 E	10 Rn; mist	1
2	10.1	29.850	59.0	60.6	54.9	59.7	59.9	59.9	10	0.883	2 SW	10 Rn	2
3	10.2	29.732	58.9	61.3	50.2	60.3	66.3	60.5	1	0.088	1 SW	7 P Rs Fm	3
4	10.4	29.535	59.0	59.6	49.9	58.9	65.8	59.0	1 1/8	0.099	1 SE	0 P Fm haze	4
5	10.5	29.654	58.0	57.9	46.3	56.8	66.0	57.3	0 1/8	0.011	0 SW	10 Rn; a few drops of rain	5
6	10.3	29.885	56.7	58.8	46.2	56.0	60.5	58.4	0		3 NW	0 M Fm	6
7	10.5	30.037	60.3	65.0	51.9	64.2	64.3	64.2	0		2 NW	6 P Rs Fm	7
8	10.2	30.118	60.2	58.2	49.5	57.2	69.8	58.0	0		2 NW	1 P R Rs Fm	8
9	10.9	29.984	61.4	60.8	53.4	59.9	69.1	60.6	0		1 SE	9 Rn Fm	9
10	10.0	29.848	61.7	65.4	55.0	64.2	64.7	64.7	0		0 N	2 haze	10
11	10.2	29.708	60.9	48.1	46.2	46.3	69.5	48.2	see p. 110		2 NW	10 Rn; raining	11
12	10.2	29.880	54.6	48.3	37.1	47.2	48.4	49.0	see p. 110	0.883	3 W	1 M Fm →	12
13	11.0	29.950	53.6	55.9	33.2	54.8	55.2	55.1	0		3 SW	9 M Fm /	13
14	10.8	29.924	55.0	52.9	41.8	52.0	59.9	53.2	0		3 NW	8 M Fm → R	14
15	10.8	30.308	48.3	42.0	32.7	41.1	54.2	42.4	0		2 N	0 Fm	15
16	11.3	30.321	49.3	53.3	29.8	52.2	52.8	52.8	0		3 SW	0	16
17	10.6	30.200	55.1	61.2	41.8	60.1	60.3	60.0	0		3 SW	7 P R Rs R Fm	17
18	10.2	29.947	61.1	65.8	63.8	64.9	66.0	64.9	0 1/8	0.011	2 SW	5 h R Rs Fm	18
19	10.5	29.966	58.4	52.7	45.2	51.8	69.4	53.0	0		3 NE	10 Rn M Fm	19
20	10.5	30.124	53.2	50.5	35.2	50.0	53.9	50.8	0		0 calm	0 M Fm	20
21	10.6	29.436	56.2	48.6	45.6	47.8	53.3	49.3	see p. 110		2 N	10 Rn; raining	21
22	11.0	29.800	53.2	46.7	36.5	45.5	49.7	47.1	see p. 110	1.169	3 W	9 Rn M Fm →	22
23	11.2	30.224	53.8	45.3	32.3	44.4	47.4	46.5	0		2 W	0 P Fm Rs	23
24	10.0	29.789	56.0	63.7	41.0	62.7	63.0	62.8	0		3 W	0 M Fm →	24
25	10.1	30.279	53.0	46.4	38.4	45.1	66.3	47.1	0		0 W	10 R	25
26	10.0	30.499	50.1	41.2	29.3	40.6	47.9	42.0	0		3 NE	5 Fm ←	26
27	10.2	30.468	50.2	45.0	33.9	44.0	44.8	45.0	0		2 E	9 R Rs	27
28	10.7	30.300	52.0	49.4	39.4	48.1	49.0	49.1	0		1 E	10 Rn Rs Fm →	28
29	10.7	30.004	51.5	50.0	33.0	48.9	51.1	50.0	0		1 S	2 M Fm	29
30	10.9	29.975	52.0	42.5	39.8	41.9	53.5	43.1	0		3 NW	10 Rn	30
31	10.1	29.993	46.9	35.0	25.7	34.2	48.4	36.5	0		1 N	2 P R Rs Fm	31
	153	929829	172.03	1649.2	1302.0		1812.2		See p. 110	3.365 Rainfall for month	59	172	
	10.5	29.924	55.5	53.2	42.0		58.5				1.9	5.6	
		29.851											

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October 1887.

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2									Obsc.
3									Obsc.
4									Obsc.
5	8.4	29.729	60.7	54.0	0 W	7 Pm Fm	Moonlight	Moonlight and clouds	None
6	8.0	29.961	61.8	54.9	0 S	0	None	None	None
7									None
8	8.4	29.980	65.0	59.6	0 calm	1 haze	None	None	None
9									Obsc.
10	8.9	29.757	65.1	61.8	1 SE	2 Rs haze	None	None	None
11									Obsc.
12	8.9	30.031	53.8	40.6	1 S	0	None	None	None
13	8.6	29.894	56.0	50.3	1 S	0	Suspected	None	None
14									Obsc.
15	8.8	30.356	51.0	36.8	0 S	0	Suspected	None	None
16	8.6	30.269	56.9	47.0	0 calm	2 Rs haze	Hazy	Hazy	None
17	8.7	30.120	60.1	55.8	3 S	1 Fm M	Suspected	None	None
18									Obsc.
19	10.1	30.040	56.9	41.6	0 S	0	None	None	None
20									Obsc.
21									Obsc.
22									Obsc.
23	8.8	30.144	57.1	43.3	2 S	1 PRs Fm	Moonlight	Moonlight	None
24									Obsc.
25									Obsc.
26									Obsc.
27									Obsc.
28									Obsc.
29	8.6	29.900	56.0	45.8	0 calm	6 P Fm	Moonlight and clouds	Moonlight and clouds	None
30									Obsc.
31	9.2	29.870	51.0	37.7	3 N	0 PRs	Moonlight	Moonlight	None

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October 1887

2, 10.1 A.M. Yesterday cloudy day and evening, with rain in heavy showers.

3, 10.2 A.M. Yesterday cloudy most of the day and evening, with a little rain.

4, 10.4 A.M. Yesterday clear, becoming cloudy, with a little rain; evening cloudy.

5, 10.5 A.M. Yesterday clear; afternoon rather cloudy, with a little rain and thunder; evening cloudy, with some rain and lightning without thunder.

6, 10.3 A.M. Yesterday rather cloudy; evening partly clear; no aurora seen.

6, 10.0 P.M. Day partly clear; evening clear about 8 P.M., cloudy after 9 P.M.; no aurora seen

7, 10.8 P.M. Day rather clear and warm; evening rather cloudy, now somewhat clear; no aurora seen.

8, 9.8 P.M. Day rather clear and warm; evening rather cloudy, clear at times; no aurora seen.

10, 10.0 A.M. Yesterday cloudy day and evening.

10, 9.9 P.M. Day mostly cloudy; evening partly clear, but with frequent thin haze and clouds; no aurora seen; thunder thought to be heard in the afternoon. This may have been the sound of a Gatling gun said to have been fired this afternoon on Boston Common.

11, 1.5 P.M. Gauge $9\frac{7}{8}$ ounces, 0.872 inches.

12, 10.2 A.M. Yesterday cloudy with rain; evening cloudy; gauge now $0\frac{1}{8}$ ounces, 0.011 inches; total rainfall 0.883 inches.

12, 10.7 P.M. Day rather cloudy and cool; evening partly clear; rather cloudy after 10 P.M.; no aurora seen.

13, 10.7 P.M. Day rather clear; evening clear; no aurora seen.

15, 10.8 A.M. Yesterday rather cloudy day and evening.

15, 10.8 P.M. Day and evening clear and cool; no aurora seen.

16, 11.7 P.M. Day rather clear; evening hazy, haze variable; no aurora seen.

17, 10.5 P.M. Day rather clear and warm; evening partly clear, but with many thin passing clouds; no aurora seen.

19, 10.5 A.M. Yesterday rather cloudy; evening cloudy.

19, 11.7 P.M. Day cloudy, becoming clear; evening clear; no aurora seen.

21, 10.6 A.M. Yesterday clear, becoming cloudy; evening cloudy.

21, 3.9 P.M. Gauge $13\frac{1}{8}$ ounces, 1.158 inches.

22, 11.0 A.M. Yesterday mostly cloudy day and evening. Gauge now $0\frac{1}{8}$ ounces 0.011 inches;

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October 1887

Total rainfall 1.169 inches.

23, 11.2 P.M. Yesterday rather cloudy; evening cloudy.

24, 10.0 A.M. Yesterday mostly clear; evening mostly cloudy, nearly clear for a time; no aurora seen.

25, 10.1 A.M. Yesterday rather clear and warm; evening cloudy.

26, 10.0 A.M. Yesterday cloudy and cool day and evening.

27, 10.2 A.M. Yesterday rather cloudy and cool; evening cloudy.

28, 10.7 A.M. Yesterday cloudy and cool day and evening.

29, 10.7 A.M. Yesterday cloudy day and evening.

30, 10.9 A.M. Yesterday rather clear; evening partly clear; no aurora seen.

31, 10.1 A.M. Yesterday mostly cloudy day and evening.

31, 11.5 P.M. Day rather clear; evening cloudy at first, clear later, with some clouds; no aurora seen.

Bar. max. 26, 10.0 A.M., 30.499, 50.1; min. 21, 10.6 A.M., 29.436, 56.2; C. 13399, max., 8, 69.8; G. 22205, min., 31, 25.7.

Report to Signal Service, sent Nov. 1, 1887.

Aurora — looked for every clear evening; none seen.

Zodiacal light — suspected Oct. 13, 15, 17.

Thunder and lightning. Oct. 4. A little rain and thunder in the afternoon; evening cloudy, with some rain, and lightning without thunder.

Frosts. Minimum thermometer below the freezing point on the mornings of Oct. 16, 26, 31.

Supply of stationery. One blank of this kind; ten envelopes.

Usual report sent Nov. 1, 1887, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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November 1887.

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.4	30.057	47.0	36.1	34.1	35.5	45.4	37.1	0		3 NE	10 Pm Rs Fm	1
2	10.5	30.000	44.7	39.4	26.1	38.5	40.0	39.9	0		0 N	0	2
3	10.5	29.970	49.0	51.1	37.3	50.3	50.8	50.9	0		1 N	1 haze	3
4	10.3	29.736	51.6	55.8	37.8	54.4	55.2	55.0	0		3 S	1 haze Rs R	4
5	11.0	29.979	47.2	36.1	30.2	37.2	63.8	39.0	0		3 NW	1 M Fm	5
6	10.6	30.166	44.0	43.3	23.4	42.2	43.0	43.0	0		3 W	9 Pm Fm →	6
7	10.1	29.966	48.0	53.2	41.0	52.1	52.8	52.3	0		3 SW	0 Rs haze	7
8	10.4	29.842	53.2	57.0	43.0	56.0	63.7	56.6	0		3 W	5 haze	8
9	10.4	30.296	42.9	32.9	25.1	32.1	61.1	34.0	0		2 NW	0	9
10	11.2	29.950	43.3	44.3	22.2	43.1	44.0	44.0	0		2 E	8 P Fm	10
11	10.1	29.258	46.0	41.4	34.6	40.8	48.4	42.0	10	0.883	3 W	9 M Fm →	11
12	10.7	29.453	43.7	41.8	33.1	41.0	42.2	41.8	0 1/8	0.011	4 N	7 R Rs M Fm ↘	12
13	10.0	29.883	43.2	39.8	30.4	39.0	42.6	40.2	0		3 NW	0 Fm	13
14	10.4	30.056	41.5	41.2	30.2	40.1	45.3	40.9	0		1 S	10 P Fm	14
15	10.4	29.419	47.6	50.4	40.1	49.8	50.4	50.2	see p. 114		1 E	10 Rm; raining	15
16	10.2	29.401	46.1	41.8	34.4	41.0	51.2	42.0	see p. 114	1.224	3 NW	10 Pm Fm	16
17	10.9	29.540	47.2	45.2	35.1	44.2	45.0	45.2	0		2 SW	6 P haze	17
18	10.5	29.999	44.3	41.6	31.4	40.8	51.4	42.0	0		3 SW	4 Rs Fm →	18
19	10.7	29.859	42.0	43.0	24.9	42.0	44.3	43.0	0		2 E	10 Pm Fm ↗	19
20	11.0	29.396	47.7	48.0	42.0	47.1	51.7	48.0	2 1/4	0.199	2 S	10 Pm Fm ↑	20
21	10.4	29.857	42.8	30.8	24.2	30.1	49.0	32.0	0		2 W	4 haze	21
22	10.9	30.193	41.3	35.2	25.5	34.7	36.0	35.5	0		2 NW	0	22
23	11.0	30.172	42.0	45.9	29.0	44.9	45.2	45.2	0		2 SW	10 P	23
24	10.8	30.385	45.3	40.4	37.1	40.0	47.6	41.0	0 3/8	0.033	2 NE	10 P fog	24
25	11.2	30.327	43.4	35.8	35.1	35.1	41.0	36.4	2 1/4	0.199	1 NE	10 P; a little rain	25
26	11.9	30.240	44.0	46.3	33.1	45.1	45.7	45.9	0 3/4	0.066	1 SW	10 P	26
27	11.0	30.299	47.2	48.2	37.5	47.1	53.0	48.0	0 1/4	0.022	1 S	10 P	27
28	10.1	30.072	55.0	64.3	47.0	62.8	63.7	62.0	0 1/8	0.011	3 S	10 Pm Fm ↑	28
29	10.9	30.523	44.0	29.5	26.1	28.8	66.0	31.0	2 1/2	0.221	3 N	0 Rs Fm	29
30	10.7	30.598	37.1	26.8	18.5	26.0	31.7	28.0	0		3 N	4 M Fm ↓	30
	198	898892	13623	12886	9895		14632		see p. 114.	2.869 Rainfall for month 2.87 inches	67	179	
	10.7	29.963 −046	454	43.0	33.0		48.8				2.2	6.0	
		29.917											

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November 1887.

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	8.9	30.080	47.0	32.1	2 NE	1 Rs	Moonlight.	Moonlight	None
2	9.0	29.861	50.0	41.1	1 S	0	Moonlight	Moonlight	None
3	10.0	30.009	52.0	42.2	0 calm	1 haze Fm	Moonlight and clouds	Moonlight	None
4									Obsc.
5	7.9	30.136	45.0	29.2	0 calm	3 P haze	None; some clouds	None; some clouds	None
6	8.8	30.080	48.0	41.9	2 S	1 haze	Hazy	Hazy	None
7	8.0	29.874	55.0	50.8	3 SW	3 haze	Hazy	Hazy	None
8	8.5	30.098	52.9	40.9	3 NW	4 P haze	None; some clouds	None; some clouds	None
9	8.6	30.201	48.0	31.1	0 calm	0	Visible	None	None
10									Obsc.
11									Obsc.
12	8.3	29.650	43.1	33.6	3 W	0	Visible	None	None
13	8.5	29.999	48.7	38.3	2 SW	4 PKs haze	Cloudy	None; some clouds	None
14									Obsc.
15									None
16	8.9	29.616	47.0	38.8	3 W	0	Visible	None	None
17	8.6	29.755	48.0	39.9	1 W	0	Visible	None	None
18	9.0	30.092	47.9	33.7	2 S	0	Visible	None	None
19									Obsc.
20	9.0	39.621	49.0	34.9	1 SW	3 haze	Hazy	Hazy	Obsc.
21	8.8	29.968	43.1	29.7	0 calm	0	Moonlight	Moonlight	None
22	9.0	30.284	45.4	33.1	0 calm	0	Moonlight	Moonlight	None
23									Obsc.
24									Obsc.
25									Obsc.
26									Obsc.
27									Obsc.
28									Obsc.
29	8.5	30.588	43.6	24.2	2 N	0	Moonlight	Moonlight	None
30	8.4	30.756	37.4	12.8	3 N	0	Moonlight	Moonlight	None

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November, 1887

1, 11.2 P.M. Day cloudy, becoming clear; evening mostly clear, with many thin clouds; no aurora seen.

2, 11.3 P.M. Day and evening clear; no aurora seen.

3, 10.0 P.M. Day clear, a little hazy; evening mostly clear; no aurora seen.

5, 11.0 A.M. Yesterday clear, evening cloudy.

6, 10.6 A.M. Yesterday mostly clear; thin clouds part of the evening; no aurora seen.

6, 10.9 P.M. Day partly clear; evening at first rather cloudy, then more clear, but with haze and some clouds; no aurora seen.

7, 11.5 P.M. Day and evening hazy and rather warm; no aurora seen.

9, 10.4 A.M. Yesterday hazy; evening rather clear, with thin clouds; no aurora seen.

9, 11.2 P.M. Day and evening clear and cool; no aurora seen.

10, 11.5 P.M. Day cloudy; evening cloudy with some rain.

12, 10.7 A.M. Yesterday rather clear, afterwards cloudy; a few snowflakes in the evening.

12, 11.3 P.M. Day cloudy, becoming clear; evening clear; no aurora seen.

14, 10.4 A.M. Yesterday mostly clear; some thin clouds and haze at times in the evening; no aurora seen.

15, 10.4 A.M. Yesterday cloudy day and evening.

15, 1.8 P.M. Gauge 13¼ ounces; 1.169 inches.

16, 10.2 A.M. Yesterday cloudy with rain; evening mostly cloudy, partly clear; no aurora seen. Gauge now 0⅝ ounces, 0.055 inches; total rainfall 1.224 inches.

16, 10.9 P.M. Day cloudy, becoming clearer; evening rather clear, haze becoming thick; no aurora seen.

17, 11.5 P.M. Day hazy, becoming clear; evening clear; no aurora seen.

18, 11.0 P.M. Day and evening mostly clear; no aurora seen.

20, 11.0 A.M. Yesterday cloudy day and evening, with a little rain.

21, 10.4 A.M. Yesterday cloudy; clouds thinner towards night; evening hazy.

21, 11.2 P.M. Day hazy, becoming clearer; evening mostly clear; no aurora seen.

22, 11.4 P.M. Day and evening mostly clear; no aurora seen.

23, 11.1 P.M. Day cloudy with a little rain; evening cloudy.

24, 11.4 P.M. Day and evening cloudy.

26, 12 M. Yesterday cloudy day and evening, with a little rain.

27, 11.0 A.M. Yesterday cloudy; evening foggy.

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November, 1887

28, 10.1 A.M. Yesterday cloudy, afterwards partly clear; clouds frequent in the evening. Rain gauge damaged by workmen Nov. 26.

29, 10.9 A.M. Yesterday cloudy day and evening, with some rain.

30, 10.7 A.M. Yesterday mostly clear and cold; some clouds in the evening; no aurora seen.

30, 10.9 P.M. Day and evening mostly clear and cold; no aurora seen. At present barometer 30.794; attached thermometer 33.1; No. 4; 9.6.

Bar. max. 30, 10.9 P.M. 30.794, 33.1; min., 11, 10.7 A.M., 29.258, 46.0; C. 13399, max., 29, 66.0; min., 30, 18.5.

Report to Signal Service, sent Dec. 1, 1887.

Aurora — looked for every clear evening; none seen.

Zodiacal light — visible in the evenings of Nov. 9, 12, 16, 17, 18; other evenings unfavorable to observation.

Frost. — Minimum thermometer below the freezing point on the mornings of Nov. 2, 5, 6, 9, 10, 13, 14, 18, 19, 21, 22, 23, 29, 30.

Usual report sent Dec. 1, 1887 to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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December, 1887

Date	Time A.M.	Barometer	Attached thermometer	16.4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.7	30.892	28.8	13.8	5.0	13.8	28.2	16.0	0		2 NE	0 P Fm	1
2	11.4	30.656	29.1	23.0	10.0	22.0	23.0	23.5	0		0 NW	10 P	2
3	10.7	30.361	35.9	38.8	22.0	37.9	38.5	38.5	0 1/4	0.022	0 calm	10 P, a little mist	3
4	11.8	30.384	38.0	38.1	29.2	37.1	44.0	38.1	0 1/8	0.011	0 N	10 P	4
5	10.5	29.982	41.0	43.0	37.0	40.2	42.8	42.7	0 1/8	0.011	1 S	10 Pm; a little rain	5
6	10.7	30.130	40.9	36.4	30.0	35.8	46.0	37.0	1	0.088	2 NW	0 M Fm	6
7	11.1	30.238	39.0	36.9	24.2	35.9	40.8	36.5	0		1 SW	7 Pm Fm →	7
8	10.5	30.108	41.0	39.5	35.1	38.6	40.1	39.5	0		0 NW	10 Pm Fm	8
9	10.8	30.508	39.0	34.1	28.3	33.5	45.1	35.0	0		1 NE	10 P	9
10	11.1	30.346	39.1	39.3	29.2	38.4	39.1	39.2	0		1 N	10 Pm	10
11	10.2	29.924	47.0	55.4	38.1	53.5	55.4	52.0	6 1/4	0.552	2 S	10 Pm; raining	11
12	10.5	29.718	50.8	57.3	45.0	50.1	56.5	51.0	2 3/8	0.210	0 W	9 Pm Fm →	12
13	10.8	30.083	43.2	38.3	32.8	37.7	54.0	39.0	0		3 W	0 Pm M	13
14	10.7	30.260	43.3	37.9	27.1	37.2	41.2	38.0	0		2 NW	0	14
15	10.7	29.924	44.0	41.6	33.0	40.3	42.0	41.4	0		1 S	10 Pm Fm /	15
16	11.0	29.512	40.1	34.4	33.2	33.9	42.1	35.0	7 5/8	0.673	5 NW	9 Pm Fm \	16
17	10.4	29.644	36.2	31.5	24.8	30.9	35.2	32.0	0		2 NW	0 R Rs Fm	17
18	10.3	28.947	39.0	31.4	30.8	30.8	40.2	31.8	5 1/2	0.485	4 N	10 P	18
19	10.5	29.620	39.0	35.0	28.1	34.2	35.0	35.1	1	0.088	3 N	0 Rs M Fm	19
20	10.8	30.022	36.9	37.1	25.1	36.7	37.0	37.2	0		3 NW	0 Rs Fm	20
21	11.1	29.649	40.1	34.3	32.4	33.8	44.5	35.0	3 1/4	0.287	2 N	10 P, a few snowflakes.	21
22	10.9	29.663	37.0	33.3	25.6	32.9	35.2	33.6	0 1/16	0.022	2 SW	10 P Fm	22
23	11.1	29.844	30.1	18.9	12.1	18.1	34.0	20.2	0 1/8	0.011	3 NW	0	23
24	11.6	29.838	31.0	25.5	13.8	24.9	25.5	26.0	0		1 N	0 Rs	24
25	11.7	29.747	32.0	26.8	22.8	26.0	31.2	27.5	0 1/8	0.011	3 NE	10 P	25
26	11.0	29.969	30.0	23.6	18.3	22.8	27.9	24.6	0		2 N	10 P	26
27	11.1	30.071	28.3	17.7	13.3	16.5	25.8	18.7	See 1. 119		2 N	9 P Fm →; a few snowflakes	27
28	11.1	29.832	30.7	35.6	7.5	34.8	35.2	35.0	See 1. 119	0.470	3 SE	10 P, a little rain	28
29	11.0	29.595	32.2	21.4	19.1	20.6	45.0	24.0	8 3/4	0.772	4 W	0 M Fm	29
30	11.0	30.039	22.4	9.0	6.9	8.4	24.2	11.0	0		3 W	0 Rs	30
31	11.0	30.372	19.5	11.5	2.8	10.5	13.0	12.7	0		2 NW	10 R	31
	278	929873	11246	9944	7326		11677		See 1. 119	3.713 Rainfall for month 37 inches	60	194	
	10.9	29.926	36.3	32.1	23.6		37.7				1.9	6.3	
	24	29.825											

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December 1887

Date	Time 10 M.	Barometer	Attached Thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	7.7	30.816	33.1	16.0	0 calm	0	Moonlight	Moonlight	None
2	8.6	30.550	33.2	29.3	1 E	10 P	Cloudy	Cloudy	Obsc.
3	8.7	30.384	40.0	35.4	0 NE	0 Rs	Moonlight	Moonlight	None
4									Obsc.
5	8.9	30.016	42.8	35.0	0 calm	0	Visible	None	None
6	8.9	30.194	42.0	33.1	1 S	0 Phaze	Visible	None	None
7									Obsc.
8									Obsc.
9									Obsc.
10									Obsc.
11									Obsc.
12	8.5	29.841	48.1	38.9	1 SW	0	Visible	None	Aurora
13	8.9	30.200	46.0	34.4	0 W	0	Visible	None	None
14	9.0	30.208	46.7	36.1	1 NE	3 haze	Hazy	Hazy	None
15									Obsc.
16	8.8	29.700	39.3	29.0	3 W	0	Visible	None	None
17									Obsc.
18									Obsc.
19	8.6	29.890	35.8	31.0	2 SW	0	Moonlight	Moonlight	None
20									Obsc.
21	8.5	29.766	40.8	36.0	2 W	0	Moonlight	Suspected	Aurora
22	9.0	29.678	32.0	19.8	3 SW	0	Moonlight	Moonlight	None
23	8.9	29.908	32.7	19.6	1 N	10 Pm 7m →	Cloudy	Cloudy	None
24	8.8	29.761	33.0	23.9	2 NE	9 Pm 7m ←	Cloudy	Cloudy	None
25									Obsc.
26									Obsc.
27	9.0	30.184	25.1	10.7	0 NE	1 haze	Moonlight	Moonlight	None
28	9.1	29.277	36.9	35.5	3 W	1 Pm 7m ↗	Moonlight and clouds	Moonlight	None
29	9.0	29.812	25.8	10.1	3 W	5 M 7m →	Moonlight	Moonlight	None
30	8.9	30.196	25.9	7.4	3 W	0	Moonlight	Moonlight	None
31									Obsc.

