

## ATMOSPHERIC ELECTRICITY.

### AUORAS.

Auroras were reported as follows: 3d, South Canisteo, N. Y. 5th, Beverly, N. J. 6th, Orono, Me.; South Canisteo, N. Y. 7th and 9th, Vevay, Ind.; Quakertown, Pa.; South Canisteo, N. Y. 11th, Salem Corners, Pa.; South Canisteo, N. Y. 12th, South Canisteo, N. Y. 14th, Vevay, Ind. 15-16th, Sandusky, Ohio. 16th, Orono, Me.; Davenport, Kimball, and Webster, S. Dak. 16-17th, Huron and Rapid City, S. Dak.; and Fort Buford, N. Dak. 17th, Newburyport, Mass.; Thornville, Mich.; and South Canisteo, N. Y. 17-18th, Saint Vincent, Minn. 18th, Green Bay, Wis.; Orono, Me.; Quakertown, N. Y.; and Salem Corners, Pa.

Sandusky, Ohio, 15th: at 10 p. m. a dark segment was observed above the northern horizon, extending from northwest to north-northeast, and at 10.30 p. m. beams of light appeared. The aurora attained its maximum brilliancy at 11 p. m., at which time the sky in the north was of a white misty appearance, while in the southeast the sky was illuminated by distant lightning. The display lasted until 2 a. m., 16th.

Huron, S. Dak., 16th: a brilliant aurora was observed at intervals from 10 p. m. until after midnight. Beams of light rose to about altitude 40°, and extended from north to east-northeast, producing a light which at times was almost as bright as that of the full moon.

Fort Buford, N. Dak.: an auroral light was observed 11.22 p. m., 16th, consisting of slender streamers of yellowish or straw color which had an upward and lateral motion and reached altitude about 60°. At 12.45 a. m., 17th, an arch of gray color formed, which rose to altitude 45°, and extended from northwest to east; at 1.30 a. m. the arch had receded some, the outlines were dimmer, and the streamers less numerous, and at 3 a. m. the aurora had disappeared.

Rapid City, S. Dak., 16th: a diffused auroral light, resembling the dawn of morning, was observed in the north from 11.30 p. m. until midnight. The light rose to altitude 45° and extended from azimuth 150° to 230°.

Saint Vincent, Minn.: a brilliant aurora was observed from 10.20 p. m., 17th, to 1.35 a. m., 18th. It consisted of 14 well-defined streamers, about one-half of which rose to altitude 70°, and varied in color at short intervals from a deep orange to a pale pink. The maximum brilliancy of the display occurred at 11.36 p. m., 17th, when the aurora extended from azimuth 160° to 225°.

Green Bay, Wis., 18th: an auroral display was observed at 2 a. m., consisting of an arch of white light in the north which rose to altitude about 15°, and extended from azimuth 135° to 225°. At altitude 25° in the northwest, a curtain-like appendage was seen.

### THUNDER-STORMS.

The more severe thunder-storms of the month are described under "Local storms." East of the Rocky Mountains thunder-storms were reported in the greatest number of states, 32, on the 15th; in 31 on the 8th; in 25 to 30 on the 2d, 3d, 9th, 16th, 17th, and 18th; in 20 to 24 on the 1st, 4th, 7th, 13th, 14th, 19th, 20th, 24th, 26th, 28th, and 29th; and in 14 to 19 on the 5th, 6th, 10th, 11th, 12th, 21st, 22d, 23d, 25th, 27th, and 30th.

