

ferry boats began making regular trips on the 16th; on the 22d the first up-river boat arrived from Saint Louis, Mo., and navigation was practically opened. At Le Claire, Iowa, the river was frozen on the 11th; ice broke up 13th.

Missouri River.—At Glendive, Mont., ice broke up in the Yellowstone River on the 11th. At Miles City, Mont., the Tongue and Yellowstone rivers were full of slush ice on the 10th and 11th. At 5 p. m. the Tongue River overflowed and inundated low parts of the city. On the 11th the ice gorge in the Tongue River broke. In the Yellowstone River ice ran out at intervals and again became blocked. At Medora, N. Dak., the Little Missouri River closed on the 16th and opened on the 24th. At Valley City, N. Dak., the Cheyenne River opened on the 5th, closed on the 9th, and again on the 25th. At Yankton, S. Dak., ice broke up on the 8th. At Pierre, S. Dak., the ice was covered with water until the 5th; 7th, 9th,

and 10th, running ice; 11th, heavy ice began running in the Pierre channel, and the Fort Pierre or main channel became gorged; 12th to 19th, running ice; 20th, channel opened on Pierre side; 21st to 23d, some running ice; 24th to 27th, running ice; 28th, ferry boat began making regular trips. Sioux City, Iowa, ice ran out on the 5th, carrying a large section of the pontoon bridge; 6th to 10th and 17th to 19th, running ice; 25th, river full of running ice. Large quantities of floating ice were reported at Leavenworth, Kans., on the 16th and 17th. Navigation opened at Hermann, Mo., on the 19th.

FLOODS.

On the 1st the Roanoke River rose 15 feet in 24 hours at Weldon, N. C.

At Montgomery, Ala., the Alabama River rose rapidly on the 27th and 28th, and reached 46 feet, 2 feet below the danger-line, on the 28th, flooding low lands.

ATMOSPHERIC ELECTRICITY.

AURORAS.

On the 6th auroras were observed from New England and New Jersey to eastern Montana; on the 12th from New England to western Montana; and on the 24th from the New England and New Jersey coasts to eastern Washington, and southward to the Ohio and lower Missouri rivers.

The following table gives the prominent features of the more important auroral displays of the month:

Date.	Station.	Extent of display.		Remarks.
		Azimuth.	Altitude.	
Mar. 1	Red Wing, Minn.	165 to 195	10	Two arches, with rays of light gray to red.
6	Manchester, N. H.		60	Bright beams of yellow and green from horizon to zenith.
6	Boston, Mass.	135 to 270	70	An arch, with bright patches of light.
6	Woods Holl, Mass.	135 to 215	40	Vertical bands of white light.
6	New Haven, Conn.	Cov'd 90	35	An arch, with brilliant streamers.
6	Atlantic City, N. J.	135 to 210	25	Display of a bluish tinge.
6	New York, N. Y.	Cov'd 45	20	White streamers to altitude 35°.
6	Oswego, N. Y.	In the N.	25	A greenish arch, brightest in northeast.
6	Rochester, N. Y.	Cov'd 60	45	Faint streamers to zenith.
6	Detroit, Mich.	Cov'd 90	30	Light blue changing to pink.
6	Marquette, Mich.	135 to 225	15	Streamers, with wavy sheet of great splendor.
6-7	Sault de Ste. Marie, Mich.	90 to 250	80	Appeared like a huge curtain with folds moving from east to west.
6	Miles City, Mont.	Cov'd 90	80	Pale "merry dancers."
12	Manchester, N. H.	135 to 210	25	Beams to 90°.
12	Portland, Me.	Cov'd 60	10	Appeared as a curtain of light whose folds were moved by the wind.
12	Sault de Ste. Marie, Mich.	80 to 190	30	Arch, green at base and orange at upper margin.
12	Saint Vincent, Minn.	90 to 315	*	Varying colors.
15	Block Island, R. I.		20	Slender white beams.
24	Eastport, Me.		35	Two arches, with streamers and pillars of light, reaching nearly to southern horizon.
24	Manchester, N. H.	112 to 245	65	Arch, with bright light to zenith.
24-25	Grand Haven, Mich.		45	Two arches of diffused light.
24	Milwaukee, Wis.		25	An arch, with streamers nearly to zenith.
24	Saint Paul, Minn.	110 to 190	25	
24	Huron, S. Dak.	140 to 220	25	Brilliant beams of light to altitude 60°.
24	Pierre, S. Dak.	135 to 225	20	
27	Marquette, Mich.	135 to 247	35	Two arches, with parallel beams.

*75° to beyond zenith.

Auroras were reported over the north Atlantic Ocean, as follows: 11th, in latitude N. 42°, longitude W. 51°, at 9 p. m., a bright crimson light in the northern sky visible about 5 minutes. Night of the 11-12th, from N. 42°, W. 45° to N. 43°, W. 40°, bright crimson light in the north. 12th, N. 43°, W. 49°, a brilliant red display with green and white lines. 26th and 27th, from N. 55°, W. 14° to N. 53°, W. 23°, bright northern lights at night.

THUNDERSTORMS.

Description of the more severe thunderstorms reported for the month is given under "Local storms."

Thunderstorms were reported as follows: East of the Rocky Mountains they were reported in the greatest number of states, 17, on the 26th; in 13 on the 29th; in 12 on the 31st; in 11 on the 22d, 25th, and 27th; in 10 on the 23d and 24th; in 9 on the 8th and 30th; in 8 on the 10th; in 7 on the 6th, 7th, and 17th; in 6 on the 31st; in 5 on the 4th, 5th, and 28th; in 4 on the 9th, 15th, and 18th; in 3 on the 14th and 20th; in 2 on the 3d; and in one on the 1st, 2d, and 16th. No thunderstorms were reported on the 11th, 12th, 13th, and 19th.

East of the Rocky Mountains thunderstorms were reported on the greatest number of dates, 13, in North Carolina; on 12 in Kansas and Texas; on 11 in Arkansas; on 10 in Tennessee; on 9 in Louisiana, Missouri, and South Carolina; on 8 in Florida and Mississippi; on 7 in Alabama, Georgia, and Oklahoma Territory; on 6 in Illinois, Indian Territory, and Kentucky; on 5 in Iowa; on 4 in Maryland, Michigan, South Dakota, and West Virginia; on 3 in Nebraska, New Jersey, Ohio, and Wisconsin; on 2 in Delaware, Montana, and Pennsylvania; and on one in Connecticut, District of Columbia, Maine, Massachusetts, Minnesota, New York, and Virginia.

West of the Rocky Mountains thunderstorms were reported in Arizona on the 1st, 2d, 3d, 5th, 6th, and 24th; in California on the 14th, 15th, 20th, 22d, 23d, 26th to 31st; in Colorado on the 2d, 14th, 15th, 24th, 28th, and 31st; in Nevada on the 13th, 17th, and 18th; in New Mexico on the 1st to 4th, 6th, 14th, 15th, 23d, and 31st; in Oregon on the 13th, 14th, 17th, 18th, 26th, and 28th; in Utah on the 2d, 19th, 23d, 25th, and 30th; in Washington on the 24th and 28th; in Wyoming on the 8th. In states and territories other than those named no thunderstorms were reported.