covered by swiftly moving clouds; at 6:20 the wind suddenly veered from SE. to W.; the wind blew in gusts; and at 6:25 p. m. the anemometer, which previously registered 84 miles per hour, was torn from the roof, the chimneys quickly followed, and the building trembled like a leaf; the instrument shelter was blown down, as well as every board fence in and about the post; two houses were unroofed. The stockade, built of heavy timber and braced on both sides, was leveled to the ground, and one of the block-houses was moved eighteen inches; at 6:30 p. m. rain, hail and lightning commenced; at 7:40 p. m. the storm ceased. The highest wind was not registered; it was estimated at 100 miles per hour.

VERIFICATIONS.

The detailed comparisons of the tri-daily weather indications, with the telegraphic weather reports for the succeeding twenty-four hours, shows a general percentage of omissions of 0.05 per cent., and of verifications of 84.1 per cent.; out of 3,702 predictions, 2,521, or 68.1 per cent. have been fully verified; 382, or 10.3 per cent. have been three-fourths verified; 547, or 14.8 per cent. have been one-half verified; 126, or 3.4 per cent. have been one-fourth verified and 126 or 3 4 per cent. have failed. The percentages for the four elements have been: weather, 89.1; wind, 81.8; temperature, 86.6; barometer, 78.8. The percentages of verifications by geographical districts, have been: New England, 84.5; Middle Atlantic States, 84.0; South Atlantic States, 82.1; East Gulf States, 81.9; West Gulf States, 85.6; Lower Lake region, 84.6; Upper Lake region, 82.9; Tennessee and Ohio valley, 84.4; Upper Mississippi valley, 86.4; Lower Missouri valley, 84.6 .

Cautionary Signals.—During the month 29 Cautionary Signals have been displayed at stations on the Gulf and South Atlantic coasts and on the Lakes. Of these 23 or 79.3 per cent. were justified by subsequent high winds within one hundred miles of the stations for which they were ordered, and 6 or 20.7 per cent. were not justified so far as known. Eighty-four instances of high winds, where no signals were displayed, have also been reported from these stations. Telegraphic communication with the North Carolina coast stations has continued interrupted during the month.

NAVIGATION.

Stages of Water.—In the table on chart No. III, are given the highest and lowest readings on the river gauges for the month. A gradual fall has occurred in all the rivers, throughout the month, with the following exceptions:—slight rises in the Missouri at Omaha, on the 8th, 15th and 16th; in the Mississippi at St. Paul, from the 1st to 8th; at La Crosse, to the 12th, and from Dubuque to St. Louis until about the 17th; in the Cumberland, at Nashville, from the 18th to the 20th; in the Ohio, at Pittsburgh, on the 5th, 10th and 11th, 19th to 21st, and 28th to 31st; at Cincinnati, from the 6th to the 11th, and the 24th to the 27th. at Louisville, from the 7th to the 11th, and the 25th to the 28th. The Savannah rose at Augusta on the 20th, 21st and 25th. The rise in the Missouri, at Omaha, on the 8th, was due to the water cutting a new channel across the bend and turning the main channel. On the 1st, the water in Lake Erie is reported to have risen several feet at Buffalo.

Ice bergs.—None reported.

TEMPERATURE OF WATER.

In General.—The temperature of water, as observed in rivers and harbors, is shown in the table on chart No. II. The average temperatures have been lowest at Eastport, 43°; and at Marquette, 49°. They have been highest at Galveston and Augusta, 87°; Montgomery, 85°; Mobile, 86°; Charleston, Knoxville, Savannah and Wilmington, 84°.

Maximum and Minimum Temperatures.—The highest maxima have been: Galveston, 91°; Augusta, 90°; Montgomery and Mobile, 89°. The lowest minima have been: Eastport, 40°; Duluth, 43°; and Marquette, 46°.

Ranges of Temperatures. The least ranges have been: San Francisco, 2°; Savannah, 3°; Grand Haven and Wilmington, 4°; Charleston, Escanaba, Eastport and Mobile, 5°.

ATMOSPHERIC ELECTRICITY.

Thunder-storms were reported at stations as follows: 1st, N. Y., R. I., Conn., Del., Ill., Iowa, Kan., Me., Md., Mass., Mo., Neb., N. H., N. J., Ohio, Penn., Vt., W. Va., Dak.; 2nd, Mich., Can., Ill., Ind., Iowa, Me., Mo., Neb., N. Y., Ohio, S. C., Va., Vt., Penn., Kan.; 3rd, N. Y., Va., Conn., Del., La., Md., Mich., N. J., N. C., Ohio, Penn., Ill., W. Va., Ind.; 4th, Ill., Ind., Mass., Minn., N. J., N. Y., Ohio, Texas, Va., Wis., Tenn., Ky.; 5th, N. Y., Can., Ga., Ill., Ind., Kan., Me., Md., Mass., Mich., N. J., N. C., Ohio, Penn., S. C.,

