

ATMOSPHERIC ELECTRICITY.

AURORAS.

- 2d.—Tatoosh Island, Washington Territory: a brilliant aurora was observed from 3 to 5 a. m.; it consisted of a white light rising about 15° above the horizon.
- 5th.—Bismarck, Dakota: a faint aurora appeared at 11.30 p. m. covering 120° of the northern horizon and extending to an altitude of 30° with occasional slender beams shooting up to 45°; the display was obscured by clouds at 1 a. m. of the 6th.
- 5th.—Webster, Dakota.
- 12th.—Eastport, Maine: an auroral arch of about 10° altitude was observed from 8 to 11 p. m. At 10.20 p. m. a beam one degree in width extended from the northeastern horizon to an altitude of 45°.
- 12th.—Cambridge, Massachusetts: suspected at 10.15 p. m.
- 13th.—Yates Centre, Kansas: an aurora was observed at 11.25 p. m. consisting of three faint radiating beams extending to an altitude of 30°; at 11.40 p. m. a faint bar formed above the others at an altitude of 40°.
- 15th.—Vevay, Indiana: from 2 to 2.30 a. m., of moderate brilliancy.
- 16th.—Vevay, Indiana.
- 17th.—Manistique, Michigan: from 9 p. m. until midnight.
- 18th.—Vevay, Indiana: from 11 p. m. until 2 a. m. of the 19th.
- 21st.—Vevay, Indiana: bright crimson aurora at 2.30 a. m.
- 22d.—Eastport, Maine: well-defined auroral arch from 9 to 10 p. m.; extending from northeast to northwest and to an altitude of 20°.
- 24th.—Indianapolis, Indiana: at 12.15 a. m. an auroral light was observed along the northern horizon from east to west, reaching an altitude of 40°; at 12.40 the light was but faintly visible.
- 27th.—Des Moines (near), Iowa: very bright aurora in the morning.
- 30th.—Harvard, Nebraska.
- 31st.—Webster, Dakota: during the evening streamers were observed reaching nearly half way to the zenith.

THUNDER-STORMS.

- Thunder-storms are reported to have occurred in the various states and territories on the following dates:
- Alabama.*—4th, 5th, 7th, 8th, 10th to 13th, 16th, 17th, 19th, 21st, 24th to 28th, 30th, 31st.
- Arizona.*—8th, 9th, 12th to 23d, 27th to 31st.
- Arkansas.*—2d to 5th, 9th to 14th, 16th, 17th, 20th to 23d, 25th to 29th, 31st.
- California.*—3d, 7th, 26th, 27th.
- Colorado.*—1st to 4th, 7th to 10th, 12th, 13th, 15th to 23d, 25th to 31st.
- Connecticut.*—3d, 4th, 5th, 7th, 8th, 9th, 21st, 25th, 29th, 31st.
- Dakota.*—2d to 5th, 7th, 8th, 11th to 31st.
- Delaware.*—24th, 26th.
- District of Columbia.*—9th, 10th, 18th, 19th, 21st, 25th, 26th, 31st.
- Florida.*—Daily.
- Georgia.*—4th to 15th, 18th to 21st, 23d to 31st.
- Idaho.*—1st, 2d, 7th, 8th, 9th, 24th, 25th, 30th.
- Illinois.*—5th to 10th, 12th to 19th, 21st to 31st.
- Indiana.*—3d, 4th, 5th, 7th to 10th, 13th, 15th, 18th, 19th, 21st to 26th, 28th to 31st.
- Indian Territory.*—5th, 9th, 10th, 13th, 14th, 20th, 22d, 28th.
- Iowa.*—1st, 3d to 9th, 12th to 31st.
- Kansas.*—1st to 7th, 9th to 17th, 21st to 31st.
- Kentucky.*—9th, 18th, 22d, 23d, 26th, 30th.
- Louisiana.*—2d, 4th to 8th, 10th to 14th, 16th, 18th to 31st.
- Maine.*—5th, 6th, 9th, 10th, 21st, 22d, 25th, 29th, 31st.
- Maryland.*—2d, 5th, 9th, 10th, 18th, 19th, 21st, 24th, 25th, 26th, 31st.

