Table of miscellaneous meteorological data for May, 1885—Signal Service observations.

Stations.	Elevation above sea-level.	Atmospheric pressure (in inches and hundredths). Mean actual barometer.	Departure from normal.	Mean reduced barometer.	Extremes. Highest barometer.	Date.	Lowest barometer.	Date.	Monthly range of barometer.	Temperature of the air (in degrees Fahrenheit). Monthly mean.	Departure from normal.	Extremes. Max.	Date.	Mean max.	Min.	Date.	Mean min.	Monthly range.	Daily ranges. Greatest.	Date.	Least.	Date.	Mean rel. humidity.	Mean dew-point.	Precipitation.	Departure from normal.	Winds. Total movement.	Prevailing direction.	Max. velocity. Miles p. hr.	Direction.	Date.	No. of rainy days.	No. of cloudy days.	No. of fair days.	No. of clear days.
New England.																																			
Eastport	61	29.91	.00	29.98	30.33	16	29.19	2	1.14	47.5	+0.2	72.6	29	54.9	30.6	4	40.1	42.0	29.3	29	7.2	2	74.3	30.0	4.79	+0.27	5,242	s.	41	e.	2	11	5	14	12
Portland	45	29.94	+.01	29.98	30.34	16	29.52	2	0.82	54.8	0.0	81.6	27	64.2	35.4	2	47.1	46.2	26.9	15	4.4	6	69.3	44.2	1.91	−1.34	4,675	s.	34	n.	2	11	6	13	12
Mount Washington	6,279	23.77		29.95	30.30	21	29.37	3	0.94	30.1	+2.6	61.9	24	44.1	−1.4	3	29.1	63.3	20.9	1	7.0	7	80.4	29.9	2.29	−4.56	18,040	nw.	98	nw.	2	14	6	12	13
Boston	122	29.86	.00	29.99	30.34	21	29.53	2	0.80	52.3	−4.0	84.4	19	60.7	35.3	3	45.7	49.1	35.6	19	3.0	14	71.4	42.0	4.26	+0.79	7,811	e.	44	n.	14	12	10	10	11
Point Judith										50.8		65.5	27	56.4	33.2	3	45.1	32.3							3.43	−0.11						10			
Block Island	27	29.95		29.97	30.30	21	29.49	2	0.81	50.7	−1.2	75.8	27	56.5	37.9	2	45.5	37.9	20.4	26	4.6	14	85.2	46.2	4.14	−0.94	6,957	ne.	52	ne.	14	18	11	12	8
Narragansett Pier										52.4		83.0	20	60.8	32.0	4	44.0	51.0							3.49	+0.11						13			
New London	47	29.95	.00	29.99	30.31	22	29.55	2	0.70	54.5	−1.9	80.3	26	62.0	35.3	4	47.1	45.0	28.0	19	3.5	8	70.8	44.2	5.02	+1.56	5,702	se.	32	se.	16	12	10	11	10
New Haven	107	29.88		29.98	30.30	21	29.59	2	0.71	54.9	−3.2	82.2	19	64.1	31.3	4	46.2	50.9	29.2	15	7.8	8	69.0	43.7	2.61	−1.07	5,236	ne.	29	ne.	2	11	8	16	7
Middle Atlantic states.																																			
Albany	75	29.90	−.01	29.98	30.26	22	29.60	9	0.67	57.2	−2.0	86.1	19	67.8	31.6	6	46.7	54.5	34.0	15	10.3	31	60.3	42.0	1.92	−1.04	4,536	sw.	24	s.	6	8	9	13	9
New York City	164	29.81	−.03	29.97	30.27	21	29.60	2	0.68	56.2	−2.9	84.8	15	64.7	39.0	5	48.8	45.8	31.1	15	7.1	8	73.7	47.0	2.22	−0.64	7,335	ne.	32	ne.	1	11	12	12	7
Sandy Hook	28	29.96	−.02	29.98	30.28	21	29.61	1	0.67	54.6	−4.2	83.1	20	62.6	41.1	5	48.9	42.0	31.5	15	4.1	8	76.8	46.6	2.67	−1.42	9,975	e.	50	e.	1	18	7	18	6
Barnegat City	22	29.95	−.04	29.96	30.24	21	29.53	1	0.71	54.6	−2.4	75.2	20	61.1	39.1	3	48.4	36.1	25.4	15	5.3	21	85.0	49.8	1.47	−1.17	9,046	ne.	36	n.	7	15	7	16	8
Little Egg Harbor										55.1		77.2	26	61.0	38.8	3	49.2	38.4							2.39	−0.09						13			
Atlantic City	13	29.93	−.07	29.93	30.22	21	29.52	1	0.70	54.8	−2.5	75.0	26	61.5	35.4	3	49.3	39.6	25.5	15	3.8	29	89.9	51.6	3.61	+1.33	7,039	ne.	31	e.	7	15	7	20	4
Cape May	27	29.92		29.93	30.18	21	29.52	1	0.66	57.4	−1.4	76.8	20	63.6	43.1	3	52.0	33.7	21.1	15	5.7	6	83.9	52.5	5.20	+2.69	9,165	e.	32	nw.	2	14	7	18	6
Philadelphia	117	29.84	−.06	29.95	30.30	21	29.57	1	0.73	59.6	−2.5	84.3	19	69.0	41.0	3	51.2	43.3	30.6	6	10.4	13	70.0	48.6	3.76	+0.93	6,452	ne.	29	nw.	2	15	8	20	3
Baltimore	45	29.92	−.06	29.95	30.19	21	29.53	1	0.66	63.0	−1.6	82.1	20	71.2	44.0	12	55.8	38.1	27.0	5	4.9	13	64.8	49.4	4.50	+1.66	3,917	se.	19	w.	4	12	17	10	4
Washington City	106	29.86	−.05	29.90	30.19	21	29.51	1	0.69	62.3	−2.1	86.4	19	71.2	40.5	12	53.5	45.9	33.2	5	5.6	22	68.1	50.0	2.85	−0.14	4,082	e.	21	nw.	2	12	12	14	5
Ocean City										58.3		75.9	20	65.3	39.3	3	51.2	36.6							5.82	+4.98						18			
Chincoteague	8	29.94	−.07	29.93	30.20	12	29.50	1	0.70	59.9	−0.3	81.2	20	67.2	40.8	3	52.2	40.4	26.9	15	4.9	24	83.1	54.1	7.22	+5.25	6,801	ne.	44	nw.	13	19	12	16	3
Cape Henry	16	29.93	−.08	29.93	30.20	12	29.51	1	0.69	62.3	−1.9	83.6	31	70.1	46.8	11	56.5	36.8	27.7	5	4.0	17	81.9	56.3	4.93	+1.74	8,632	ne.	41	ne.	13	18	9	14	6
Norfolk	30	29.91	−.09	29.92	30.16	12	29.53	1	0.64	65.1	−1.6	84.4	31	73.0	46.8	12	58.3	37.6	26.8	5	4.1	17	79.4	58.1	6.16	+2.79	4,355	n.	18	n.	13	20	13	13	5
Lynchburg	652	29.26	−.07	29.92	30.15	15	29.48	1	0.67	63.4	−3.2	85.5	25	73.2	39.6	11	54.9	45.9	37.6	5	5.6	24	70.0	51.7	5.36	+2.48	2,441	ne.	16	nw.	2	14	15	5	11
South Atlantic states.																																			
Kitty Hawk	22	29.95	−.10	29.94	30.20	12	29.49	1	0.71	63.6	−0.3	86.6	26	71.1	46.1	3	57.5	40.5	29.2	5	5.3	10	87.9	59.7	6.76	+3.84	8,667	n.	46	n.	13	16	11	15	5