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December, 1887.

2, 11.4 A.M. Yesterday mostly clear and cold day and evening; no aurora seen.
2, 11.0 P.M. Day and evening cloudy and chilly.
3, 10.4 P.M. Day cloudy and thawing; evening rather clear; no aurora seen.
5, 10.5 A.M. Yesterday cloudy day and evening.
5, 11.4 P.M. Day cloudy with a little rain; evening mostly clear; no aurora seen.
6, 10.8 P.M. Day and evening mostly clear; no aurora seen.
8, 10.5 A.M. Yesterday cloudy day and evening.
9, 10.8 A.M. Yesterday cloudy; partly clear at times in the evening.
10, 11.1 A.M. Yesterday cloudy day and evening.
10, 11.7 P.M. Day and evening cloudy, with a few drops of rain.
12, 10.5 A.M. Yesterday cloudy and warm day and evening, with a little rain.
12, 11.4 P.M. Cloudy becoming clear in the evening. Faint arch now visible in the north, probably auroral; sky dark below.
13, 11.5 P.M. Day and evening clear; no aurora seen.
14, 10.0 P.M. Day and early evening clear; zodiacal light visible about 7.5 P.M.; haze and clouds increasing after about 8 P.M.; no aurora seen.
15, 11.2 P.M. Day and evening cloudy with rain after about noon.
16, 11.0 A.M. N.E. Met. Soc. gauge No. 29, 0.641 inches uncorrected; 0.635 corrected.
16, 11.5 P.M. Day cloudy, becoming clear; evening clear; no aurora seen.
18, 10.3 A.M. Yesterday clear, becoming cloudy; evening cloudy; rain and snow later. N.E. Met. Soc. Gauge No. 29, 0.485 inches uncorrected; 0.481 corrected. Water from this gauge 14 1/4 ounces; the gauge is intended for an eight-inch gauge; the old gauge is 5 inches across; $64 : 25 = 14\frac{1}{4} : 5.57$; hence the gauges probably agree within probable limits of accuracy in measurements.
19, 10.5 A.M. Yesterday cloudy day and evening, with a little snow.
19, 11.6 A.M. N.E. Met. Soc. gauge No. 29, 0.087 inches uncorrected; 0.086 corrected.
19, 11.3 P.M. Day and evening clear; no aurora seen.
21, 11.1 A.M. Yesterday clear becoming cloudy; evening cloudy; a little snow or rain later. N.E. Met. Soc. gauge No. 29, 0.274 inches uncorrected; 0.276 corrected.

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21, 11.6 P.M. Day cloudy with a little snow and rain; clear after about 7½ P.M.; auroral arch later; still continuing; sky rather dark below.

22, 12.4 P.M. N. E. Met. Soc. gauge No. 29 0.010 inches. Snow now beginning.

22, 11.2 P.M. Day cloudy with a little snow, afterwards clear; evening clear; no aurora seen; some clouds at present.

23, 11.3 A.M. N. E. Met. Soc. gauge No. 29 0.005 inches.

24, 11.6 A.M. Yesterday clear, beaming cloudy after 7 P.M.; no aurora seen.

25, 11.7 A.M. Yesterday clear, becoming cloudy after 8 P.M.; no aurora seen. A little snow this morning; amount in N. E. Met. Soc. gauge No. 29 inappreciable after melting.

26, 11.0 A.M. Yesterday cloudy day and evening.

27, 11.1 A.M. Yesterday cloudy with a little snow; more snow during the night and early today.

27, 11.2 P.M. Day cloudy with a little snow, becoming clear; evening clear, becoming cloudy; no aurora seen.

28, 11.2 A.M. No. 4 in snow and water 32.3. Gauge C 3½ ounces, 0.309 inches.

28, 12.1 P.M. No. 4 in snow and water still 32.3.

28, 1.0 P.M. N. E. Met. Soc. gauge No. 29 removed at 11.1 A.M.; snow now melted, amount 0.470 inches; result to be preferred to that from gauge C.

28, 10.5 P.M. Day cloudy, with rain; evening partly clear, with frequent clouds; no aurora seen.

29, 2.2 P.M. N. E. Met. Soc. No 31, 0.781 inches uncorrected; 0.779 corrected.

29, 11.1 P.M. Day clear and cold; evening clear, with passing clouds; no aurora seen.

30, 11.3 P.M. Day and evening clear and cold; no aurora seen.

1888 Jan. 1, 10.8 A.M. Yesterday cloudy day and evening.

Bar. max. 1, 10.7 A.M., 30.892, 28.8; min. 18, 10.3 A.M., 28.947, 39.0; C. 13399, max., 12, 56.5; G. 2205, min., 31, 2.8. Freezing point of No. 4, Dec. 28, 32.3.

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Report to Signal Service, sent Jan. 1, 1888.

Aurora looked for every clear evening; results as follows:

Dec. 12, $11\frac{4}{10}$ P.M. Faint arch visible in the north, probably auroral; sky dark below.

Dec. 21, $11\frac{6}{10}$ P.M. Clear after about $7\frac{1}{2}$ P.M.; auroral arch later, still continuing; sky rather dark below.

Zodiacal light visible on the evenings of Dec. 5, 6, 12, 13, 14, 16; other evenings unfavorable to observation.

Usual report sent Jan. 1, 1888, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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General remarks on Observations for 1887.

Range of barometer and of temperature.

The highest and lowest (uncorrected) reading of the barometer for each month, with the corresponding reading of the attached thermometer, are given below. As the barometer was usually read only once or twice a day, these readings may differ considerably from the actual maxima and minima for the successive months. The highest reading for each month of the maximum thermometer (Casella 13399) and the lowest reading of the minimum thermometer (Green 2205) both uncorrected, are also given below. The times of observation are given in hours and tenths (for the barometer).

	Barometer								Temperature			
	Maxima				Minima				Max.		Min.	
	Date	Time	Barom.	Attached therm.	Date	Time	Barom.	Attached therm.	Date	C.13399	Date	G.2205
January	4	10.8 A.M.	30.562	Mercury not visible: Obs. estimate 15.0	10	11.3 A.M.	29.365	23.0	30	52.4	19	-11.1
February	5	10.7 A.M.	30.862	23.0	11	9.6 P.M.	29.184	38.0	17	45.1	5	2.9
March	5	11.2 A.M.	30.768	28.6	22	5.7 P.M.	28.922	40.1	22	48.6	1	7.1
April	8	10.7 A.M.	30.597	37.2	29	10.0 A.M.	29.198	53.1	11	75.0	6	22.0
May	31	10.1 A.M.	30.363	59.6	26	10.4 A.M.	29.636	68.0	21	86.7	14	39.0
June	11	11.0 A.M.	30.322	59.8	9	10.4 A.M.	29.647	69.9	30	87.2	11	43.5
July	5	10.8 A.M.	30.242	78.3	10	10.3 A.M.	29.617	74.5	3	93.2	21	60.0
August	31	10.2 A.M.	30.346	62.8	18	11.2 A.M.	29.668	71.0	1	85.4	26	51.0
September	18	11.3 A.M.	30.432	57.8	7	10.5 A.M.	29.624	71.0	8	78.9	25 & 27	36.8
October	26	10.0 A.M.	30.499	50.1	21	10.6 A.M.	29.436	56.2	8	69.8	31	25.7
November	30	10.9 P.M.	30.794	33.1	11	10.7 A.M.	29.258	46.0	29	66.0	30	18.5
December	1	10.7 A.M.	30.892	28.8	18	10.3 A.M.	28.947	39.0	12	56.5	31	2.8

Another barometer reading in May, near maximum, was as follows: May 7, 10.7 A.M. 30.362; attached therm. 76.8.

Range of barometer 30.892 Dec. 1 to 28.922 March 22.

" " temperature 93.2 July 3 to -11.1 Jan. 30.

Observers. A. Searle usually; O. C. Wendell, July 21, 9.4 A.M., to July 26, 9.6 A.M., inclusive, except July 23, 10.3 A.M.; J. R. Edmands, Aug. 20, 8.7 P.M., to Aug. 22, 8.7 A.M., inclusive.

Times of observation. The times of observation entered in the record to 1/10 h. are all

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observations entered on the corresponding lines. In general, one observation was made in the forenoon, another in the evening, if clear.

Manner of recording times. The times are ordinarily given in hours and tenths; Eastern Time, 5h slow of Greenwich, is employed.

Instruments. Barometer, J. Newman, No. 68; external thermometer No. 4; maximum thermometer Casella 13399; minimum thermometer Green 2205; vane; rain gauge; all as described in book Q5 just before the record for 1878. See also references given in the general remarks on the observations for 1882, book R67, page 216. For removal of rain gauge to a new place, see this book, pages 36, 37, under dates of Aug. 3 and 30. See also pages 115 to 119 for a recent injury to the gauge, and subsequent comparisons with New England Meteorological Society gauges Nos. 29 and 31, from which apparently the indications of the old gauge are still fairly trustworthy.

Freezing point of No. 4. Freezing point of thermometer No. 4 tested Feb. 8, March 31, April 19, Dec. 28; in each case it was 32.3.

Comparison of barometers. See page 85 for comparisons of barometers Green 2995 and Newman 68.

Wind recorded as in 1880; see book R67, pages 50, 51; also memorandum on inside of cover of this book.

Reductions. See general remarks on observations of 1882, book R67, page 216. The reductions for January, 1887, were mostly made by Miss S. C. Bond.

Phenomena. Heavy thundershower in the evening of February 18.

Reports. The results reported monthly to the U. S. Signal Service are also recorded in this book; see book R67, page 51. The final column of the second page of the record for each month has been filled, as before, with an abstract of observations relating to aurora, although this abstract is not now called for by the Signal Service, or sent to it.

For monthly reports made to the New England Meteorological Society, see records for November, 1884, and later (book R86, pp. 143, 147, 152, 183).

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January 1888

Obs'r	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting	Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	10.8	30.082	27.5	34.8	10.5	33.8	34.9	34.0	see p. 126	1 E.	10 P fog; raining	1
2	10.9	29.729	39.7	37.8	34.1	37.6	54.1	38.5	1.175	2 W	9 P Rs	2
3	11.0	29.890	34.0	28.6	24.7	28.0	38.5	29.1	0	2 NW	8 Pz Rs Fm	3
4	10.7	30.099	30.1	26.7	18.8	25.9	29.7	27.0	0	2 W	10 Pz	4
5	10.7	30.028	30.1	20.0	17.0	19.1	28.3	21.2	0.069	3 NW	0 Rs	5
6	11.0	30.108	26.4	23.8	11.6	23.1	24.0	24.1	0	1 W	0 Rs Fm	6
7	10.7	29.818	32.9	32.0	22.9	31.1	32.3	32.0	0	2 S	10 P	7
8	11.3	29.714	35.3	33.7	30.9	32.8	38.3	34.0	see p. 126	0 calm	10 P; snowing	8
9	11.0	30.299	29.0	18.8	11.9	17.9	34.0	20.0	0.168	3 NW	5 Pz Rs	9
10	10.8	29.835	29.1	20.0	16.2	19.0	23.6	21.1	see p. 126	1 N	10 Pz; snowing.	10
11	11.2	29.920	28.7	19.2	12.7	18.2	24.6	20.5	0.119	3 W	0 Fm	11
12	11.1	30.640	22.1	7.7	2.2	6.9	20.9	10.0	0	3 W	0	12
13	11.0	30.377	21.2	21.0	2.6	23.0	24.0	24.0		2 SE	10 P; snowing.	13
14	11.1	30.433	33.0	31.2	23.0	30.8	40.5	32.0	see p. 126	0.317	2 NW	0	14
15	11.8	30.029	31.4	33.3	17.6	32.8	33.1	33.2	see p. 127	1 NW	10 P fog; raining.	15
16	10.5	30.649	25.3	8.3	6.4	7.7	39.0	11.0		0.050	3 NW	0	16
17	10.8	30.551	21.1	12.2	1.8	11.3	13.0	13.5			2 N	10 Pz Pm; a little snow	17
18	10.4	29.610	26.8	24.9	11.3	24.1	31.2	25.5			2 NW	10 P; a little snow	18
19	10.7	29.732	21.2	12.8	8.3	12.0	28.8	14.3		0.804	4 NW	0 Fm	19
20	11.5	29.786	23.4	16.9	6.2	16.0	17.0	17.5	0		3 W	0 Fm	20
21	11.4	30.018	21.1	10.1	3.1	9.4	18.2	12.0	0		3 W	0 Fm Rs	21
22	11.7	30.350	out of sight est. 15.0	3.8	−6.2	3.2	12.2	6.0	0		2 NW	0	22
23	11.7	30.272	out of sight est. 15.0	11.4	−6.8	10.2	12.0	13.0	0		0 calm	4 Rs Fm	23
24	11.1	30.025	21.9	16.9	9.8	16.0	18.5	17.7		0.032	4 N	5 Fm	24
25	11.3	30.317	18.0	3.6	−6.9	2.8	17.5	5.3	0		1 NW	6 Pz Rs	25
26	11.6	29.016	27.0	25.8	2.7	25.1	36.7	26.1		0.770	3 W	10 P	26
27	10.9	29.354	19.9	5.9	3.1	5.3	28.2	8.2		0.048	4 W	0 P Fm	27
28	11.3	29.594	out of sight est. 15.0	−2.9	−6.1	−3.2	9.0	−0.8	0		3 W	0 P Pm Fm	28
29	11.2	29.817	out of sight est. 12.0	1.0	−9.9	0.7	2.2	3.2	0		3 W	0 Rs.	29
30	11.1	29.809	17.5	20.3	0.6	19.1	20.3	20.3	0		1 W	10 Pz	30
31	10.6	29.901	21.8	20.0	12.9	19.1	26.9	20.3	6		1 N	0 Rs Fm	31
	19 11.1	929802 29993	7745 250	5816 18.8	287.0 9.3		811.5 26.2		See pp. 126, 127	3.5 5.2 Rainfall for month 3.55 inches	67 22	142 46	

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January 1888

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2	8.8	29.853	39.0	28.0	2 W	0 Rs	Moonlight	Moonlight	None
3	9.5	30.001	33.4	22.7	1 NW	0	Visible	None	None
4		~~30.096~~	~~25.8~~	~~16.8~~	~~3 NW~~	~~0~~	~~Visible~~	~~None~~	Obsc.
5	8.7	30.096	25.8	16.8	3 NW	0	Visible	None	None
6									Obsc.
7									Obsc.
8	8.8	29.955	35.8	26.4	3 SW	0	Visible	None	None
9									Obsc.
10	9.1	29.794	31.1	19.7	1 SW	0	Visible	None	None
11	9.2	30.189	23.5	10.9	3 W	0	Visible	None	None
12	9.0	30.716	out of sight est. 15.0	4.1	0 calm	0 haze	Visible	None	None
13	9.4	30.007	29.0	39.1	2 S	0	Visible	Some appearance of streamers	Aurora
14	8.9	30.472	34.0	23.9	0 calm	0	Visible	None	None
15									Obsc.
16	8.9	30.702	25.8	7.7	1 N	0	Visible	None	None
17									Obsc.
18									None
19	9.1	29.804	24.1	10.1	1 SW	0 Rs	Moonlight	Moonlight	None
20	9.2	29.998	26.0	8.7	2 SW	0	Moonlight	Moonlight	None
21	9.2	30.206	23.0	-1.1	1 W	0	Moonlight	Moonlight	None
22	8.5	30.396	20.0	2.1	~~calm~~ 1 N	0	Moonlight	Moonlight	None
23									Obsc.
24	9.0	30.328	21.1	-0.1	2 NW	0	Moonlight	Moonlight	None
25									Obsc.
26									Obsc.
27	9.4	29.483	out of sight est. 15.0	-1.5	2 SW	0	Moonlight	Moonlight	None
28	9.3	29.728	out of sight est. 12.0	-6.8	3 W	0	Moonlight	Moonlight	None
29	9.0	29.790	out of sight est. 15.0	(from measure) 8.0	1 SW	3 PRs	Moonlight and clouds	Moonlight	None
30	7.7	29.819	23.5	20.3	1 W	2 P Fm	Moonlight and clouds	Moonlight	None
31	9.6	29.969	27.0	16.5	1 N	0 Rs Fm	Moonlight	Moonlight	None

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January, 1888

1, 10.8 P.M. Day cloudy throughout, with rain, becoming warm.

2, 10.9 A.M. Gauge C 13¾ ounces, 1.214 inches. N. E. Met. Soc. gauge No. 29 1.187 inches uncorrected, 1.175 corrected.

2d, 11.3 P.M. Day cloudy, clear after about 8 P.M.; no aurora seen; some thin clouds at present.

4, 10.7 A.M. Yesterday mostly clear; with some clouds; evening, clear, some clouds about 11½ P.M.; no aurora seen.

5, 10.7 A.M. Yesterday cloudy day and evening, with a little snow

5, 11.8 P.M. Snow melted in gauges: gauge C 1 ounce, 0.088 inches; N. E. Met. Soc. gauge No. 29 0.070 inches uncorrected, 0.069 corrected. Weight of water in No. 29 2 ounces; $\frac{25}{64} \times 2 = 0.78$; $0.78 \times 0.088 = 0.069$, agreeing with measurement.

5, 11.8 P.M. Day and evening clear; no aurora seen.

7, 10.7 A.M. Yesterday clear, becoming cloudy; evening cloudy.

8, 11.3 A.M. Yesterday cloudy day and evening; partly clear for a time about 10½ P.M.

8, 11.8 P.M. Day cloudy, clear after about 6½ P.M.; no aurora seen.

9, 2.0 P.M. Ice melted in gauges. Gauge C. 2 ounces, 0.177 inches; N. E. Met. Soc. gauge No. 29, 0.170 inches uncorrected; 0.168 corrected.

10, 10.8 A.M. Yesterday mostly cloudy; clouds thin most of the evening, thicker later.

10, 11.5 P.M. Day cloudy with a little snow; evening mostly clear; no aurora seen.

11, 1 P.M. Snow melted in gauges; gauge C 1⅝ ounces, 0.143 inches; N. E. Met. Soc. gauge No. 29, 0.120 inches uncorrected; 0.119 corrected.

11, 11.2 P.M. Day and evening clear; no aurora seen.

12, 10.6 P.M. Day clear; haze increasing in the evening; no aurora seen.

14, 11.1 A.M. Yesterday cloudy with snow and later rain; evening mostly clear; some appearance of aurora about 9½ P.M., soon disappearing.

14, 12.6 P.M. Ice melted in gauges. Gauge C 4⅛ ounces, 0.364 inches. N. E. Met. Soc. gauge No. 29 0.320 inches uncorrected 0.317 corrected.

14, 11.0 P.M. Day mostly clear; some variable haze in the evening, especially after 10 P.M.; no aurora seen.

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16, 10.5 A.M. Yesterday cloudy day and evening, with a little rain.
16, 2.0 P.M. Ice melted in gauges; gauge C 1½ ounces, 0.099 inches; N.E. Met. Soc. gauge No. 29 0.050 inches.
16, 11.3 P.M. Day and evening clear; no aurora seen.
18, 10.4 A.M. Yesterday cloudy with snow, falling faster in the evening.
19, 10.7 A.M. Yesterday cloudy with a little snow; clear about 11 P.M.; no aurora seen.
19, 4.8 P.M. Gauges placed on register to melt snow at 10.7 A.M. today; gauge C now 3⅝ ounces, 0.320 inches; N.E. Met. Soc. gauge No. 29 still contains snow.
19, 5.8 P.M. Snow now melted in N.E. Met. Soc. gauge No. 29; amount 0.811 inches uncorrected, 0.804 corrected.
19, 11.6 P.M. Day and evening clear; no aurora seen.
20, 11.5 P.M. Day and evening clear; no aurora seen.
21, 11.5 P.M. Day and evening clear; no aurora seen; No. 4 now −2.4.
22, 11.9 P.M. Day and evening clear; no aurora seen; No. 4 now −3.2
24, 11.1 A.M. Yesterday rather clear, with increasing cloudiness; a little snow late in the evening.
24, 12.2 P.M. Snow melted in gauges; gauge C 0½ ounces, 0.044 inches; N.E. Met. Soc. gauge 0.032 inches.
24, 11.4 P.M. Day and evening clear; no aurora seen; No. 4 now −3.0.
26, 11.6 A.M. Yesterday rather clear, becoming cloudy; snow in the evening, rain later.
26, 2.2 P.M. Gauge C 4⅞ ounces, 0.430 inches; snow not yet melted in N.E. Met. Soc. gauge No. 29.
26, 3.5 P.M. N.E. Met. Soc. gauge 29, 0.770 inches uncorrected: this result preferred to that by gauge C; no correction applied, as the gauge seems to leak a little. No. 31 appears tight and is substituted for 29.
27, 10.9 A.M. Yesterday cloudy, with a little rain and snow; now snow in the evening.
27, 12.7 P.M. Snow melted in gauges; gauge C 0⅞ ounces, 0.011 inches; N.E. Met. Soc. gauge No. 31 0.044 inches; this result preferable to that by gauge C, as the snow was accompanied by wind.

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January, 1888

27, 11.3 P.M. Day and evening clear; no aurora seen.

28, 10.5 P.M. Day and evening clear and cold; many thin clouds at present; No. 4, −7.0; no aurora seen.