Texas, Vt., Va., Wis., W. Va., Fla., Ky.; 6th, Dak., R. I., Ala., Conn., Del., Ga., Ill., Ind., Me., Md., Mass., N. J., S. C., Tenn., Vt., Fla.; 7th, Conn., Iowa, La., Minn., Wis., Mich., Fla., Kan.; 8th, N. Y., R. I., Wy. Ty., Ill., Ind., Iowa, Kan., Mo., Neb., Ohio, Vt., Wis., Fla.; 9th, Conn., Ind., Kan., Me., Mass., N. H., N. J., N. Y., Ohio, Penn., Vt., Va., Wis., Ill., Ky., Wy. Ty., Minn., Ind. Ty., Mo.; 10th, Wy. Ty., Conn., Ga., Ind., Me., Md., Mass., N. J., N. Y., N. C., Ohio, Texas, Vt., Va., Tenn., Minn., W. Va., Ala., N. H., La.; 11th, Dak., Del., Iowa, Md., Neb., N. J., Penn., S. C., Texas, Va., Wy. Ty., Ga., N. C.; 12th, Can., Dak., N. Y., Vt., Mich.; 13th, Dak., Conn., Mass., Minn., N. J., N. Y., S. C., Md., Col., R. I., Texas, Penn.; 14th, Dak., Me., Neb., Tenn., Texas, Mass., Mich.: 15th, S. C., Ill., Iowa, Kan., Neb., N. C., Tenn., Wis., N. J., Vt., Mich., Texas, Mo.; 16th, Mich., N. Y., Conn., Ill., Ind., Iowa, Kan., Mass., Mo., Neb., Ohio, Tenn., Texas, Va., Wis., Vt., W. Va., Miss.; 17th, N. Y., Conn., Iowa, Kan., Me., Mass., Mo., Neb., N. H., N. J., N. C., Penn., Vt., Va., Wis., Mich., Ind. Ty., Md.; 18th, Mich., Can., Ill., Ind., Kan., N. J., N. Y., Ohio, Penn., Tenn., Texas, Va., Md., Ky., Ind. Ter.; 19th, Mich., N. Y., Conn., Md., N. J., N. Y., N. C., Penn., S. C., Va., W. Va., Ga., N. H., Texas; 20th, Mich., Nev., N. J., N. C., Penn., S. C., Vt., Va., Dak., Cal.; 21st, Ga., N. C., S. C., Nev.; 22nd, N. C., Tenn., Va., Wis., Mich., W. Va.; 23rd, N. J., N. C., Va., W. Va., Tenn., Fla.; 24th, Wy. Ty., Ind., La., Mo., Neb., Ala., Va., Texas; 25th, Dak., Mich., La., Md., N. C., Ohio, Tenn., Va., Ill., Me., W. Va., Ala., Texas; 26th, Ala., Dak., Ill., Iowa, Me., Mich., Ohio, Penn., Vt., Va., Wis., N. C., Texas, Mo., Neb., Kan.; 27th, Dak., Neb., Ala., Ark., Conn., Del., Ill., Ind., Iowa, Kan., La., Me., Mo., N. J., N. Y., Ohio, Penn., Va., W. Va., Mich., Wis., Ind. Ty., Texas; 28th, Va., Ill., Ind., Iowa, Kan., Md., Miss., Neb., N. J., N. Y., N. C., Ohio, Penn., Ky., Ind. Ty., W. Va., Tenn., Texas, La.; 29th, Dak., Ga., Kan., Md., Mass., N. J., N. Y., N. C., Ohio, Penn., Tenn., Fla., Va., Ind. Ty.; 30th, Dak., Neb., Ark., Conn., Kan., N. J., N. Y., N. C., Penn., Va., S. C., Ala., Ga.; 31st, Dak., Ill., Iowa, Mo., Neb., N. J., N. Y., S. C., Vt., Minn.