Hatteras	12	29.94	−.10	29.93	30.17	12	29.55	1	0.62	66.3	+0.3	79.5	27	71.7	50.6	11	61.4	28.9	16.1	15	6.0	6	87.3	62.1	7.04	+3.15	7,381	ne.	29	w.	2	17	8	14	9
Fort Macon	11																																		
New River Inlet																																			
Wilmington	52	29.90	−.09	29.93	30.15	15	29.58	1	0.57	70.1	+0.4	87.9	25	79.0	51.3	11	62.6	36.6	22.8	8	9.4	6	76.0	61.4	8.58	+4.45	4,717	sw.	24	nw.	7	14	7	20	4
Smithville	34	29.93	−.09	30.94	30.17	15	29.60	1	0.57	69.2	−0.4	83.4	20	76.2	48.9	3	61.6	34.5	23.2	10	8.6	27	82.3	63.3	6.10	+3.39	7,428	sw.	33	s.	5	10	5	15	11
Charlotte	808	29.12	−.06	29.93	30.19	15	29.53	1	0.66	67.4	−1.6	87.0	25	76.8	45.2	11	58.3	41.8	20.9	18	10.8	27	65.1	53.6	6.47	+3.07	3,509	sw.	22	nw.	1	14	12	10	9
Atlanta	1,129	29.81	−.07	29.95	30.16	15	29.60	6	0.56	66.1	−3.2	83.0	20	74.8	46.0	10	58.9	37.0	22.5	11	7.0	27	68.8	53.7	6.12	+3.40	6,288	nw.	31	e.	15	15	9	12	10
Augusta	183	29.80	−.06	29.95	30.18	15	29.64	1	0.54	70.0	−2.6	91.9	20	83.0	47.0	11	60.4	44.9	32.0	18	10.8	12	70.1	58.1	5.86	+2.72	2,589	w.	28	n.	16	11	7	15	9
Charleston	52	29.92	−.07	29.94	30.14	15	29.63	7	0.51	72.3	0.0	90.2	29	79.9	54.0	10	66.2	36.2	20.8	13	7.0	12	72.3	62.4	2.20	−2.32	5,151	sw.	22	e.	16	10	7	13	11
Savannah	87	29.88	−.08	29.94	30.15	15	29.67	6	0.48	73.3	−0.3	90.0	29	80.8	54.5	11	66.0	36.1	21.6	10	7.2	12	67.8	61.0	3.98	+1.10	5,295	s.	20	s.	1	13	5	13	13
Jacksonville	43	29.93	−.06	29.94	30.10	25	29.68	6	0.42	73.7	−1.7	89.4	28	83.1	54.8	11	66.6	34.6	23.0	8	6.4	12	77.0	65.3	7.74	+3.82	4,693	se.	36	w.	23	14	9	14	8
Wash Woods										63.2		80.0	20	71.2	42.0	2	55.3	44.0							4.47							18			
Scott's Hill										60.8		89.0	21	79.4	44.0	3	54.1	45.0							7.35							12			
Cape Lookout										68.6		84.9	27	70.6	49.0	14	60.0	35.9							7.37	+2.23						13			
Portsmouth										67.1		79.8	20	72.0	50.9	14	62.3	28.9																	
Florida peninsula.																																			
Sanford	50	29.96		29.99	30.17	25	29.77	6	0.39	73.9	−1.6	93.0	20	85.4	61.2	17	66.8	31.8	26.2	8	10.7	15	76.7	65.1	4.99	+2.97	3,921	ne.	27	n.	20	13	5	17	9
Cedar Keys	22	29.94	−.07	29.92	30.10	25	29.73	6	0.37	75.1	−0.9	86.8	29	81.6	59.8	11	69.8	27.0	22.5	17	5.3	5	74.2	65.5	3.48	+0.91	6,558	s.	26	se.	22	10	9	15	7
Key West	20	29.96	−.03	29.93	30.13	25	29.79	6	0.33	80.4	+0.4	90.8	24	86.3	70.4	16	75.6	20.4	14.5	25	5.4	11	70.3	72.0	2.48	−1.60	6,045	se.	30	ne.	14	12	9	17	5
Eastern Gulf states.																																			
Montgomery	219	29.74	−.06	29.94	30.14	16	29.59	6	0.55	70.1	−3.2	88.8	28	80.4	48.1	11	61.2	40.7	29.3	17	8.0	19	70.6	58.7	8.92	+5.21	3,543	nw.	23	nw.	29	13	12	9	10
Pensacola	30	29.93	−.06	29.92	30.08	25	29.63	6	0.45	72.8	−1.1	86.2	28	80.5	60.8	20	66.7	25.4	21.3	10	7.8	27	73.4	63.0	1.42	−3.55	5,928	s.	28	ne.	18	6	6	20	5
Mobile	35	29.93	−.03	29.93	30.09	16	29.64	6	0.45	71.7	−2.7	86.4	31	80.1	52.6	10	64.1	33.8	24.0	8	7.1	27	72.9	61.5	3.27	−1.69	4,902	s.	32	ne.	18	11	4	22	5
Vicksburg	209																																		
New Orleans	52	29.89	−.05	29.91	30.08	3	29.62	20	0.46	73.9	−1.2	87.0	28	80.3	60.5	9	68.4	26.5	15.0	25	7.6	1	72.8	63.8	5.77	+0.25	4,538	se.	28	ne.	18	15	7	17	7
Western Gulf states.																																			
Fort Smith	470	29.45	−.01	29.91	30.21	8	29.55	6	0.66	65.6	−2.4	86.3	22	76.5	41.5	10	56.6	44.8	27.2	22	9.6	26	79.3	58.3	2.59	−2.09	2,828	e.	24	n.	24	11	9	14	8
Little Rock	298	29.62	−.04	29.89	30.16	8	29.50	6	0.66	68.1	−1.9	89.2	23	78.0	44.7	9	59.9	44.5	20.4	9	4.2	6	70.9	57.3	3.16	−3.81	3,153	e.	18	w.	29	10	7	14	10
Shreveport	227	29.71	−.03	29.91	30.13	2	29.58	6	0.55	71.2	−2.4	92.0	23	83.1	52.3	11	62.3	39.7	28.9	11	7.5	20	66.2	57.8	3.66	−1.57	4,035	s.	20	w.	28	9	6	14	11
Palestine	533	29.41	−.03	29.93	30.15	2	29.66	6	0.49	69.4	−1.2	87.4	27	79.5	51.4	11	61.2	36.0	24.7	7	12.4	30	77.2	61.2	6.08	−3.14	5,581	s.	48	w.	17	11	8	15	8
Indianola	20	29.89	−.03	29.88	30.07	2	29.61	6	0.46	75.0	−1.2	91.6	6	82.2	58.8	9	69.2	32.8	23.0	20	5.7	11	80.9	68.4	5.27	+1.91	9,934	e.	59	n.	8	9	3	25	3
Galveston	40	29.91	−.02	29.91	30.11	2	29.61	6	0.50	70.2	−0.2	87.7	30	81.4	58.0	9	70.6	29.7	17.0	8	5.8	26	76.5	67.9	6.41	+1.90	7,787	se.	37	ne.	20	10	6	19	6
San Antonio		29.09		29.85	30.06	2	29.57	5	0.49	70.7	−5.5	88.8	29	80.2	51.0	8	62.7	37.8	25.0	18	6.7	13	78.1	62.9	7.92	+4.67	5,532	ne.	40	s.	25	11	12	14	5
Rio Grande valley.																																			
Rio Grande City	230	29.66	.00	29.84	30.04	2	29.62	6	0.42	75.6	−5.3	98.0	6	88.0	62.0	9	71.0	36.0	28.0	6	7.0	9	77.6	70.1	10.28	+7.53	5,067	se.	32	e.	8	13	9	16	6
