tabular values of rain should be summed up from October to May continuously if we would know how much water is available for the regular annual crop or what are the important annual and secular variations of rainfall as was shown by the Editor in the MONTHLY WEATHER REVIEW for January, 1904, page 24.

On the other hand, when any one deceives himself or the community into the silly belief that he has been able to increase or diminish the rainfall by his own personal acts, we are able to quote the records of many past years showing that the rainfall has always had a certain amount of variability and that his rainmaking experiments have not produced any effect as to rain or drought that is contrary to the natural and well established order of events.

The tables on page 77 of Bulletin L give the rainfall measured at the Weather Bureau station at Los Angeles since 1877 for each winter season, viz, from September 1 to September 1; the following copy has been corrected and extended throughout the later years by the official in charge of the Records Division at the Central Office, Washington, D. C.:

12 months beginning September 1.	Rainfall, in inches.	12 months beginning September 1.	Rainfall, in inches.
1877	21.26	1891	11.86
1878	11.35	1892	26.27
1979	20.34	1893	6.74
1880	13.13	1894	16.10
1881	10.40	1895	8.54
1882	12.11	1896	16.83
1883	38.26	1897	7.13
1884	9.25	1898	5.53
1885	23.18	1899	7.90
1886	14.01	1900	16.38
1887	14.16	1901	10.51
1888	9.57	1902	19.32
1889	34.60	1903	8.89
1890	13.33	1904	19.35

From this we see that in the course of 28 successive seasons at Los Angeles there have occurred—

6 having a rainfall of 20 inches or more.
6 having a rainfall of 15 to 19 inches.
9 having a rainfall of 10 to 14 inches.
7 having a rainfall of 9 inches or less.

This table shows that wet seasons are as frequent as dry ones. In nearly every case a dry season is followed by a wet one. A rainmaker discharging mysterious gases into the air daily from September to May will have no right to claim that he has power to compel or induce rain until he can show that he has done better than unaided nature is herself doing for the place where he operates.

The proper statistical method of argumentation is illustrated in the following extract from the Daily Times of Los Angeles, Cal., April 23, 1905.

I note, says Dr. Garrett Newkirk of Pasadena, that a certain gentleman who appears to imagine that he has had something to do with the making of rain in southern California, by means of some sort of chemicals or gaseous exploitation upon the patient atmosphere, is advertised to give a series of lectures in Los Angeles and elsewhere, telling how he did it.

It is hard to understand how anyone with a modicum of sense and the statistics of rainfall before him could suppose for a moment that southern California has had a drop more or less of rain because of that little black box on the side hill at Esperanza. We have had so far at the Los Angeles observatory some eighteen or nineteen inches of rain for the season of 1904–5. On and near the mountains, as usual, there may have been a few inches more. We have not had a remarkable rainfall, nothing, in fact, unusual, except that on two occasions the storms were violent on the mountain slopes, causing floods in certain parts of the valley.

Why do people insist on forgetting that only two years ago we had a greater rainfall for the season than we have had so far this year.

Leaving out the three dry years, the average rainfall by standard measurement has been 16.49 inches since the year 1877, so that the amount this season has not been more than two or three inches above the general average. The three dry years made such a deep impression on the minds of those who lived through them, that they have been over sensitive and apprehensive of drought ever since. In the good years of 1900–1901 and 1902–3 the showers were evenly distributed through their seasons, with much of sunshine between. Jupiter Pluvius was in gentle mood. No water went to waste. But people were not fully impressed. This year, with a deluge once or twice repeated, all their hands went up. It is safe to say that more water went into the ground two years ago than in this season of impressive storms.

The influences governing our rainfall extend over great regions and distances—north to the polar wastes, east to mountain and desert, south and west thousands of miles over the illimitable waters of the sea. For thousands of years, no doubt, the changing seasons came to the region where we dwell, before Columbus crossed the sea or the modest Balboa stepped into the Pacific and "took possession" of all the land touched by its waters. The average rain of a hundred years might be a bit more or less than that of the last 25, but of this we are reasonably sure that in each century of time there will be somewhere about 1600 inches quite irregularly distributed year by year.

METEOROLOGICAL RECORDS AT ORONO, ME.

By Prof. JAMES S. STEVENS. Dated Orono, Me., February 1, 1905.

The following is a continuation of an article on the meteorology of Orono, on the Penobscot River near Bangor, Me.; the section on barometry was published in the MONTHLY WEATHER REVIEW for April, 1904.

2. *Thermometry.*—Temperature observations began to be made by Dr. M. C. Fernald, January 1, 1869. From this date to January 1, 1893, observations were made three times a day, at 7 a. m., 2 p. m., and 9 p. m. In Table 3 the mean of these observations is found by assigning to the 9 p. m. observations

* TABLE 3.—*Monthly mean temperatures at Orono, Me., based on tridaily observations.*

Year.	January.				February.				March.			
	7 a.m.	2 p.m.	9 p.m.	Mean.	7 a.m.	2 p.m.	9 p.m.	Mean.	7 a.m.	2 p.m.	9 p.m.	Mean.
1869	16.6	23.1	18.8	18.4	16.5	27.3	21.6	21.8	18.5	30.6	23.9	24.2
1870	19.2	27.2	21.9	22.6	14.1	26.3	18.0	19.1	22.0	34.2	27.9	28.0
1871	12.6	18.2	16.0	15.7	15.2	25.8	21.2	21.0	30.5	39.6	34.3	34.7
1872	13.8	20.2	15.9	16.5	9.1	26.1	18.7	18.2	12.6	25.8	19.5	19.4
1873	9.7	20.1	15.1	15.0	8.5	22.8	17.4	16.5	21.5	32.6	27.6	27.4
1874	15.3	23.6	19.0	19.2	11.5	23.5	17.5	17.5	22.1	33.2	27.4	27.5
1875	1.1	14.6	9.0	8.4	8.1	18.9	13.5	13.5	18.2	30.4	24.9	24.6
1876	14.5	23.6	18.0	18.5	14.3	24.4	18.2	18.8	22.3	33.2	28.5	28.1
1877	2.8	16.3	9.1	9.3	19.8	31.8	26.1	25.9	24.2	34.1	27.7	28.4
1878	13.1	22.6	16.9	17.4	14.4	30.2	23.1	22.7	27.8	37.3	33.3	32.9
1879	8.1	19.8	13.3	15.6	8.1	23.1	16.8	16.2	21.9	33.4	28.1	27.9
1880	13.5	28.7	21.6	21.4	17.2	28.6	22.8	22.9	20.6	31.6	26.3	26.2
1881	8.7	20.0	12.7	12.2	16.8	28.4	22.9	22.8	30.9	36.2	34.1	33.8
1882	10.7	22.6	16.3	16.5	14.8	28.8	21.9	22.0	23.3	34.3	29.6	29.2
1883	4.1	17.4	11.7	11.2	11.3	23.7	17.2	17.4	15.7	27.7	21.5	21.6
1884	5.2	19.0	14.4	13.3	18.0	27.5	22.2	22.5	20.2	33.2	27.4	27.1
1885	11.1	21.2	15.6	15.9	3.0	21.4	15.3	13.8	11.3	26.6	19.3	19.1
1886	13.9	22.6	18.1	18.2	11.9	23.7	19.5	18.7	20.4	33.1	27.8	27.3
1887	9.5	18.4	14.4	14.2	12.3	22.8	17.1	17.4	20.7	32.3	25.3	25.9
1888	4.7	14.7	8.4	9.1	12.7	25.0	19.5	19.2	22.6	32.6	28.2	27.9
1889	20.6	28.6	24.9	24.8	9.5	19.0	16.1	15.2	27.7	39.5	33.0	33.3
1890	11.9	21.7	18.3	17.6	18.7	28.0	22.1	22.7	22.9	34.9	29.0	28.9
1891	15.8	25.6	20.9	20.8	19.4	27.7	22.7	23.1	23.9	34.9	28.3	28.9
1892	18.0	26.4	22.2	22.2	15.4	30.1	22.5	22.6	20.1	33.3	27.7	27.2
Mean	11.4	21.5	16.4	16.5	13.2	25.6	19.7	19.5	21.3	33.1	27.5	27.9