29, 10.6 P.M. Day clear; thin clouds increasing after 9 P.M.; no aurora seen.

30, 9.5 P.M. Day rather cloudy, afterwards rather clear; evening clear till about ½ P.M., clouds in south afterwards increasing; northern sky still rather clear; no aurora seen; zodiacal light visible before rising of Moon.

31, 11.6 P.M. Day rather clear; early evening rather cloudy, clear later; no aurora seen.

Aurora

Report to Signal Service, sent Feb. 2, 1888. (Longitude given as 71° 7′ 45″ W.) looked for every clear evening; some appearance of aurora Jan. 13, about 9½ P.M., soon disappearing.

Zodiacal light visible on the evenings of Jan. 3, 5, 8, 10, 11, 12, 13, 14, 16, 30; other evenings unfavorable to observation.

Usual report, sent Feb. 1, 1888, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

Rain gauges: Nos. 29 and 31 obtained through the New England Meteorological Society. They are 8 inches across, and are provided with separate tubes and measuring sticks. The tubes are so constructed as to make the water in them ten times as deep as it would be in the gauge, so that the measurement in tenths of inches gives the rainfall in hundredths.

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The correction for each gauge was determined for the Society, and is as follows:

For gauge 29, take 0.991 of the amount determined by the tube and measuring stick as the true result.

For gauge 31, take 0.997 of the amount determined by the tube and measuring stick as the true result.

Approximate mean temperatures of January, for the years in which January was as cold as in 1888. Sent to Mr. Oswell at his request, Feb. 23, 1888.

1844	(mean of observations at sunrise, 9 A.M., 3 P.M., 9 P.M.)	15.4
1856	(" " ")	16.8
1857	(" 7 A.M., 9 A.M., 2 P.M., 9 P.M.)	15.2
1865	(" 9 A.M.)	16.8
1875	(mean of observations at 7 A.M., 2 P.M., 9 P.M., 18.1; but mean of max. and min.	17.0)
1881	(mean of max. and min.)	17.8
1888	(" ")	17.8

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February 1888

Date	7 hour A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Gauge	Rainfall in inches	Wind	Clouds	Date
1	9.6	30.064	20.6	13.6	6.4	12.8	25.9	15.0	0		1 N	0	1
2	10.9	30.135	24.3	25.0	12.7	24.2	25.8	25.3	0		3 N	0	2
3	11.0	30.057	28.2	32.8	19.8	32.0	32.5	32.5	0		3 NW	8 Pm Fm —	3
4	11.5	30.183	25.1	29.1	9.9	28.2	35.2	29.1	0		2 SE	10 P	4
5	11.8	29.547	33.2	43.7	28.1	42.3	43.0	42.3		0.441	2 SW	5 R R Rs	5
6	11.2	29.920	34.8	29.6	29.0	29.0	45.1	30.1	0		3 NW	3 R R Rs Fm	6
7	10.9	30.093	25.3	21.4	11.0	20.3	30.9	22.1	0		1 NW	10 P	7
8	11.1	29.589	31.7	35.7	20.3	34.7	35.6	35.3		0.050	0 calm	10 P fog	8
9	10.7	29.772	29.1	17.0	11.8	16.3	38.0	19.2		0.082	2 W	0	9
10	11.4	30.298	19.4	5.0	−3.1	4.6	19.8	7.0	0		1 N	1 Rs	10
11	11.1	29.884	20.4	15.4	4.2	15.0	16.0	16.2			2 N	10 R; moving	11
12	10.9	30.020	26.2	28.4	14.8	27.6	28.2	28.0		0.781	2 N	9 Pm Fm	12
13	10.9	30.073	29.8	31.7	20.4	31.0	31.0	31.2	0		1 S	0 Rs	13
14	10.9	29.930	33.4	43.0	25.2	42.1	42.4	42.2	0		2 SW	2 Rs Fm	14
15	10.1	30.068	36.8	24.8	24.1	24.1	48.0	26.0	0		3 NW	0 Rs Fm	15
16	11.2	30.268	15.0	5.0	−5.1	4.4	26.1	8.0	0		3 NW	0	16
17	10.9	29.696	26.2	31.9	4.4	31.1	31.9	31.8	0		3 SW	0 Fm	17
18	10.6	29.890	30.0	30.8	23.2	30.1	34.4	31.0	0		0 calm	10 Pm	18
19	10.0	30.288	28.9	25.0	16.6	24.4	35.1	25.5	0		2 N	0 Rs	19
20	10.6	30.067	34.1	37.8	24.2	36.9	37.4	37.3	0		2 E	10 P	20
21	10.8	29.949	41.9	42.3	36.8	41.7	48.1	42.4		1.066	2 W	9 P Rs	21
22	11.3	30.170	37.0	35.9	27.5	35.1	43.0	36.0	0		2 N	7 R R	22
23	10.7	30.194	37.0	35.9	22.8	35.0	39.1	35.7	0		2 SW	10 P Rs	23
24	10.7	30.199	36.5	37.0	28.1	36.6	39.9	37.1	0		2 N	0 Fm	24
25	11.0	29.946	37.4	35.8	28.5	35.2	40.9	36.1	0		3 E	10 P	25
26	9.8	29.552	38.8	40.3	32.7	39.6	41.3	40.0		0.847	2 S	9 Pm Fm —	26
27	10.9	29.749	28.2	29.5	25.5	29.0	48.0	30.5	0		1 NW	2 R Rs	27
28	10.2	30.014	26.4	12.0	9.4	11.4	32.1	14.0	0		3 NW	3 Pm M Fm —	28
29	10.7	30.199	25.1	19.2	7.0	18.5	19.5	20.0	0		2 NW	9 R Rs Fm	29
		869814	8608	8146	5152		10142				57	147	
	234	29.994 −003	29.7	28.1	17.8		35.0			3.267	20	5.1	
	10.8	29.991								Rainfall for month 3.27 inches			

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February 1888

Date	Time P.M.	Barometer	Attached Thermometer	No 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	8.8	30.080	27.0	21.4	3 N	3 P 7m	Cloudy	None	None
2	9.2	30.119	29.7	23.8	1 W	0	Visible	None	None
3	9.2	30.238	30.9	23.2	2 N	0	Visible	None	None
4									Obsc.
5									Obsc.
6	9.2	30.092	31.4	18.0	2 NW	0	Visible	None	None
7									Obsc.
8	8.9	29.446	34.3	33.4	2 W	2 P Rs 7m	Visible	None; some clouds.	Aurora
9	8.9	30.050	20.3	6.2	3 W	0	Visible	None	None
10									Obsc.
11									Obsc.
12									Obsc.
13	8.9	30.050	35.7	30.1	1 S	0	Visible	None	None
14	~~9.0~~	~~30.332~~	~~23.0~~	~~-0.6~~	~~3 NW~~	~~0~~	~~Visible~~	~~None~~	Obsc.
15	9.0	30.332	23.0	-0.6	3 NW	0	Visible	None	None
16									Obsc.
17									None
18									None
19									Obsc.
20									Obsc.
21									Obsc.
22	8.7	30.192	39.1	32.4	2 W	0 Rs	Moonlight	Moonlight	None
23									None
24	8.3	30.220	42.2	33.2	1 S	2 P 7m	Moonlight and clouds	Moonlight	None
25									Obsc.
26									Obsc.
27									None
28	8.6	30.137	22.3	10.0	2 W	0 Rs 7m	Moonlight	Moonlight	None
29	9.3	30.204	30.1	21.0	2 W	0	Moonlight	Moonlight	None

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February, 1888

1, 10.6 P.M. Day clear; early evening rather cloudy; rather clear after 9 P.M.; no aurora seen.

2, 11.6 P.M. Day and evening clear; no aurora seen.

3, 11.4 A.M. No. 4 put into snow and water; reading 32.3

3, 5.8 P.M. No. 4 still reads 32.3. Snow and water removed.

3, 10.9 P.M. Day cloudy early, afterwards clear; evening clear; no aurora seen.

5, 11.8 A.M. Yesterday cloudy day and evening; with some snow and rain. Gauge C 5 1/8 ounces, 0.452 inches. N.E. Met. Soc. gauge No. 31 0.442 inches uncorrected, 0.441 corrected.

6, 11.2 A.M. Yesterday rather cloudy, thawing; evening cloudy.

6, 11.3 P.M. Day and evening clear; no aurora seen.

8, 11.1 A.M. Yesterday cloudy day and evening, with a little snow.

8, 1.7 P.M. Snow melted in gauges; gauge C 0 3/4 ounces, 0.077 inches. N.E. Met. Soc. gauge No. 31, 0.050 inches.

8, 11.6 P.M. Day cloudy with some rain, clear after about 8 1/2 P.M.; auroral arch seen about 10 P.M., still continuing, with streamers; sky dark below.

9, 1.5 P.M. Ice melted in gauges; gauge C 1 ounce, 0.088 inches; N.E. Met. Soc. gauge No. 31, 0.082 inches

9, 11.9 P.M. Day and evening clear; no aurora seen.

12, 10.9 A.M. Feb. 10 clear, becoming cloudy, with snow towards night. Feb. 11 cloudy day and evening, with snow.

12, 4.8 P.M. Snow melted in gauges. Gauge C 3 3/4 ounces, 0.331 inches. N.E. Met. Soc. gauge No. 31, 0.783 inches uncorrected, 0.781 corrected; undoubtedly preferable to measure by gauge C, the depth of new snow being 4 or 5 inches.

13, 10.9 A.M. Yesterday mostly clear; thin clouds increasing during the evening.

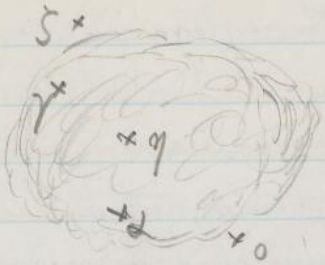
13, 11.5 P.M. Day and evening clear; no aurora seen.

13, 11.6 P.M. Gegenschein slightly suspected; centre preceding γ Leonis by about 1/4 of the interval between α and γ Leonis; appearance as in sketch;

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February 1888

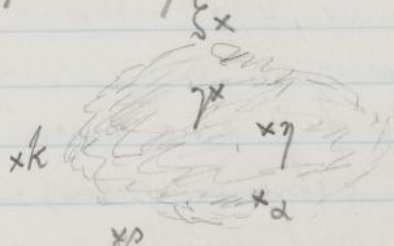


η Leonis	10^h	$0^m.8$	$+17^\circ 21'$
2 "	10	2.0	+12 33
Gegenschein	9	56	+17 21

15, 10.1 A.M. Yesterday clear, thawing; evening mostly cloudy.

45, 11.2 P.M. Day and evening clear; no aurora seen; No. 4 snow — 2.0.

15, 11.3 P.M. Suspicion of Gegenschein rather stronger than on Feb. 13; it seems to extend eastward nearly to k Leonis; centre estimated one tenth of the way from η Leonis to ρ Leonis:



η Leonis	10^h	$0^m.8$	$+17^\circ 21'$
ρ Leonis	10	26.5	+9 55
Gegenschein	10	3.4	+16 36

Mr. Wendell suspects Gegenschein somewhat farther north following; about as far north of η Leonis as η is north of 2.

Mr. Gifford, observing independently, describes the southern limit as near ρ Leonis, the northern limit as near a line from η to β Leonis; the brightest portion within the quadrilateral formed by γ, η, 2 and ρ Leonis.

17, 10.9 A.M. Yesterday clear and cold; evening cloudy.

17, 10.3 P.M. Day mostly clear; evening rather clear at first, rather cloudy later; no aurora seen.

18, 11.1 P.M. Day cloudy till rather late in the evening, clear later; no aurora seen; a few fresh snowflakes on the ground this morning.

20, 10.6 A.M. Yesterday clear, becoming cloudy towards night; evening mostly cloudy.

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February, 1888

21, 10.8 A.M. Yesterday cloudy, with rain in the afternoon and evening. Gauge C $11\frac{7}{8}$ ounces, 1.047 inches; N. E. Met. Soc. gauge No. 31 1.069 inches uncorrected, 1.066 corrected.

22, 11.3 A.M. Yesterday rather cloudy day and evening, rather clear at times.

22, 10.9 P.M. Day mostly clear, thawing; evening clear; no aurora seen.

24, 10.7 A.M. Yesterday cloudy, rather clear later; evening rather cloudy; clear about 11 P.M.; no aurora seen.

24, 10.0 P.M. Day rather clear, with many thin irregular clouds in the evening; no aurora seen; lunar halo at times, especially about 9 P.M.

26, 9.8 A.M. Yesterday cloudy with snow followed by rain; evening foggy. Gauge C $9\frac{3}{4}$ ounces, 0.850 inches; N. E. Met. Soc. gauge No. 31 0.850 inches uncorrected, 0.847 corrected.

27, 10.9 A.M. Yesterday rather cloudy day and evening.

28, 10.2 A.M. Yesterday rather cloudy, becoming colder; evening mostly cloudy; rather clear about 11 P.M.; no aurora seen.

28, 8.6 P.M. Zodiacal light visible about 7 P.M.

29, 10.7 A.M. Yesterday clear and cold; thin clouds after 9 P.M.; no aurora seen.

29, 9.3 P.M. Zodiacal light visible about $7\frac{1}{2}$ P.M.

29, 11.9 P.M. Day and evening mostly clear and cool; no aurora seen.

Report to Signal Service, sent March 2, 1888.

Aurora looked for every clear evening; auroral arch seen Feb. 8, about 10 P.M., still continuing, with streamers, at about $11\frac{1}{2}$ P.M.; sky dark below.

Zodiacal light visible on the evenings of Feb. 2, 3, 6, 8, 9, 13, 15, 28, 29; other evenings unfavorable to observation.

Lunar halo at times during the evening of Feb. 24, especially about 9 P.M.

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Usual report sent March 2, 1888, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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March 1888

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Rainfall in inches	Wind	Clouds	Date
1	10.3	30.238	28.5	27.7	16.0	26.9	27.8	28.1		2 NW	1 P Rs	1
2	10.9	30.238	29.1	25.9	15.1	25.2	35.1	26.2		2 NW	2 P Rs Fm	2
3	10.6	29.800	33.1	29.9	25.2	29.5	33.0	31.0	0.108	1 NW	10 P	3
4	9.9	29.781	25.0	20.1	14.2	19.6	34.3	20.9		3 NW	~~10 P~~ o P Rs	4
5	10.9	29.706	26.6	23.9	12.9	23.2	27.9	24.7		3 NW	3 R R Rs	5
6	11.0	29.680	26.9	19.8	~~19.8~~ 19.0		19.0	31.0	20.5	3 NW	10 P	6
7	10.3	29.750	24.9	20.2	11.4	19.9	25.9	21.0		3 W	1 M Fm	7
8	11.0	29.750	28.2	32.0	16.4	31.5	31.9	32.0		3 NW	10 P	8
9	10.6	30.093	32.3	37.1	28.5	36.7	37.2	36.8		3 N	9 Pm Fm \	9
10	10.7	30.427	34.0	38.3	27.6	37.4	40.8	38.0		2 NE	10 Pm	10
11	10.8	30.244	35.0	37.8	27.1	37.1	40.1	37.7		2 SE	10 P M Fm \	11
12	10.7	29.592	37.0	33.4	33.2	33.2	38.6	33.8		4 NE	10 P. ; snowing	12
13	11.6	29.210	34.3	27.7	23.9	27.8	34.3	29.0	1.934	4 E	9 P Fm ← ; occasional snowflakes	13
14	11.3	29.760	35.0	35.2	26.2	34.6	35.0	35.2	0.394	3 NE	10 P	14
15	10.6	29.913	36.1	38.0	31.7	37.2	38.0	38.1	0.015	3 N	0	15
16	10.6	29.674	37.7	40.8	30.2	40.0	41.1	40.7		2 W	10 P,	16
17	10.8	29.690	37.0	27.2	25.3	26.6	44.9	28.0		3 NW	0 Fm	17
18	10.4	29.843	28.2	20.7	12.2	20.0	30.1	21.7		3 NW	0 Rs	18
19	10.9	30.234	30.7	29.1	14.6	28.4	29.1	29.1		1 N	0 Rs haze	19
20	11.0	29.898	36.8	45.8	28.1	44.9	45.3	45.1		3 SW	10 Pm	20
21	11.0	29.559	42.8	50.6	43.0	49.1	50.1	49.0	0.345	4 S	10 Pm ; raining	21
22	10.9	29.698	42.3	39.3	32.8	38.7	53.8	39.7	0.772	2 NW	3 M Fm →	22
23	10.7	29.798	33.7	21.0	19.1	20.2	41.8	22.1		4 W	0 Rs	23
24	10.9	30.017	28.1	18.9	10.8	18.2	23.3	20.0		3 W	0	24
25	11.3	30.410	27.1	23.7	10.8	23.0	24.0	24.6		2 NW	0	25
26	10.7	30.508	33.0	34.1	23.0	33.4	34.0	34.0		2 SE	10 P	26
27	10.8	30.208	36.0	36.1	31.4	35.2	35.9	35.8	0.912	2 N	10 P	27
28	11.1	29.808	37.0	38.2	33.0	37.2	38.1	37.9	0.528	2 N	10 P	28
29	10.9	29.560	41.1	45.8	37.1	45.2	45.7	45.4	0.229	3 NW	10 P Fm →	29
30	10.8	30.116	40.4	42.2	30.8	41.5	45.8	42.1	0.021	3 NW	2 M Fm →	30
31	10.7	29.839	43.4	47.6	39.2	46.9	47.3	47.2		3 W	3 M Fm →	31
	249	937.072	1041.3	1008.2	730.8		1141.2		5.258 Rainfall for month	83	173	
	10.8	30.234	33.6	32.5	23.6		36.8		5.26 inches	27	56	
		30.014										

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March 1888

Date	Time P.M.	Barometer	Attached thermometer	No. 11	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									None
2									Obsc.
3	9.1	29.830	29.3	19.4	3 NW	1 Rs 7m	Visible	None	None
4	8.2	29.812	33.3	21.7	3 W	0	Visible	None	None
5									Obsc.
6	8.9	29.758	30.0	18.1	3 W	0	Visible	None	None
7	9.2	29.772	29.7	19.5	2 W	0	Visible	None	Suspected aurora
8									Obsc.
9	8.9	30.280	35.1	35.0	3 N	2 P 7m	Visible	None; some clouds	None
10	8.9	30.400	37.0	31.1	1 E	1 P 7m	Visible	None	None
11									Obsc.
12									Obsc.
13									Obsc.
14									Obsc.
15	8.6	29.888	40.0	36.3	2 W	3 P hazy	Cloudy	Light among clouds	Suspected aurora
16									Obsc.
17	8.1	29.627	34.2	23.9	3 W	0	Moonlight	Moonlight	None
18	8.6	29.989	31.9	23.8	2 W	0 Rs	Moonlight	Moonlight	None
19									None
20									Obsc.
21									Obsc.
22	8.1	29.711	44.0	33.2	2 N	4 P 7m	Moonlight	Moonlight	None
23	8.0	29.839	37.0	17.4	3 W	1 M P 7m	Moonlight	Moonlight	None
24	8.2	30.193	29.7	18.1	3 W	0	Moonlight	Moonlight	None
25	8.4	30.450	33.0	25.3	1 SW	3 P 7m	Moonlight and clouds	Moonlight and clouds	None
26									Obsc.
27									Obsc.
28									Obsc.
29	7.9	29.838	43.0	38.1	2 W	0	Visible	None	None
30									Obsc.
31	8.1	29.956	45.0	37.1	2 SW	1 Pm 7m	Visible	None	None

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March 1888.

2, 10.9 A.M. Yesterday rather cloudy; evening cloudy, with a few snowflakes; rather clear about 11½ P.M.; no aurora seen. A few drops of water in gauges this morning.

3, 12.2 P.M. Yesterday mostly cloudy; evening cloudy with a little snow. Gauge 6 1¼ ounces, 0.110 inches; N.E. Met. Soc. gauge No. 31 0.108 inches.

3, 10.0 P.M. Day cloudy, clear 6½ to 9½ P.M., with some clouds, Westwards cloudy; no aurora seen.

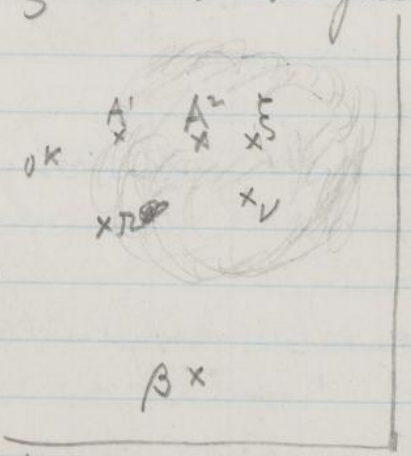
4, 11.8 P.M. Day and evening clear; no aurora seen

6, 11.0 A.M. Yesterday mostly cloudy; clouds increasing in the evening.

6, 11.4 P.M. Day cloudy at first, then clear; evening clear; no aurora seen.

8, 12.1 A.M. Yesterday mostly clear and rather cold; slight aurora suspected at times during the evening, but electric lights towards the north make observation doubtful.

Gegenschein suspected as a reinforcement of the usual band from σ Leonis to Coma Berenices; centre placed half way between ξ and ν Virginis: appearance approximately as in sketch.



	h	m		
ξ Virginis	11	39.1	+8°	55'
ν Virginis	11	39.7	+7°	12'
Gegenschein	11	39.4	+8°	4'

Mr. Gifford, observing independently, and not knowing which way Gegenschein should theoretically have moved from the place where he saw it Feb. 15, considers that that place is relatively darker than it then was, and that there is a bright patch, with its centre at about ξ Virginis, at the present time.

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March 1888

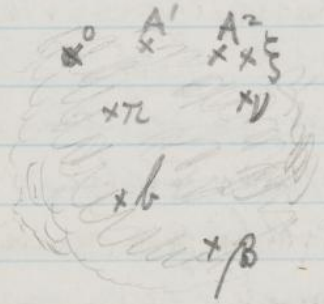
8, 11.1 A.M. No. 4 in snow and water 32.3

8, 11.4 A.M. No. 4 still 32.3. Snow and water removed.

9, 10.6 A.M. Yesterday rather cloudy; evening cloudy.

9, 11.8 P.M. Day cloudy, becoming clear with occasional clouds after about 8½ P.M.; no aurora seen. Region where Gegenschein was seen two nights ago thought to have changed its appearance; not so much light to the preceding side of ξ Virginis as before, with respect to the following side; Gegenschein now suspected with centre half-way from ν to b Virginis; appearance as in sketch.

ν Virginis	11h 39m.7	+7° 12′
b Virginis	11 53.8	+4° 20
Gegenschein	11 46.8	+5 46



Mr. Gifford, observing independently, also thinks that there is relatively less light to the preceding side of ξ Virginis than before. He thinks there is some light with ν Virginis for its centre. He perceives the band from Praesepe, through ο Leonis and the borders of Leo and Virgo to Coma Berenices.

Mr. Wendell suspects Gegenschein with centre at 85 Leonis (11h 25m.5, +16° 5′).

10, 11.3 P.M. Day mostly cloudy; evening rather clear, but clouds somewhat frequent; no aurora seen.

12, 10.7 A.M. Yesterday cloudy day and evening. Snow early today.

13, 7.7 P.M. Yesterday cloudy with wet snow, becoming somewhat colder. Snow at intervals today. Gauge C and N. E. Met. Soc. gauge No. 31 brought in about 3 P.M.