Brownsville	57	29.83	−.04	29.84	30.00	2	29.62	19	0.38	70.8	−2.5	95.4	30	86.5	63.0	9	71.2	32.4	23.2	30	7.8	9	80.7	72.2	7.18	+4.15	5,526	se.	30	n.	18	11	13	15	3
Tennessee.																																			
Nashville	549	29.37	−.05	29.92	30.14	15	29.47	6	0.67	65.2	−4.4	83.2	17	75.1	41.7	10	57.0	41.5	29.9	17	8.0	19	71.4	54.7	4.36	+0.83	4,224	e.	30	s.	23	12	8	15	7
Memphis	321	29.62	−.03	29.93	30.24	8	29.48	6	0.70	68.4	−2.4	90.2	24	77.6	41.5	8	57.0	48.8	29.8	15	10.0	7	64.8	54.8	3.05	−1.81	3,544	nw.	24	nw.	6	11	7	16	8
Chattanooga	783	29.15	−.07	29.94	30.18	16	29.53	6	0.65	65.0	−3.0	86.1	18	76.0	44.0	10	57.3	42.1	29.8	17	7.5	21	73.5	55.3	5.12	+1.57	3,794	nw.	22	nw.	1	16	7	11	13
Knoxville	980	28.95	−.07	29.94	30.20	16	29.52	6	0.67	63.8	−2.8	85.2	18	74.9	39.2	11	55.1	46.0	32.7	11	8.7	27	70.4	52.5	7.19	+3.94	3,694	n.	23	nw.	24	13	11	9	11
Ohio valley.																																			
Pittsburg	766	29.12	−.07	29.92	30.21	16	29.51	6	0.70	62.3	+0.3	87.1	23	72.6	38.6	3	52.6	48.5	36.2	5	7.4	22	60.0	46.4	3.26	+0.51	4,071	e.	21	s.	5	15	9	16	6
Columbus	805	29.07	−.07	29.91	30.22	15	29.49	6	0.73	60.7	−2.5	86.1	17	71.4	35.1	10	51.0	51.0	33.7	17	7.7	9	75.6	52.3	5.83	+1.32	5,131	sw.	30	w.	7	14	8	16	7
Indianapolis	753	29.13	−.06	29.91	30.19	15	29.51	6	0.68	60.5	−3.6	87.7	24	71.4	35.3	8	51.1	52.4	35.2	20	7.6	6	66.2	47.7	3.66	−0.64	4,109	sw.	24	w.	24	10	7	17	7
Greencastle		29.00		29.92	30.19	15	29.50	6	0.69	60.2		84.1	24	69.0	30.4	9	52.7	47.7	32.0	20	5.6	27	68.7	48.8	3.37		5,238	sw.	27	sw.	8	12	5	19	7
Cincinnati	628	29.28	−.04	29.92	30.20	15	29.47	6	0.73	61.5	−4.1	84.1	24	71.7	37.0	8	52.4	47.1	32.4	17	7.4	27	65.1	48.1	2.07	−1.58	4,423	nw.	23	sw.	5	13	9	13	9
Louisville	530	29.37	−.05	29.93	30.20	15	29.48	6	0.72	65.2	−1.9	87.4	24	74.7	39.1	8	54.9	48.3	28.2	10	11.7	1	68.7	53.7	4.20	+0.27	5,339	w.	22	sw.	8	14	9	13	9
Lower lake region.																																			
Detroit	661	29.22	−.06	29.91	30.21	15	29.50	6	0.70	56.8	−1.1	80.0	17	65.7	30.3	3	48.8	49.7	27.0	20	4.6	22	63.6	46.4	3.65	+0.02	6,723	s.	28	sw.	7	13	7	14	10
Toledo	651	29.24	−.04	29.92	30.21	15	29.51	6	0.70	57.9	−1.1	83.0	17	65.0	32.3	3	49.2	50.8	24.2	18	6.8	22	69.9	47.0	5.11	+2.51	6,220	sw.	32	w.	9	15	8	17	6
Sandusky	639	29.26	−.06	29.92	30.22	15	29.51	6	0.71	56.7	−3.5	85.1	18	65.4	34.9	11	49.0	50.2	27.9	16	4.9	1	68.7	45.3	4.35	−0.95	8,398	e.	38	sw.	9	12	10	14	7
Cleveland	690	29.21	−.05	29.93	30.24	15	29.50	6	0.74	55.6	−2.6	80.6	17	64.8	33.2	3	48.2	47.4	28.4	6	5.1	10	75.8	47.5	3.88	+0.68	6,455	ne.	30	w.	9	13	5	15	11
Erie	681	29.21	−.05	29.92	30.20	16	29.52	6	0.67	56.1	−1.5	80.8	18	64.3	30.6	3	47.8	50.2	24.8	24	9.2	4	72.9	47.1	4.90	+1.35	6,827	w.	27	s.	7	13	9	10	12
Buffalo	690	29.20	−.04	29.93	30.21	16	29.50	7	0.72	53.1	−0.6	81.0	17	61.7	30.3	3	40.6	50.7	28.5	20	4.4	10	81.2	47.1	3.80	+0.81	6,216	sw.	32	sw.	10	17	10	15	6
Rochester	621	29.28	−.04	29.93	30.20	16	29.59	31	0.62	55.4	−1.0	85.3	25	66.9	31.3	3	46.9	54.0	30.7	15	9.3	13	75.7	47.3	2.02	−1.21	6,937	w.	34	s.	7	13	10	15	6
Oswego	334	29.59	−.04	29.95	30.21	16	29.59	31	0.61	52.5	−2.1	81.4	17	60.5	27.6	3	43.3	53.8	32.0	25	7.5	11	70.6	42.4	3.37	+0.59	6,795	se.	26	se.	7	12	9	14	8
Upper lake region.																																			
Duluth	644	29.18	−.06	29.92	30.24	2	29.46	8	0.78	47.0	−1.8	77.9	25	56.1	26.6	7	38.7	51.3	34.3	16	5.9	18	60.9	32.7	1.53	−2.50	5,158	e.	29	ne.	27	9	10	10	11
Marquette	673	29.16	−.08	29.90	30.25	27	29.27	8	0.98	45.4	−4.0	81.2	24	54.1	27.0	6	37.4	54.2	30.2	17	3.5	5	71.8	35.5	3.19	+0.21	5,349	nw.	29	w.	7	10	7	9	15
Escanaba	612	29.21	−.09	29.87	30.18	27	29.34	8	0.85	47.6	−1.8	76.2	25	56.4	27.1	2	39.4	49.1	28.7	20	6.7	18	66.5	36.2	3.61	−0.32	7,023	s.	35	n.	18	14	7	14	10
Milwaukee	697	29.16	−.06	29.90	30.16	2	29.46	6	0.70	49.7	−3.8	80.4	16	59.9	27.5	7	42.4	52.9	25.2	10	4.2	19	70.0	39.4	0.41	−3.24	8,999	n.	40	sw.	7	8	8	12	11
Chicago	661	29.21	−.05	29.90	30.15	15	29.51	5	0.64	52.8	−4.1	80.4	24	60.6	33.8	7	46.1	46.6	28.9	24	3.1	19	70.9	42.9	3.17	−0.69	5,406	n.	30	sw.	8	11	7	13	11
Grand Haven	620	29.25	−.06	29.91	30.19	15	29.53	5	0.66	52.9	−2.5	76.6	17	62.3	32.3	11	45.1	43.3	25.8	14	6.5	8	70.7	42.9	1.17	−2.43	7,534	s.	37	w.	7	8	4	15	11
Mackinaw City	605	29.24	−.04	29.90	30.22	28	29.43	7	0.79	44.4	−1.8	80.7	10	53.4	27.0	3	30.4	53.7	39.6	16	5.5	5	74.0	36.0	2.53	−0.55	5,710	e.	37	sw.	7	8	8	11	12
Alpena	609	29.24	−.08	29.90	30.20	28	29.44	7	0.76	46.5	−2.4	78.3	16	56.3	25.1	3	50.1	53.2	33.3	16	4.2	8	81.4	40.5	2.18	−1.76	6,618	se.	30	sw.	7	10	9	9	13
Port Huron	633	29.24	−.06	29.91	30.17	15	29.55	9	0.62	50.0	−3.3	81.3	17	59.7	26.3	3	42.4	55.0	36.2	18	6.9	9	77.1	42.3	3.80	+0.70	6,531	ne.	32	s.	8	14	7	10	14