Year.	April.				May.				June.			
1869	35.3	45.1	38.2	39.2	45.1	59.2	48.8	50.5	.....	.....	.....	.....
1870	37.5	51.9	41.9	43.3	46.9	60.6	48.8	52.0	61.5	74.5	62.0	65.0
1871	36.1	46.8	40.1	40.8	44.9	58.4	48.2	49.9	57.7	70.2	58.6	61.3
1872	34.7	47.4	38.6	39.8	48.7	57.9	49.8	51.6	59.9	71.6	61.3	63.5
1873	35.4	45.4	37.8	39.1	47.9	61.1	48.7	51.6	55.5	69.2	57.5	59.9
1874	29.0	38.8	32.1	33.0	46.8	59.7	49.1	51.2	65.4	66.7	58.4	59.7
1875	31.7	43.2	34.8	36.1	47.2	59.6	49.5	51.8	56.8	68.9	57.8	60.3
1876	34.5	45.6	37.8	38.8	46.0	58.0	47.8	49.9	60.8	73.6	61.8	64.5
1877	37.4	51.3	41.8	43.1	47.7	61.6	50.5	52.6	60.3	72.0	60.2	63.2
1878	40.4	51.4	42.8	44.4	50.4	61.2	52.4	54.1	57.9	70.7	58.6	61.5
1879	33.5	45.2	37.0	38.2	50.8	65.4	52.7	55.0	57.1	66.0	57.1	59.3
1880	36.1	47.7	38.5	40.2	51.7	55.4	53.9	56.2	60.6	71.0	60.5	63.2
1881	33.3	46.7	39.2	39.6	47.7	59.9	51.5	52.7	54.4	68.1	55.4	58.3
1882	32.2	41.8	35.6	36.3	44.9	57.2	47.7	49.4	59.2	70.1	60.1	62.4
1883	34.5	45.9	37.6	38.9	47.0	59.6	50.5	51.9	62.6	72.3	61.3	64.4
1884	38.7	48.6	41.5	42.6	47.4	57.4	47.7	50.0	60.6	74.5	61.8	64.7
1885	35.8	48.9	39.1	40.7	47.7	61.5	49.3	51.9	58.9	69.6	59.3	61.8
1886	38.3	52.5	41.5	43.5	49.5	62.3	50.9	53.4	59.7	70.0	57.9	61.4
1887	32.3	44.4	36.7	37.5	47.7	64.6	53.0	54.6	59.9	70.9	59.7	62.6
1888	33.1	44.3	36.3	37.5	46.9	59.0	48.8	50.9	60.8	70.2	60.0	62.8
1889	40.2	53.4	43.3	45.1	52.7	66.8	53.0	56.4	62.9	72.5	62.1	64.9
1890	35.3	47.9	38.8	40.2	49.3	59.4	50.6	52.5	57.8	66.6	57.2	59.7
1891	37.7	47.9	40.1	41.4	47.1	60.6	50.2	52.0	57.6	69.1	58.0	60.8
1892	37.8	52.9	41.0	43.2	48.0	58.4	49.9	51.6	58.3	71.7	61.0	63.0
Mean	35.4	47.3	38.8	40.1	47.9	60.2	50.0	52.3	59.0	70.9	59.4	62.1

* The numbers of these tables are in continuation of the previous article in MONTHLY WEATHER REVIEW for April, 1904.

TABLE 3.—*Monthly mean temperatures at Orono, Me.*—Continued.

Year.	July.				August.				September.			
	7 a.m.	2 p.m.	9 p.m.	Mean.	7 a.m.	2 p.m.	9 p.m.	Mean.	7 a.m.	2 p.m.	9 p.m.	Mean.
1869	62.0	74.6	63.9	66.1	57.2	70.9	59.8	61.9	54.9	67.7	56.8	59.1
1870	64.3	77.7	65.3	68.2	61.1	77.6	63.3	67.6	51.3	66.8	56.0	57.5
1871	62.4	75.4	64.0	66.5	59.9	74.7	63.4	65.4	48.0	63.0	52.6	54.1
1872	64.2	76.9	65.8	68.2	62.7	75.4	64.8	66.9	54.7	64.7	56.7	58.2
1873	64.3	76.8	64.3	67.4	58.4	72.4	60.2	65.8	50.1	63.8	52.9	54.9
1874	62.5	73.5	64.4	66.2	57.7	71.2	60.7	62.6	53.1	66.0	55.9	57.7
1875	52.7	74.6	63.2	65.9	62.3	76.9	65.4	67.5	48.7	61.5	52.3	53.7
1876	66.9	75.6	65.7	68.3	61.5	76.8	64.5	66.8	49.4	63.1	52.8	54.5
1877	64.0	75.6	65.2	67.5	62.7	75.0	65.0	66.9	52.5	70.1	57.6	59.5
1878	65.9	75.8	65.8	68.3	61.5	73.6	62.7	65.1	55.3	67.5	57.3	59.4
1879	63.9	75.4	63.5	66.6	59.3	73.1	62.3	64.3	52.2	63.7	54.8	56.4
1880	65.3	77.6	66.8	69.1	61.0	74.0	63.2	65.4	55.3	68.5	59.1	60.5
1881	63.3	73.6	64.5	65.8	64.1	76.1	65.9	68.0	55.8	68.1	59.1	60.5
1882	67.1	76.4	65.5	68.6	62.2	78.2	65.0	67.9	53.8	63.8	55.1	57.0
1883	61.3	71.8	63.6	65.1	60.2	75.0	61.6	64.6	49.7	69.3	54.8	57.2
1884	61.8	72.4	62.2	64.7	62.9	74.2	64.2	66.4	53.4	67.6	57.0	58.8
1885	65.1	75.2	64.9	67.5	58.9	71.8	61.1	63.2	49.5	63.8	52.5	54.6
1886	64.9	75.7	63.9	67.1	58.2	75.0	62.9	64.8	51.1	64.5	54.5	56.2
1887	69.0	78.3	68.2	70.9	59.9	71.0	60.9	63.2	49.5	64.5	55.1	56.1
1888	62.2	75.0	62.6	65.6	60.1	70.9	61.5	63.5	50.2	62.1	52.3	54.2
1889	63.9	74.8	63.8	66.6	61.2	73.1	62.2	64.7	55.3	67.3	59.3	60.3
1890	64.2	74.5	63.1	66.2	61.3	73.3	62.4	64.9	53.9	65.1	56.9	58.2
1891	62.7	75.0	61.0	64.9	62.2	73.7	64.3	66.1	55.4	69.0	58.9	60.6
1892	63.5	77.6	65.5	68.0	61.3	73.0	64.5	65.8	52.7	67.5	57.0	58.5
Mean	63.6	75.4	64.4	67.0	60.7	74.0	62.9	65.4	53.1	65.8	55.8	57.0

Year.	October.				November.				December.			
1869	41.4	52.8	43.4	45.3	28.1	37.0	32.2	32.4	.....	.....	.....	.....
1870	42.4	54.4	49.0	48.7	33.8	41.4	34.9	36.3	22.0	28.4	23.4	24.3
1871	43.3	54.2	46.4	47.6	25.9	33.6	27.7	28.7	15.1	21.2	15.9	16.5
1872	40.8	52.6	43.7	45.2	30.8	37.9	32.7	33.5	9.7	18.3	12.5	14.3
1873	41.5	54.9	45.7	47.0	22.1	29.6	23.9	25.0	14.7	25.3	20.3	20.2
1874	42.1	55.8	45.9	47.4	28.5	38.1	31.7	32.5	13.5	23.1	18.3	18.3
1875	39.9	48.8	42.2	43.3	23.0	31.6	26.9	27.1	13.6	23.5	18.6	18.6
1876	38.3	49.2	41.7	42.8	32.2	40.3	34.9	35.8	7.3	20.1	13.0	13.3
1877	38.2	49.3	43.4	43.6	34.0	42.7	36.9	37.8	21.4	31.7	26.0	26.3
1878	44.5	56.5	48.3	49.4	31.5	38.9	33.0	34.1	21.8	27.8	26.0	25.4
1879	46.2	57.5	48.4	50.1	30.6	38.2	33.4	33.9	16.2	24.9	18.9	19.7
1880	42.5	54.9	45.7	47.2	26.6	37.6	30.5	31.4	14.0	26.2	20.6	20.4
1881	43.3	52.6	43.9	45.9	31.7	40.2	35.8	35.9	28.1	34.8	30.1	30.8
1882	42.5	57.9	45.1	47.7	30.4	39.7	32.2	33.6	14.1	25.8	19.5	19.7
1883	38.5	50.7	41.3	43.0	31.1	40.9	34.0	35.0	16.7	27.2	20.0	21.0
1884	39.0	51.9	44.2	44.8	29.3	38.7	33.3	33.7	20.5	28.8	23.0	23.8
1885	42.5	53.7	45.3	46.7	32.1	41.6	35.9	36.1	19.1	28.2	23.1	24.4
1886	39.1	54.9	44.0	45.5	34.1	42.2	36.9	37.5	14.0	22.6	18.0	18.2
1887	38.0	49.2	42.9	43.3	31.1	39.2	33.2	34.2	20.9	28.3	22.3	23.5
1888	39.3	46.5	41.4	42.2	32.0	41.1	33.5	35.0	25.5	31.7	27.4	28.0
1889	39.0	51.4	41.4	43.3	33.7	44.7	37.7	38.5	24.3	31.4	27.0	27.4
1890	40.0	53.2	44.3	45.4	31.7	40.2	32.5	34.7	7.6	16.8	11.3	11.8
1891	40.0	53.0	44.2	45.4	32.1	42.6	39.2	38.3	27.1	37.1	32.0	32.2
1892	40.2	53.1	44.0	45.3	35.3	41.1	35.8	36.8	16.8	26.9	21.0	21.4
Mean	40.9	52.9	44.3	45.7	30.4	39.1	33.2	34.5	20.1	26.5	21.2	21.7

a double weight. Beginning with 1893 the maximum and minimum temperature for each 24 hours were recorded. Table 4 shows the maximum and minimum for each month. The thermometer used from 1869 to 1893 was a Huddleston, since that time a Green. The location was changed in June, 1879, and about January, 1893.