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to melt the snow; gauge 29 substituted for 31. Snow not yet melted in 31. Gauge C $12\frac{7}{8}$ ounces, 1.136 inches; this result probably too small.

14, 11.0 A.M. Gauge 31, 1.940 inches uncorrected; 1.934 corrected. Yesterday evening cloudy; more snow later. Gauges 29 and 6 brought in; gauge 31 substituted for 29. Present depth of snow on ground in 5 places 11, 12, $14\frac{1}{2}$, 10, 12; mean 11.90 inches.

14, 1.7 P.M. Gauge C, $2\frac{1}{2}$ ounces, 0.221 inches; N.E. Met. Soc. gauge No. 29, 0.398 inches uncorrected, 0.394 corrected.

15, 10.6 A.M. Yesterday cloudy day and evening, with a little snow and rain. Gauge C $0\frac{1}{4}$ ounces, 0.022 inches. N.E. Met. Soc. gauge No. 31 0.015 inches.

16, 10.6 A.M. Yesterday rather clear; evening partly cloudy. Some lights among northern clouds at $8\frac{1}{2}$ P.M., perhaps auroral.

17, 10.8 A.M. Yesterday cloudy day and evening; a little snow later; gauge C $0\frac{1}{8}$ ounces, 0.011 inches; N.E. Met. Soc. gauge No. 31 too little for measurement. Repeated readings of the barometer soon after recorded reading made it about 29.640 so that there may be an error of 0.05 in the recorded reading.

17, 11.1 P.M. Day and evening clear; no aurora seen.

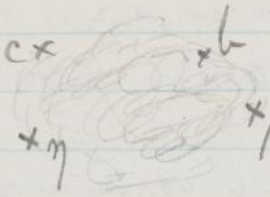
17, 11.3 P.M. Region of ν & ξ Virginis thought not to be relatively as bright compared with other parts of the band to Coma Berenices, as it seemed on March 9; band below β and γ Virginis visible as usual; Gegenschein very slightly suspected with centre half way from β Virginis to middle of line joining γ and c Virginis; at all events the sky following this line looks darker than that preceding it.

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March 1888.

β Virginis	11h 44m.4	+2° 26′	
η Virginis	12 13.8	+0 0	
c Virginis	12 14.3	+3 59	
Mean of 3c	12 14.0	+2 0	
Gegenschein	11 59.2	+2 13	



18, 11.9 P.M. Day and evening clear; no aurora seen. Region of Gegenschein suspected yesterday continues to have the same appearance as then described.

20, 11.0 A.M. Yesterday rather clear, cloudy towards night; evening cloudy, then partly clear; no aurora seen.

21, 11.0 A.M. Yesterday cloudy day and evening, with a few drops of rain. More rain this morning. Gauge No. 31 0.346 inches uncorrected, ~~0.344~~ 0.345 corrected. Gauge No. 29 substituted for 31.

22, 10.9 A.M. Yesterday cloudy day and evening with occasional rain, and strong South wind. Gauge C 12¼ ounces, 1.081 inches. N. E. Met. Soc. gauge No. 29 0.779 inches uncorrected, 0.772 corrected; total rainfall ~~0.~~ 1.117 inches.

23, 10.7 A.M. Yesterday mostly clear; thin clouds part of the evening; no aurora seen.

23, 11.0 P.M. Day and evening mostly clear, windy, and rather cold; no aurora seen.

24, 10.2 P.M. Day and evening clear and cold; no aurora seen.

25, 11.8 P.M. Day clear; evening rather clear with increasing cloudiness and rather irregular lunar halo most of the evening; no aurora seen.

27, 10.8 A.M. Yesterday cloudy with snow and sleet; evening rainy. Gauge C 10¼ ounces, 0.905 inches; N. E. Met. Soc. gauge No. 31 0.915 inches uncorrected, 0.912 corrected.

28, 11.1 A.M. Yesterday cloudy day and evening; rain later. Gauge C [illegible] inches; N. E. Met. Soc. gauge No. 31 0.530 inches uncorrected, 0.528 corrected.

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28, 11.3 P.M. Day and evening cloudy; clouds beaming thin.

29, 10.9 A.M. Rain early today. Gauge C $2\frac{1}{2}$ ounces, 0.221 inches; N. E. Met. Soc. gauge No. 31 ~~0.2~~ 0.230 inches uncorrected, 0.229 corrected.

29, 12.3 P.M. Day cloudy, beaming clear; evening clear; no aurora seen.

30, 10.8 A.M. Gauge C $0\frac{3}{8}$ ounces, 0.033 inches; N. E. Met. Soc. gauge No. 31 0.021 inches uncorrected; no correction.

31, 10.7 A.M. Yesterday clear; evening cloudy.

31, 11.3 P.M. Day and evening mostly clear; no aurora seen.

Report to Signal Service, sent April 2, 1888.

Aurora looked for every clear evening; slightly suspected March 7, at times, and March 15, at $8\frac{1}{2}$ P.M.

Zodiacal light visible March 3, 4, 6, 7, 9, 10, 29, 31; other evenings unfavorable to observation.

Lunar halo, rather irregular, March 25, most of the evening.

Usual report sent April 2, 1888, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

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Date	7 a.m.	Barometer	Attached Thermometer	No. 4	Minimum Thermometer before and after setting		Maximum Thermometer before and after setting		Rainfall in inches	Wind	Clouds	Date
1	11.5	29.990	40.0	41.0	29.1	40.3	49.0	41.1		2 NW	2 Rs	1
2	11.0	29.432	43.1	36.0	33.4	35.3	47.2	37.0	0.776	1 W	10 P	2
3	10.7	29.996	41.0	40.7	32.0	40.1	40.9	40.7		3 NW	3 M Fm →	3
4	10.7	30.322	39.2	41.2	24.2	40.7	43.2	41.0		3 W	1 P M Fm →	4
5	11.9	30.250	44.8	47.1	30.1	46.2	50.0	47.0		2 SE	10 P	5
6	11.4	29.758	46.0	54.2	36.8	53.6	54.0	53.8	0.767	3 W	9 Pm Fm →	6
7	10.8	29.937	48.6	45.1	37.1	44.3	56.6	45.9		3 SW	0 M Fm	7
8	11.0	30.195	37.0	27.4	19.9	26.9	46.0	28.3		3 NW	0 Rs	8
9	11.0	30.352	36.1	35.4	22.0	34.9	35.2	35.6		3 NW	0	9
10	10.8	30.350	39.1	41.6	25.3	40.8	41.7	41.0		2 SE	4 Rs	10
11	10.7	29.806	43.0	41.4	33.2	40.9	43.4	41.2	0.599	2 N	10 P; a little fine rain	11
12	10.3	29.960	42.2	49.4	32.1	48.9	49.2	49.0		2 NW	0 Rs Fm	12
13	10.8	30.039	39.8	36.9	28.3	36.2	55.4	37.1	0.012	3 NW	0 M Fm	13
14	10.6	29.821	39.9	45.0	29.9	44.1	44.3	44.1		3 S	10 P	14
15	11.2	29.873	40.8	40.6	33.4	40.0	45.4	40.6	0.134	2 N	10 Pm Fm →	15
16	10.9	29.815	42.9	46.8	35.1	46.9	46.0	46.0		2 NW	5 M Fm →	16
17	10.2	30.092	40.7	44.2	32.5	43.5	47.3	44.0		3 N	0 M Fm	17
18	11.2	30.088	44.0	46.1	33.9	45.2	50.1	45.9		2 S	10 P	18
19	10.8	29.959	44.1	49.9	34.5	49.2	49.7	49.7	0.063	2 W	6 P Rs M Fm →	19
20	11.0	29.844	46.2	47.0	37.2	46.2	55.2	47.0		2 NE	10 P Fm	20
21	10.7	29.662	45.4	36.8	34.7	36.2	49.0	37.5	0.207	3 W	10 P; a little rain	21
22	10.5	29.766	46.8	46.8	36.1	46.1	46.8	46.8		3 W	9 Pm M Fm →	22
23	9.7	29.837	43.3	47.4	31.6	46.7	50.6	47.0		1 NW	8 P Rs M Fm →	23
24	8.6	29.999	45.0	40.7	32.9	40.1	52.4	41.0		3 NW	9 Pm M Fm →	24
25	11.2	30.402	43.0	46.2	29.8	45.5	46.1	46.1		1 N	0 R Fm	25
26	10.7	30.474	43.4	54.1	30.7	53.1	53.1	52.9		0 calm	10 Pm	26
27	10.8	30.445	51.0	58.7	38.5	58.1	61.5	58.0		2 SE	0 haze	27
28	10.9	30.179	52.2	67.4	41.6	66.3	66.3	65.9		0 SW	9 Pm Fm	28
29	10.9	29.985	56.3	66.4	51.3	65.6	73.9	65.5		2 NE	5 P M Fm → haze	29
30	10.7	29.962	57.3	52.8	45.1	51.9	67.0	53.0		2 NE	10 Pm Fm →	30
	232 10.8	900 590 30.019 -042 29.977	1322.2	1374.3	992.3		1516.5		2.558 Rainfall for month 2.56 inches	65 2.2	170 5.7	

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April 1888

Date	Time P.M.	Barometer	Attached thermometer	No. 14	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2	8.7	29.668	41.9	36.9	1 W	0	Visible	None	Aurora
3	8.1	30.180	41.0	33.0	2 NW	0	Visible	None	Aurora
4	8.1	30.315	45.9	39.3	2 SW	0 haze	Visible	None	None
5									Obs.
6	8.2	29.953	49.9	44.4	2 SW	0	Visible	None	None
7	8.2	30.079	41.2	33.7	3 NW	5 Pm 7m	Visible	Cloudy	None
8	8.8	30.242	41.7	30.0	2 N	0	Visible	None	None
9	8.2	30.372	41.0	33.4	1 SW	0	Visible	None	None
10									Obsc.
11									Obsc.
12	8.0	29.970	47.2	40.9	2 SW	9 Pm 7m	Cloudy	Cloudy	None
13	8.1	30.080	42.2	35.5	1 NW	0 P	Visible	None	None
14									Obsc.
15									Obsc.
16	8.2	29.964	44.1	38.9	2 NW	1 P 7m	Moonlight and clouds	Moonlight	None
17	8.1	30.211	45.1	41.6	1 SW	0 Rs	Moonlight	Moonlight	None
18	8.2	29.906	44.1	39.5	0 calm	7 PRs 7m →	Moonlight and clouds	Moonlight and clouds	None
19									Obsc.
20									Obsc.
21	8.4	29.686	44.1	39.6	3 W	5 P Rs	Moonlight and clouds	Moonlight and clouds	Obsc.
22	9.1	29.862	40.0	48.1	1 S	0 Rs 7m	Moonlight	Moonlight	None
23	8.7	29.824	47.3	38.5	1 N	2 M 7m	Moonlight	Moonlight	None
24	8.2	30.231	45.4	37.9	2 NW	8 Pm 7m	Moonlight	Moonlight and clouds	None
25	8.1	30.477	50.0	38.0	1 NE	0	Moonlight	Moonlight	None
26	8.2	30.427	52.9	53.4	1 S	7 PRs 7m	Moonlight and clouds	Moonlight and clouds	None
27	8.2	30.374	55.0	49.8	0 calm	1 Rs haze	Visible	None	None
28	8.2	30.079	61.9	56.8	0 calm	0 haze	Visible	None	None
29									None
30									Obsc.

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April 1888

1, 11.0 A.M. Yesterday clear, becoming cloudy; evening cloudy, with snow and rain; rain early today. Gauge C 9 ounces, 0.794 inches. Gauge No. 29 substituted for No. 31.

2, 3.4 P.M. Gauge No. 31, 0.778 inches uncorrected; 0.776 corrected; gauge No. 31 replaced; no water in No. 29.

2, 11.2 P.M. Day cloudy, evening clear; auroral arch now passing between ζ & β Cassiopeiae; sky rather dark below.

2, 11.3 P.M. Sky following line from γ to c Virginis does not seem so much darker than that preceding as on March 17; but north of b and c Virginis it is somewhat lighter than the following sky. Between β and b Virginis the sky is rather dark; change suspected since March 17. Presence of Mars and electric light prevent any attempt to observe sky following γ Virginis.

3, 9.8 P.M. Day partly cloudy; evening clear; low auroral arch now visible, with some appearance of streamers.

4, 11.1 P.M. Day and evening mostly clear; no aurora seen; sky north of line from β to c Virginis is light, but within the triangle formed by β, η and c, it does not seem lighter than the sky following the line from β η to c; band below β and η as usual; also ordinary band of Coma Berenices.

6, 11.4 A.M. Yesterday cloudy with rain at times; ~~thunder shower~~ rain with thunder about 3 A.M. today. Gauge C 8 7/8 ounces, 0.783 inches; N.E. Met. Soc. gauge No. 31 0.769 inches uncorrected, 0.767 corrected.

6, 11.1 P.M. Day cloudy becoming clear; evening clear; no aurora seen; region of β, η, b Virginis as on April 4.

8, 11.0 A.M. Yesterday clear; evening partly cloudy; no aurora seen.

8, 10.8 P.M. Day and evening clear; no aurora seen.

9, 10.7 P.M. Day and evening clear; no aurora seen.

11, 10.7 A.M. Yesterday rather clear becoming cloudy; rain and snow in the evening. Gauge C 6 1/2 ounces, 0.607 inches; N.E.

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April 1888

Met. Soc. gauge No. 31 0.601 inches uncorrected, 0.599 corrected.

12, 10.3 A.M. Yesterday cloudy; clouds becoming thinner in the evening.

12, 10.7 P.M. Day cloudy with a little rain; evening mostly clear; no aurora seen; Zodiacal light visible after sky cleared.

13, 10.8 A.M. Gauge C $0\frac{1}{4}$ ounces, 0.022 inches; N. E. Met. Soc. gauge No. 31, 0.012 inches.

13, 10.4 P.M. Day clear; evening rather clear, with some haze; no aurora seen.

15, 11.2 A.M. Yesterday cloudy day and evening, with a little rain. Gauge C $1\frac{5}{8}$ ounces, 0.1413 inches; N. E. Met. Soc. gauge No. 31 0.134 inches.

16, 10.9 A.M. Yesterday cloudy day and evening.

16, 10.9 P.M. Day cloudy with a few drops of rain, clear towards night; evening mostly clear, with some clouds; no aurora seen.

17, 11.8 P.M. Day rather clear; evening rather clear, with some haze; no aurora seen.

18, 10.7 P.M. Day cloudy with a little rain; evening somewhat cloudy at first, becoming clearer; no aurora seen.

19, 1.9 P.M. Gauge C at 10.8 A.M. today $0\frac{7}{8}$ ounces, 0.077 inches; N. E. Met. Soc. gauge No. 31, 0.063 inches.

20, 11.0 A.M. Yesterday rather clear, becoming cloudy; evening mostly cloudy.

21, 10.7 A.M. Yesterday cloudy day and evening, with a little rain; a few snowflakes early today.

21, 1.5 P.M. Gauge C $2\frac{1}{2}$ ounces, 0.221 inches; N. E. Met. Soc. gauge No. 31, 0.208 inches uncorrected, 0.207 corrected.

21, 11.3 P.M. Day cloudy with occasional rain; rather clear towards night; thin clouds in the evening, now thicker.

22, 10.1 P.M. Day and evening rather clear; some clouds and a few drops of rain and flakes of snow in the afternoon; no aurora seen.

24, 8.6 A.M. Yesterday rather cloudy; evening rather clear, with some [illegible] no aurora seen.

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April 1888

25, 11.2 A.M. Yesterday somewhat cloudy; evening rather clear, but many clouds; no aurora seen.

25, 10.2 P.M. Day clear; evening clear at first, thin clouds later; no aurora seen.

26, 11.1 P.M. Day rather cloudy; clouds diminishing; evening at first rather cloudy, becoming nearly clear, with haze; no aurora seen.

27, 11.0 P.M. Day clear and warm; evening rather clear, with some thin clouds; no aurora seen.

28, 10.8 P.M. Day rather cloudy, becoming clear; very warm; evening clear at first, many thin clouds later; no aurora seen.

30, 10.7 A.M. Yesterday rather clear and warm; evening rather clear, with thin variable clouds; no aurora seen.

May 1, 10.5 A.M. Yesterday rather cloudy, clouds increasing; evening cloudy.

Report to Signal Service, sent May 1, 1888.

Aurora looked for every clear evening; results as follows:
April 2, 11¼ P.M. Auroral arch now passing between α (Alpha) and β (Beta) Cassiopeiae; sky rather dark below.
April 3, 9¾ P.M. Low auroral arch now visible, with some appearance of streamers.

Zodiacal light visible on the evenings of April 2, 3, 4, 6, 7, 8, 9, 12, 13, 27, 28; other evenings unfavorable to observation.

Thunder and lightning. Rain with thunder about 3 A.M., April 6.

Usual report sent May 1, 1888, to the New England Meteorological Society. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society. Measurements of precipitation corrected for error of gauge when recorded.

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May 1888

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Rainfall in inches	Wind	Clouds	Date
1	10.5	29.680	51.0	45.8	40.1	45.0	53.0	45.8	0.005	1 N	10 P	1
2	10.6	29.949	46.1	39.2	34.8	38.7	49.3	39.8	0.048	3 NE	10 Pm	2
3	10.2	30.190	45.2	47.8	36.0	47.0	48.0	47.8		1 NW	0 M Fm	3
4	10.7	30.257	49.0	47.5	42.4	47.0	57.3	47.5		1 E	10 P	4
5	10.7	30.028	49.3	49.1	43.4	48.1	48.8	49.0	0.155	2 NW	10 Pm	5
6	11.6	30.120	53.0	63.2	42.7	62.2	62.4	62.0	Inap.	2 W	4 R Rs M Fm →	6
7	10.9	30.122	56.0	59.9	50.3	59.0	69.0	59.4		3 W	4 Rs Fm	7
8	10.6	30.236	53.2	59.6	40.8	58.7	64.3	58.3		2 SW	1 Rs	8
9	10.7	29.948	56.1	53.4	47.5	54.5	69.9	55.0	0.449	2 SW	10 P	9
10	10.7	29.956	61.5	72.2	53.7	70.5	71.0	70.5		1 SW	10 Pm Fm	10
11	11.5	30.156	59.0	53.0	45.7	52.2	77.3	53.1	0.130	1 E	10 P	11
12	10.8	29.759	55.1	56.6	44.5	55.6	57.0	55.8	1.486	1 E	10 P mist · a few drops of rain	12
13	11.8	29.810	55.0	54.4	47.9	53.4	59.9	54.1	1.047	1 N	10 Pm; a little mist	13
14	10.2	29.840	55.1	52.0	45.2	51.1	58.6	52.1	0.015	2 NE	10 Pm M Fm ∠	14
15	9.6	29.857	50.0	42.4	40.0	41.9	54.0	42.8	0.229	2 NE	10 Pm; raining	15
16	10.6	29.864	52.0	54.0	39.1	53.1	53.6	53.8		2 SW	0 M Fm	16
17	10.7	29.918	50.8	54.1	38.1	53.1	60.2	54.0		3 NW	8 M Fm →	17
18	10.4	30.008	53.1	57.4	41.2	56.7	58.5	57.0	Inap.	2 SW	5 Rs M Fm → / Fm ↑	18
19	10.5	29.941	54.9	48.0	46.9	47.7	62.7	49.0	0.279	2 E	10 P; fine rain	19
20	10.2	30.045	52.1	58.2	41.3	57.8	58.0	58.0	Inap.	3 NW	7 Rs M Fm	20
21	11.2	30.116	53.0	56.5	42.9	56.0	64.8	56.3		3 NW	0	21
22	10.9	30.248	58.2	61.8	44.0	61.0	64.3	61.0		2 SE	1 R Rs	22
23	10.8	30.108	58.8	67.6	44.4	66.7	66.8	66.1		2 S	3 P Rs Fm	23
24	10.7	30.044	60.3	63.0	48.8	61.9	73.1	62.3		2 SE	9 Pm M Fm	24
25	10.9	30.029	69.1	62.9	51.8	61.9	64.9	62.0		3 E	9 Pm M Fm ←	25
26	10.8	29.994	57.0	56.3	46.1	55.7	62.1	56.0		1 NE	10 Pm; a little fine rain	26
27	11.4	29.954	58.0	58.0	51.7	57.0	60.1	58.0	0.003	1 SE	10 Pm	27
28	10.9	29.958	57.0	56.8	50.3	56.0	60.7	56.3	0.009	2 E	10 Pm Fm	28
29	10.0	29.844	57.9	68.1	50.8	65.8	66.0	64.0	0.678	2 SW	8 Pm Fm ↗	29
30	10.3	29.901	62.0	69.8	58.1	68.3	74.3	68.5	0.077	0 calm	10 Pm	30
31	10.7	29.850	64.2	67.9	61.4	66.7	77.0	67.1	0.020	0 calm	10 Pm	31
	227 10.7	929.745 29.992 28.850	1710.0 55.2	1758.5 56.7	1411.9 45.5		1926.9 62.2		4.630 Rainfall for month 4.63 inches	55 1.8	229 7.4	

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May 1888

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2	9.0	30.111	49.0	38.8	1 NE	9 Pm Fm	Cloudy	Cloudy	Obsc.
3	8.1	30.176	53.0	46.8	2 S	1 P Rs haze	Cloudy	None; some clouds	None
4									Obsc.
5									Obsc.
6	8.1	30.053	59.0	60.3	2 S	5 P Fm	Twilight and clouds	Twilight and clouds	None
7	8.2	30.208	57.1	52.9	2 NW	0 P Fm	Twilight	Twilight	Aurora
8									Obsc.
9	8.2	29.913	61.2	58.9	0 calm	2 P haze	Twilight and clouds	Cloudy	None
10									Obsc.
11									Obsc.
12									Obsc.
13									Obsc.
14									Obsc.
15									None
16	8.3	29.861	55.0	57.5	2 S	4 Pm Fm →	Moonlight	Moonlight and clouds	None
17	8.3	30.031	55.0	51.3	2 SW	8 Pm Fm ↘	Twilight and clouds	Twilight and clouds	None
18									Obsc.
19									Obsc.
20	8.7	30.080	57.4	52.4	2 N	2 Rs Fm	Moonlight	Moonlight	Aurora
21	8.1	30.161	59.0	57.5	2 NW	0 Rs	Twilight and moonlight	Twilight and moonlight	None
22	8.1	30.183	61.0	56.4	2 SE	0 Rs Fm	Twilight and moonlight	Twilight and moonlight	None
23									Obsc.
24									Obsc.
25	8.2	30.014	60.3	53.8	2 E	7 Pm Fm ←	Twilight	Twilight	None
26									Obsc.
27									Obsc.
28									Obsc.
29	8.2	29.880	65.9	61.9	1 NE	8 Pm Fm →	Cloudy	Cloudy	Obsc.
30	8.5	29.880	68.0	68.0	1 S	⊖10 Pm Fm	Cloudy	Cloudy	Obsc.
31									

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May 1888

1, 10.5 A.M. Gauge C 0⅛ ounces, 0.011 inches; N.E. Met. Soc. gauge No. 31 0.005 inches.

2, 10.6 A.M. Yesterday cloudy day and evening with a little rain. Gauge C 0¾ ounces, 0.066 inches; N.E. Met. Soc. gauge No. 31 0.048 inches.

2, 9.0 P.M. Zodiacal light visible over clouds about 8 P.M.

3, 10.2 A.M. Yesterday cloudy and cool; evening mostly cloudy.