Table of miscellaneous meteorological data for May, 1885—Signal Service observations—Continued.

Stations.	Elevation above sea-level.	Atmospheric pressure (in inches and hundredths). Mean actual barometer.	Departure from normal.	Mean reduced barometer.	Extremes. Highest barometer	Date.	Lowest barometer	Date.	Monthly range of barometer.	Temperature of the air (in degrees Fahrenheit). Monthly mean.	Departure from normal.	Extremes. Max.	Date.	Mean max	Min.	Date.	Mean min	Monthly range.	Daily ranges. Greatest.	Date.	Least.	Date.	Mean rel. humidity.	Mean dew-point.	Precipitation.	Departure from normal	Winds. Total movement.	Prevailing direction.	Max. velocity. Miles p.hr	Direction.	Date.	No. of rainy days.	No. of cloudy days.	No. of fair days.	No. of clear days.
Extreme northwest.																																			
Fort Buford	1,930	27.88	—.06	29.89	30.28	9	29.58	20	0.70	54.2	+ 0.4	84.1	13	70.2	20.0	8	41.6	64.1	43.2	12	16.5	6	59.1	37.8	1.02	—1.13	7,150	nw.	32	nw.	5	8	10	15	6
Bismarck	1,694	28.11	.00	29.90	30.25	9	29.54	15	0.71	54.0	— 0.9	83.0	22	66.7	21.6	6	43.1	61.4	34.5	13	11.0	15	74.5	45.1	0.92	—2.31	6,522	n.	38	s.	15	10	6	17	8
Fort Totten	.....	28.30	.....	29.90	30.23	1	29.54	15	0.69	50.8	.....	80.2	22	64.4	20.5	6	40.5	65.7	36.1	13	9.3	6	68.3	39.5	1.70	.....	9,079	n.	41	nw.	8	10	8	12	11
Moorhead	923	28.90	—.06	29.88	30.22	1	29.44	15	0.78	52.6	— 0.7	85.3	22	65.2	21.4	7	41.8	63.9	34.4	4	5.0	8	72.0	42.8	2.27	—1.09	8,440	n.	40	n.	7	6	8	16	7
Saint Vincent	804	29.66	—.04	29.94	30.30	1	29.60	15	0.70	50.6	— 0.6	84.9	22	62.5	22.0	6	40.4	62.9	34.0	13	8.0	6	76.3	42.7	1.59	—0.95	8,177	nw.	40	nw.	7	7	6	16	9
Upper Mississippi valley.																																			
Saint Paul	801	29.04	—.04	29.88	30.17	2	29.51	6	0.66	56.7	— 1.9	87.1	23	69.8	26.6	7	46.9	60.5	34.7	4	10.3	20	72.2	47.2	2.12	—1.48	5,606	s.	34	s.	15	9	7	18	6
La Crosse	725	29.13	—.03	29.89	30.18	2	29.49	6	0.69	57.8	— 2.7	85.7	24	66.9	29.5	7	49.1	56.2	27.2	4	5.8	8	59.9	42.7	2.52	—0.91	6,003	nw.	25	n.	5	7	5	13	12
Dubuque	665	29.21	.....	29.90	30.18	2	29.52	5	0.66	56.7	— 4.4	80.0	24	68.6	25.9	7	46.8	60.1	31.8	4	5.7	29	64.3	43.1	2.62	—1.39	4,205	nw.	24	w.	8	13	6	10	9
Davenport	615	29.27	—.03	29.91	30.20	2	29.53	5	0.66	57.8	— 3.8	84.7	24	68.4	29.3	7	48.6	55.4	31.0	13	7.7	17	65.4	44.7	1.94	—2.52	6,116	nw.	34	w.	8	6	8	17	6
Des Moines	849	29.03	—.03	29.91	30.22	2	29.56	5	0.66	59.1	— 2.1	91.6	23	71.9	27.8	7	48.8	63.8	37.0	4	5.3	28	68.4	47.7	1.70	—4.47	3,769	n.	25	nw.	8	9	6	17	8
Keokuk	618	29.27	—.02	29.91	30.17	2	29.56	5	0.61	60.6	— 2.8	83.7	24	70.3	32.2	7	51.1	51.5	27.6	4	5.5	28	69.0	49.6	2.59	—1.60	6,201	nw.	28	w.	8	8	4	17	10
Springfield	644	29.25	—.06	29.90	30.15	2	29.55	5	0.60	61.4	— 2.4	82.4	24	70.6	38.0	7	52.7	44.4	29.2	20	5.0	28	62.9	47.8	2.78	—3.14	6,375	nw.	29	w.	8	10	7	18	6
Saint Louis	583	29.34	—.03	29.92	30.16	2	29.55	6	0.61	64.9	— 1.1	91.0	24	73.4	40.5	7	57.5	50.5	27.5	20	6.4	6	66.6	52.6	2.80	—0.98	7,628	nw.	34	nw.	24	11	7	17	7
Cairo	377	29.58	—.04	29.93	30.15	8	29.53	6	0.62	65.6	— 2.4	89.3	24	74.1	40.2	8	58.3	49.1	22.9	15	9.0	12	67.7	53.5	3.21	—1.07	5,157	n.	26	s.	5	12	5	20	6
Missouri valley.																																			
Fort Bennett	1,510	28.35	.....	29.91	30.24	1	29.56	15	0.68	56.4	— 0.1	86.8	22	70.7	24.6	9	45.8	62.2	43.7	4	4.6	28	64.2	42.7	2.40	—0.22	7,435	n.	40	n.	4	10	7	15	9
Fort Sully	.....	.....	.....	.....	.....	...	.....	...	.....	59.8	.....	89.3	21	73.7	27.5	7	45.9	61.8	.....	...	.....	...	.....	.....	2.70	0.00	.....	.....	...	.....	...	12	...	...	...
Yankton	1,228	28.63	—.01	29.90	30.23	2	29.58	15	0.65	57.4	— 2.1	85.6	23	70.2	25.5	7	47.0	60.1	41.2	4	10.1	15	65.7	44.2	4.01	—0.57	6,869	n.	36	s.	15	10	6	14	11
Huron	1,305	28.54	—.01	29.89	30.23	2	29.56	15	0.67	55.1	+ 2.3	80.0	21	68.6	25.3	9	43.4	60.7	41.7	4	7.1	28	71.8	45.6	5.20	+1.25	8,031	n.	34	sw.	20	13	5	13	13