In Table 4, 1893–1904, the data for mean maximum and mean minimum do not appear for the years 1893–1896: the mean monthly temperature for these years is the mean of the

TABLE 4.—*Monthly and absolute extremes and monthly mean temperatures.*

Year.	January.					February.				
	Absolute max.	Absolute min.	Mean max.	Mean min.	Mean monthly.	Absolute max.	Absolute min.	Mean max.	Mean min.	Mean monthly.
1893	51.2	—20.3	.....	.....	12.5	48.	—14.4	.....	.....	17.2
1894	45.6	—32.0	.....	.....	17.9	42.5	—29.5	.....	.....	12.9
1895	.....	.....	.....	.....	.....	41.	—10.1	.....	.....	17.5
1896	.....	.....	.....	.....	.....	43.	—30.	.....	.....	24.1
1897	52.	—18.	28.0	5.0	17.4	43.	—16.	31.6	8.1	20.2
1898	40.	—30.	24.6	2.2	13.2	47.	—25.	33.9	15.4	24.3
1899	49.	—29.	26.8	3.7	16.0	52.	—16.	25.1	7.4	16.5
1900	46.	—19.	31.2	4.5	17.8	50.	—21.	31.6	9.4	20.5
1901	42.	—20.	23.7	6.8	15.0	40.	—18.	24.9	3.1	14.2
1902	47.	—16.	26.8	7.7	17.3	52.	—15.	31.7	11.4	22.1
1903	41.	—23.	24.6	6.9	15.7	50.	—16.	28.8	10.8	19.2
1904	41.	—26.	21.8	-1.1	10.3	43.	—26.	23.7	0.8	12.3
Mean	45.5	—23.3	26.0	4.9	15.3	45.9	—19.8	28.9	8.3	18.4

TABLE 4.—*Monthly and absolute extreme, etc.*—Continued.

Year.	March.					April.				
	Absolute max.	Absolute min.	Mean max.	Mean min.	Mean monthly.	Absolute max.	Absolute min.	Mean max.	Mean min.	Mean monthly.
1893	47.4	0.6	.....	.....	27.1	59.2	13.0	.....	.....	37.9
1894	63.3	8.2	.....	.....	32.0	77.4	12.3	.....	.....	42.0
1895	47.0	— 3.5	.....	.....	26.9	69.0	12.0	.....	.....	42.9
1896	43.0	— 7.0	.....	.....	24.3	.....	18.0	.....	.....	42.7
1897	48.	—11.	36.1	18.5	28.4	74.	14.	52.4	32.2	41.8
1898	60.	5.	45.3	21.5	32.2	65.	9.	48.6	30.6	38.8
1899	51.	— 3	34.3	17.6	26.5	84.	18.	56.7	31.8	43.3
1900	52.	—10.	39.1	14.0	26.6	78.	21.	56.2	32.0	44.1
1901	49.	—13.	36.7	18.3	27.7	76.	25.	53.5	35.6	44.7
1902	62.	2.	45.2	28.5	36.9	75.	27.	53.7	33.1	43.4
1903	64.	0.	47.4	27.7	37.5	76.	18.	55.7	30.9	43.0
1904	51.	— 7.	39.5	18.4	29.0	62.	16.	52.4	29.6	41.0
Mean	53.1	— 2.4	40.9	20.6	27.8	72.3	·16.9	53.6	32.0	42.1

Year.	May.					June.				
1893	82.4	31.0	.....	.....	53.7	84.0	39.1	.....	.....	64.0
1894	84.9	30.0	.....	.....	52.4	88.0	37.0	.....	.....	60.9
1895	89.0	31.0	.....	.....	55.1	91.0	37.0	.....	.....	64.8
1896	.....	21.0	.....	.....	53.3	.....	.....	.....	.....	.....
1897	76.	29.	62.0	43.0	52.1	83.	39.	67.5	46.4	57.0
1898	76.	28.	64.7	43.0	53.1	87.	36.	71.1	51.1	61.5
1899	80.	26.	64.6	40.1	52.3	87.	37.	78.9	50.0	62.1
1900	83.	26.	63.0	39.5	49.5	86.	38.	77.4	49.4	63.4
1901	85.	32.	64.5	42.9	53.9	91.	38.	74.9	52.2	63.8
1902	83.	28.	61.2	40.2	50.6	84.	34.	67.4	46.2	56.8
1903	83.	26.	69.4	39.5	54.4	81.	32.	73.3	47.4	60.4
1904	82.	29.	71.6	44.7	58.1	87.	38.	73.7	48.0	60.8
Mean	82.2	28.1	65.1	41.8	53.2	86.3	36.8	72.4	48.8	61.4

Year.	July.					August.				
1893	89.5	46.1	.....	.....	66.7	95.0	46.7	.....	.....	65.8
1894	93.8	44.5	.....	.....	66.9	86.8	35.9	.....	.....	61.6
1895	89.0	43.0	.....	.....	64.5	86.0	41.0	.....	.....	64.1
1896	86.0	55.0	.....	.....	66.0	92.0	39.	75.0	54.0	64.7
1897	93.	43.	79.0	57.0	66.6	85.	41.	74.0	53.0	64.2
1898	99.	39.	79.5	57.6	68.3	85.	41.	78.3	56.7	67.3
1899	91.	41.	77.0	59.6	68.4	93.	40.	78.1	54.8	66.5
1900	89.	47.	79.8	56.4	68.1	.....	.....	.....	.....	66.3
1901	100.	40.	80.2	56.6	68.6	86.	43.	76.9	55.9	66.7
1902	87.	43.	75.3	53.0	64.7	85.	39.	74.4	51.8	63.1
1903	88.	34.	77.9	46.2	62.1	81.	38.	73.6	47.7	60.5
1904	87.	46.	80.4	57.2	68.8	88.	40.	76.6	51.8	64.6
Mean	91.9	43.5	78.4	55.5	66.6	87.3	40.4	75.9	53.2	64.6

Year.	September.					October.				
1893	71.8	30.7	.....	.....	52.3	72.0	25.5	.....	.....	47.9
1894	89.6	27.0	.....	.....	61.3	66.0	27.0	.....	.....	46.1
1895	92.5	26.5	.....	.....	56.6	73.9	13.0	.....	.....	42.9
1896	87.	28.	65.0	46.0	53.8	68.	23.	53.0	37.0	44.7
1897	90.	28.	68.0	42.0	56.2	79.	19.	60.0	34.0	46.9
1898	85.	29.	70.7	45.9	58.6	86.	19.	57.6	36.0	47.2
1899	88.	23.	67.9	45.3	56.6	76.	22.	62.2	37.7	50.0
1900	93.	27.	72.2	46.2	59.2	76.	19.	60.9	41.8	51.4
1901	89.	28.	71.1	47.7	59.5	71.	20.	58.0	36.4	47.6
1902	82.	30.	69.4	48.7	59.5	75.	17.	56.7	37.8	47.3
1903	89.	29.	74.0	46.5	60.2	71.	22.	57.8	36.4	47.1
1904	80.	26.	67.5	43.6	55.5	69.	20.	55.1	36.3	46.1
Mean	86.4	27.7	69.5	46.0	58.3	73.5	20.5	57.9	33.7	47.1

Year.	November.					December.				
1893	57.4	9.3	.....	.....	33.7	40.2	—22.0	.....	.....	14.3
1894	59.0	— 5.0	.....	.....	34.5	45.5	— 7.0	.....	.....	22.4
1895	71.0	10.0	.....	.....	36.9	.....	.....	.....	.....	.....
1896	68.	— 4.	32.8	25.9	34.6	45.	— 9.	29.0	10.0	20.0
1897	59.	3.	41.0	25.0	33.8	51.	—11.	30.4	15.9	23.3
1898	55.	10.	42.7	28.7	36.3	43.	—13.	29.6	11.8	21.4
1899	58.	8.	43.4	24.6	34.0	57.	— 9.	37.4	18.7	28.0
1900	72.	9.	42.6	28.6	35.6	45.	—16.	23.0	81.1	15.6
1901	58.	— 8.	37.3	20.0	28.6	55.	—17.	31.9	14.5	23.3
1902	58.	18.	46.0	28.3	37.2	53.	—28.	25.9	8.7	17.1
1903	70.	2.	43.7	23.9	33.8	50.	—10.	30.0	10.0	20.0
1904	50.	0.	39.7	21.1	30.5	39.	—27.	22.5	1.1	11.9
Mean	61.3	5.0	41.0	25.1	34.1	47.6	—14.7	28.8	11.0	19.7

tridaily readings, or $\frac{1}{4}$ (7+2+9+9). The monthly means for each hour have not been preserved. For 1897–1904 the mean monthly temperature is the mean of the mean maximum and the mean minimum. Records at 2 p. m. only were taken in this period.