4, 10.7 A.M. Yesterday rather clear and warm; evening rather clear, with haze and thin clouds; no aurora seen.

5, 10.7 A.M. Yesterday cloudy day and evening; a little rain early today. Gauge C 1¾ ounces, 0.154 inches; N.E. Met. Soc. gauge No. 31 0.155 inches.

6, 11.6 A.M. Yesterday cloudy day and evening. A few drops of rain in the gauges.

6, 11 8 P.M. Day rather clear and warm; evening somewhat cloudy, becoming clear; no aurora seen

7, 11.2 P.M. Day somewhat cloudy, evening clear; low auroral arch first seen about 9 P.M. still visible; zodiacal light visible after end of twilight.

9, 10.7 A.M. Yesterday clear, becoming cloudy; evening cloudy with a little rain; more rain later. Gauge C 5⅛ ounces, 0.452 inches; N.E. Met. Soc. gauge No. 31, 0.450 inches uncorrected, 0.449 corrected.

9, 11.0 P.M. Day cloudy with a little rain; evening mostly rather clear; some clouds and haze; no aurora seen.

11, 11.5 A.M. Yesterday cloudy day and evening; a little rain and thunder during the night. Gauge C 1⅝ ounces, 0.143 inches; N.E. Met. Soc. gauge No. 31 0.130 inches.

12, 10.8 A.M. Yesterday cloudy day and evening; rain later. Gauge C 17 ounces, 1.500 inches; N.E. Met. Soc. gauge No. 31 1.490 inches uncorrected, 1.486 corrected.

13, 11.8 A.M. Yesterday cloudy day and evening; rain later; Gauge C 12½ ounces, 1.080 inches; N.E. Met. Soc. gauge No. 31 1.050

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inches uncorrected, 1.0117 corrected.

14, 10.2 A.M. Yesterday cloudy day and evening, with a little rain. Gauge C 0½ ounces, 0.022 inches; N.E. Met. Soc. gauge No. 31 0.015 inches.

15, 9.6 A.M. Yesterday cloudy day and evening, somewhat clear for a time about 6 P.M.

15, 11.7 A.M. Gauge C 2¾ ounces, 0.243 inches; N.E. Met. Soc. gauge No. 31, 0.230 inches uncorrected, 0.229 corrected.

15, 11.6 P.M. Day cloudy with some rain; evening cloudy till 9 P.M., mostly clear now; no aurora seen.

16, 11.2 P.M. Day clear, becoming cloudy with a little rain; evening rather clear, with frequent clouds; no aurora seen.

17, 11.1 P.M. Day rather clear; evening rather cloudy, becoming clear; no aurora seen.

18, 10.4 A.M. Yesterday at 10.7 A.M. gauge C 0⅛ ounces, 0.011 inches; a few drops of water in N.E. Met. Soc. gauge No. 31.

19, 10.5 A.M. Yesterday rather clear, becoming cloudy; evening cloudy with a little rain. Gauge C 3¼ ounces, 0.287 inches; N.E. Met. Soc. gauge No. 31 0.280 inches uncorrected, 0.279 corrected.

20, 10.2 A.M. Yesterday cloudy day and evening, becoming clear late. A few drops of water in gauge C.

20, 10.2 P.M. Day rather cloudy, becoming clear in the evening. Irregular aurora, bright in moonlight, with some appearance of streamers, conspicuous about 9½ P.M., still continuing; sky not especially dark below.

21, 2.5 A.M. Irregular aurora continues; faint light about as high as Polaris. At about 1¾ A.M. distinct arch, sky dark below; or rather a pair of arches side by side, with a straight band connecting them in the north.

21, 11.6 P.M. Day and evening mostly clear; no aurora seen.

22, 11.0 P.M. Day and evening mostly clear; no aurora seen.

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May 1888

24, 10.7 A.M. Yesterday warm and mostly cloudy day and evening.

25, 10.9 A.M. Yesterday cloudy day and evening.

25, 10.0 P.M. Day cloudy, clearer towards night; evening partly clear, rather cloudy; no aurora seen.

27, 11.4 A.M. Yesterday cloudy day and evening, with a little rain. Gauge C 0½ ounces, 0.022 inches; N. E. Met. Soc. gauge No. 31, 0.003 inches.

28, 10.9 A.M. Yesterday cloudy day and evening, with a little rain. Gauge C 0⅛ ounces, 0.011 inches; N. E. Met. Soc. gauge No. 31 0.009 inches.

29, 10.6 A.M. Yesterday cloudy day and evening, with occasional showers; thunder and rain about 11 P.M. Gauge C 7⅞ ounces, 0.695 inches; N. E. Met. Soc. gauge No. 31 0.680 inches uncorrected, 0.678 corrected.

30, 10.3 A.M. Yesterday cloudy at first, afternoon clear, evening mostly cloudy, rain later. Gauge C 1 ounce, 0.088 inches; N. E. Met. Soc. gauge No. 31, 0.077 inches.

31, 10.7 A.M. Yesterday mostly cloudy day and evening: Gauge C 0½ ounces, 0.022 inches; N. E. Met. Soc. gauge No. 31, 0.020 inches.

June 1, 10.4 A.M. Yesterday cloudy day and evening, with a little rain.

Report to Signal Service, sent June 1, 1888.

Aurora looked for every clear evening; results as follows:
May 7, 11¼ P.M. Low auroral arch, first seen about 9 P.M., still visible.
May 20. Irregular aurora, bright in moonlight, with some appearance of streamers, conspicuous about 9½ P.M. and later; sky not specially dark below. About 1¾ A.M. May 21, the aurora had the form of a pair of distinct arches side by side, with a straight band connecting them in the north; sky dark below. About 2½ A.M., aurora irregular, with faint light as high as Polaris.

Zodiacal light visible in the evenings of May 2 and May 7; other evenings unfavorable to observation.

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Thunder during showers in the night of May 10 to 11; also May 28, about 11 P.M.

Usual report sent June 1, 1888, to the New England Meteorological Society; remarks as follows:

Observations made during the forenoon; average time $10\frac{7}{10}$ A.M.

Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

Rainfall from gauge No. 31, furnished by the Society with correction formula, which has been applied to the readings. Gauges of this form are probably exposed to some error from evaporation unless examined soon after the rain ceases. Some indication of such an error is given by comparing the results of this gauge with those of another at Harvard College Observatory.

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June 1888

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Rainfall in inches Gauge C.	Rainfall in inches No. 31	Wind	Clouds	Date
1	10.4	29.622	64.0	68.9	58.2	67.8	73.0	67.8	0.055	0.045	1 SE	8 Pm M Fm →	1
2	10.5	29.854	60.2	65.3	46.8	64.7	73.3	64.2			2 W	2 P Rs Fm	2
3	11.1	29.874	61.0	65.2	52.1	64.3	71.8	64.2			3 W	4 M Fm → Fm ↗	3
4	10.4	30.044	61.0	65.9	49.1	65.0	67.0	64.9			2 SW	8 M Fm →	4
5	10.7	30.153	63.1	73.1	52.4	72.0	72.3	71.9			1 W	5 Rs Fm ↓	5
6	10.6	30.009	67.7	77.2	57.3	77.0	80.6	76.3			3 SW	0	6
7	10.9	29.932	72.3	74.7	63.1	73.4	85.1	74.0	0.165	0.155	3 NW	8 Pm M Fm ↗	7
8	10.2	30.160	64.8	63.3	55.2	62.6	78.4	62.9			3 NE	1 M Fm ↓	8
9	10.9	30.068	64.2	74.4	49.6	73.1	73.1	72.8			2 SW	4 P Rs Fm	9
10	10.2	29.890	66.7	73.1	57.2	72.0	81.3	72.0			3 SW	5 P Rs Rm Fm →	10
11	10.6	29.615	69.0	75.0	63.1	74.1	78.3	73.9			3 W	7 Pm Fm	11
12	11.0	30.064	64.2	66.5	52.5	65.7	77.1	66.0	0.143	0.110	2 N	0 Rs M	12
13	10.5	30.222	65.7	72.4	50.5	71.1	71.8	70.4			1 S	6 R M Fm → Fm	13
14	10.9	30.072	64.0	63.2	52.0	62.0	75.1	63.1	0.132	0.130	1 SE	10 Rm, raining	14
15	10.6	29.892	64.1	62.7	56.7	62.2	65.7	62.7	1.114	1.092	0 calm	10 Rm fog	15
16	10.7	29.764	71.1	77.6	58.2	76.8	76.8	76.5	0.011	Inap.	3 NW	8 P M Fm ↘	16
17	10.1	29.904	69.9	75.8	62.2	74.9	81.0	74.9			2 SE	1 M Fm	17
18	10.3	29.814	72.8	80.1	62.2	79.3	79.2	79.0			2 W	0 P Rs. Fm	18
19	10.5	30.049	71.2	72.1	62.6	71.1	86.2	71.4			2 NE	3 R Rs Rm	19
20	10.6	29.898	69.1	68.3	60.1	67.3	75.3	68.0	0.110	0.110	2 N	10 Rm, raining	20
21	10.5	29.881	67.4	66.4	58.1	65.4					2 NE	10 P	21
22	10.8	29.768	68.1	75.3	57.7	74.6	74.3	74.0			2 SW	1 P Rs Fm haze	22
23	10.0	29.704	79.7	85.5	72.8	84.6	85.4	84.3			2 W	0 Rs haze	23
24	9.7	29.816	78.1	72.3	71.2	71.2	92.5	72.2	0.353	0.347	2 E	10 Rm	24
25	10.5	29.750	68.1	63.7	67.5	62.7	72.6	63.2	0.011	0.002	1 NW	10 Rm	25
26	11.0	29.784	73.1	77.8	62.4	76.5	76.6	76.3			2 W	10 Rm Fm	26
27	10.6	29.927	68.0	68.3	61.0	67.6	76.9	68.0	0.530	0.497	3 NW	0 Rs Fm	27
28	10.5	30.242	66.1	59.8	54.1	59.1	73.1	60.0			3 E	10 Rm M Fm	28
29	9.9	30.120	61.8	59.2	52.1	58.6	60.1	59.0	0.022	0.018	2 NE	10 Rm	29
30	10.5	29.848	63.0	63.0	52.5	72.0	72.0	71.8			3 W	3 P R Fm →	30
	162	897740	201952	211613	173054		220594		2.646	2.506	63	164	
	10.5	29.925	67.3	70.5	57.7		76.1			Rainfall for month 2.51 inches	2.1	5.5	
		29.821											

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June 1888

Date	Time P.M.	Barometer	Attached thermometer	No.4	Wind	Clouds	Zodiacal light	Aurora	Asteroid
1	8.1	29.749	67.1	60.7	1 SW	0 Rs Fm	Twilight	Twilight	None
2	8.0	29.834	66.6	59.9	2 S	1 Pm Fm	Twilight	Twilight	None
3	9.0	29.949	63.8	57.4	1 W	0	Twilight	Twilight	Aurora
4	8.0	30.040	67.3	65.1	1 W	0 Pm	Twilight	Twilight	None
5	8.1	30.109	72.2	70.3	2 SW	2 Rs Fm	Twilight	Twilight	None
6	8.1	29.908	74.1	73.4	3 SW	10 Pm Fm	Cloudy	Cloudy	Obsc.
7	8.6	30.050	71.2	60.5	3 NE	10 P	Cloudy	Cloudy	Obsc.
8	8.1	30.124	68.0	57.9	0 SE	0	Twilight	Twilight	None
9	8.3	30.002	73.5	70.7	3 S	4 P Rs	Twilight and clouds	Twilight and clouds	None
10									Obsc.
11	8.9	29.830	71.0	63.0	3 W	1 Rs Fm	Twilight	Twilight	None
12	8.5	30.119	69.7	64.0	0 NW	0 Fm	Twilight	Twilight	None
13	8.3	30.170	69.5	63.8	2 S	9 P Fm	Cloudy	Twilight and clouds	None
14									Obsc.
15									Obsc.
16	8.4	29.826	75.3	75.3	0 calm	4 Pm M Fm	Twilight	Twilight and clouds	None
17	8.4	29.895	76.3	72.2	1 SE	1 P Rs	Moonlight and twilight	Moonlight and twilight	None
18	8.0	29.850	78.1	78.3	2 N	0 Rs Fm	Moonlight and twilight	Moonlight and twilight	None
19	8.1	29.958	73.0	68.2	1 SE	2 Pm Rs Fm	Moonlight and twilight	Moonlight and twilight	None
20	8.0	29.904	70.7	66.0	2 SE	6 Pm Rs Fm	Cloudy	Cloudy	Obsc.
21	8.2	29.890	66.7	60.4	1 NE	5 Pm Fm haze	Cloudy	Cloudy	Obsc.
22	8.2	29.690	78.7	79.7	2 SW	9 P Rm Fm	Cloudy	Cloudy	Obsc.
23									Obsc.
24									Obsc.
25	8.2	29.718	71.0	66.7	0 calm	3 Pm Fm haze	Twilight	Twilight and clouds	None
26									Obsc.
27	8.2	30.092	69.7	66.3	1 NW	3 Pm Rs Fm	Twilight	Twilight	None
28									Obsc.
29	8.2	30.030	79.0	57.9	1 SE	0 P Fm	Twilight	Twilight	None
30									Obsc.

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June 1888

1, 11.5 P.M. Day rather cloudy, becoming clearer; evening mostly clear; no aurora seen.
2, 11.2 P.M. Day and evening mostly clear; no aurora seen.
3, 11.6 P.M. Day and evening mostly clear; irregular aurora rather bright at about 9 1/4 P.M., now faint.
4, 11.1 P.M. Day and evening mostly clear; no aurora seen.
5, 11.3 P.M. Day and evening mostly clear; no aurora seen.
6, 9.0 P.M. Day mostly clear, evening cloudy; lightning without thunder in the west.
7, 10.9 A.M. Thunder shower about 11 P.M. yesterday.
8, 10.2 A.M. Yesterday mostly cloudy; evening cloudy.
8, 11.4 P.M. Day and evening clear; no aurora seen.
9, 11.2 P.M. Day and evening mostly clear; no aurora seen.
11, 10.6 A.M. Yesterday cloudy day and evening.
11, 10.2 P.M. Day rather cloudy with a shower about noon; evening clear after 9 P.M.; no aurora seen.
12, 11.2 P.M. Day and evening clear; no aurora seen.
13, 11.3 P.M. Day rather clear, rather cloudy towards night, rather clear after 9 P.M.; no aurora seen.
14, 12.7 P.M. Gauge C @ 1 1/2 ounces, 0.132 inches; N.E. Met. Soc. gauge No. 31 0.130 inches.
15, 10.6 A.M. Yesterday cloudy day and evening with rain. About 6 1/4 A.M. today, shower with a little thunder and lightning.
16, 10.7 A.M. Yesterday cloudy day and evening; lightning in the southeast and some thunder during the evening.
16, 11.0 P.M. Day somewhat cloudy, becoming more clear; evening mostly clear; no aurora seen.
18, 10.8 A.M. Yesterday rather clear and hot; thin clouds during first part of evening; no aurora seen.
18, 10.8 P.M. Day and evening mostly clear; no aurora seen.
19, 10.2 P.M. Day and early evening mostly clear; clouds later; no aurora seen.
20, 2 P.M. Gauge C 1 1/4 ounces, 0.110 inches; N.E. Met. Soc. gauge No. 31, 0.110 inches.

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June 1888

20, 10.1 P.M. Day cloudy with some rain, clearer towards night; evening mostly cloudy; clouds rather thin.

21, 10.5 P.M. Day rather cloudy with a little rain; evening rather cloudy, becoming cloudy.

23, 10.0 A.M. Yesterday sultry and rather cloudy day and evening.

24, 9.7 A.M. Yesterday hot and mostly clear; evening cloudy; thunder shower about 8 P.M.

25, 10.5 A.M. Yesterday cloudy day and evening.

25, 11.2 P.M. Day cloudy, becoming clear; no aurora seen.

27, 10.6 A.M. Yesterday cloudy day and evening, with some rain.

28, 10.5 A.M. Yesterday clear and cool; evening rather clear; no aurora seen.

29, 9.9 A.M. Yesterday cloudy day and evening.

30, 10.5 A.M. Yesterday mostly clear; no aurora seen.

July 1, 11.9 A.M. Yesterday mostly rather cloudy; thunder showers after 6 P.M.

Report to Signal Service, sent July 1, 1888.

Aurora — looked for every clear evening: June 3, irregular aurora, rather bright at about 9¼ P.M., faint at 11½ P.M.

Zodiacal light — not seen.

Thunder and lightning. June 6; lightning without thunder in the west during the evening; thunder shower about 11 P.M.; June 15; shower about 9¼ A.M., with a little thunder and lightning; lightning during the evening in the southeast, with some thunder; June 23; thunder shower about 8 P.M.; June 30; thunder showers after 6 P.M.

Usual report sent July 1, 1888, to the New England Meteorological Society; remarks as follows:

Observations made during the forenoon; average time 10 5/10 A.M. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society. Rainfall by gauge No. 31 of the N.E. Met. Society. Results corrected for error of gauge as given in the certificate received with the instrument. The gauge is nearly without protection against evaporation, and the results may on this account be too small.

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July 1888

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting	Maximum before and after setting		Rainfall in inches. Gauge C	Rainfall in inches. No. 31	Wind	Clouds	Date
1	11.9	29.896	64.2	61.1	55.2	60.3	76.0	61.0	0.375	0.352	3 NE	10 Pm M Fm	1
2	10.9	30.144	63.2	66.1	53.3	65.4	65.8	65.8	0.022	see p. 162 estimate 0.010	3 NE	0 M Fm	2
3													3
4	10.5	30.069	67.3	76.7	51.3	75.8	77.4	75.1			3 W	0	4
5	10.8	29.862	72.4	81.2	62.8	80.0	82.0	79.7			2 W	6 Pm R Rs Fm	5
6	10.2	29.917	71.0	72.3	66.2	71.3	84.3	72.0	0.022	0.010	4 NW	0 M Fm	6
7	10.3	29.743	71.3	79.2	62.8	78.2	78.8	78.2			3 W	0 M	7
8	10.9	29.916	69.2	69.2	61.0	68.1	84.7	69.0			3 NW	2 P R Rs Fm →	8
9	11.0	29.950	69.3	68.1	60.2	67.7	76.0	68.1			2 W	10 P	9
10	10.7	29.939	69.8	72.8	61.3	71.7	74.1	72.0			3 NE	6 P Fm →	10
11	10.6	29.772	69.1	75.5	57.3	74.4	76.1	74.1			3 SW	0 Fm haze	11
12	11.3	29.397	68.0	67.5	54.8	66.8	83.0	67.5	0.375	0.350	4 W	0 M Fm	12
13	11.3	29.628	67.0	68.3	55.1	67.6	75.0	68.0			4 W	6 P M Fm Fm →	13
14	10.0	29.954	66.8	71.2	56.7	70.1	70.3	70.3			1 NW	3 P R Rs M Fm →	14
15	10.7	30.086	68.0	72.7	56.9	71.3	78.5	71.8			1 N	0 P R Fm	15
16	10.8	30.175	68.0	70.1	53.4	69.1	77.1	69.6			3 NE	0 M Fm	16
17	11.2	30.270	66.2	73.5	52.2	72.3	72.3	72.0			2 E	0 M Fm	17
18	10.9	30.276	66.5	69.4	52.5	68.9	75.8	69.0			2 E	1 M Fm →	18
19	10.7	30.150	67.3	67.3	59.8	66.6	71.3	67.1			1 SE	10 Pm; a little rain	19
20	11.0	30.028	70.2	77.1	66.0	76.0	76.0	75.9	0.121	0.120	2 S	9 Pm M Fm /	20
21	10.5	30.151	71.0	73.9	64.9	72.7	80.0	73.0	0.320	0.299	2 S	7 P R Rs M Fm	21
22	11.4	30.108	72.0	67.3	66.0	66.1	79.2	67.3			2 E	10 P; raining	22
23	10.7	29.943	70.3	75.5	63.2	74.2	74.2	74.2	0.739	0.698	3 SW	0	23
24	10.8	29.942	73.8	75.1	63.0	73.9	[29.84.0 64.0]	77.2	0.607	0.618	3 NW	8 M FM RM	24
25	11.4	30.043	71.2	72.8	60.7	72.1	82.5	78.6	0.011		4 N	0 R. M.	25
26	9.9	30.044	69.5	73.5	57.6	72.3	72.9	72.2			2 NE	1 R. Rs. R.M.	26
27	10.0	30.062	70.4	63.3	62.6	62.6	72.9	63.4	0.055	0.043	2 NW	10 Pm. Rain	27
28	10.7	30.154	66.2	62.4	53.9	61.3	64.2	62.2	0.033	0.020	5 NE	9 Pm M Mist	28
29	10.2	30.220	65.3	65.3	56.0	64.7	65.0	65.0	0.022	0.003	2 N	6 M Fm	29
30	10.9	30.004	67.9	72.8	56.7	71.8	71.8	71.8	0.044	0.015	1 NW	0 R RM	30
31	10.2	29.962	73.9	75.9	63.8	74.6	79.4	75.2			4 SW	8 R RM M	31
32	10.76	29.9805	68.9	71.2	58.9		75.4		2.0746	2.538 Rainfall for month 2.54 ins.	79	26 122 41	

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July 1888.

Date	Hour P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2	8.4	30.166	66.5	60.7	0 calm	2 P Rs	Twilight and clouds	Twilight and clouds	None
3	8.2	30.161	71.0	67.8	1 S	1 Pm Rs Fm	Twilight	Twilight and clouds	None
4	8.1	29.972	73.9	71.4	3 S	0 Rs Fm	Twilight	Twilight	None
5	8.4	29.782	77.3	74.7	2 SW	2 Pm MRs Fm	Twilight	Twilight and clouds	None
6	8.1	29.913	74.2	72.5	1 SW	0	Twilight	Twilight	None
7	8.3	29.770	76.2	74.2	1 W	0 Pm MRs Fm	Twilight	Twilight	None
8	8.4	29.950	73.9	68.8	0 NW	6 P Fm \	Twilight and clouds	Twilight and clouds	None
9									Obsc.
10	8.1	29.893	73.2	67.5	1 SE	0 PRs haze	Twilight	Twilight	None
11									Obsc.
12	8.1	29.485	71.3	66.9	2 W	0 Pm Fm	Twilight	Twilight	None
13	8.8	29.847	69.8	66.0	2 W	6 Pm Fm \	Twilight and clouds	Twilight and clouds	None
14	8.2	30.023	73.8	70.3	0 calm	1 R M Fm	Twilight	Twilight	None
15									None
16	8.3	30.230	68.5	62.4	0 calm	3 P Fm	Twilight	Twilight	None
17	7.8	30.279	71.8	66.3	0 calm	1 P R Rs	Twilight	Twilight	None
18	8.5	30.184	67.0	63.0	0 calm	2 P Rs Fm	Moonlight and twilight	Moonlight and twilight	None
19									Obsc.
20									Obsc.
21									Obsc.
22									Obsc.
23	8.2	29.948	76.0	72.0	2 SW	1 Pm M Fm	Twilight	Twilight	None
24									None
25									None
26									Obsc.
27									Blank
28									Obsc.
29									Obsc.
30									None
31									Obsc.