Distant thunder or lightning was reported as seen from stations in the respective States as follows: 1st, Dak., Conn., Del., Ga., Ill., Ind., Iowa, Kan., Ky., Me., Md., Mass., Mo., Neb., N. J., N. Y., Ohio, S. C., Tenn., Va., Vt.; 2nd, Ala., Del., Ga., Ill., Ind., Iowa, Me., Md., Minn., Mo., N. C., Ohio, Tenn., Va., Wis., W. Va.; 3d, Conn., Del., Fla., Ga., Ind., Iowa, La., Md., Miss., Mo., N. J., N. Y., N. C., Ohio, Penn., Va.; 4th, Ga., Ill., Ind., Iowa, Ky., Mich., Md., N. C., Ohio, S. C., Va., Wis., W. Va.; 5th, Dak., Del., Ill., Ind., Iowa, La., Mich., Mo., N. J., N. Y., N. C., Ohio, Pa., S. C., Tenn., Vt., Va.; 6th, Conn., Dak., Ga., Ill., Mo., N. J., N. Y., Texas, Vt., Wy. Ty.; 7th, Dak., Ind., Ill., Iowa., Kan., La., Mich., Minn., Mo., Neb., N. Y., Wis., Wy. Ty.; 8th, Ga., Ill., Ind., Iowa, Kan., Mass., Mich., Mo., N. Y., Ohio, Vt.; 9th, Fla., Ga., Ill., Iowa, Me., Md., Mass., Mich., N. Y., Ohio, Pa., Tenn., Texas, Vt., Va.; 10th, Ind., Ky., La., Me., Mass., Mich., Miss., N. J., N. Y., N. C., Ohio, Texas, Utah, Vt., Va.; 11th, Ala., Col., La., Me., N. J., N. C., Tenn., Va.; 12th, Col., Dak., Fla., La., Mich., N. Y., Tenn., Texas, Vt.; 13th, Col., Conn., Dak., Iowa, Kan., Md., Mass., Minn., Neb., N. J., N. Y., R. I., Texas; 14th, Ala., Dak., Iowa, La., Minn., Mo., Texas; 15th, Ala., Ill., Iowa, Kan., La., Mich., Minn., Neb., N. M., N. C., Tenn., Texas; 16th, Ind. Ty., Ind., Iowa, Kan., Md., Mich., Mo., Neb., N. Y., N. C., Ohio, Pa., Texas, Va.; 17th, Conn., Del., Ill., Iowa, Kan., Me., Mass., Mich., Mo., Neb., N. Y., N. C., R. I., Tenn., Vt., Wis.; 18th, Ala., Ill., Iowa, Ky., Mich., Neb., N. Y., Ohio, Pa., Texas, Va.; 19th, Ala., Ind. Ty., Ind., Iowa, La., N. J., N. Y., N. C., Pa., R. I., Texas, Va.; 20th, Cal., Col., Ind., N. J., Pa., Vt.; 21st, Ind. Ty., Mich., N. M., S. C.; 22nd, Kan., S. C.; 23d, Ga., Utah; 24th, Cal., Ga., Ind., Iowa, Ky., Mo., Neb.; 25th, Dak., Ill., Mo., N. C., Ohio, Texas; 26th, Dak., Ill., Ind., Iowa, La., Me., Md., Mich., Neb., N. Y., Ohio, Texas, W. Va., Va.; 27th, Ala., Conn., Dak., Ind. Ty., Ill., Ind., Iowa, Kan., Md., N. J., N. Y., N. C., Ohio, Pa., Texas, Va.; 28th, Conn., Ill., Ind., Ky., Md., Mich., N. J., N. Y., N. C., Ohio, Pa., Tenn., Texas, Va.; 29th, Dak., Ga., Ind., Ky., Neb., N. Y., N. C., Ohio, Penn.; S. C., Tenn.; Texas; 30th, Conn., Dak., Fla., Ga., Ind., Ind. Ty., Md., N. H., Neb., N. J., N. Y., Pa., Wy. Ty., Va.; 31st, Dak., Ga., Ill., Iowa, Kan., Me., Mo., Neb., N. J., N. C.

Auroras were observed as follows: 1st, Williamsport, Pa. 2nd, Williamsport, Pa. 3rd, Bangor, Me. 5th, Olympia, Washington Territory. 6th, Vevay, Ind., Wappinger's Falls, N. Y. 7th, Sandwich, Ill., Bangor, Me.; Boston, Mass.; Duluth, Minn.; Pembina, D. T. 8th, Mt. Forest, Can.; Minneapolis. 9th, Clear Creek, Neb.; Alpena and Escanaba, Mich.; Fort Brady, Mich. 10th, Escanaba, Mich. 11th, Mt. Forest, Can. 21st, Burlington, Vt. 22nd, Bangor, Me. 24th, Mt. Forest, Can. 25th, Mt. Forest, Can. 28th, Vevay, Ind. 30th, West Charlotte, Vt.; Fort Brady, Mich. 31st, Escanaba, Mich.; Fort Brady, Mich.; Minneapolis, Minn.

Ground Currents.—Disturbances on lines of telegraph have been reported as follows: at Wappinger's Falls, N. Y., on the 17th; Santa Fe, N. M., 13th, 16th, 19th, 20th, so strong in some cases as to materially hinder operations of telegraph lines.

OPTICAL PHENOMENA.

Solar halos were observed on the 1st in Ill., N. Y., Ohio, Kan. 2nd, Conn., Ky., Me., N. Y., Pa., R. I. 3rd, Ky., Me., Mass., N. H., N. Y., R. I. 4th, La., Neb., Ohio, Mich. 5th, Ky., Me., Mass., N. Y., R. I.