Table 5 gives, in the second column, the average temperature for each month for the period of 24 years (1869 to 1892, inclusive), and in the third column the average temperature for 35 years (1869 to 1904, inclusive), also the highest and lowest mean temperature during the whole period (1869 to 1904):

TABLE 5.—*Mean and extreme monthly temperatures.*

Month.	Average for 24 years.	Average for 35 years.	Highest temperature.		Lowest temperature.	
			Degrees.	Year.	Degrees.	Year.
January	16.11	16.0	57.8	1890	−35.6	1878
February	19.33	19.2	52.0	1899	−30.0	1896
March	27.37	28.1	63.3	1894	−22.0	1869
April	40.56	40.6	84.0	1899	1.0	1874
May	52.17	52.4	90.0	1880	21.0	1896
June	62.18	61.8	98.5	1878	32.0	1903
July	67.16	67.1	100.0	1901	34.0	1903
August	65.09	64.9	96.7	1876	35.0	1873
September	57.12	57.3	93.0	1900	23.0	1899
October	45.61	46.1	86.0	1898	13.0	1895
November	35.22	34.2	72.0	1900	−16.2	1875
December	21.57	21.3	60.6	1888	−36.3	1890

3. *Vapor tension and relative humidity.*—In Tables 6 and 7 are given the vapor tension and the relative humidity at 7 a. m., 2 p. m., and 9 p. m., for 1869–1875, inclusive. From 1869–1875 the relative humidity was recorded at 7 a. m., 2 p. m., and 9 p. m., and the mean taken.

The hygrometer used throughout was of the Huddleston type and was furnished by the Weather Bureau.[1]

TABLE 6.—*Mean vapor pressure.*

Year.	January.			February.			March.			April.		
	7 a.m	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p m.	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.
1869	.081	.099	.096	.078	.104	.100	.083	.112	.101	.172	.188	.177
1870	.101	.111	.112	.084	.104	.090	.100	.107	.106	.190	.218	.209
1871	.074	.087	.090	.083	.096	.097	.150	.166	.161	.177	.190	.194
1872	.084	.002	.084	.066	.091	.088	.076	.092	.089	.152	.165	.169
1873	.079	.093	.087	.067	.082	.087	.106	.121	.127	.160	.164	.167
1874	.100	.123	.114	.078	.089	.090	.101	.117	.118	.126	.138	.134
1875	.044	.063	.062	.070	.089	.086	.091	.103	.108	.131	.141	.143

Year.	May.			June.			July.			August.		
1869	.262	.285	.289	.....	.....	.....	.474	.520	.491	.397	.405	.417
1870	.256	.267	.268	.467	.506	.465	.496	.497	.505	.470	.480	.459
1871	.239	.243	.238	.390	.411	.386	.487	.474	.485	.465	.476	.471
1872	.273	.288	.280	.445	.467	.463	.511	.522	.519	.517	.528	.545
1873	.242	.243	.250	.350	.343	.374	.505	.498	.487	.413	.418	.429
1874	.246	.262	.257	.374	.396	.402	.498	.528	.518	.436	.438	.466
1875	.249	.266	.257	.385	.445	.386	.500	.481	.488	.528	.572	.562

Year.	September.			October.			November.			December.		
1869	.405	.424	.417	.265	.280	.263	.144	.170	.171	.....	.....	.....
1870	.345	.372	.373	.265	.275	.274	.172	.179	.167	.112	.116	.114
1871	.313	.334	.332	.262	.282	.271	.125	.136	.134	.084	.095	.092
1872	.385	.408	.415	.249	.259	.254	.158	.163	.169	.071	.085	.076
1873	.325	.358	.354	.247	.273	.271	.108	.109	.109	.086	.105	.105
1874	.384	.428	.398	.243	.260	.259	.153	.162	.159	.084	.104	.091
1875	.325	.335	.346	.239	.232	.226	.120	.133	.135	.086	.096	.096

4. *Precipitation.*—In Table 8 are tabulated the precipitation records at Orono, Me., from 1869 to 1904, inclusive. They include the total precipitation, the total snowfall, the number of days with 0.01 inch or more precipitation, and the maximum in 24 hours, with the date on which maximum occurred.

Table 9 gives the days during the period in which the precipitation was 2.50 inches or over.

The rain gage was a Huddleston pattern during the first half of the observations, but one furnished by the U. S. Weather Bureau during the last half. They were well located in an exposed place, about 100 feet from the nearest building.

The scarcity of heavy rainfalls between 1896 and 1904 is noticeable.

[1] The Huddleston type is unknown to the Weather Bureau and the author must be mistaken in the belief that it was furnished by the Weather Bureau or the Signal Service. Nothing but the wet and dry bulb thermometers, or the so-called August psychrometer has ever been used by either of these services in regular station work. The only change was in 1887 when the psychrometer was mounted upon a whirling apparatus to secure better ventilation.—[ED.]

TABLE 7.—*Relative humidity.*

Year.	January.			February.			March.			April.		
	7 a.m.	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.	7 a.m	2 p.m.	9 p.m.	7 a.m.	2 p.m.	9 p.m.
1869	83	72	80	76	68	77	72	60	68	80	64	76
1870	87	70	84	88	70	81	77	53	66	84	58	78
1871	85	71	85	82	59	75	84	65	78	81	60	77
1872	90	68	87	90	61	77	87	63	78	75	50	72
1873	86	75	88	87	61	81	86	63	80	78	53	74
1874	89	79	89	87	64	80	75	56	71	74	57	71
1875	83	69	86	84	70	83	78	55	74	74	50	66

Year.	May.			June.			July.			August.		
1869	83	56	81	.....	.....	.....	84	60	83	83	54	80
1870	78	51	75	85	59	83	81	53	80	85	53	77
1871	74	48	67	82	57	78	88	55	81	88	54	80
1872	79	61	78	85	61	84	84	57	80	89	61	88
1873	69	45	72	77	50	77	80	54	80	83	53	80
1874	73	48	71	83	61	79	88	65	86	89	57	86
1875	75	53	68	79	59	79	86	56	84	92	62	89

Year.	September.			October.			November.			December.		
1869	91	62	88	92	67	87	89	78	88	.....	.....	.....
1870	72	56	82	91	62	84	85	66	80	86	71	83
1871	89	47	81	87	60	81	86	66	82	87	75	89
1872	89	67	88	92	63	86	90	69	89	81	72	82
1873	85	60	84	89	61	83	83	64	79	87	68	86
1874	93	67	88	87	57	81	89	68	84	84	74	84
1875	89	61	85	88	65	81	88	70	85	88	67	85

TABLE 8.—*Precipitation.*

Year.	January.					February.				
	Total, inches.	Total snowfall, in inches.	Days with .01 inch or more.	Maximum in 24 hours.	Date of maximum.	Total, inches.	Total snowfall, in inches.	Days with .01 inch or more.	Maximum in 24 hours.	Date of maximum.
1869	2.542	10.75	14	0.80	5	4.264	32.25	11	1.375	7
1870	5.615	26.0	14	1.29	2	4.296	15.0	12	1.89	19
1871	2.597	13.5	13	1.50	17	2.532	14.0	7	.873	18
1872	2.182	16.0	8	0.76	17	1.703	13.5	7	.978	4
1873	4.09	22.0	18	0.63	5	2.96	28.0	8	1.15	22
1874	4.57	25.0	16	1.45	8	5.50	40.0	13	2.85	4
1875	2.00	19.7	11	0.47	22	3.80	8.5	11	.85	25
1876	3.92	23.0	17	1.35	20	8.39	25.5	14	4.45	15
1877	3.29	28.5	14	0.80	16	1.20	10.5	7	.60	13
1878	5.08	15.0	15	1.80	11	2.41	14.0	7	1.40	25
1879	3.28	31.5	12	1.24	3	3.56	16.0	13	1.88	12
1880	2.83	13.0	14	0.94	22	2.83	16.5	15	.74	24
1881	2.08	16.5	8	0.83	10	3.35	13.5	13	1.15	12
1882	4.19	30.0	19	0.80	22	3.96	30.0	12	1.20	5
1883	2.44	15.0	13	0.60	31	2.34	13.0	13	.64	5
1884	4.44	17.5	9	2.04	9	6.85	26.5	20	1.27	23
1885	4.73	31.0	11	1.40	28	4.45	22.0	8	2.20	10
1886	6.64	37.0	17	3.40	31	5.42	32.0	12	2.60	28
1887	7.56	33.5	17	1.98	24	5.89	33.5	11	1.41	24
1888	4.97	37.5	12	1.60	27	6.11	20.5	12	2.26	20
1889	5.37	15.5	11	1.35	8	5.20	28.3	14	2.12	7
1890	3.33	19.5	17	1.25	16	4.57	13.0	14	1.45	8
1891	7.66	32.5	17	1.67	12	2.95	14.0	16	.56	3
1892	4.80	18.5	13	1.57	13	1.96	17.5	12	.85	12
1893	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1894	3.01	.....	2	2.0	30	1.73	15.0	2	.80	15
1895	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1896	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1897	3.08	23.3	7	1.0	28	2.38	9.5	5	1.38	7
1898	6.32	42.5	9	1.32	7	8.05	39.0	9	2.91	22
1899	2.75	10.0	5	1.25	6	2.27	13.5	7	.80	45
1900	8.14	26.3	10	1.98	12	6.75	23.0	10	1.94	13
1901	4.33	25.5	12	1.20	12	1.95	19.5	5	1.0	5
1902	3.65	13.0	10	1.73	22	1.80	18.0	8	.....	.....
1903	3.62	15.2	9	0.87	21	3.92	21.5	8	.74	12
1904	3.63	34.0	8	1.0	9	2.57	18.0	11	.62	22