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July, 1888

2, 10.9 A.M. Yesterday partly clear, cloudy towards night with a little rain. The water from N. E. Met. Soc. gauge No. 31 was returned to it yesterday after measurement, in order to note the effect of evaporation. This morning the gauge gives 0.332 (corrected 0.331) inches, and supposing 0.010 to have been added by the rain of yesterday, we have 0.031 for the loss by evaporation during a day. As the gauge may often stand for a third or a half of a day after a fall of rain before the water is measured, it is probable that the measurements give too small a rainfall.

4, 10.8 A.M. July 2 rather clear; evening somewhat cloudy; no aurora seen. Yesterday rather clear; some clouds part of the evening; no aurora seen.

4, 11.0 P.M. Day and evening mostly clear; no aurora seen.

5, 10.3 P.M. Day partly clear; a little rain towards night; evening partly cloudy; no aurora seen; lightning without thunder in the east.

6, 9.9 P.M. Day and evening clear; no aurora seen.

7, 11.0 P.M. Day partly cloudy; evening rather clear, with haze and clouds; no aurora seen.

9, 12.5 A.M. Yesterday rather clear; evening rather clear at times, with much haze and frequent clouds; no aurora seen.

10, 10.7 A.M. Yesterday mostly cloudy day and evening.

10, 11.5 P.M. Day rather cloudy becoming clear; no aurora seen.

12, 11.3 A.M. Yesterday mostly clear; evening cloudy, with rain; thunder showers about 11 P.M.

12, 11.4 P.M. Day and evening clear; no aurora seen.

13, 11.3 A.M. Water returned yesterday after measurement to N. E. Met. Soc. gauge No. 31; this morning it measures 0.282 inches uncorrected; loss by evaporation 0.07.

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July 1888

13, 10.1 P.M. Day mostly cloudy; evening rather cloudy; no aurora seen.

14, 11.0 P.M. Day and evening mostly rather clear; no aurora seen.

15, 11.6 P.M. Day rather clear; evening rather cloudy at first, clear later; no aurora seen.

16, 11.2 P.M. Day mostly clear; evening somewhat cloudy at first, becoming clear; no aurora seen.

17, 11.1 P.M. Day and evening rather clear; some thin clouds; no aurora seen.

18, 11.3 P.M. Day rather clear, cloudy towards night; evening partly clear, more cloudy after 10 P.M.; no aurora seen.

20, 11.0 A.M. Yesterday mostly cloudy day and evening; a little rain.

22, 11.4 A.M. Yesterday and day previous mostly cloudy; some showers.

23, 10.7 A.M. Yesterday cloudy day and evening, with rain.

23, 8.2 P.M. Heavy shower about 4 P.M., with a little thunder.

~~24~~ 23, 12.0 P. No aurora

24 12.0 PM No aurora.

25 Clear most of yesterday. Light shower about 3.30

26 1.0 AM No aurora. Clear yesterday, with a few clouds toward evening

27 Clear. Cloudy at night

29, 10.2 A.M. Yesterday cloudy day and evening, with a little rain.

29 11.0 PM No aurora; somewhat cloudy.

30 11 A M Cloudy yesterday Rain for about 30 min. at 8 PM. Thunder and heat lightning.

30 11 PM No aurora; haze.

31 4 PM Clear yesterday. no rain Quite high wind today. (4 PM)

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Report to Signal Service, sent

Aurora looked for every clear evening; none seen

Zodiacal light not seen.

Thunder and lightning. July 5 evening, lightning without thunder in the east.

July 11. Thunder showers about 11 P.M.

July 23. Heavy shower about 4 P.M. with a little thunder.

July 29, 10 P.M., distant thunder, with rain previously, and heat lightning afterwards; wind from (about) north west.

Usual report sent to the New England Meteorological Society; remarks as follows:

Observations made during the forenoon; average time 10 8/10 A.M.

Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

Rainfall by gauge No. 31 of the N. E. Met. Society. Results corrected for error of gauge as given in the certificate received with the instrument. Experiments with regard to evaporation from this gauge as follows: loss during one day ending about 11 A.M. July 2, cloudy and damp, 0.031 inches; loss during one day ending July 13, about 11 A.M., clear and windy, 0.068 inches; hence it is evident that gauges of this form are not well adapted for use at stations where they cannot be examined very soon after each fall of rain.

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July 1888

Observers: A. Searle July 1 to 22 inclusive; also July 23, 8.2 P.M., and July 29, 10.2 A.M.; A. Tracy, observations during A.M. July 23, 24, 25, 26, 27, 28, 30, 31; R. W. Gifford, notes July 23 (midnight), 24, 26, 29, 30 (11 P.M.)

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August 1888

Day	Hour A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Rainfall in inches Gauge C	Rainfall in inches No. 31	Wind	Clouds
1	10.2	29.961	72.3	67.0	63.2	66.0	79.9	67.2	0.342	0.319	3 NE	7 R RM. M FM
2	11.1	29.983	69.8	76.8	58.1	75.8	76.0	75.5			2 NW	2 M
3	10.1	30.014	71.8	74.4	62.3	73.0	82.0	73.3			1 NW	0 haze
4	10.0	29.832	71.1	74.0	63.8	72.5	82.2	73.1			4 SW	9 PM RM
5												
6	10.1	29.983	73.0	65.4	63.3	64.0	85.3	66.1	0.055	0.038	2 NE	10 PM Drizzling Rain
7	10.3	29.941	67.1	63.1	58.8	62.3	66.3	69.2	1.026	1.017	2 NE	10 PM
8	10.5	30.052	68.1	66.8	59.5	65.3	68.2	66.7			2 SE	10 PM
9	10.4	29.981	70.4	76.1	65.4	75.3	75.8	75.1			3 SW	8 PM (top / bottom) FM R S
10	10.4	30.204	70.7	71.2	61.0	70.0	83.4	70.5			3 N	3 FM R.
11	11.5	30.334	69.0	70.8	54.5	69.6	77.1	70.4			2 SE	3 FM R S P
12												
13	10.3	29.871	66.3	62.7	58.7	61.8	72.1	63.0	1.688	1.675	4 SE	9 P FM (Bottom M / top M)
14	10.2	29.973	65.1	65.3	55.8	64.2	71.6	65.0	0.055	0.379	5 NW	8 PM
15	9.9	30.084	66.5	70.1	56.3	68.9	72.3	69.1			3 SW	5 FM M
16	10.3	29.991	72.0	78.3	67.4	76.7	78.7	76.4	0.066	0.050	2 SW	7 FM M RM
17	10.3	29.942	78.0	83.0	74.9	81.5	83.1	81.9			1 SW	9 PM
18	10.3	29.982	75.1	76.0	68.1	74.8	84.9	75.4	0.430	0.419	2 W (NW)	2 RM R & R
19												
20	12.4	30.026	72.7	72.0	62.0	70.8	79.0	72.9	See p. 169. 3.150	3.253	2 E.S.E.	7 Fm. R S.
21												
22												
23	9.2	30.004	62.2	59.7	52.0	58.9	74.3	60.9	0	0	4 N.W.	1 Fm.
24	9.2	29.912	65.2	71.2	56.0	70.1	70.4	70.4	0	0	2 W.	2 Pm. R S.
25	9.1	29.926	71.4	73.9	66.1	72.9	72.4	73.9	0	0	1 N.N.W.	1 R S.
26	9.6	29.970	71.2	73.3	62.5	72.2	80.6	72.9	0	0	1 S.W.	3 R S.
27	9.0	29.840	73.1	76.1	67.9	75.0	81.7	75.4	0	0	2 N.W.	7 Pm. Fm.
28	11.0	29.899	64.5	62.1	52.0	61.3	78.2	62.0			3 N	2 M Fm
29	10.5	29.880	64.0	67.0	50.8	65.7	66.1	66.1			2 SW	0 Fm
30	10.5	29.905	66.6	72.3	55.3	71.2	71.8	71.1			3 SW	0 haze
31	11.3	29.982	70.4	77.9	61.2	76.4	78.4	76.4			3 S	8 R R S M Fm
	58	749.518	17363	17745	15149		19096		6.762	7.150	63	126
	10.2	29.981	69.4	71.0	60.6		76.4			Rainfall for month 7.15 in.	2.5	5.0
		29.881										

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August 1888

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									None
2									None
3									Obsc.
4									Obsc.
5									Obsc.
6									Obsc.
7									Obsc.
8									Obsc.
9									Blank
10									None
11									Blank
12									Blank
13									None
14									Blank
15									Blank
16									Obsc.
17									Blank
18									Obsc.
19									Blank
20									Blank
21									Blank
22									Blank
23									None
24	9.7	29.900	74.0	71.1	2 S.W.	9 Pr. Cu. Sm.	Twilight + moon	Twilight + moon	Obsc.
25	9.9	29.964	74.0	71.3	2 S.W.	2 Cu.	None seen.	None seen.	None
26									None
27									None
28	8.2	29.934	66.0	59.7	2 N	10 Pm 7m →	Cloudy	Cloudy	None
29	8.0	29.894	70.1	64.2	1 S	0 haze	None	None	None
30	8.1	29.964	73.5	71.1	2 S	0 haze	None	None	None
31	8.3	29.970	74.0	70.0	2 S	10 Pm Sm	Cloudy	Cloudy	Obsc.

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August 1888

August 1 Yesterday, cloudy; high wind towards evening Rain commenced at about 7.15 P.M. Heaviest fall about 11 P.M.

" 2 10 A.M. No rain, Cloudy yesterday, clearer towards night

" 3 10 A.M. Clear yesterday no rain.

" 4 No rain yesterday.

" 5

" 6 No rain yesterday. Cloudy

" 7 10 A.M. Rainy all day yesterday.

" 8 Cloudy yesterday

" 9 " " No rain

" 10 No rain yesterday Very hot.

" 11 " " Very clear last night

" 12

" 13 10.35 A.M. Rainy part of yesterday cloudy all day. Heavy rain today clearing up at present time

" 14 Rainy yesterday

" 15 a little cloudy, but clearer at evening yesterday.

" 16 No rain.

" 17 Cloudy most of the day yesterday with a few drops of rain in the evening

" 18 Heavy showers yesterday afternoon and evening. Rather faint heat lightning in S W last night

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August, 1888

Aug. 1, 11.0 P. No aurora.
August 2, 10.2 P.M. No aurora. Haze.
August 3, 11.0 P. No aurora. Thick haze.
" 4 10.5 P. No aurora. Clouds and distant lightning
" 5 11.5 P. No aurora. Cloudy. Slight rain.
" 6 9.0 P. No aurora. Cloudy. Rain early in P.M.
" 7 11.0 P No aurora. Cloudy.
" 8 11.0 P No aurora. Cloudy.
" 10 12.0 P No aurora. Unusually clear.
" 13 10.0 P No aurora. Partially cloudy.
" 16 11.0 P No aurora. Cirri, and a low stratum of cumuli
" 18 11.0 P No aurora. Clouds and moon.
" 19. 0.4 P.m. A few drops in gauge – probably left from previous rain.

Aug. 22, 12.5 P.M. Rainfall; Gauge C 3 5/8 ounces
3.100 inches; N.E. Met. Soc. gauge No. 31
3.263 inches uncorrected, 3.253 corrected.
Yesterday cloudy with a little rain; heavy rain in the evening and during the night.

Aug. 24. 9.2 A.M.] yesterday quite cool, with some clouds especially during latter part of day and in portions of evening. Yr.
No aurora seen.

Aug. 24. 9.7 P.M.] Day a little warmer than yesterday. Rather warm in afternoon. Clouds coming from northwest during latter part of day, and increasing in density towards evening. Yr.

Aug. 25. 10.0 P.M.] Day rather warm – cooler towards evening. Yr.
No aurora seen.

Aug. 27. 9.0 A.M.] Yesterday quite warm during day. Considerably cooler towards evening. No aurora seen. Y.

Aug. 28, 1 P.M. Yesterday warm and partly cloudy; evening rather clear; no aurora seen.

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August, 1888.

On August 13, the rain fell in showers on Saturday and Sunday as no record was taken on Sunday

August 18, the indications of the weather were Rapid rounds by changing from W to N W

On Aug. 9 and 13 the wind was two day cur of clouds and Cirrus-stratus the day was the south by the wind top and the day was fair

" " by " bottom

When Cirrus indicated the direction of the motion of the clouds, Stratus the lowest the heaviest moving towards the wind from the direction of the wind in the morning clouds. the direction of the wind in the morning clouds. top

Thus on Aug. 9, the clouds were moving N.

29, 10.5 A.M. Yesterday somewhat cloudy and cool; clear after 9 P.M.; moon was seen.
29, 11.1 P.M. Day and evening rather clear and warm; no aurora seen
30, 11.1 P.M. Day and evening rather clear and warm; no aurora seen.
31, 11.1 P.M. Day rather hot, becoming cloudy; evening mostly cloudy.

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August- 1888.

Observers: A. Tracy, Aug. 1 to 18 inclusive, notes on p. 168, and notes pasted on p. 170; O. C. Wendell, Aug. 20 to 27 inclusive (p. 166); Aug. 24, 25 (p. 167); Aug. 19, 24, 25, 27, (p. 169); R. W. Gifford, Aug. 1 to 18 inclusive (p. 169); A. Searle, Aug. 28 to 31 inclusive (p. 166); Aug. 28 to 31 inclusive (p. 167); Aug. 22, 28 (p. 169); Aug. 29, 30, 31, (p. 170).

Report to Signal Service, sent Sept. 1, 1888.

Aurora. looked for every clear evening (but condition of sky not reported Aug. 9, 11, 12, 14, 15, 17, 19, 20, 21, 22); none seen.

Zodiacal light. not seen.

Lightning. without thunder Aug. 4, 10½ P.M., and Aug. 17, evening.

Stationery. Please send more envelopes; there are sixteen more blanks here, but only two more envelopes, which are marked "Records Division."

Usual report sent Sept. 1, 1888, to the New England Meteorological Society; remarks as follows:

Observations made during the forenoon; average time 10 2/10 A.M.

Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

Rainfall by gauge No. 31, of the N. E. Met. Society. See remarks for July 1888.

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September 1888

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting	Maximum before and after setting		Rainfall in inches Gauge C	Rainfall in inches No. 31	Wind	Clouds	Date
1	10.9	29.740	71.8	55.8	67.2	74.3	79.0	74.8	0.121	0.105	2 SW	10 Pm Fm	1
2	10.7	30.047	70.9	69.3	65.1	68.4	75.3	69.0	0.011	Insf.	3 NW	1 M Fm	2
3	10.8	30.308	68.0	67.1	54.1	66.0	72.8	66.5			3 SE	4 Pr R Rs Fm	3
4	11.1	30.161	68.2	65.8	59.9	64.9	68.5	65.8	0.011	0.002	2 SE	10 Pm M Fm	4
5	10.5	30.048	67.2	71.4	57.7	70.3	70.7	70.6	0.011	Insf.	3 NW	9 Pm M Fm	5
6	11.0	30.500	59.1	52.2	42.2	51.6	Wet	53.0			3 NE	5 P Rs M Fm / Fm	6
7	10.9	30.636	56.2	56.6	38.8	55.9	56.5	56.4			3 E	1 P Fm	7
8	10.9	30.199	60.0	67.7	48.2	66.5	67.0	66.1			3 S	10 Pm Fm	8
9	10.3	30.014	66.6	71.2	65.7	70.2	73.0	70.1	0.772	0.768	2 SW	10 Pm	9
10	10.5	29.879	68.4	72.7	65.0	72.0	72.7	72.0	0.574	0.570	2 NW	4 M Fm	10
11	10.8	30.188	65.0	67.4	53.3	66.2	75.4	66.7			2 E	6 P R Rs	11
12	10.5	29.845	64.3	60.0	57.4	59.0	68.0	60.0	Sec 1, 174		2 N	10 Pm ; fine rain	12
13	11.1	29.884	66.8	66.7	58.7	65.6	66.0	66.0	0.717	0.668	3 W	2 M Fm Rs haze	13
14	10.5	30.098	59.1	58.4	44.4	57.8	67.9	58.5			3 NW	0	14
15	10.6	30.283	61.0	61.5	46.8	60.9	66.2	61.1			1 E	0	15
16	10.4	30.240	62.1	65.2	Lost	64.1	65.2	64.3			2 SE	9 Pm Fm Rs	16
17	10.2	30.026	67.3	72.7	63.3	71.3	72.1	71.8	0.110	0.108	1 SW	10 Pm	17
18	10.6	30.068	65.3	60.5	57.2	59.9	74.9	60.3	1.721	1.723	2 NE	10 Pm	18
19	10.6	30.149	61.2	57.7	53.0	56.5	61.5	57.7	0.044	0.037	1 NE	10 Pm	19
20	10.7	30.151	62.0	60.5	55.7	59.8	61.0	60.1	Insf.	Insf.	1 SE	10 Pm	20
21	10.5	30.010	61.9	57.5	56.2	56.2	62.0	58.0	0.276	0.258	2 E	10 Pm	21
22	11.2	30.022	59.9	57.5	52.5	56.5	58.1	57.7	0.805	0.778	3 N	8 Pm Fm / Fm	22
23	9.9	30.122	59.0	55.7	50.6	54.6	60.4	56.0	0.011	Insf.	3 N	10 Pm Fm	23
24	10.4	30.207	58.0	55.6	46.4	54.7	56.0	55.8	0.011	Insf.	3 NE	3 M Fm	24
25	10.5	30.054	54.4	52.8	37.1	51.9	57.0	53.1	Insf.	Insf.	2 E	9 P	25
26	10.8	29.294	55.8	45.5	44.6	44.6	57.2	46.2	Sec. 176 2.714	2.819	6 N	10 P, raining	26
27	10.5	29.725	60.1	63.2	44.0	62.3	62.0	62.0			3 S	0 Fm haze	27
28	10.6	29.868	59.3	56.8	52.5	56.0	68.0	56.8			2 NW	9 Pr R Rs Pm M Fm	28
29	10.3	29.984	53.3	48.8	37.0	47.9	60.0	49.0	0.022	Insf.	2 W	1 M Fm	29
30	11.2	29.926	50.8	47.5	32.0	46.9	52.0	47.5			2 W	1 Rs M Fm	30
	195	901.676	18630	18413	15088		19064		7.931	7.836	72	192	
	10.6	30.056 −.090 29.966	62.1	61.4	52.0		63.5			Rainfall for month 7.84 in.	2.4	6.4	

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September 1888

Date	Time P.M.	Barometer	Attached Thermometer	No. 41	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	8.9	29.897	72.8	68.9	0 calm	9 Pm Fm	Cloudy	Cloudy	Obsc.
2	8.3	30.154	73.8	63.6	0 calm	0	None	None	None
3	8.7	30.250	69.1	62.2	0 calm	8 P	Cloudy	Cloudy	Obsc.
4	8.5	30.038	67.2	59.4	0 calm	10 Pm	Cloudy	Cloudy	Obsc.
5	8.2	30.250	64.9	55.9	3 N	0	None	None	None
6	8.2	30.531	57.1	48.2	0 calm	0	None	None	None
7	8.2	30.546	61.1	52.3	1 NW	1 P haze	None	None; some clouds	None
8									Obsc.
9									Obsc.
10	8.0	30.056	70.0	66.0	1 W	2 PRs	Cloudy	None; some clouds	None
11									Obsc.
12	8.4	29.834	65.8	63.5	1 S	0 Fm	Moonlight	Moonlight	None
13	8.2	29.955	63.9	56.3	0 W	0	Moonlight	Moonlight	None
14	8.2	30.158	63.7	58.1	1 S	0	Moonlight	Moonlight	None
15	8.2	30.299	64.8	57.2	0 calm	1 Rs haze	Moonlight and clouds	Moonlight and clouds	None
16									Obsc.
17									Obsc.
18									Obsc.
19									Obsc.
20									Obsc.
21									Obsc.
22									Obsc.
23									Obsc.
24	8.2	30.179	57.5	49.2	0 calm	0	None	None	None
25									Obsc.
26	8.2	29.550	56.5	54.0	1 S	0	None	None	None
27	8.2	29.815	64.2	59.4	2 S	0 haze	None	None	None
28	8.1	29.958	60.0	51.2	0 E	8 Pm Fm	Cloudy	Cloudy	None
29	8.2	29.995	53.4	42.0	0 calm	0	None	None	None
30	9.0	29.920	54.0	42.8	0 NW	0 P	None	None	None

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September, 1888.

1, 11.0 P.M. Day and evening warm and cloudy; a little rain early.

2, 10.7 P.M. Day and evening mostly clear and warm; no aurora seen.

3, 11.5 P.M. Day rather clear; evening rather cloudy.

5, 10.5 A.M. Yesterday cloudy day and evening, with a few drops of rain.

5, 11.9 P.M. Day cloudy, becoming clear and cool; no aurora seen.

6, 11.2 P.M. Day and evening mostly clear and cool; no aurora seen.

7, 11.5 P.M. Day clear and cool, becoming cloudy during the evening; no aurora seen.

9, 10.3 A.M. Yesterday cloudy and warm day and evening, with some rain.

10, 10.5 A.M. Yesterday cloudy and warm day and evening with some rain.

10, 10.7 P.M. Day mostly rather clear and warm; evening rather cloudy, becoming somewhat clear; no aurora seen.

12, 10.5 A.M. Yesterday mostly rather clear; evening cloudy.

12, 2.2 P.M. Gauge C $7\frac{3}{8}$ ounces, 0.651 inches; N.E. Met. Soc. gauge No. 31 0.620 inches uncorrected, 0.618 corrected.

12, 11.2 P.M. Day cloudy with a little rain, clear towards night; no aurora seen.

13, 11.1 A.M. Gauge C $0\frac{3}{4}$ ounces, 0.066 inches; N.E. Met. Soc. gauge No. 31 0.050 inches. Total by gauge C 0.717 inches; by No. 31, 0.668 inches.

On the evening of Sept. 10, the phenomenon called "Sternschwanken" (A.N. XXXVIII, 371 and CXIX, 143) was noticed. A. Searle saw an apparently moving light near the northeastern horizon which he took for a large meteor and afterwards for a fire balloon at a distance. It proved to be the star Capella, seen over a dark indefinite horizon at a small altitude. The motion was irregular, rather more from side to side than up and down, but agreeing in general with the published accounts above mentioned. When small stars near Capella became visible the motion ceased but reappeared

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when they were again obscured by haze.
W. P. Gerrish saw similar appearances, when his attention was called to the star. Repeated experiment showed that the directions of the apparent movements seen at a given moment by the two observers did not usually agree. The phenomenon appears to be subjective, and due to the want of sufficiently distinct points of reference to fix the eye. Hence it is probably not seen when the star observed is high enough above the horizon for a number of other stars to be easily taken into the same field of view. When the horizon is distinct, but presents few definite points of reference, it is natural that the movement from side to side should appear, but not the movement up and down.

13, 10.6 P.M. Day partly cloudy; evening clear; no aurora seen.
14, 11.1 P.M. Day and evening clear; no aurora seen.
15, 11.0 P.M. Day mostly clear; much thin cloud in the evening; no aurora seen.
17, 10.2 A.M. Yesterday mostly cloudy; a little rain in the evening.
18, 10.6 A.M. Yesterday cloudy day and evening, with some rain; more rain during the night.
19, 10.6 A.M. Yesterday cloudy day and evening, with a little rain.
20, 10.7 A.M. Yesterday cloudy day and evening.
21, 10.5 A.M. Yesterday cloudy day and evening; rain during the night.
21, 10.5 P.M. Day and evening cloudy with some rain; thunder shower about noon.
23, 9.9 A.M. Yesterday cloudy day and evening; partly clear about 10½ P.M.
24, 11.4 A.M. Yesterday cloudy day and evening with a few drops of rain.