East of the Rocky Mountains thunder-storms were reported on the greatest number of dates, 29, in Fla. and Miss.; on 20 to 28 in Ark., Ga., Iowa, Kans., La., Mich., Minn., Mo., N. Y., N. Dak., S. C., Tenn., and Tex.; on 12 to 19 in Ala., Ill., Ind., Ky., Md., Mass., Nebr., N. H., N. J., N. C., Ohio, Pa., S. Dak., Vt., Va., and Wis.; and on 1 to 10 in Conn., D. C., Ind. T., Me., Mont., R. I., and W. Va. West of the Rocky Mountains thunder-storms were reported as follows: Ariz., 1st to 31st; Colo., 1st to 11th, and 13th to 31st; Cal., 21st; Idaho, 7th to 15th, 21st, 22d, 23d, and 28th to 31st; Nev., 1st, 4th, 12th to 19th, 25th and 26th; N. Mex., 1st, 2d, 3d, 5th, 6th, 7th, 9th, 10th, 14th, 15th, 17th, 18th, 22d, 23d, 24th, and 26th to 31st; Oregon, 1st, 16th, 17th, and 31st; Utah, 1st to 5th, 13th, 14th, 15th, 17th to 20th, 25th to 29th, and 31st; Wash., 1st, 2d, 5th, and 9th; Wyo., 2d to 5th, and 18th to 22d. There were no states and territories in which thunder-storms were not reported.

## MISCELLANEOUS PHENOMENA.

### DROUGHT.

Drought injurious to crops and vegetation prevailed in Kans., Nebr., S. Dak., Minn., Iowa, Mo., Ark., Tex., Tenn., Ky., Ill., Ind., Ohio, Mich., N. Y., Mass., Md., Va., N. C., S. C., and Ala. The following is a summary of reports on drought made by regular and voluntary observers of the Signal Service:

**Kansas.**—The small precipitation and remarkably high temperature, preceded by a hot and dry June, caused serious damage to crops not matured by the first of the month. At Concordia crops suffered severely; wells, that never failed before, were dry; and the Republic River was the lowest ever known in July. At Alton crops were dried up. At Downs corn was ruined. At Elk Falls corn was estimated about  $\frac{1}{2}$  crop, and wells were becoming dry. At Fremont nearly all crops and a large proportion of fruit trees were destroyed. At Havensville corn was estimated about  $\frac{1}{2}$  crop, and potatoes and small garden vegetables were a failure. At Allison 80 per cent. of most crops was ruined. At Sedan corn, pastures, and apples were reported drying up. At Shields grass was dried up and corn a failure. At Wakefield corn was an entire failure in many fields, and the average yield was estimated at  $\frac{1}{2}$  crop, and fruit and vegetables were suffering. **Nebraska.**—At Culbertson the pastures were very dry; potatoes were a failure; and, in most cases, wheat and oats did not pay for the seed sown. At Genoa corn was injured. At Howe the drought that was injuring all crops was broken on the 17th. At Lexington corn was nearly destroyed. **South Dakota.**—At Woonsocket the ground was exceedingly dry; wells were becoming dry; and

all crops were unusually light. At Huron drought and hot winds had a bad effect upon late crops. At Webster vegetation was suffering. **Minnesota.**—At Montevideo and Sheldon crops were injured by drought. **Iowa.**—The month was characterized by periods of intense heat, with high winds and droughty conditions, making it one of the most unfavorable months for growing crops experienced since official observations have been taken. At Amana pastures and potatoes were suffering. At Dubuque the protracted drought was becoming serious in its results. At Blakeville all crops were injured. At Carson hot winds on the 6th, 7th, 13th, and 27th to 30th greatly damaged crops. At Clinton corn, potatoes, and pastures were suffering. At Des Moines the prospect for corn and potatoes was very poor; pastures were drying up; and cattle were suffering. At Fort Madison pastures were drying up; corn and garden vegetables were suffering; and wells were beginning to fail. At West Bend corn and potatoes were suffering. **Missouri.**—At Adrian all crops were suffering. Near Kansas City crops were reported a partial failure. At Harrisonville corn was injured. At Oregon crops and small fruit were damaged. At Platte River corn was injured. At Saint Charles all crops were suffering. At Steelville corn and pastures were injured. At Wither's Mills the corn crop seemed very light, and crops were suffering. **Arkansas.**—At Lead Hill corn and cotton were beginning to suffer, and in some localities corn appeared but about 25 per cent. of the usual crop. **Texas.**—At Mesquite the fruit crop was a failure; the long drought was broken by rain on the 4th. At Mountain Spring crops were almost a total