TABLE 8.—*Precipitation*—Continued.

Year.	March.					April.				
	Total, inches.	Total snowfall, in inches.	Days with .01 inch or more.	Maximum in 24 hours.	Date of maximum.	Total, inches.	Total snowfall, in inches.	Days with .01 inch or more.	Maximum in 24 hours.	Date of maximum.
1869	3.356	10.42	9	.953	23	2.392	1.75	11	1.98	1
1870	2.114	10.50	12	.813	29	3.553	2.0	12	1.37	21
1871	4.108	8.0	13	2.01	22	4.01	1.0	15	.92	29
1872	5.234	38.0	14	1.80	10	1.93	3.0	11	1.10	10
1873	4.70	31.0	14	.80	30	2.59	5.0	11	.785	19
1874	3.40	14.0	10	1.45	4	3.76	30.0	16	1.15	30
1875	4.45	33.6	16	1.58	25	3.85	4.5	10	2.44	5
1876	8.20	18.0	14	3.25	21	1.65	9.0	13	.64	6
1877	5.67	11.0	17	2.50	29	3.18	.5	12	1.10	6
1878	2.73	8.0	13	.72	18	3.46	0.0	20	1.05	7
1879	3.40	18.5	14	.86	31	3.51	0.0	16	1.04	30
1880	2.86	18.0	10	1.24	24	4.15	2.0	13	1.98	30
1881	3.64	5.5	11	1.53	12	1.28	6.0	7	.92	15
1882	5.20	15.0	19	2.85	2	2.05	9.0	14	.75	20
1883	1.89	7.5	7	.72	28	3.80	2.5	12	1.27	20
1884	4.37	22.5	16	1.35	27	3.38	0.5	18	1.52	16
1885	2.78	15.0	10	1.08	2	2.34	3.5	13	.83	5
1886	2.87	22.0	10	1.22	22	1.80	1.0	7	1.42	7
1887	5.88	26.5	15	2.90	29	5.08	14.0	10	3.26	30
1888	6.48	26.0	20	1.62	29	1.78	16.0	14	.50	21
1889	4.62	4.0	12	2.90	9	1.93	4.0	8	.92	27
1890	5.81	3.6	15	1.25	3	2.02	6.0	9	.81	5
1891	5.20	12.0	10	1.60	10	3.26	11.0	13	1.25	3
1892	2.52	17.0	7	1.00	3	1.12	0.5	7	.42	10
1893	1.45	.....	7	.82	12	2.18	.....	13	.65	15
1894	1.28	2.5	10	.39	25	1.18	3.5	7	.35	9
1895	.....	1.6	.....	1.18	14	.....	.....	11	1.42	9
1896	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1897	3.96	6.5	12	.72	10	3.03	0.0	10	.84	9
1898	2.23	13.0	7	.70	31	4.95	9.0	12	2.19	19
1899	4.76	28.0	11	.90	16	0.66	.5	2	.55	8
1900	5.47	16.5	5	2.20	16	2.01	0.0	7	.62	19
1901	5.46	11.8	11	1.80	21	5.12	0.0	9	1.86	23
1902	8.89	14.	19	1.86	17	2.94	0.0	13	.84	10
1903	6.22	2.	11	1.26	8	1.71	0.5	5	.62	8
1904	3.18	12.	9	.74	8	2.31	3.5	10	.64	10

Year.	May.					June.				
1869	2.95	0.0	14	1.20	4	.....	.....	.....	.....	.....
1870	1.96	0.0	11	.49	11	2.07	0.0	6	1.75	9
1871	3.48	1.5	12	2.12	5	2.58	0.0	12	.69	12
1872	3.92	0.0	15	.94	5	4.47	0.0	16	1.07	2
1873	1.96	0.0	11	1.32	12	1.32	0.0	12	.56	4
1874	4.74	0.0	8	2.60	31	4.93	0.0	14	1.80	18
1875	3.31	0.0	11	1.15	25	4.85	0.0	8	2.20	19
1876	3.73	0.0	14	1.15	29	2.56	0.0	11	1.42	5
1877	1.94	0.0	13	1.05	3	1.98	0.0	9	.74	8
1878	2.14	0.0	10	1.25	23	5.42	0.0	10	2.50	24
1879	1.80	0.0	13	.58	14	4.73	0.0	15	1.75	4
1880	2.17	0.0	12	1.30	31	.73	0.0	8	.28	8
1881	4.85	0.0	15	2.75	17	3.38	0.0	11	.94	29
1882	4.52	0.0	12	2.65	29	4.44	0.0	13	1.85	6
1883	5.10	0.0	17	2.98	24	3.66	0.0	10	1.04	21
1884	5.42	0.0	15	1.23	29	1.37	0.0	6	.80	24
1885	3.38	8.	8	1.15	2	4.60	0.0	10	2.60	30
1886	4.67	0.0	10	1.45	8	2.74	0.0	9	1.35	27
1887	1.25	0.0	8	.64	30	3.36	0.0	11	1.22	24
1888	2.81	0.0	10	1.44	14	3.65	0.0	10	1.26	23
1889	1.86	0.0	10	.78	10	4.93	0.0	16	.88	2
1890	10.52	0.0	19	2.35	6	3.84	0.0	15	.97	14
1891	2.81	0.0	12	1.55	17	3.20	0.0	10	1.34	28
1892	1.94	0.0	11	1.13	23	5.96	0.0	17	2.10	29
1893	2.55	0.0	12	.67	17	2.69	0.0	12	.58	6
1894	3.84	0.0	7	1.40	19	2.90	0.0	8	.59	1
1895	2.13	0.0	5	.96	12	1.35	0.0	7	.45	27
1896	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1897	4.49	0.0	11	1.42	13	3.71	0.0	13	.94	4
1898	1.02	0.0	4	.61	30	5.28	0.0	10	2.10	.....
1899	4.12	0.0	9	1.27	20	4.10	0.0	13	1.17	14
1900	8.24	0.0	13	2.25	3	3.83	0.0	7	1.04	2
1901	2.07	Trace.	13	1.17	28	1.79	0.0	9	.50	23
1902	2.77	0.0	10	.74	26	6.03	0.0	16	1.25	26
1903	.73	0.0	3	.46	5	2.09	0.0	6	.77	13
1904	4.26	0.0	11	.96	11	2.17	0.0	8	.58	5

TABLE 8.—*Precipitation*—Continued.