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September, 1888.

24, 10.8 P.M. Day clear and cool: evening at first clear becoming foggy. About 6.8 P.M. Capella was near the horizon. On first looking at it, it appeared steady; but it soon began to exhibit "Sternschwanken" as on Sept. 10. Mr. Tracy saw the movement also; comparative observations as on Sept. 10, showed that the observers did not agree as to the apparent direction of the movement at given times.

26, 10.8 A.M. Yesterday cloudy day and evening. Northerly gale and heavy rain this morning.

26, 11.9 A.M. Rain ceasing; it was small after 11 A.M.; gauge 6 30 3/4 ounces, 2.714 inches; N. E. Met. Soc. gauge No. 31 2.827 inches uncorrected, ~~2.812~~ 2.819 corrected.

26, 10.9 P.M. Afternoon becoming clear; evening clear; no aurora seen.

27, 11.2 A.M. Day and evening clear and warm; no aurora seen; rather cloudy now.

28, 11.4 P.M. Day cloudy with a little rain, becoming clear; evening mostly clear; no aurora seen.

29, 11.6 P.M. Day partly cloudy; evening clear; no aurora seen.

30, 10.2 P.M. Day and evening somewhat clear with clouds at times; no aurora seen.

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Report to Signal Service, sent Oct. 1, 1888.

Aurora looked for every clear evening; none seen.

Zodiacal light not seen.

Thunder and lightning, with rain, about noon Sept. 21.

Frost. Minimum thermometer at the freezing point on the night following Sept. 29.

Usual report sent Oct. 1, 1888, to the New England Meteorological Society; remarks as follows:

Observations made during the forenoon; average time $10\frac{6}{10}$ A.M.

Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

Rainfall by gauge No. 31 of the N. E. Met. Society. See remarks for July, 1888.

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October 1888

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting	Maximum before and after setting	Rainfall in inches. Gauge C.	No. 31	Wind	Clouds	Date
1	10.5	29.819	49.3	46.9	32.3 45.8	50.5 47.1		~~0.419~~	2 SE	10 Pm Fm →	1
2	10.8	29.449	54.6	56.0	45.7 55.1	55.7 55.7	0.519 Sept.	0.499 180	2 N	9 Pm Fm /	2
3	10.7	29.692	51.4	45.4	39.5 44.8	60.1 45.9	0.419	0.413	3 NW	10 Pm Fm	3
4	10.9	30.032	49.2	44.2	32.0 43.4	48.3 45.0			3 W	0 R R	4
5	10.9	29.979	53.0	59.4	43.1 58.5	59.0 58.8			3 SW	5 P Rs M Fm	5
6	10.5	29.976	58.0	57.1	53.4 56.0	63.4 57.0	0.022	0.017	0 calm	10 Pm	6
7	10.3	29.502	59.3	60.9	51.2 60.0	61.1 60.2	0.816	0.780	2 SE	10 Pm	7
8	10.1	29.280	55.4	54.7	48.8 54.1	61.9 55.0	0.408	0.409	3 NW	7 R R Pm Fm →	8
9	10.7	29.548	50.2	~~42.5~~ 44.0	40.0 41.8	58.0 42.8			3 NW	10 Pm M Fm Rs.	9
10	~~10.7~~	~~29.916~~	~~47.4~~	~~47.8~~	~~30.7~~	~~47.0~~	~~47.5~~	~~47.5~~	~~2 NW~~	~~0 P Fm~~	10
11	10.7	29.916	47.4	47.8	30.7 47.0	47.0 47.5			2 NW	0 P Fm	11
12	11.0	29.862	50.9	49.8	38.8 49.0	53.2 49.0			3 E	10 Pm; a little rain	12
13	10.8	29.662	52.3	51.3	46.5 50.3	51.0 51.0	0.265	0.259	2 W	10 Pm	13
14	11.4	29.827	47.0	40.1	37.9 39.2	53.2 40.5	0.110	0.089	3 N	10 Pm	14
15	10.3	29.943	46.0	44.4	34.0 43.4	44.0 44.0			2 NW	0 Rs Fm	15
16	10.7	30.024	47.1	53.6	35.0 52.5	52.9 52.5			2 S	10 Pm Fm M	16
17	10.7	29.903	51.2	55.0	45.0 53.9	55.0 54.4	0.044	0.028	2 SE	9 Pm Fm /	17
18	10.7	29.976	50.9	49.4	40.0 48.5	57.1 49.9	0.232	0.211	3 NW	1 M Fm	18
19	10.5	30.038	47.8	46.6	34.0 45.3	51.1 46.1			1 S	9 P	19
20	10.5	29.618	49.4	48.9	43.8 48.0	49.9 48.8	0.474	0.460	2 W	10 Pm	20
21	10.3	29.876	47.2	45.2	36.0 44.5	54.0 45.3			3 W	9 Pm M Fm →	21
22	10.5	30.157	43.0	42.5	31.1 41.5	47.2 42.4			3 NW	8 P Fm	22
23	10.4	30.030	45.3	49.2	34.1 48.1	48.5 48.7			2 SW	10 Rn	23
24	10.9	29.608	49.7	48.8	46.2 47.8	54.1 48.9			0 E	10 Pm; raining	24
25	10.9	30.070	47.0	47.1	38.0 46.2	49.0 47.1	0.982	0.964	3 NW	1 M Fm →	25
26	10.0	30.450	47.1	44.3	32.6 43.3	50.7 44.4			2 NE	8 M Fm /	26
27	10.5	30.295	49.9	50.7	42.2 49.7	50.3 50.3	0.053	0.040	2 E	10 Pm	27
28	10.4	29.795	57.3	61.5	49.5 60.6	61.0 60.9	0.452	0.449	1 S	10 Pm	28
29	10.3	29.679	56.4	47.1	40.5 46.1	62.0 47.2	0.077	0.061	4 W	9 R R M Fm	29
30	10.5	30.005	48.1	41.3	36.0 40.3	49.3 42.0			3 N	3 R Rs M Fm	30
31	10.8	30.241	46.2	47.9	32.6 47.1	48.0 48.0			3 SW	4 R R Rs Fm	31
	186	896254	1541.6	1479.6	1140.5	1606.5	4.875	4.679	69	222	
	10.6	29.875	51.4	49.3	39.7	53.6		Rainfall for month 4.554	2.3	7.4	
		29.866									

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October 1888

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1									Obsc.
2	8.6	29.600	57.8	49.1	1 S	4 P Fm	None	None; some clouds	None
3	8.1	29.856	53.3	40.9	1 W	1 Rs Fm	None	None	None
4									Obsc.
5	8.5	29.997	58.0	56.0	2 S	4 P haze	Hazy	Hazy	None
6									Obsc.
7									Obsc.
8	8.0	29.354	55.8	47.2	2 W	0 Fm	None	None	None
9									Obsc.
10									None
11	8.1	29.912	52.0	44.4	0 NE	5 Pm Fm 1	Moonlight and clouds	Moonlight	Aurora
12									Obsc.
13									Obsc.
14									Obsc.
15	8.0	29.976	60.9	41.4	0 calm	6 Pm Fm Rs	Moonlight and clouds	Moonlight and clouds	None
16									Obsc.
17	8.2	29.890	52.0	44.4	2 W	1 Pm	Moonlight	Moonlight	None
18	8.1	30.066	52.0	41.4	2 W	0	Moonlight	Moonlight	None
19									Obsc.
20									Obsc.
21	8.1	30.072	46.1	35.6	3 NW	1 Pm Fm	Moonlight	Moonlight	None
22									Obsc.
23									Obsc.
24	8.0	29.808	48.8	42.7	1 SW	0	Suspected	None	None
25	8.2	30.280	50.4	42.1	0 N	0	Suspected	None	None
26									Obsc.
27									Obsc.
28									Obsc.
29	8.0	29.746	52.0	44.1	2 SW	1 Pm Fm	Cloudy	None	None
30	8.1	30.214	45.9	35.9	1 NE	4 P haze	Cloudy	None	Suspected
31	8.1	30.120	52.1	50.0	3 SW	0 Rs haze	Suspected	None	None

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October, 1888

2, 10.8 A.M. Yesterday cloudy with a little rain; more rain in the evening.

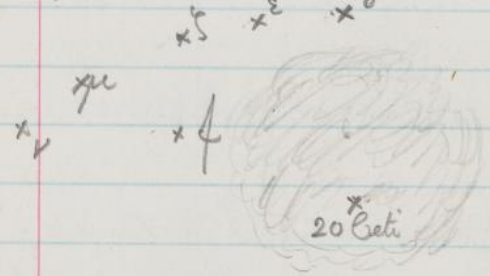
2, 5.0 P.M. Day cloudy; heavy shower about 4 P.M. with a little thunder; a little thunder also yesterday evening. Gauge C now $4\frac{3}{4}$ ounces, 0.419 inches; N. E. Met. Soc. gauge No. 31 0.414 inches uncorrected, 0.413 corrected.

2, 11.3 P.M. Evening becoming rather clear; no aurora seen.

3, 10.7 A.M. No additional rainfall since 5 P.M. yesterday.

3, 11.4 P.M. Day cloudy with a few drops of rain; evening clear; no aurora seen.

3, 11.5 P.M. Gegenschein strongly suspected as a decided reinforcement of the usual band from the Pleiades; nearly circular; centre $\frac{1}{3}$ of the way from 20 Ceti to δ Piscium



20 Ceti	$0^h\ 46^m.9$	$-1°\ 48'$
δ Piscium	0 42.5	+6 5 ~~6~~
		+1 8
Gegenschein	0 45.4	~~+0 52~~

5, 10.9 A.M. Yesterday clear, becoming cloudy early in the evening.

5, 9.8 P.M. Day rather clear; evening hazy, at times cloudy; no aurora seen.

7, 10.4 A.M. Yesterday cloudy day and evening with showers, sometimes heavy; raining again at present.

8, 10.1 A.M. Yesterday cloudy day and evening, with some rain.

8, 10.3 P.M. Day cloudy, becoming clear; evening clear, becoming cloudy; no aurora seen.

9, 10.0 P.M. Day cloudy and rather cold, with a few snowflakes about 4 P.M.; evening rather cloudy, somewhat clear at times.

11, 10.7 A.M. Yesterday cloudy, evening clear; no aurora seen.

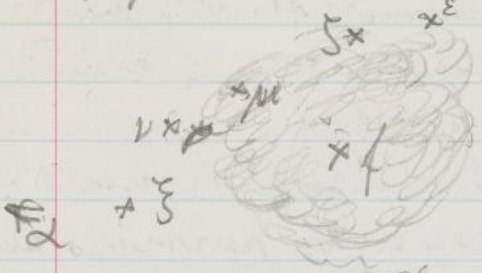
11, 11.4 P.M. Day clear, becoming cloudy; evening cloudy becoming clear; no aurora seen.

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October, 1888.

11, 11.6 P.M. Gegenschein suspected; centre about α Piscium.
$1^h\ 11^m\ 6^s$ $+2°\ 59'$



The region where it was suspected Oct. 3 does not now seem a particularly bright part of the usual band

The Pleiades.

Light, probably auroral, now visible near northern horizon.

12, 11.0 A.M. Some streamers visible soon after last entry.
13, 10.8 A.M. Yesterday cloudy day and evening, with a little rain.
14, 11.4 A.M. Yesterday cloudy day and evening, with a little rain.
15, 10.5 A.M. Yesterday mostly cloudy day and evening.
15, 11.6 P.M. Day mostly clear; cloudy at times in the evening; no aurora seen; now rather cloudy.
17, 10.7 A.M. Yesterday cloudy day and evening, with a little rain.
17, 11.0 P.M. Day cloudy with some rain; evening mostly clear; no aurora seen.
18, 11.0 P.M. Day and evening clear; no aurora seen.
20, 10.5 A.M. Yesterday cloudy with a few drops of rain; more rain in the evening.
21, 10.5 A.M. Yesterday cloudy morning and evening; clear part of the day.
21, 11.2 P.M. Day partly cloudy; evening mostly clear; no aurora seen.
23, 10.4 A.M. Yesterday partly clear; evening cloudy.
24, 10.9 A.M. Yesterday cloudy day and evening.
24, 3.5 P.M. Gauge C 11 ounces, 0.971 inches; N.E. Met. Soc. gauge No. 31 0.965 inches uncorrected, 0.962 corrected.
24, 11.0 P.M. Day cloudy with rain, clear towards night; frequent clouds in the evening; no aurora seen.
25, 10.9 A.M. Yesterday afternoon a few drops of rain after 3½ P.M.; gauge C now 0½ ounces, 0.011 inches; N.E. Met. Soc. gauge No. 31 0.002 ounces; total amounts 0.982, 0.964.
25, 11.3 P.M. Day and evening clear; no aurora seen.
27, 10.5 A.M. Yesterday rather cloudy; evening cloudy

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October, 1888.

28, 10.8 A.M. Yesterday cloudy day and evening, with a little rain.

29, 10.3 A.M. Yesterday cloudy day and evening, with a little rain.

29, 11.3 P.M. Day somewhat cloudy and windy; evening rather cloudy, becoming clear; no aurora seen.

30, 11.5 P.M. Day mostly clear; evening rather clear at times, with frequent clouds and haze; light, perhaps auroral, now visible over and among clouds in the north especially & the northwest.

31, 11.2 P.M. Day rather clear and warm; evening rather clear with frequent clouds and haze; no aurora seen.

Report to Signal Service, sent Nov. 1, 1888.

Aurora looked for every clear evening; results as follows:

Oct. 11, about 11½ P.M.; auroral light near northern horizon; streamers seen a little later.

Oct. 30, 11½ P.M.; light, perhaps auroral, visible over and among clouds in the north, especially to the northwest.

Zodiacal light suspected Oct. 24, 25, 31.

Thunder heard evening of Oct. 1 and during a heavy shower about 4 P.M. Oct. 2.

Frost. Minimum thermometer at freezing point morning of Oct. 4; below freezing point mornings of Oct. 11 and 22.

A few snowflakes in the afternoon of Oct. 9.

Usual report sent Nov. 1, 1888, to the New England Meteorological Society; remarks as follows:

Observations made during the forenoon; average time 10 6/10 A.M.

Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

Rainfall by gauge No. 31 of the N. E. Met. Society.

See remarks for July, 1888.

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November 1888

Day	Time P.M.	Barometer	Attached thermometer	No. 41	Minimum before and after setting	Maximum before and after setting	Rainfall in inches. Gauge C	Rainfall in inches. No. 31	Wind	Clouds	Date
1	11.1	30.217	54.0	58.5	46.7	57.6	58.1	58.0		2 SW	1 P Rs Fm	1
2	10.5	30.108	58.0	61.7	52.0	60.8	66.2	61.1		3 SW	2 Rz R Rs	2
3	10.6	29.710	62.1	66.4	59.3	65.3	66.4	66.0		2 SW	8 Rm Fm 1	3
4	11.6	30.132	53.5	50.4	41.0	49.8	66.1	51.0	0.110	0.059	2 NW	0 Fm	4
5	10.2	30.250	51.3	55.3	39.9	54.2	55.1	55.0			3 SW	8 Rz R Rs Fm	5
6	10.8	29.948	61.7	65.9	51.7	65.0	65.5	65.7			3 SW	5 Rm Rm R Fm 11	6
7	10.5	30.042	60.0	55.2	52.5	54.2	67.9	56.0			3 NW	5 M Fm	7
8	10.5	30.450	49.1	44.3	45.3	43.4	56.1	45.2			2 NE	10 Rm	8
9	10.7	29.872	54.0	53.3	43.4	52.2	52.8	53.0	see p. 187		1 SW	10 Rm; raining	9
10	10.9	29.750	53.9	47.3	44.1	46.5	62.5	48.0	0.850	0.833	2 NE	10 Rm; mist	10
11	11.2	29.568	53.2	47.1	42.4	46.2	49.5	48.0	0.673	0.654	4 W	8 Rm M Fm 1	11
12	10.6	30.028	49.0	46.1	34.2	45.3	48.8	46.8			3 NW	2 M Fm	12
13	11.0	30.504	41.0	33.8	25.1	33.0	48.8	34.8			1 W	0 R Rs	13
14	10.9	30.312	52.0	53.8	33.0	53.0	53.8	53.9			3 SW	0 Rs Fm	14
15	10.9	30.013	49.2	47.9	41.8	47.0	58.1	48.2			0 calm	10 Rm; fog; raining	15
16	10.5	29.715	51.4	52.9	44.9	52.1	53.0	53.0	0.750	0.786	2 S	0 Rs Rm Fm	16
17	10.9	30.176	47.6	40.8	31.0	40.1	60.3	42.4	0.154	0.138	2 SW	0 Fm	17
18	11.2	30.758	40.1	30.0	23.2	29.6	43.0	31.1			0 calm	1 P Rs Fm	18
19	10.6	30.326	44.3	47.3	29.1	46.5	47.0	47.0	0.011	0.007	2 S	10 P Fm	19
20	10.8	30.259	41.1	35.9	33.9	35.2	52.9	36.5	0.309	0.302	3 NW	0	20
21	11.9	30.508	31.1	24.4	12.5	24.0	36.9	25.7			1 NE	1 M Fm	21
22	11.2	30.354	33.2	29.0	17.6	28.1	29.0	29.8			2 N	0 M Fm	22
23	11.3	30.627	26.2	21.3	10.2	20.6	31.9	22.7			2 N	0 M Fm	23
24	11.2	30.498	32.3	31.0	18.4	30.2	30.8	31.1			1 N	10 P	24
25	11.9	30.018	34.3	28.4	27.8	27.8	32.9	29.5			4 N	10 P; snowing	25
26	10.4	29.382	39.0	40.6	25.5	39.8	41.0	40.0	see p. 188		4 NE	10 P; raining	26
27	10.7	29.393	44.2	47.6	39.5	46.6	47.7	47.2	see p. 188		2 E	10 P; raining	27
28	10.7	29.651	44.8	43.1	36.6	42.3	47.4	42.8	3.221	4.518	2 NW	0 P Fm	28
29	11.5	29.640	41.0	37.4	33.7	36.8	46.1	38.0			1 N	10 P	29
30	10.7	29.614	41.0	41.4	36.0	41.0	41.1	41.4	0.177	0.160	3 NW	10 Rm M Fm	30
	265	901823	139.36	133.81	10703		15167		6.255	7.457	65	151	
	10.9	30.061	46.4	44.6	35.7		50.6			Rainfall for month 7.46 inches	2.2	5.0	
		-.047											
		30.014											

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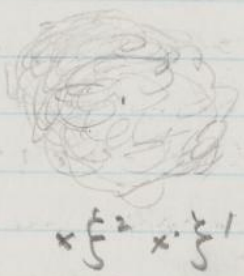
Date	Time P.M.	Barometer	Attached thermometer	No. 41	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	7.9	30.226	58.1	55.7	1 SW	0 haze	Hazy	None	None
2									Obsc.
3	7.9	29.830	56.0	47.5	2 SW	0	Visible	None	None
4	8.0	30.246	55.0	46.2	1 SW	1 Rs haze	Hazy	None	None
5	8.0	30.166	57.6	55.0	2 S	10 Pm	Cloudy	Cloudy	None
6									Obsc.
7	7.9	30.282	55.1	48.2	2 NW	0 Rs haze	Suspected	None	None
8									Obsc.
9									Obsc.
10									Obsc.
11	8.1	29.870	50.1	38.8	2 W	0	Moonlight	Moonlight	None
12	8.0	30.252	46.1	35.3	0 calm	0 Fm →	Moonlight	Moonlight	None
13	7.9	30.458	44.9	35.5	1 SW	0	Moonlight	Moonlight	None
14	7.9	30.250	52.8	47.9	1 S	1 Rs haze	Moonlight	Moonlight	None
15									Obsc.
16									Obsc.
17	7.9	30.440	46.1	33.0	3 NW	0 Fm	Moonlight	Moonlight	None
18	7.9	30.700	43.8	31.0	0 calm	4 PRsM 7m	Moonlight and clouds	Moonlight and clouds	Obsc.
19									Obsc.
20	7.9	30.429	40.8	26.0	3 NW	0	Moonlight	Moonlight	None
21	8.0	30.430	~~41.8~~ 35.9	21.8	0 calm	0	Moonlight	Moonlight	None
22	8.0	30.480	36.0	22.0	3 N	0 P	None; some moonlight	None; some moonlight	None
23	8.0	30.604	34.3	20.8	0 calm	4 P 7m	Cloudy	None; some haze	None
24									Obsc.
25									Obsc.
26									Obsc.
27									Obsc.
28									None
29									Obsc.
30	7.9	29.640	43.9	39.1	1 SW	0 P	Visible	None	None

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November, 1888.

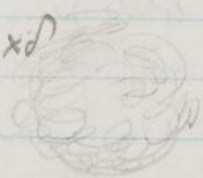
1, 11.2 P.M. Day and evening warm and rather clear, but somewhat hazy; suspicion of Gegenschein with centre 6/10 of the way from α Arietis to ξ² Ceti



α Arietis	2 0.4	+22 54
ξ² Ceti	2 21.8	+7 55
	2 13.2	+13 54

3, 10.6 A.M. Yesterday rather clear; evening cloudy.

3, 11.4 P.M. Day cloudy with a little rain, clear towards night; evening clear; no aurora seen. Region of Gegenschein seen Nov. 1 now seems relatively darker than it then did; centre of brightest region near the place now seems half way from α Arietis to ξ Tauri;



α Arietis	2 0.4	+22 54
ξ Tauri	3 20.7	+9 19
Gegenschein	2 40.5	+16 6

But the region of δ Arietis is known to be permanently bright, which may impair the observation.

4, 9.5 P.M. Day clear; evening hazy; no aurora seen.

5, 11.5 P.M. Day clear; evening from cloudy, later hazy; no aurora seen.

7, 10.5 A.M. Yesterday warm and rather cloudy; evening cloudy.

7, 11.4 P.M. Day rather clear, beaming cool; evening mostly clear, with some haze and clouds; no aurora seen. The band from the Pleiades is visible, and the region preceding δ Arietis seems not to differ as on Nov. 3: if any Gegenschein is present, it seems to be about the Pleiades,

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where there is too much permanent light to make it distinguishable.

9, 10.7 A.M. Yesterday cloudy; some rain in the evening.

9, 12.5 P.M. Gauge C $2\frac{7}{8}$ ounces, 0.254 inches; N. E. Met. Soc., gauge No. 31 0.251 inches uncorrected, 0.250 corrected.

10, 10.9 A.M. Yesterday cloudy; a little rain; more in the evening. Gauge C now $6\frac{3}{4}$ ounces, 0.596 inches; N. E. Met. Soc., gauge No. 31 0.585 inches uncorrected, 0.583 corrected. Total by gauge C 0.850, by No. 31 0.833 inches.

11, 11.2 A.M. Yesterday cloudy day and evening with some rain.

11, 11.3 P.M. Day mostly clear and cool; evening clear; no aurora seen.

12, 11.3 P.M. Day and evening clear and cool; no aurora seen.

13, 11.0 P.M. Day and evening clear and cool; no aurora seen.

14, 7.9 P.M. Lunar halo.

14, 11.6 P.M. Day clear and warm; evening rather clear, thin clouds increasing after about 10 P.M.; no aurora seen.

16, 10.5 A.M. Yesterday cloudy day and evening with some rain.

17, 10.9 A.M. Yesterday clear, becoming cloudy; a little rain in the evening.

17, 11.2 P.M. Day and evening mostly clear and rather cold; no aurora seen.