- Massachusetts.*—2d to 6th, 8th, 9th, 10th, 14th, 21st, 25th, 26th, 28th, 29th, 31st.
- Michigan.*—6th to 9th, 12th to 16th, 18th, 19th, 20th, 23d, 24th, 26th to 30th.
- Minnesota.*—3d to 8th, 11th, 12th, 13th, 15th, 16th, 18th, 19th, 20th, 22d, 24th, 26th to 30th.
- Mississippi.*—1st to 5th, 7th, 10th, 12th, 14th, 16th, 17th, 19th, 21st, 22d, 26th to 31st.
- Missouri.*—2d, 4th, 5th, 9th, 13th, 17th, 21st, 22d, 25th, 26th, 30th, 31st.
- Montana.*—1st, 2d, 3d, 5th, 7th to 10th, 14th to 17th, 19th, 24th to 27th, 30th, 31st.
- Nebraska.*—1st, 3d, 4th, 5th, 7th to 10th, 12th, 14th to 18th, 20th to 23d, 25th to 31st.
- Nevada.*—1st, 7th, 23d, 24th.
- New Hampshire.*—4th, 6th, 7th, 9th, 29th, 31st.
- New Jersey.*—2d, 4th to 10th, 14th, 18th, 20th, 21st, 24th to 27th, 29th, 31st.
- New Mexico.*—2d, 3d, 6th, 9th, 10th, 13th, 16th, 17th, 18th, 21st to 28th, 30th.
- New York.*—4th to 10th, 13th to 17th, 20th, 21st, 23d to 26th, 28th, 29th.
- North Carolina.*—4th, 5th, 6th, 9th to 14th, 17th, 18th, 19th, 21st to 30th.
- Ohio.*—1st, 6th, 8th, 9th, 11th, 13th, 15th, 16th, 18th to 26th, 28th to 31st.
- Oregon.*—2d, 3d, 26th to 30th.
- Pennsylvania.*—1st, 4th to 10th, 13th, 14th, 20th to 26th, 29th, 31st.
- Rhode Island.*—3d, 9th, 10th, 14th, 21st, 25th, 26th, 31st.
- South Carolina.*—4th to 8th, 11th to 17th, 19th, 20th, 21st, 23d to 31st.
- Tennessee.*—3d to 6th, 9th to 14th, 16th, 18th to 31st.
- Texas.*—1st to 8th, 10th, 11th, 12th, 14th to 31st.
- Utah.*—7th, 9th, 14th, 15th, 16th, 21st, 23d, 27th.
- Vermont.*—3d, 5th, 6th, 9th, 10th, 14th, 24th, 25th, 29th, 30th, 31st.
- Virginia.*—2d, 4th, 5th, 10th, 11th, 17th to 20th, 22d to 27th, 29th, 30th, 31st.
- Washington Territory.*—1st, 7th to 10th, 27th, 30th, 31st.
- West Virginia.*—14th, 22d, 23d, 24th, 26th.
- Wisconsin.*—1st, 3d, 5th to 9th, 12th, 13th, 14th, 16th, 18th to 25th, 27th to 31st.
- Wyoming.*—1st, 2d, 8th, 9th, 18th, 20th, 23d, 26th.

OPTICAL PHENOMENA.

SOLAR HALOS.

- Solar halos were observed in the various states and territories as follows:
- Arizona.*—3d, 9th.
- Arkansas.*—3d, 4th, 10th, 13th, 31st.
- California.*—6th, 9th, 18th.
- Dakota.*—24th.
- Florida.*—28th, 31st.
- Illinois.*—2d, 12th, 14th, 27th.
- Indiana.*—2d, 7th, 9th, 12th, 16th, 17th, 27th, 28th.
- Iowa.*—7th, 8th, 13th, 15th, 17th, 20th, 28th, 31st.
- Kansas.*—11th, 31st.
- Louisiana.*—22d.
- Maine.*—5th, 17th.
- Massachusetts.*—13th.
- Michigan.*—8th, 12th, 19th.
- Minnesota.*—3d, 19th.
- Nebraska.*—12th, 17th, 19th, 27th, 28th, 29th.
- New Jersey.*—5th.
- New York.*—5th, 6th, 13th, 15th, 23d.
- Ohio.*—8th, 9th, 10th, 12th, 13th, 25th.
- Oregon.*—1st, 2d, 16th.
- Tennessee.*—1st, 2d, 24th, 26th, 27th.
- Virginia.*—2d, 10th, 11th.
- Wisconsin.*—18th.
- Wyoming.*—3d, 4th, 27th, 28th.