Year.	July.					August.				
	Total, inches.	Total snowfall, in inches.	Days with .01 inch or more.	Maximum in 24 hours.	Date of maximum.	Total, inches.	Total snowfall, in inches.	Days with .01 inch or more.	Maximum in 24 hours.	Date of maximum.
1869	1.62	0	12	.53	16	1.91	0	8	.84	28
1870	1.78	0	12	.44	29	3.21	0	6	2.42	4
1871	2.13	0	16	.50	31	3.85	0	8	1.66	27
1872	2.68	0	16	.37	19	6.23	0	15	1.37	17
1873	3.26	0	12	.67	27	1.81	0	6	1.13	3
1874	2.10	0	9	.95	3	5.39	0	9	4.20	9
1875	2.11	0	12	.33	7	2.32	0	11	.16	4
1876	5.80	0	17	2.50	24	.91	0	4	.46	25
1877	1.64	0	10	.80	26	5.28	0	15	2.30	10
1878	4.77	0	8	1.30	22	3.00	0	12	1.40	18
1879	5.79	0	12	2.45	23	5.66	0	10	4.80	19
1880	3.32	0	12	.60	24	1.54	0	8	1.00	4
1881	2.72	0	18	1.04	27	5.89	0	12	2.95	8
1882	3.10	0	11	.65	2	1.64	0	6	.85	15
1883	6.90	0	15	2.95	14	.53	0	5	.40	23
1884	2.38	0	15	.65	6	3.17	0	11	1.00	22
1885	4.70	0	14	1.52	31	7.36	0	11	2.85	6
1886	1.05	0	8	.48	16	2.27	0	11	1.12	17
1887	7.11	0	11	4.38	25	4.60	0	10	1.92	11
1888	2.47	0	11	.80	11	4.59	0	19	1.34	14
1889	3.23	0	10	1.12	20	1.65	0	12	.35	9
1890	3.84	0	11	1.23	8	4.55	0	17	1.28	20
1891	3.56	0	11	1.27	24	4.67	0	10	2.04	27
1892	1.99	0	9	1.40	4	6.42	0	12	2.80	12
1893	3.23	0	9	.88	3	.....	.....	.....	.....	.....
1894	2.41	0	6	1.16	24	2.01	0	6	1.28	3
1895	2.85	0	.....	.29	7	2.14	0	3	1.24	24
1896	2.58	0	.....	1.67	5	4.26	0	.....	.90	23
1897	2.02	0	9	.65	22	5.09	0	6	1.79	25
1898	2.44	0	5	.85	21	3.14	0	7	1.10	5
1899	4.49	0	10	2.00	21	.....	.....	.....	.....	.....
1900	2.53	0	9	1.34	25	1.58	0	9	.48	14
1901	2.75	0	11	1.15	30	3.76	0	8	2.06	25
1902	1.81	0	8	.40	8	4.96	0	10	2.45	11
1903	6.49	0	15	2.25	23	2.22	0	17	1.03	20
1904	2.43	0	10	.75	5	4.46	0	10	1.66	10

Year.	September.					October.				
1869	3.67	0	9	1.37	27	9.57	9	15	2.13	5
1870	2.23	0	6	1.12	4	5.53	1.5	12	1.82	20
1871	1.10	0	9	.38	27	7.50	0	12	4.43	12
1872	3.55	0	13	.92	24	6.01	0	13	1.25	2
1873	4.74	0	9	1.36	19	6.56	0	10	2.70	21
1874	4.37	0	10	2.90	20	1.14	0	7	.50	2
1875	5.10	0	10	1.95	17	4.75	0	15	1.31	31
1876	4.28	0	12	2.00	21	3.91	4	12	1.65	24
1877	1.11	0	5	.50	18	4.78	7	14	1.80	5
1878	2.00	0	9	.55	12	4.73	0	15	2.20	24
1879	4.93	0	10	2.25	8	3.49	0	10	2.30	29
1880	3.84	0	10	2.63	16	4.15	0	11	2.45	23
1881	2.35	0	9	1.00	11	3.57	0	14	1.98	18
1882	6.44	0	12	3.65	24	1.09	0	7	.53	18
1883	2.23	0	11	1.08	26	4.97	0	9	1.65	26
1884	2.19	0	13	.60	20	2.70	0	13	1.55	23
1885	2.52	0	5	1.56	23	5.12	0	12	1.56	3
1886	4.11	0	9	1.54	28	1.42	0	9	1.08	31
1887	.95	0	11	.54	25	3.00	0.25	9	1.15	21
1888	6.97	0	13	1.83	26	7.51	5	18	3.18	8
1889	2.21	0	5	1.28	19	4.04	0	11	1.89	30
1890	4.67	0	11	2.40	18	3.36	0	11	1.45	18
1891	3.68	0	8	2.37	7	2.85	0	11	1.70	8
1892	3.91	0	5	3.00	14	1.79	0	10	.65	27
1893	5.02	0	10	3.00	16	.....	.....	.....	.....	.....
1894	3.40	0	5	1.70	20	.....	.....	10	1.62	14
1895	1.05	0	3	.52	12	1.51	0.12	5	1.50	14
1896	8.00	0	9	4.34	6	3.75	0	15	.77	15
1897	2.65	0	7	.92	9	1.01	0	3	.88	12
1898	2.29	0	5	.94	5	6.19	0	7	1.71	5
1899	3.20	0	5	1.08	20	2.92	0	7	1.10	9
1900	2.94	0	7	1.22	21	5.70	T.	8	2.05	10
1901	4.22	0	8	1.39	11	4.12	T.	8	2.70	14
1902	1.94	0	8	.71	13	5.04	0	13	1.17	6
1903	1.21	0	4	.55	27	3.44	1.0	8	1.17	17
1904	6.47	0	13	2.37	14	3.10	T.	10	1.06	21

5. *Miscellaneous data.*—In Table 10 are given the dates of the opening and closing of navigation on the Penobscot River at Bangor each year from 1816 to 1905. Table 11 contains the dates of the severe frosts at Orono. Table 12 shows the number of thunderstorms each month from 1869 to 1904. Tables 13 and 14 give the solar and lunar halos, and in Table 15 are shown the number of auroras observed during each month. The following notes regarding various phenomena, while by no means complete, serve to indicate the character of the climate of Orono:

Ice.—The latest (?) date on which ice was formed each year from 1869 to 1875 was, 1869, April 11; 1870, April 8: 1871, March 13; 1872, April 20; 1873, April 20; 1874, April 16: 1875, April 16.

Snow.—Five inches of snow fell on May 3, 1885.

Gales.—Gales or high winds are recorded on the following dates: 1875, October 31; 1880, February 1, March 30, April 29; 1883, November 12; 1884, November 23; 1886, November 6, 18.

Destructive winds[2] are recorded on the following dates: 1870,

[2] The author states that he has underscored the violent windstorms that might be called tornadoes, but the words tornado and cyclone have specific definitions and violent wind does not necessarily imply the proper or improper use of these terms.—[Ed.]

TABLE 8.—*Precipitation* – Continued.

Year.	November.					December.				
	Total, inches.	Total snowfall, in inches.	Days with .01 inch or more.	Maximum in 24 hours.	Date of maximum.	Total, inches.	Total snowfall, in inches.	Days with .01 inch or more.	Maximum in 24 hours.	Date of maximum.
1869	3.36	.75	6	1.55	7	.....	.....	.....	.....	.....
1870	5.61	5.50	15	1.38	4	3.037	18.25	13	.70	13
1871	3.58	15.0	13	2.10	8	4.163	27.50	16	1.20	23
1872	7.06	10.0	14	2.40	6	3.615	31.50	18	.50	22
1873	5.05	24.0	10	1.44	8	1.735	14.0	12	.46	13
1874	3.06	10.0	9	.95	23	1.98	13.0	9	.60	14
1875	3.87	14.2	10	1.45	11	1.51	13.0	13	.43	17
1876	4.35	0.5	10	2.50	8	4.67	43.0	12	1.40	18
1877	7.95	3.0	12	2.60	27	2.15	6.0	7	1.40	6
1878	4.91	8.5	15	1.75	23	7.92	14.0	12	3.53	10
1879	2.98	10.0	12	1.62	29	3.60	19.5	17	1.10	7
1880	3.52	7.0	13	1.53	7	1.90	12.5	14	.65	16
1881	2.81	5.0	11	1.40	4	6.88	8.0	15	1.98	23
1882	1.78	5	6	.70	13	2.85	21.0	14	.62	6
1883	3.75	3	11	1.22	27	2.99	12.0	16	1.22	28
1884	3.99	7	13	1.28	6	4.74	16.0	11	2.20	22
1885	5.37	0.5	14	2.68	9	5.64	28.0	15	2.24	20
1886	8.67	6	16	4.58	7	6.38	38.5	12	1.74	24
1887	3.48	1	13	1.80	16	4.72	6.5	14	2.12	12
1888	5.73	10	12	1.84	10	4.96	19.6	11	2.40	18
1889	4.50	6	11	1.41	3	3.40	6.5	11	.78	19
1890	2.67	4.5	8	1.05	18	4.10	28.5	15	1.10	27
1891	2.88	2	8	1.36	27	4.76	10.5	9	1.78	30
1892	4.47	4	13	1.22	19	2.26	6.5	7	.96	8
1893	1.43	.....	4	.53	22	4.21	.....	10	.80	5
1894	1.24	0.5	4	.37	10	1.75	.....	4	.90	27
1895	3.61	.....	.....	1.25	8	.....	.....	.....	.....	.....
1896	4.23	5.5	11	1.41	5	1.30	.....	6	.58	8
1897	5.04	6	8	1.10	3	3.58	12.8	10	1.22	5
1898	6.84	6	8	2.50	10	1.07	7.0	4	.37	5
1899	2.01	7.5	6	.86	15	3.09	6.5	9	.75	4
1900	4.59	7.8	11	1.89	26	2.02	11.8	6	.80	5
1901	2.54	19.8	9	1.50	12	7.94	21.5	12	1.89	15
1902	1.76	3	7	.81	12	4.74	24.3	11	1.13	16
1903	2.79	15.5	9	.....	7	3.14	9.3	9	.96	13
1904	1.62	5.8	7	.83	14	2.00	19.2	7	1.10	28