Omaha	1,113	28.79	+.01	29.93	30.20	2	29.00	5	0.66	59.8	— 2.6	86.5	31	69.9	23.7	7	50.8	57.8	28.9	4	6.5	16	67.2	47.9	4.43	—0.59	6,645	nw.	32	nw.	6	10	6	15	10
Leavenworth	842	29.07	+.01	29.93	30.25	2	29.62	5	0.63	61.8	— 3.0	88.0	31	72.5	36.5	8	52.7	51.5	31.2	10	7.0	16	70.1	51.0	5.89	+0.84	3,158	nw.	23	s.	15	13	4	13	14
Lamar	1,028	28.89	.....	29.94	30.23	8	29.59	6	0.64	62.0	.....	85.0	23	72.5	32.0	7	53.1	52.4	25.9	31	9.7	29	70.4	51.3	5.02	.....	6,256	se.	43	s.	17	13	12	12	7
Northern slope.																																			
Fort Assinaboine	2,710	.....	.....	.....	.....	...	.....	...	.....	.....	.....	.....	...	.....	.....	...	.....	.....	.....	...	.....	...	.....	.....	.....	.....	.....	.....	...	.....	...	...	...	...	...
Fort Benton	2,700	27.16	.....	29.95	30.32	7	29.62	13	0.70	57.0	+ 2.3	89.1	30	71.9	22.1	7	41.6	67.0	49.9	12	14.2	15	55.7	39.8	0.48	—2.35	5,117	sw.	43	ne.	13	8	4	20	6
Fort Shaw	3,550	20.29	.....	29.90	30.19	7	29.58	20	0.61	53.0	+ 3.1	85.2	30	67.7	22.5	7	39.2	62.7	45.7	12	12.0	15	57.1	37.3	0.82	—0.85	4,658	w.	30	ne.	13	10	5	9	17
Helena	4,044	25.78	—.03	29.90	30.13	8	29.59	20	0.54	51.0	— 0.6	79.3	30	63.0	21.9	7	40.8	57.4	33.2	12	11.7	15	55.5	34.4	0.85	—0.20	4,930	sw.	30	nw.	4	11	4	18	9
Fort Custer	3,040	20.79	+.01	29.89	30.22	8	29.53	13	0.69	55.2	+ 0.7	87.0	30	70.9	18.1	7	38.1	68.9	44.7	25	17.5	22	48.4	33.1	0.47	—2.74	5,536	nw.	39	nw.	5	6	6	20	5
Poplar River	2,030	27.78	.....	29.92	30.29	8	29.02	20	0.76	54.1	.....	86.6	31	69.6	22.0	8	38.9	64.6	47.9	17	14.4	6	73.4	44.6	0.77	—0.94	5,810	n.	34	nw.	16	9	2	12	17
Fort Maginnis	4,340	25.52	.....	29.93	30.22	8	29.64	13	0.58	49.8	.....	81.1	31	64.1	14.4	7	38.2	66.4	37.6	12	14.4	5	57.2	34.3	0.43	—0.81	7,266	n.	44	nw.	5	10	1	20	10
Deadwood	4,600	25.35	+.02	29.87	30.12	9	29.62	15	0.51	48.8	— 0.4	73.4	13	60.3	17.3	7	40.0	56.1	31.3	12	8.6	28	71.7	38.9	3.22	—2.22	2,822	ne.	20	sw.	14	14	3	15	13
Cheyenne	6,089	23.98	—.01	29.86	30.08	1	29.04	15	0.44	46.7	— 4.1	79.1	31	60.5	22.4	7	36.2	56.7	33.9	22	7.7	7	69.7	35.5	1.33	—1.00	6,899	nw.	36	nw.	15	11	7	10	14
North Platte	2,841	27.04	+.02	29.88	30.18	8	29.52	15	0.66	56.3	— 2.4	85.2	31	66.6	28.0	8	47.2	57.2	31.3	2	6.6	28	69.6	45.5	3.31	+0.22	6,909	nw.	40	se.	22	13	6	19	6
Middle slope.																																			
Denver	5,294	24.72	+.03	29.87	30.15	1	29.61	15	0.54	52.7	— 3.8	86.0	31	64.4	27.1	7	41.9	58.9	36.6	21	6.3	7	58.8	35.3	2.13	—1.04	5,007	n.	28	nw.	10	17	9	17	5
Pike's Peak	14,134	17.82	.....	29.87	30.09	30	29.66	15	0.42	21.1	— 0.8	38.7	31	25.6	9.7	17	16.8	29.0	14.6	29	4.0	22	88.4	18.3	6.12	+2.11	13,797	sw.	74	sw.	15	22	8	17	6
Dodge City	2,517	27.36	+.03	29.87	30.16	8	29.01	5	0.55	58.7	— 4.3	84.0	31	71.0	33.4	7	49.2	50.6	35.7	27	7.1	14	72.9	48.9	4.07	—0.28	8,799	se.	58	se.	15	19	6	18	7
West Las Animas	3,905	25.99	+.02	29.82	30.06	2	29.51	15	0.55	57.3	+ 0.1	95.2	31	72.8	33.4	8	44.8	61.8	43.2	30	9.9	10	66.8	44.4	0.49	—3.18	6,823	w.	32	s.	22	7	9	14	8
Fort Elliott	2,650	27.19	+.02	29.87	30.14	8	29.58	5	0.55	59.3	— 3.8	82.0	31	71.8	35.0	10	50.4	47.0	29.2	10	10.4	11	75.5	50.3	7.23	+1.61	8,695	s.	36	se.	15	10	7	15	9
Fort Reno	.....	.....	.....	.....	.....	...	.....	...	.....	64.1	.....	90.4	27	75.2	37.0	10	52.9	53.4	.....	...	.....	...	.....	.....	9.84	+5.22	.....	.....	...	.....	...	11	...	...	...
Concordia	.....	28.48	.....	.....	.....	...	.....	...	0.62	58.3	.....	84.1	23	70.5	31.0	8	49.0	53.1	31.6	10	9.9	16	77.2	50.2	2.63	.....	6,131	nw.	48	s.	15	13	4	16	11
Southern slope.																																			
Fort Sill	1,200	28.68	—.01	29.87	30.15	2	29.52	5	0.63	64.7	— 5.1	87.0	24	75.7	42.0	10	55.4	45.0	30.0	12	5.0	19	77.8	56.4	5.54	+0.51	6,728	n.	36	n	7	13	9	13	9
Fort Concho	1,900	28.02	+.01	29.89	30.17	8	29.55	19	0.62	67.6	— 5.1	92.2	21	81.3	43.6	8	57.3	48.6	35.5	31	12.4	4	77.2	59.3	2.80	—1.71	6,541	s.	35	nw.	24	6	9	14	8