19, 10.6 A.M. Yesterday clear and cold, beaming cloudy in the evening.

20, 10.8 A.M. Yesterday cloudy day and evening, with some rain.

20, 10.2 P.M. Day and evening clear; becoming cold; no aurora seen.

21, 10.7 P.M. Day and evening mostly clear and cold; no aurora seen.

22, 11.2 P.M. Day and evening cold and rather clear, with some clouds; no aurora seen; it would have been supposed from the absence of much light from the Moon which was rising behind clouds that the zodiacal light might have been more distinguishable at 5 P.M.

23, 9.5 P.M. Day cold, cloudy at first, clear later; evening rather clear at first, but many clouds. no aurora seen.

25, 11.9 A.M. Yesterday cloudy day and evening; about 3 inches of

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26, 10.4 A.M. Yesterday cloudy day and evening; with strong wind and snow; changing to rain.

26, 8.5 P.M. Rainy till afternoon; rain heavy at times; afterwards cloudy with very little rain. Gauge C now 19¼ ounces, 1.699 inches; this represents the rain, but probably little of the previous snow. New England Meteorological Society's gauge No. 31 2.965 inches uncorrected, 2.956 corrected.

27, 10.7 A.M. Gauge C now 10¼ ounces, 0.965 inches; N. E. Met. Soc. gauge No. 31 0.954 inches uncorrected, 0.951 corrected. Gauge No. 29 substituted for 31, and the span bottle put into Gauge C. Yesterday evening cloudy, with some rain.

27, 1.7 P.M. Usual bottle replaced in gauge C, and N. E. Met. Soc. gauge No. 31 substituted for 29. Gauge C 1⅝ ounces, 0.121 inches; N. E. Met. Soc. gauge No. 29 0.115 inches uncorrected, 0.114 corrected.

27, 8.5 P.M. Afternoon rainy, now cloudy without rain, wind westerly. Gauge C 5⅝ ounces, 0.496 inches; N. E. Met. Soc. gauge No. 31 0.498 inches uncorrected, 0.497 corrected.

28, 10.7 A.M. No additional rain in gauges this morning. Total by gauge C 3.221 inches, which includes probably little of the snow; by the larger gauges 4.518 inches.

28, 10.7 P.M. Day mostly clear; evening cloudy, afterwards hazy; no aurora seen.

29, 11.2 P.M. Day and evening cloudy; a little rain.

30, 10.8 P.M. Day mostly cloudy; rather clear towards night; early evening cloudy; clear for a time about 8 P.M.; cloudy later; no aurora seen.

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Report sent Dec. 3, 1888, to Signal Service.

Aurora — looked for every clear evening; none seen.

Zodiacal light — visible on the evenings of Nov. 3 and 30; suspected Nov. 7; weather generally unfavorable.

Lunar halo — Nov. 14, about 8 P.M.

Usual report sent ~~Nov.~~ Dec. 1, 1888, to the New England Meteorological Society; remarks as follows:

Observations made during the forenoon; average time $10\frac{9}{10}$ A.M. Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

Rainfall by gauge No. 31 of the N. E. Met. Society, See remarks for July, 1888.

The rainfall of the storm of Nov. 25, 26, and 27, was measured during its progress as follows:

Nov. 26, $8\frac{5}{10}$ P.M. 2.956; Nov. 27, $10\frac{7}{10}$ A.M., 0.951; Nov. 27, $1\frac{7}{10}$ P.M. 0.114; Nov. 27, $8\frac{5}{10}$ P.M., 0.497; total 4.518.

The first measurement includes the snow of Nov. 25.

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December 1888

Date	Time A.M.	Barometer	Attached thermometer	No. 4	Minimum before and after setting		Maximum before and after setting		Rainfall in inches Gauge C	Rainfall in inches No. 31	Wind	Clouds	Date
1	11.4	29.676	44.0	41.1	36.3	40.3	43.2	41.3			1 NW	10 Pm M Fm	1
2	11.8	29.866	39.1	39.0	23.5	28.8	41.8	39.1			3 NW	0 M	2
3	10.6	29.882	38.0	37.1	26.1	36.2	41.7	38.0			1 N	1 Pr R Fm	3
4	11.1	29.677	39.2	37.0	31.6	36.2	39.2	37.0			1 SW	10 P	4
5	10.7	29.630	37.8	36.7	27.3	36.0	37.6	36.9	0.022	0.010	0 calm	10 P	5
6	10.3	29.666	41.1	36.6	33.0	36.0	40.3	37.1	0.022	0.010	3 NW	6 P Fm	6
7	10.8	29.935	36.1	31.0	20.7	30.2	38.3	32.0			2 NW	8 Pr R Fm	7
8	10.7	30.056	41.0	40.0	30.3	39.1	39.9	39.9			0 calm	10 Pr R Fm	8
9	11.9	29.920	41.0	37.1	35.1	36.4	42.7	37.8			0 calm	10 P; raining	9
10	10.5	30.043	39.0	34.8	31.1	34.0	37.9	35.1	0.563	0.530	1 SW	10 P	10
11	10.9	29.632	40.3	41.0	33.0	40.3	41.0	41.2			2 NE	10 P; raining	11
12	10.8	29.430	37.1	31.2	30.2	30.8	41.1	32.0	0.860	0.808	4 NW	0 M Fm	12
13	10.6	29.761	32.3	22.2	16.3	21.8	32.0	24.0			2 W	2 Pr R Rs	13
14	11.1	29.745	22.3	8.8	4.1	7.9	24.0	11.0			3 NW	4 Pr Fm	14
15	10.8	30.300	22.4	19.7	7.8	18.4	20.0	21.0			1 W	0 Rs	15
16	10.6	30.101	34.1	42.3	18.9	41.2	42.0	41.0			3 W	1 P Fm	16
17	10.6	29.660	45.1	53.0	40.5	52.1	53.0	52.2	sep. 192		1 SW	10 P; raining	17
18	10.8	28.850	41.0	31.2	30.8	30.8	57.0	32.3	3.288	3.150	3 N	10 P; a little snow.	18
19	10.9	29.694	30.8	25.0	20.2	24.2	34.8	26.0	0.011	0.002	2 NW	4 Pr M Fm	19
20	10.9	30.179	29.2	17.2	12.7	16.6	26.2	19.0			2 NW	10 P	20
21	10.8	29.725	29.0	26.9	13.8	26.4	27.2	27.8			2 W	4 P R Rs Fm	21
22	10.9	30.269	22.1	9.0	3.8	8.1	30.2	11.2	Insp.	Insp.	2 N	0	22
23	11.3	30.250	27.0	31.7	8.0	31.0	31.0	31.0			3 SW	0 P Rs	23
24	11.3	30.145	34.1	40.9	26.3	40.1	40.1	40.1			2 SW	0	24
25	11.6	30.041	39.3	50.8	35.6	49.7	50.0	49.1			3 SW	0 P Rs	25
26	11.3	30.150	46.0	51.0	37.3	50.1	54.9	50.4			1 S	6 P Rs	26
27	10.8	29.719	46.3	52.1	39.0	51.0	55.3	51.6	sep. 193		3 S	10 P; some rain	27
28	10.5	29.790	44.7	37.2	33.2	36.9	54.8	38.2	0.265	0.274	3 W	1 Pm Fm	28
29	11.9	30.316	39.0	36.5	28.0	36.0	38.3	37.1			2 NW	1 Pm M Fm Rs	29
30	11.4	30.440	40.1	35.9	26.1	35.0	37.8	37.0			2 SW	0	30
31	11.3	29.928	42.3	45.8	34.6	44.9	45.2	45.1			3 SW	10 Pm	31
	30.9	926476	11408	10798	7952		12385		5.031	4.784	61	158	
	11.0	29.886	36.8	34.8	25.6		40.0			Rainfall for month	16	5	
	29.860	29.922											

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December 1888

Date	Time P.M.	Barometer	Attached thermometer	No. 4	Wind	Clouds	Zodiacal light	Aurora	Abstract
1	8.2	29.770	41.8	29.8	3 W	0 P Fm	Visible	None	None
2	7.9	29.911	41.4	33.2	2 SW	0	Visible	None	None
3									Obsc.
4	8.1	29.680	40.0	31.8	1 SW	1 P	Visible	None	None
5									Obsc.
6	8.0	29.850	38.8	27.5	3 NW	0	Visible	None	None
7	7.9	29.892	39.1	33.2	1 SW	0 P	Moonlight	Moonlight	None
8									Obsc.
9									Obsc.
10									Obsc.
11									Obsc.
12	8.0	29.672	36.0	22.0	3 W	0	Moonlight	Moonlight	None
13	8.1	29.714	32.9	14.7	1 W	0	Moonlight	Moonlight	None
14	8.2	29.896	24.2	13.4	2 NW	1 P Rs	Moonlight	Moonlight	None
15	8.0	30.252	30.6	25.5	2 S	8 Pz Fm	Moonlight and clouds	Cloudy	Obsc.
16									Obsc.
17									Obsc.
18	8.1	29.414	38.0	24.9	3 W	0 Fm	Moonlight	Moonlight	None
19	7.9	29.944	36.8	20.5	2 W	4 Pz Fm	Moonlight and clouds	Moonlight and clouds	None
20	8.0	30.081	31.7	17.6	2 S	5 P Fm →	Moonlight and clouds	Moonlight and clouds	None
21	8.1	29.634	33.8	26.0	0 calm	0 P Fm	Moonlight	Moonlight	None
22	8.2	30.400	25.9	12.7	0 calm	0	Visible	None	None
23	7.8	30.226	34.0	32.0	2 S	0 P	Visible	None	None
24	8.0	30.121	39.1	38.9	2 SW	0 P	Visible	None	None
25	8.3	30.066	45.8	44.4	2 SW	0	Visible	None	None
26	8.0	30.111	47.0	42.3	2 S	1 P haze	Visible	None	None
27									None
28	8.2	30.059	38.8	30.9	2 W	0	Visible	None	None
29									Obsc.
30									Obsc.
31	7.9	29.883	45.2	40.9	2 SW	5 P haze	Cloudy	None	None

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December, 1884

1, 10.8 P.M. Day mostly cloudy, clear towards night; cloudy early in the evening, afterward clear with many passing clouds; no aurora seen.

2, 11.0 P.M. Day and evening clear and cool; no aurora seen.

4, 11.1 A.M. Yesterday clear, soon becoming cloudy; evening cloudy.

4, 10.0 P.M. Day cloudy with a little snow; evening clear after 8 P.M.; no aurora seen.

6, 10.3 A.M. Yesterday cloudy, becoming clear; evening cloudy.

6, 10.8 P.M. Day rather cloudy, becoming clear; evening clear; no aurora seen.

7, 9.5 P.M. Day rather clear; evening rather clear at first, cloudy soon after 8 P.M.; no aurora seen.

9, 11.9 A.M. Yesterday rather cloudy; evening cloudy.

10, 10.5 A.M. Yesterday cloudy day and evening with a little rain and snow.

10, 10.6 A.M. No. 4 in snow and water 32.3

10, 11.4 A.M. No. 4 still 32.3. Snow removed.

11, 10.9 A.M. Yesterday cloudy day and evening.

12, 10.8 A.M. Yesterday cloudy day and evening, with rain.

12, 11.1 P.M. Day and evening clear, becoming cold; no aurora seen.

13, 11.2 P.M. Day and evening clear and cold; no aurora seen.

14, 11.5 P.M. Day rather cloudy; evening rather clear with frequent clouds, clear later; no aurora seen.

16, 10.6 A.M. Yesterday mostly clear; evening rather cloudy.

17, 10.6 A.M. Yesterday rather clear, with clouds at times; evening cloudy.

17, 5.2 P.M. Bottle changed in gauge C and gauge 29 substituted for 31. Gauge C 19 1/4 ounces, 1.699 inches; N. E. Met. Soc. gauge No. 31 1.562 inches uncorrected, 1.557 corrected. Both readings verified; the difference is unusually large and not to be explained by evaporation.

18, 11.0 A.M. Yesterday evening cloudy and rainy; a little snow today. Gauge C 18 ounces 1.589 inches; N. E. Met. Soc.

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gauge No. 29 1.602 inches uncorrected, 1.588 corrected. Total by gauge C 3.288 inches; by gauges 31 and 29 3.150 inches. Gauge 31 substituted for 29.

18, 11.2 P.M. Day cloudy, with a little rain and snow; evening clear; no aurora seen.

19, 11.1 P.M. Day somewhat cloudy; evening mostly clear; no aurora seen.

20, 10.5 P.M. Day cloudy, becoming clear; evening mostly clear; no aurora seen.

21, 9.4 P.M. Day partly clear; evening clear, afterwards cloudy with snow; no aurora seen.

22, 11.2 P.M. Day and evening clear and cold; no aurora seen.

23, 11.0 P.M. Day and evening mostly clear; no aurora seen.

24, 10.6 P.M. Day and early evening clear; now cloudy; no aurora seen.

26, 11.3 A.M. Yesterday clear and warm day and evening; no aurora seen.

26, 10.6 P.M. Day rather clear and warm; evening somewhat hazy, becoming rather cloudy after 10 P.M.; no aurora seen.

27, 8.6 P.M. Day cloudy and warm with a little rain; now windy, clouds broken at times, and cooler. Gauge C 3 ounces, 0.265 inches; N. E. Met. Soc. gauge No. 31 0.275 inches uncorrected, 0.274 corrected.

28, 10.5 A.M. Yesterday evening clear about 10 P.M.; no aurora seen.

28, 11.2 P.M. Day and evening mostly clear; some clouds; no aurora seen.

30, 11.4 A.M. Yesterday mostly rather cloudy; evening cloudy.

31, 11.3 A.M. Yesterday mostly clear; evening mostly cloudy.

31, 10.4 P.M. Day cloudy; evening partly clear, but clouds frequent; no aurora seen.

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Report sent Jan. 2, 1889, to the Signal Service.

Aurora — looked for every clear evening; none seen.

Zodiacal light — visible on the evenings of Dec. 1, 2, 4, 6, 22, 23, 24, 25, 26, 28; circumstances unfavorable to observation on other evenings.

Usual report sent Jan. 2, 1889, to the New England Meteorological Society; remarks as follows:

Observations made during the forenoon; average time 11^{h} 10^{m} A.M.

Observations of maximum entered under the date previous to that on which they were made, as in recent reports, in accordance with the directions of the Society.

Rainfall by gauge No. 31 of the N. E. Met. Society; see remarks for July, 1888.

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General remarks on Observations for 1888.

Range of barometer and of temperature.

The highest and lowest (uncorrected) reading of the barometer for each month, with the corresponding reading of the attached thermometer, are given below. As the barometer was usually read only once or twice a day, these readings may differ considerably from the actual maxima and minima for the successive months. The highest reading for each month of the maximum thermometer (Casella 13399) and the lowest reading of the minimum thermometer (Green 2205), both uncorrected, are also given below. The times of observation of the barometer are given in hours and tenths.

	Barometer								Temperature			
	Maxima				Minima				Max.		Min.	
	Date	Time	Barom.	Attached therm.	Date	Time	Barom.	Attached therm.	Date	C 13399	Date	G. 2205
January	12	9.0 P.M.	30.716	(Mercury not visible; by estimate 15.0)	26	11.6 A.M.	29.016	27.0	2	54.1	29	−9.9
February	15	9.0 P.M.	30.332	23.0	8	8.9 P.M.	29.446	34.3	21	48.1	16	−5.1
March	26	10.7 A.M.	30.508	33.0	13	11.8 A.M.	29.210	34.3	22	53.8	24 & 25	10.8
April	25	8.1 P.M.	30.477	50.0	2	11.0 A.M.	29.432	43.1	29	73.9	8	19.9
May	4	10.7 A.M.	30.257	49.0	1	10.5 A.M.	29.680	51.0	11	77.3	2	34.8
June	28	10.5 A.M.	30.242	66.1	11	10.6 A.M.	29.615	69.0	24	92.5	2	46.8
July	17	7.8 P.M.	30.279	71.8	12	11.3 A.M.	29.397	68.0	8	84.7	4	51.3
August	11	11.5 A.M.	30.334	69.0	4	10.0 A.M.	29.832	71.1	6	85.3	29	50.8
September	7	10.9 A.M.	30.636	56.2	26	10.8 A.M.	29.294	55.8	1	79.0	30	32.0
October	26	10.0 A.M.	30.450	47.1	8	10.1 A.M.	29.280	55.4	6	63.4	22	31.1
November	18	11.2 A.M.	30.758	40.1	26	10.4 A.M.	29.382	39.0	7	67.9	23	10.2
December	30	11.4 A.M.	30.440	40.1	18	10.8 A.M.	28.850	41.0	18	57.0	22	3.8

Range of barometer 30.758 November 18 to 28.850 December 18.

" " temperature 92.5 June 24 to −9.9 January 2.

Observers

A. Searle usually; during July and August there were various observers; see Pages 165 and 171 for details.

Times of observation

The times of observation entered in the records apply to all observations entered on the corresponding lines, except,

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one observation was made in the forenoon, another in the evening, if clear. The times are ordinarily stated in hours and tenths; Eastern Time, 5h slow of Greenwich, is employed.

Manner of recording times.

Instruments. Barometer J. Newman, No. 68; external thermometer No. 4; maximum thermometer Casella 13399; minimum thermometer Green 2205; vane; rain gauge C; all as described in book Q 5 just before the record for 1878. See also references given in the general remarks on the observations for 1882, book R 67, page 216. For place of rain gauge after August 2, 1886, see this book, pages 36 and 37, under dates of Aug. 3 and 30. For injury to gauge C, see page 115. The gauge was kept in use during 1888, but the adopted rainfall was obtained from the observations with gauges No. 29 and No. 31 of the New England Meteorological Society, one of which was kept exposed near gauge C, with its top about 1 foot from the ground. See remarks on these gauges at pages 128 and 129. The corrections were applied to the separate observations, as is shown in the remarks for each month. After May, the results obtained for gauge C and one of the large gauges, usually No. 31, are given side by side in the record, and the remarks are frequently omitted. See remarks on page 164 on the probable effect of evaporation on the large gauges.

Rain gauges of N. E. Met. Society, Nos. 29 & 31.

Freezing point of No. 4. Freezing point of thermometer No. 4 tested February 3, March 8, December 10; in each case it was 32.3.

Wind recorded as in 1880; see book R 67, pages 50, 51; also memorandum on inside of cover of this book.

Reductions. See general remarks on observations of 1882, book R 67, page 216. The reductions for 1888 were made largely by Miss N. C. Storin.

Phenomena. The month of January was cold (see page 129); the rainfall in the autumn was unusually large.

Reports. The reports made to the U. S. Signal Service and to the New England Meteorological Society have been continued as in 1887; see page 123.

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Observations of Gegenschein, continued from book R 86, p. 91.

Date		M α in time	M α in arc	M δ	Obs.	Rem.	Sun α in time	Sun α in arc	E−M δ	E−M α	E−M δ
1884	Oct. 13	2h 13m.2	33° 18′	+14° 54′	S.	mcr	13h 18m.6	199°.6	−8°.3	−13°.7	−6°.6
	13	1 32.8	23 12	+9 3	W.	m	13 18.6	199.6	−8.3	−3.6	−0.7
	15	2 16.3	34 4	+15 34	S.	pcr	13 26.0	201.5	−9.0	−12.9	−2.5
1885	Oct. 4	0 51.8	12 57	+2 43	S.	mcr	12 44.5	191.1	−4.8	−1.9	−0.8
	9	1 19.1	19 46	+5 20	S.	mrd	13 2.9	195.7	−6.7	−4.1	−1.2
	Nov. 3	2 19.4	34 51	+16 15	S.	m	14 38.1	219.5	−15.4	+4.7	−11.5
1886	Sept. 29	0 51.8	12 57	+2 43	S.	mcrd	12 25.5	186.4	−2.8	−6.6	+0.1
	Oct. 1	0 51.8	12 57	+2 43	S.	rd	12 32.8	188.2	−3.5	−4.8	+0.8
	2	0 51.8	12 57	+2 43	S.	rd	12 36.4	189.1	−3.9	−3.9	+1.2
	23	2 53.5	43 22	+16 0	S.	cr	13 54.4	208.6	−11.8	−14.8	−4.2
1887	Feb. 19	9 36.8	144 12	+17 23	S.	cd	22 13.2	333.3	−11.0	+9.1	−6.4
	24	10 21.8	155 27	+14 16	S.	mc	22 32.4	338.1	−9.2	+2.6	−5.1
	25	10 29.8	157 27	+14 8	S.	mc	22 36.2	339.0	−8.8	+1.5	−5.3
	25	10 38.0	159 30	+18 30	W.	m	22 36.2	339.0	−8.8	−0.5	−9.7
	28	10 33.3	158 20	+12 23	S.	mc	22 47.4	341.8	−7.7	+3.5	−4.7
	Mar. 25	12 8.7	182 10	−2 27	S.	md	0 19.3	4.8	+2.6	+2.6	+0.3
1888	Feb. 13	9 56	149 0	+17 21	S.	md	21 49.1	327.3	−13.2	−1.7	−4.2
	15	10 3.4	150 51	+16 36	S.	mc	21 57.0	329.2	−12.5	−1.6	−4.1
	Mar. 7	11 39.4	174 51	+8 4	S.	mcr	23 16.3	349.1	−4.7	−5.7	−3.4
	9	11 46.8	176 42	+5 46	S.	mcr	23 23.6	350.9	−3.9	−5.8	−1.9
	9	11 23.5	170 52	+16 5	W.	m	23 23.6	350.9	−3.9	0.0	−12.2
	17	11 59.2	179 48	+2 13	S.	mcd	23 52.9	358.2	−0.8	−1.6	−1.4
	18	11 59.2	179 48	+2 13	S.	d	23 56.5	359.6	−0.4	−0.2	−1.8
	Oct. 3	0 45.4	11 21	+1 0	S.	mcr	12 41.9	190.5	−4.5	−0.9	+3.5
	11	1 11.6	17 54	+2 59	S.	m	13 11.2	197.8	−7.5	−0.1	+4.5
	Nov. 1	2 13.2	33 18	+13 54	S.	mc	14 31.3	217.8	−14.9	+4.5	+1.0
	3	2 40.5	40 8	+16 6	S.	md	14 39.2	219.8	−15.5	−0.3	−0.6
1889	Feb. 23	9 51.8	147 57	+13 0	S.	md	22 30.3	337.5	−9.4	+9.5	−3.6
	25	10 22.1	155 32	+13 26	S.	cmd	22 37.9	339.4	−8.7	+3.9	−4.7
	25	10 18.6	154 31	+16 14	W.	m	22 37.9	339.4	−8.7	+4.9	−7.5

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Observations of Gegenschein, continued.

Date	M α in time	M α in arc	M δ	Obs.	Rem.	Sun α in time	Sun α in arc	Sun δ	E−M α	E−M δ
1889 Feb. 28	10h 23m.6	155° 43′	+12° 25′	S.	cmd	22h 49m.1	342°.2	−7°.5	+6°.5	−4°.9
28	10 28.0	157 0	+15 25	N.	m	22 49.1	342.2	−7.5	+5.2	−7.9
March 1	10 24.0	156 0	+13 44	S.	cm	22 52.9	343.1	−7.1	+7.1	−6.6
1	10 28.0	157 0	+15 25	N.	m	22 52.9	343.1	−7.1	+6.1	−8.3
7	11 0.3	165 4	+11 11	S.	fm	23 15.2	348.6	−4.8	+3.5	−6.4

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