TABLE 9.—*Days with 2.5 inches of precipitation.*

Year.	Day.	Amount.	Year.	Day.	Amount.	Year.	Day.	Amount.
		Inches.			*Inches.*			*Inches.*
1871	Oct. 12	4.43	1880	Sept. 16	2.63	1887	Apr. 30	3.26
1873	Oct. 21	2.70	1881	May 17	2.75	1887	July 25	4.38
1874	Feb. 4	2.85	1881	Aug. 8	2.95	1888	Oct. 8	3.18
1874	May 31	2.60	1882	Mar. 2	2.85	1889	Mar. 9	2.90
1874	Aug. 9	4.20	1882	May 29	2.65	1892	Aug. 12	2.80
1874	Sept. 20	2.90	1882	Sept. 24	3.63	1892	Sept. 14	3.00
1876	Feb. 15	4.45	1883	May 24	2.98	1893	Sept. 16	3.00
1876	Mar. 21	3.25	1883	July 14	2.95	*		
1876	July 24	2.50	1885	June 30	2.60	1896	Mar. 4	4.60
1876	Nov. 8	2.50	1885	Aug. 6	2.85	1896	Sept. 6	4.34
1877	Mar. 29	2.50	1885	Nov. 9	2.68	1898	Feb. 22	2.91
1877	Nov. 27	2.60	1886	Jan. 31	3.40	1898	Nov. 10	2.50
1878	June 24	2.50	1886	Feb. 28	2.60	1901	Oct. 14	2.70
1878	Dec. 10	3.53	1886	Nov. 7	4.58			
1879	Aug. 19	4.80	1887	Mar. 29	2.90			

*Complete precipitation records were not kept during this period.

TABLE 10.—*Opening, closing of navigation, Penobscot River, Bangor, Me.*

Year.	Open.	Closed.	Year.	Open.	Closed.	Year.	Open.	Closed.
1816	.....	Nov. 28	1846	Mar. 29	Dec. 15	1876	April 12	Dec. 10
1817	.....	Nov. 23	1847	April 23	Dec. 21	1877	Mar. 29	Dec. 30
1818	May 1	Dec. 10	1848	April 12	Dec. 21	1878	April 2	Dec. 19
1819	April 19	Dec. 5	1849	April 1	Dec 7	1879	April 24	Dec. 19
1820	April 18	Nov. 28	1850	April 12	Dec. 8	1880	April 6	Nov. 26
1821	April 15	Dec. 1	1851	April 8	Dec. 30	1881	Mar. 20	Dec. 11
1822	April 10	Dec. 5	1852	April 21	Dec. 15	1882	April 10	Dec. 9
1823	April 19	Dec. 9	1853	April 5	Dec. 8	1883	April 12	Dec. 16
1824	April 1	Dec. 12	1854	April 27	Dec. 5	1884	April 6	Dec. 19
1825	April 11	Dec. 14	1855	April 15	Dec. 1	1885	April 18	Dec. 17
1826	April 5	Dec. 16	1856	April 16	Dec. 1	1886	April 16	Dec. 5
1827	April 2	Dec. 6	1857	April 6	Dec. 10	1887	April 23	Dec. 22
1828	April 1	Dec. 18	1858	April 11	Dec. 12	1888	April 15	Dec. 13
1829	April 14	Dec. 16	1859	Mar. 30	Dec. 9	1889	Mar. 31	Dec. 14
1830	April 9	Dec. 8	1860	April 16	Dec. 7	1890	April 6	Dec. 6
1831	April 9	Dec. 3	1861	April 11	Dec. 20	1891	Mar. 26	Dec. 16
1832	April 19	Dec. 4	1862	April 18	Dec. 3	1892	April 2	Dec. 19
1833	April 9	Dec. 1	1863	April 19	Dec. 2	1893	April 14	Dec. 13
1834	April 8	Dec. 9	1864	April 8	Dec. 12	1894	Mar. 22	Dec. 23
1835	April 17	Nov. 27	1865	Mar. 31	Dec. 8	1895	April 5	Dec. 11
1836	April 12	Nov. 27	1866	April 1	Dec. 13	1896	April 12	Dec. 16
1837	April 15	Nov. 27	1867	April 18	Dec. 4	1897	April 7	Dec. 22
1838	April 21	Dec. 24	1868	April 18	Dec. 10	1898	Mar. 26	Dec. 14
1839	April 17	Dec. 1	1869	April 11	Dec. 9	1899	April 10	Dec. 27
1840	April 1	Dec. 1	1870	April 8	Dec. 21	1900	April 3	Dec. 12
1841	April 17	Dec. 19	1871	Mar. 13	Nov. 17	1901	April 2	Dec. 20
1842	Mar. 21	Nov. 19	1872	April 19	Dec. 10	1902	Mar. 21	Dec. 8
1843	April 21	Nov. 30	1873	April 19	Dec. 2	1903	Mar. 12	Dec. 18
1844	April 12	Nov. 27	1874	April 16	Dec. 11	1904	April 3	Dec. 6
1845	April 21	Dec. 7	1875	April 16	Nov. 29	1905	Mar. 31	.....

TABLE 11.—*Dates of some severe frosts at Orono, Me.*

Year.	Date.	Year.	Date.	Year.	Date.
1869	Oct. 6	1881	June 6, 7	1892	Sept. 8
1870	Sept. 12	1881	Sept. 21	1893	Sept. 11
1871	Sept. 11	1882	Sept. 13	1894	Sept. 3
1872	Oct. 5	1883	Aug. 29	1895	.....
1873	Aug. 28	1884	Sept. 13	1896	Sept. 5
1874	Oct. 4	1885	Sept. 12	1897	Sept. 27
1875	Sept. 11	1886	Sept. 14	1898	.....
1876	June 8	1887	Sept. 11	1899	.....
1876	Aug. 22	1888	Sept. 6	1900	.....
1877	Sept. 7	1889	Oct. 3	1901	.....
1878	Sept. 23	1890	July 19	1902	.....
1879	June 9	1890	Sept. 22	1903	Sept. 30
1879	Sept. 26	1891	Oct. 9	1904	Sept. 22
1880	Sept. 24				

TABLE 12.—*Thunderstorms at Orono, Me.*

Years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1869	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....
1870	.....	.....	.....	2	.....	2	1	2	.....	.....	.....	.....
1871	.....	.....	.....	1	1	2	3	.....	1	.....	.....	.....
1872	.....	.....	.....	.....	.....	2	2	2	3	.....	.....	.....
1873	.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....
1874	.....	.....	1	.....	1	2	2	.....	.....	.....	.....	.....
1875	.....	.....	.....	.....	2	1	2	.....	1	.....	.....	.....
1876	.....	.....	.....	.....	1	.....	1	1	.....	.....	.....	.....
1877	.....	.....	.....	.....	1	.....	2	4	1	.....	.....	.....
1878	.....	.....	.....	.....	3	2	5	1	1	.....	.....	.....
1879	.....	.....	.....	.....	4	2	3	1	.....	.....	.....	.....
1880	.....	.....	.....	.....	4	.....	5	1	1	.....	.....	.....
1881	.....	.....	.....	.....	1	2	3	4	1	.....	.....	.....
1882	.....	.....	.....	.....	2	3	6	2	2	.....	1	.....
1883	.....	.....	.....	.....	1	2	2	2	.....	1	.....	.....
1884	.....	.....	.....	.....	2	3	3	1	1	1	.....	.....
1885	.....	.....	.....	2	2	2	3	1	.....	3	.....	.....
1886	.....	.....	.....	.....	2	3	3	1	2	.....	2	.....
1887	.....	.....	.....	.....	1	2	5	3	2	.....	.....	.....
1888	.....	.....	.....	.....	1	3	2	3	.....	.....	.....	.....
1889	.....	.....	.....	.....	1	4	4	3	.....	1	.....	.....
1890	.....	.....	.....	.....	.....	2	2	2	1	1	.....	.....
1891	.....	.....	.....	.....	2	3	1	4	2	.....	.....	.....
1892	.....	.....	.....	.....	.....	2	.....	5	.....	.....	.....	.....
1893	.....	.....	.....	.....	.....	2	.....	.....	1	.....	.....	.....
1894	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....
1895	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1896	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
1897	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
1898	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
1899	.....	.....	.....	.....	.....	.....	9	.....	.....	.....	.....	.....
1900	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....
1901	1	.....	1	.....	.....	.....	2	1	.....	.....	.....	.....
1902	.....	.....	.....	3	2	.....	2	3	.....	.....	.....	.....
1903	.....	.....	.....	.....	.....	.....	.....	.....	2	2	.....	.....
1904	.....	.....	.....	1	3	3	2	.....	5	.....	.....	.....