Fort Stockton	3,010	26.91	+.01	29.89	30.18	8	29.04	19	0.52	68.6	— 3.5	99.0	27	85.9	40.0	8	56.5	59.0	40.8	20	14.0	9	73.3	58.3	2.44	+1.05	7,654	se.	40	se.	22	10	3	7	21
Fort Davis	4,928	25.12	.....	29.80	29.95	2	29.59	19	0.36	64.5	— 4.1	89.5	31	79.0	43.5	8	53.1	40.0	38.5	21	9.3	9	52.8	42.0	1.97	+0.43	5,012	sw.	27	ne.	1	12	5	7	19
Southern plateau.																																			
Fort Verde	.....	.....	.....	.....	.....	...	.....	...	.....	69.0	+ 0.6	99.0	30	85.5	41.0	15	52.5	58.0	.....	...	.....	...	.....	.....	0.19	—0.14	.....	.....	...	.....	...	3	...	...	...
Prescott	5,389	24.67	.00	29.79	29.93	28	29.61	18	0.31	59.0	+ 2.7	90.5	30	75.2	33.3	15	44.4	57.2	41.9	29	12.7	12	51.2	38.7	0.37	—0.20	5,169	s.	29	s.	14	4	0	11	20
Wickenburg	.....	.....	.....	.....	.....	...	.....	...	.....	70.8	+ 2.0	106.0	30	90.6	44.5	15	51.5	61.5	.....	...	.....	...	.....	.....	0.55	+0.29	.....	.....	...	.....	...	3	...	...	...
Phoenix	.....	.....	.....	.....	.....	...	.....	...	.....	68.9	— 5.9	113.0	30	96.9	34.7	27	44.0	78.0	.....	...	.....	...	.....	.....	0.05	+0.57	.....	.....	...	.....	...	1	...	...	...
Fort Grant	4,856	25.15	.....	29.73	29.81	24	29.56	18	0.25	65.5	— 1.1	94.1	30	80.4	48.1	5	54.9	46.0	31.4	30	16.6	3	34.4	34.3	0.25	—0.18	5,245	n.	42	s.	2	3	1	7	23
Fort Thomas	2,710	27.10	.....	29.74	29.86	2	29.59	18	0.27	69.2	+ 0.8	99.5	31	87.5	40.4	1	51.4	59.1	46.1	28	21.1	8	39.6	39.5	0.09	—0.30	.....	w.	...	.....	...	2	0	8	23
Fort Apache	5,050	24.97	+.01	29.77	29.88	28	29.01	18	0.26	58.7	+ 1.7	91.3	31	78.3	33.7	18	41.3	57.6	47.3	28	19.0	3	45.7	34.9	1.12	+0.54	5,081	ne.	31	se.	2	8	1	10	20
Lava	.....	.....	.....	.....	.....	...	.....	...	.....	63.9	.....	92.0	31	83.1	38.0	19	44.8	54.0	.....	...	.....	...	.....	.....	0.82	.....	.....	.....	...	.....	...	8	...	...	...
San Carlos	.....	.....	.....	.....	.....	...	.....	...	.....	70.9	.....	102.0	31	90.2	43.0	19	51.6	59.4	.....	...	.....	...	.....	.....	0.22	—0.30	.....	.....	...	.....	...	5	...	...	...
Fort Bowie	.....	.....	.....	.....	.....	...	.....	...	.....	69.4	.....	96.0	31	83.5	47.0	15	55.4	49.0	.....	...	.....	...	.....	.....	0.19	.....	.....	.....	...	.....	...	5	...	...	...
Willcox	.....	.....	.....	.....	.....	...	.....	...	.....	66.2	.....	100.0	31	86.9	34.5	17	45.5	66.0	.....	...	.....	...	.....	.....	trace	.....	.....	.....	...	.....	...	4	...	...	...
El Paso	3,764	26.17	+0.1	29.78	29.96	2	29.50	18	0.41	69.6	— 2.7	101.0	30	89.8	49.0	1	57.0	52.3	44.5	14	17.9	4	35.8	34.6	1.27	+0.95	3,861	w.	20	sw.	24	7	4	13	14
Santa Fé	.....	23.24	+.05	29.86	30.04	30	29.08	19	0.36	52.5	— 3.4	77.0	31	64.1	35.0	6	42.5	42.0	31.5	20	9.0	9	53.0	33.1	1.31	+0.46	5,048	sw.	22	sw.	23	10	4	19	8
Middle plateau.																																			
Salt Lake City	4,348	25.57	—.01	29.88	30.10	24	29.63	13	0.47	56.3	— 0.9	83.8	30	67.2	35.9	16	46.1	47.9	31.2	30	10.2	22	63.7	43.4	2.49	+0.35	2,659	nw.	28	se.	12	16	4	17	10
Fort Bidwell	.....	.....	.....	.....	.....	...	.....	...	.....	.....	.....	.....	...	.....	.....	...	.....	.....	.....	...	.....	...	.....	.....	.....	.....	.....	.....	...	.....	...	...	...	...	...
Fort Bridger	.....	.....	.....	.....	.....	...	.....	...	.....	46.7	.....	79.0	30	60.7	23.4	20	32.6	55.6	.....	...	.....	...	.....	.....	1.66	.....	.....	.....	...	.....	...	24	...	...	...
Winnemucca	.....	25.57	+.01	29.90	30.10	28	29.04	12	0.45	55.3	+ 2.2	86.4	29	69.4	23.0	23	41.4	60.4	36.7	6	12.4	13	48.3	33.5	1.02	+0.11	4,866	sw.	40	w.	30	5	3	15	13
Montrose	.....	24.24	.....	29.87	30.05	2	29.72	7	0.33	53.7	.....	84.2	31	69.4	33.8	19	42.4	50.4	39.2	25	14.7	10	51.5	32.7	0.86	.....	6,243	se.	36	sw.	12	7	4	15	12
Northern plateau.																																			
Dayton	1,667	28.19	.....	29.95	30.22	9	29.63	11	0.59	57.3	+ 1.4	86.6	5	71.1	34.0	9	45.9	52.6	40.2	10	6.0	14	63.3	43.2	3.08	+1.31	4,600	sw.	24	sw.	19	9	6	16	9
Lewiston	780	29.11	.....	29.90	30.17	9	29.50	12	0.68	60.4	+ 1.8	86.8	2	73.3	42.1	9	49.4	44.7	37.0	11	7.6	20	61.6	45.7	3.02	+2.02	973	ne.	22	ne.	5	11	7	12	12
Spokane Falls	1,910?	27.91	—.04	29.97	30.28	9	29.55	12	0.72	57.2	+ 1.5	82.0	29	68.3	35.1	8	46.0	40.9	36.4	2	6.7	14	68.5	45.8	1.53	+0.35	4,392	sw.	33	w.	19	11	10	14	7
Cœur d'Alene	.....	.....	.....	.....	.....	...	.....	...	.....	54.3	.....	86.0	18	68.3	29.0	9	40.5	57.0	.....	...	.....	...	.....	.....	2.57	—0.79	.....	.....	...	.....	...	11	...	...	...
Boisé City	2,750	27.11	.....	29.95	30.18	27	29.54	12	0.63	56.9	+ 2.1	86.8	30	70.9	37.2	23	48.2	49.6	33.0	11	9.0	19	63.0	45.0	3.14	+1.36	3,230	nw.	24	nw.	4	11	4	13	14
Ashland	.....	.....	.....	.....	.....	...	.....	...	.....	59.8	.....	93.0	5	75.8	32.0	23	43.8	61.0	.....	...	.....	...	.....	.....	3.74	.....	.....	.....	...	.....	...	9	...	...	...
North Pacific coast region																																			
Astoria	.....	.....	.....	.....	.....	...	.....	...	.....	54.6	.....	75.0	10	61.2	42.0	21	48.0	33.0	.....	...	.....	...	.....	.....	3.43	.....	.....	.....	...	.....	...	15	...	...	...
Olympia	36	29.93	—.09	29.97	30.22	27	29.73	19	0.49	55.5	+ 2.3	87.7	5	68.7	36.0	22	44.2	51.7	43.0	2	13.1	11	72.9	46.5	2.84	+0.26	1,979	s.	14	s.	13	15	8	9	17
Portland	67	29.90	—.08	29.98	30.26	27	29.74	12	0.50	58.9	+ 2.7	94.0	5	74.5	40.3	2	48.9	53.7	43.7	2	13.8	13	68.1	47.1	4.69	+2.34	2,701	nw.	15	sw.	19	13	15	8	8
Roseburg	523	29.44	—.04	30.00	30.22	27	29.77	10	0.45	58.3	+ 2.7	88.7	5	71.6	39.0	22	47.2	49.7	40.7	1	8.5	12	68.3	46.5	2.91	+1.14	2,160	n.	16	sw.	20	12	12	8	11
Fort Canby	179	29.80	.....	30.00	30.23	27	29.73	19	0.50	52.6	.....	75.4	10	57.8	43.6	20	48.5	31.8	26.7	10	3.2	13	87.3	48.7	3.45	.....	5,712	w.	35	s.	25	14	18	13	0
Port Angeles	14	29.94	.....	29.96	30.19	9	29.08	19	0.52	50.4	.....	71.9	5	58.4	34.7	23	43.1	37.2	31.4	5	6.1	14	88.2	47.0	1.47	.....	4,142	nw.	23	nw.	30	9	12	10	9
Neah Bay	.....	.....	.....	.....	.....	...	.....	...	.....	.....	.....	68.0	5	.....	37.0	23	...	31.0	.....	...	.....	...	.....	.....	5.70	.....	.....	.....	...	.....	...	12	...	...	...
Tatoosh Island	.....	29.88	.....	29.98	30.20	9	29.67	19	0.53	51.2	.....	59.8	5	55.6	42.3	20	47.7	17.5	15.0	5	3.4	28	89.2	48.0	5.46	.....	6,712	sw.	44	s.	5	15	13	16	2
Pysht	.....	.....	.....	.....	.....	...	.....	...	.....	54.2	.....	82.0	5	64.5	36.0	23	44.0	46.0	.....	...	.....	...	.....	.....	2.63	.....	.....	.....	...	.....	...	15	...	...	...
Mid. Pacific coast region																																			
Cape Mendocino	637	29.32	.....	29.99	30.18	22	29.85	11	0.34	51.5	+ 0.4	66.0	4	57.7	42.2	4	46.6	23.8	23.8	4	6.6	8	84.8	46.9	0.62	—0.38	13,002	n.	42	se.	5	2	4	22	5
Red Bluff	332	29.55	—.05	29.88	30.10	22	29.62	31	0.47	70.4	+ 4.1	100.0	29	82.8	44.0	14	56.2	56.0	34.5	29	15.5	19	45.1	45.1	0.64	—0.56	4,599	s.	24	nw.	21	2	1	8	22
Sacramento	95	29.84	—.05	29.89	30.04	14	29.69	31	0.35	65.7	+ 2.5	98.0	29	79.8	49.5	13	54.8	48.5	33.0	27	15.0	12	58.6	49.5	trace	—0.78	6,289	sw.	30	nw.	22	0	0	5	26
San Francisco	60	29.90	—.04	29.95	30.09	1	29.81	12	0.28	57.2	+ 1.0	77.0	29	63.5	50.0	3	52.7	27.0	21.5	27	0.0	12	78.4	50.1	0.04	—0.64	8,963	w.	32	w.	2	1	6	13	12
South Pacific coast region																																			
Los Angeles	371	29.56	—.04	29.91	30.02	13	29.79	6	0.24	63.5	+ 1.7	80.0	27	76.5	48.6	16	54.7	31.4	27.9	22	15.4	12	75.3	54.7	0.06	—0.51	3,189	w.	23	w.	14	1	6	21	4
San Diego	67	29.86	—.04	29.90	30.02	13	29.78	11	0.24	63.3	+ 2.3	73.4	7	70.0	52.5	24	58.2	20.9	20.0	24	7.2	2	77.4	55.8	0.61	+0.20	3,993	w.	15	w.	12	4	10	18	3
Yuma	141	29.63	—.04	29.75	29.88	1	29.59	18	0.29	78.2	+ 1.2	110.0	30	94.8	57.4	16	63.1	52.6	40.1	30	22.4	13	48.8	54.5	trace	—0.06	4,394	sw.	22	sw.	4	0	0	9	22