TABLE 13.—*Solar halos at Orono, Me.*

Years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1869	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1870	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1871	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1872	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1873	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1874	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
1875	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1876	.....	.....	.....	1	.....	1	.....	.....	1	.....	.....	.....
1877	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
1878	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
1879	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
1880	.....	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....
1881	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1882	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1883	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1884	.....	.....	1	.....	1	.....	.....	.....	.....	1	.....	.....
1885	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
1886	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
1887	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
1888	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....
1889	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890	.....	1	.....	3	1	.....	.....	1	.....	.....	.....	.....
1891	.....	3	.....	.....	2	.....	.....	.....	.....	.....	.....	.....
1892	.....	.....	.....	2	2	.....	.....	.....	.....	.....	.....	.....
1893	.....	.....	1	2	.....	.....	.....	.....	.....	.....	2	.....
1894	.....	1	.....	2	.....	.....	.....	.....	.....	.....	.....	.....
Sum	1	6	4	14	8	2	1	2	1	1	2	1

July 14; 1873, July 26; 1882, August 15; 1890, July 8; 1892, June 14.

Parhelia are noted as follows: 1887, January 31; 1889, Feb-

ruary 22; 1890, January 18, February 10, March 25, 31, April 29; 1891, February 2, 3, 5, 27, May 21, 22; 1892, February 7.

Meteors were seen: 1875, March 24; 1887, September 15; 1888, January 4, December 28; 1889, November 17; 1890, August 11, 12; 1891, January 8.

The zodiacal light was observed in the evening on the following dates: 1877, March 21; 1878, January 29, 30; 1879, January 10, 14, 23; 1880, January 11; 1882, March 7, 8; 1883, January 29, February 7, 8, 26, March 8; 1886, February 22, 23; 1887, February 14, 21; 1888, February 2, 3, 29, December 23; 1889, December 16; 1890, January 17, 18, 21, 29, February 9, 10, 11, 13, 15, 16, March 9; 1891, January 8, 10, February 2, 10, 27, March 6, 7. Observations were made practically every evening, but of course certain of the phenomena may have been missed.

TABLE 14.—*Lunar halos at Orono, Me.*

Years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1869				1								
1870			1									
1871												
1872		1			1							
1873												
1874	1			1								
1875				1					1			
1876			2									
1877	1		1									
1878		2								1		
1879	1								1	1		
1880			2	1				1				
1881	2	2		1						1		
1882		1										
1883						1						
1884	2				1				1	2		
1885			1	2								1
1886		1		1		1					1	1
1887		1	1	1						1	1	2
1888			1	1						1		1
1889	1	3	2		1							3
1890	4	1	2					1		2		
1891		1		1	1	2				1	1	1
1892	2	2	2		1							1
1893	1	7		3					1			
1894			2									
1895												
Sum	15	22	17	14	5	4	0	2	4	10	3	10

TABLE 15.—*Auroras at Orono, Me.*

Years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1869			4	5	2				3	4	1	
1870	3	3	4	1	1	1		1	2	1	2	2
1871		5	3	2	2	2	2	1	5	2	8	2
1872	1	2	2		2		1	4		3	3	2
1873	2		1	3	1	3	2		1	2		
1874	2	1		2			1		2	5		1
1875		1		2					1			
1876				1					1			
1877	1			1								
1878		1							1			2
1879				1					1	1		
1880			3	2				4		1	3	
1881	1			2					1			1
1882		2	2	1				1		4	3	3
1883		5	3	1			1		1	1		
1884			3	4						1	1	
1885					1			3	1	1	1	3
1886			2	2		1		2	3	3	1	
1887		2		1	3			2	1	1	2	
1888	1	1	1		3	1		1	1	3		1
1889				1		1	1			1	4	2
1890	3	2					3	2	3	2	5	
1891	1	1	3	1	3	1			4	2	3	1
1892	1	8	6	6	1		4	1	3	5	1	3
1893				1					2		5	
1894		5	2		5	2	3	1				
1895				3	1					2		
1896										1		
1897		1	5	3								
1898			1									
1899												
1900												
1901												
1902											1	
Sum	16	40	45	46	22	12	18	23	37	48	44	23

Earthquakes occurred: 1870, October 20; 1871, October 19; 1872, January 9; 1881, June 21.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. F. TALMAN, Acting Librarian.

The following titles have been selected from among the books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be loaned for a limited time to officials and employees who make application for them.

Austria-Hungary. Hydrographisches Amt der Kaiserlichen und Königlichen Kriegsmarine in Pola.
Jahrbuch der meteorologischen, erdmagnetischen und seismischen Beobachtungen. Neue Folge. IX. Band. xxxiii, 190 pp. f°. Pola. 1905.

Austria-Hungary. Kaiserliche Königliche Central-Anstalt für Meteorologie und Erdmagnetismus.
Jahrbücher der K. K. Central-Anstalt für Meteorologie und Erdmagnetismus. Jahrgang 1903. Neue Folge. XL. Band. v. p. f°. Wien. 1905.
Same. Anhang. 89 pp. f°. Wien. 1905.

Baden. Centralbureau für Meteorologie und Hydrographie.
Jahres-Bericht des Zentralbureaus für Meteorologie und Hydrographie im Grossherzogtum Baden mit den Ergebnissen der meteorologischen Beobachtungen und der Wasserstandsaufzeichnungen am Rhein und an seinen grösseren Nebenflüssen für das Jahr 1904. 97 pp. 6 plates. f°. Karlsruhe. 1905.

Carnegie Institution of Washington.
Desert Botanical Laboratory of the Carnegie Institution. By Frederick Vernon Coville and Daniel Trembly MacDougal. 58 pp. 8°. Washington. 1903.
Report of Committee on Southern and Solar Observatories. 170 pp. 8°. Washington. 1903.

Eiffel, G.
Études pratiques de météorologie et observations comparées des stations de Beaulieu, Sèvres et Vacquey pour l'année 1903. xxx, 377 pp. f°. Paris. 1905.
Same. Atlas des planches. 24 plates.
Les observations courantes en météorologie et comparaison des stations de Beaulieu, Sèvres et Vacquey. Conférence faite a la Société Astronomique de France le 4 janvier 1905. (Extrait du Bulletin de la Société Astronomique de France.) 43 pp. 8°. Paris. 1905.

Gesellschaft für Erdkunde zu Berlin.
Bibliotheca geographica. Herausgegeben von der Gesellschaft für Erdkunde zu Berlin. Bearbeitet von Otto Baschin. Band X. Jahrgang 1901. xvi, 571 pp. 8°. Berlin. 1904.

Isthmian Canal Commission.
Report of the Isthmian Canal Commission, 1899-1901. 688 pp. 86 plates. 4°. Washington. 1904.

Kassner, [Carl Julius Hermann].
Die normale Verteilung der Niederschläge in Deutschland und die Dürre im Jahre 1904. (Deutsche Landwirtschafts Gesellschaft. Sonderabdruck aus "Jahrbuch" 1905.) Pp. 89-105. 8°.

Mill, Hugh Robert.
British rainfall, 1904. Forty-fourth annual volume 87, [279] pp. 8°. London. 1905.

Naturforschender Verein in Brünn.
Verhandlungen. XLII. Band. 1903. 253 pp. 8°. Brünn. 1904.
Bericht der Meteorologischen Commission des Naturforschenden Vereines in Brünn. 1890, 1891, 1893-1900, 1902. 8°. Brünn. 1892, 1893, 1895-1902, 1904.
Beitrag zur Kenntnis der Niederschlagsverhältnisse Mährens und Schlesiens. 13 pp. 8°. 1 chart. Brünn. 1904.

Nimführ, R[aimund].
Sehr tiefe Temperaturen in grossen Höhen der Atmosphäre. (From Meteorologische Zeitschrift. Juli 1905.) Pp. 289-299. 4°.

Norway. Norske Meteorologiske Institut.
Oversigt over Luftens Temperatur og Nedboren i Norge i Aaret 1903. 21 pp. 8°. n. t. p.
Same. 1904. 21 pp. 8°. n. t. p.
Jahrbuch des Norwegischen Meteorologischen Instituts für 1904. Herausgegeben von Dr. H. Mohn. 138 pp. f°. Christiania. 1905.

Observatorio del Colegio Pio de Villa Colon.
El año meteorológico 1901-1902 por el P. Juan de Dios Moratorio. (Escrito expresamente para el "Anuario estadistico".) 12 pp. 4°. Montevideo. 1904.

Osservatorio de Messina. Istituto de Fisica Terrestre e Meteorologia della R. Università.
Annuario per l'anno 1904. 87 pp. 8°. Messina. 1905.

Preibisch, Ernst.
Wetterlehre. iv, 95 pp. 8°. Bautzen. 1905.