27th.—Escanaba, Michigan: an auroral display was visible from 9.20 to 11.47 p. m.; numerous beams covered the northern sky, and appeared and disappeared in quick succession.

27th.—Alpena, Michigan: an aurora appeared at 9.40 p. m., consisting of a faint arch, extending to an altitude of 40°; at 10 p. m. numerous slender beams shot upward, rising and falling in quick succession with an apparent motion from east to west; the display ended at 11.30 p. m.

27th.—Portland, Maine: an aurora was observed from 10.25 to 11.50 p. m.; owing to the bright moonlight the display was scarcely perceptible.

27th.—Eastport, Maine: an aurora was visible from 10.20 p. m. until the early a. m. of the 28th. A bank of haze extended along the horizon from east to west and from it streamers shot upward to beyond the zenith, assuming the form of "merry dancers." The light from the full moon diminished the brilliancy of the display.

The display of the 27th was also observed at Montreal, Quebec, and Halifax, Nova Scotia.

31st.—Madison, Wisconsin: auroral streamers were observed during the evening.

THUNDER-STORMS.

Thunder-storms occurred in the various districts during the month as follows:

New England.—3d, 4th, 9th, 10th, 12th, 19th, 27th, 31st.

Middle Atlantic states.—1st, 2d, 4th, 5th, 6th, 9th, 16th, 21st to 27th, 29th, 30th, 31st.

South Atlantic states.—1st, 2d, 5th, 6th, 7th, 9th, 12th to 17th, 20th to 31st.

Florida peninsula.—4th to 7th, 9th, 11th to 31st.

Eastern Gulf states.—6th, 14th, 15th, 20th to 30th.

Western Gulf states.—1st to 8th, 13th to 21st, 24th to 29th.

Rio Grande valley.—1st, 2d, 4th, 5th, 7th, 8th, 11th, 14th to 17th, 20th, 25th, 29th, 30th.

Tennessee.—1st, 6th, 19th, 21st to 30th.

Ohio valley.—1st, 5th to 11th, 13th, 17th to 2?th, 28th to 31st.

Lower lake region.—4th to 7th, 13th, 18th, 19th, 21st to 25th, 29th, 30th, 31st.

Upper lake region.—3d to 6th, 12th, 17th, 18th, 21st, 22d, 24th, 25th, 26th, 29th, 30th, 31st.

Extreme northwest.—4th, 6th, 7th, 13th, 14th, 15th, 18th, 20th to 23d, 26th, 27th.

Upper Mississippi valley.—1st to 6th, 12th, 16th to 19th, 21st, 23d, 24th, 26th to 31st.

Missouri valley.—2d to 7th, 14th to 31st.

Northern slope.—1st to 5th, 13th to 21st, 23d, 25th, 26th, 27th, 30th, 31st.

Middle slope.—2d, 3d, 5th, 6th, 7th, 10th, 14th to 30th.

Southern slope.—1st, 3d, 4th, 7th, 8th, 11th, 12th, 13th, 16th to 20th, 22d to 27th, 29th.

Southern plateau.—2d, 3d, 4th, 7th to 12th, 18th, 23d, 25th, 30th.

Middle plateau.—4th, 7th to 12th, 18th, 26th, 27th.

Northern plateau.—2d, 3d, 4th, 6th, 7th, 8th, 11th, 12th, 19th, 20th, 21st, 25th, 28th to 31st.

Middle Pacific coast region.—1st, 2d, 6th, 12th, 15th.

South Pacific coast region.—Yuma, Arizona, 3d.

OPTICAL PHENOMENA.

SOLAR HALOS.

Solar halos were observed in the various states and territories as follows:

Arkansas.—6th, 10th, 13th, 15th, 16th, 18th, 20th, 25th, 27th.

California.—2d, 4th, 10th, 11th, 13th, 14th, 17th, 18th, 19th, 21st, 24th, 25th, 27th.

Colorado.—13th.

Connecticut.—12th, 13th, 21st, 26th to 29th.

Dakota.—5th, 10th, 11th, 15th, 16th, 19th, 24th, 28th.

Delaware.—18th.

District of Columbia.—7th, 12th, 25th.

Florida.—3d, 4th, 8th, 9th, 16th, 18th, 19th, 20th, 22d, 23d, 27th, 31st.

Georgia.—5th, 9th, 14th, 15th, 18th.

Idaho.—24th, 25th.

Illinois.—2d, 7th, 11th, 16th, 19th, 26th, 27th, 28th.

Indiana.—19th, 20th, 26th.

Iowa.—2d, 3d, 7th, 8th, 10th, 11th, 16th, 20th, 21st, 25th, 26th, 31st.

Kansas.—6th, 10th, 19th, 23d, 25th, 28th.

Louisiana.—4th.

Maine.—1st, 22d.

Massachusetts.—12th, 27th, 29th.

Michigan.—2d, 3d, 6th, 12th, 21st, 22d, 27th, 28th.

Minnesota.—14th, 18th, 21st, 24th, 27th, 31st.

Missouri.—10th.

Nebraska.—1st to 4th, 6th to 10th, 12th, 13th, 14th, 17th, 18th, 22d, 26th, 29th.

Nevada.—5th, 20th, 26th, 29th.

New Hampshire.—20th, 22d, 26th, 29th.

New Jersey.—12th, 16th, 18th.

New Mexico.—18th.

New York.—1st, 3d, 6th, 12th, 13th, 14th, 19th, 24th, 26th to 29th.

North Carolina.—2d, 5th, 7th, 10th, 16th, 21st, 25th, 28th.

Ohio.—5th, 7th, 11th, 12th, 15th, 17th, 18th, 19th, 21st, 23d, 25th, 27th, 28th, 30th, 31st.

Oregon.—10th, 18th, 23d, 24th, 27th, 28th.

Pennsylvania.—19th, 28th, 29th, 30th.

Rhode Island.—22d.

South Carolina.—1st, 5th, 9th, 11th, 19th, 21st.

Tennessee.—5th, 11th, 14th, 19th.

Utah.—25th.

Virginia.—6th, 7th, 17th, 19th, 23d, 25th, 26th.

Washington Territory.—4th, 11th, 29th.

Wisconsin.—11th, 20th, 21st, 27th.

Wyoming.—11th, 23d.

LUNAR HALOS.

Lunar halos were observed in the various states and territories as follows:

Arizona.—2d, 3d, 18th, 21st, 25th.

Arkansas.—24th, 27th.

California.—18th.

Connecticut.—24th, 27th.

Dakota.—17th, 18th, 21st to 24th, 26th, 29th.

Florida.—22d, 23d, 24th;

Georgia.—5th, 22d, 24th.

Idaho.—24th.

Illinois.—20th, 24th to 27th.

Indiana.—17th, 18th, 20th, 23d, 25th, 26th, 27th.

Iowa.—19th, 24th to 27th.

Kansas.—6th, 9th, 17th, 19th, 22d, 24th, 25th, 27th.

Kentucky.—23d.

Louisiana.—19th, 20th, 21st, 28th.

Maine.—26th.

Maryland.—20th, 23d, 25th.

Massachusetts.—21st, 22d, 26th, 27th.

Michigan.—20th, 21st, 23d, 27th, 28th.

Minnesota.—19th, 26th, 27th, 28th.

Missouri.—5th, 18th, 25th.

Nebraska.—14th, 20th, 22d to 25th, 30th.

Nevada.—22d, 27th.

New Hampshire.—21st, 22d.

New Jersey.—19th, 20th, 23d, 26th.

New York.—4th, 21st, 24th, 27th.

North Carolina.—13th, 18th, 23d, 25th, 26th.

Ohio.—20th, 21st, 23d, 25th, 28th.

Oregon.—21st, 22d, 24th.

Pennsylvania.—20th, 24th, 27th, 28th.

Rhode Island.—27th.

Tennessee.—20th, 23d, 25th, 27th, 28th.

Texas.—18th, 20th to 25th, 27th.