

Vicksburg, fell from 33 ft., 1st, to 27 ft. 7 in., 18th; rose to 34 ft., 31st. At New Orleans there was a fall of 1 ft. 5 in. from the 1st to the 19th, and a rise of 1 ft. the last week.

Ice on Rivers and Lakes.—*Yellowstone River*—Ft. Buford, Dak., 9th, ice breaking up; 14th, river frozen over; 25th, floating ice. *Missouri River*—Ft. Buford, Dak., 28th, ice breaking up and moving. Bismarck, 29th, ice breaking up. Ft. Hale, Dak., 11th, river opened. Ft. Standall, Dak., 7th, river open, floating ice; 18th, large quantities of floating ice. Yankton, 8th, ice broke up; 20th, river gorged below city; 21st, river frozen over; 23rd, river open. Plattsmouth, Neb., 6th, ice breaking up. Leavenworth, 2nd, 19th, 20th, floating ice in river. *Red River of the North*—Pembina, 26th, water several feet deep on the ice; 28th, teams crossing. *Mississippi River*—St. Paul, 9th, river closed, except near gauge; 25th, ice breaking up; 26th, river opened from St. Anthony's Falls to about three miles below St. Paul; 27th, 28th, floating ice. La Crosse, 7th, ice thawing rapidly; 11th, ice moved out; 26th, ferry-boat made first trip, navigation fairly opened, but dangerous, on account of large quantities of floating ice; 29th, first steamer left for down river. Dubuque, 5th, ice weakening; 8th, river open; 9th, floating ice; 10th, river clear, ferry-boats resumed trips; 16th, 18th, river full of floating ice; 21st, river frozen over at Eagle Point; 22nd, first boat of season, (from St. Louis); 28th, first raft from up river passed down. Davenport, 8th, ice commenced moving at 6 a. m. opposite East Davenport, and at sunset the river was clear as far as visible; 10th, almost clear; floating ice, 9th, 11th, 17th, 18th, 19th; 16th, first steamer of the season, (from St. Louis); 17th, ferry-boats resumed trips; 24th, first steamer passed, going south. Burlington, 6th, ice broke up; 7th, clear; 16th, navigation opened, first steamer, (from St. Louis.) Ft. Madison, Iowa, 12th, first boat up river to Madison. Keokuk, 4th, ice breaking up; 5th, ice broke up south of bridge, river navigable to all points south, floating ice; 8th, first steamer, (from St. Louis,) river clear. St. Louis, 1st, river clear; 3rd, slush-ice. *Monongahela River*—Morgantown, W. Va., 4th, first log-rafts of season passed down river. *Hudson River*—Albany, 27th, floating ice; 31st, several ice gorges between Albany and New York. Poughkeepsie, 16th, first boat of season from New York. Newburg, 13th, river open. West Point, 10th, ferry-boat forced passage across river; 13th, first steamer passed up river. Garrisons, N. Y., 10th, ice broken up; 28th, disappeared from ponds. *Lake Superior*—Duluth, 12th, ice in harbor broken up by heavy winds; 13th, lake frozen over as far as visible; 15th, first departure, tug forced way through the ice with difficulty; 17th, tug returned, having succeeded in getting within 26 miles of Prince Authur's landing, where she landed her passengers on the ice; 31st, harbor almost free of ice. *Lake Michigan*—Grand Haven, 9th, ice along shore disappeared; 18th, harbor blockaded by ice; 20th, blockade broken up by easterly winds; navigation open. Chicago, 10th, lake shores entirely free from ice. *Lake Huron*—Port Huron, 20th, navigation opened. *St. Clair River*—Port Huron, 6th, ice breaking up. *Detroit River*—Detroit, 31st, navigation opened, steamer arrived from New Baltimore, Michigan. *Lake Erie*—Cleveland, 6th, 10th, floating ice; 13th, lake clear; 24th, navigation opened. Sandusky, 11th, lake clear eastward as far as visible, but to the W. and NW. an unbroken field of ice from 15 to 30 inches thick; 20th, large fields of moving ice; 24th, steamers made first trips, tug sunk by heavy masses of ice, through which she tried to force a way. Buffalo, 1st, lake frozen, except in channel; clear beyond breakwater, navigation closed during the entire month. *Lake Champlain*—frozen over the entire month.

TEMPERATURE OF WATER.

The *temperatures of Water*, as observed in rivers and harbors, with average depth when observations were taken, are given in table on chart No. II. At Alpena, Burlington, Duluth, Escanaba and Marquette, observations were not taken on account of ice. At the following stations observations were only taken on the dates indicated: Buffalo, 20th to 31st; Cleveland, 10th to 13th, 15th to 19th, 22nd to 31st; Chicago, 4th to 31st; Detroit, 5th to 31st; Grand Haven, 9th to 31st; Sandusky, 14th to 31st; Toledo, 15th to 31st.

ATMOSPHERIC ELECTRICITY.

Thunder-storms.—1st, Ohio; 3rd, N. M.; 4th, Mo.; 5th, Iowa, Ill., Mo.; 6th, Iowa, Ill., Ind., Mo., Neb.; 7th, Kan., Mich., Cal.; 8th, Mich., N. Y., Kan., Minn., Ohio, Iowa, Mo., Neb., N. J., Pa., Vt., Wis., 9th, Mich., N. Y., Iowa, Ill., Ohio, Ind., Md., Mass., Wis.; 10th, Mich., N. Y., Iowa, Mo., Pa., Ohio, Ky., W. Va., Ind., Ill.; 11th, N. Y., Ala., Ark., Tex., Fla., Pa., Ill., Tenn., N. C., Ohio, Vt., Va., Ga.; 12th; Ind. Ty., Tex., Fla., Ga., Mich.; 13th, Fla., Ark., Tenn., Ga.; 14th, Tex., Fla., Mass., N. J., N. Y., N. C., Pa., Va., Ga.; 15th, Ark., Tex., N. J., Va.; 16th, Ark., Fla., Tenn., Ga., Miss., N. Y.; 17th, Fla., R. I., Va., Conn., Mass., Miss., N. J.; 19th, Fla.; 20th, Fla., Tenn., Neb.; 21st, Ala., Fla., Mo., Ill., Ga., Ky., Miss., Ohio, S. C., Ga., N. C.; 22nd, N. Y., Fla., Ky., Ohio, Ill., Tenn., Ga., Ind., Miss., N. J., N. C., Pa., S. C., Tex., Va.; 23rd, N. Y., Va.; 24th, Va., Tenn., Md., N. J., N. C.; 25th, Dak., Tex., Mo., Tenn., Ind., Ohio, Va.; 26th, Ala., Utah, Tex., Mo., Ky., Ind., Ill., Tenn., Ohio, Va.; 27th, Col., Dak., Fla., Mo., Minn., Ga., Va., N. C., S. C.; 28th, Ind. Ty., Mich., Neb., Tex., Fla., Iowa, Wis., Ill., Ohio, Ind., Ky., Mo.; 29th, Iowa, Ohio, Ind., Pa., Tenn., Ky., Md., Miss., N. C., Tex., Va., W. Va.; 30th, Cal., Pa., N. C., S. C., Va.; 31st, Ark., N. M., Ind. Ty., Tex., Tenn., Ill., Me., Nev.

Auroras.—Cambridge, Mass., regularly looked for at 8 p. m., none seen; cloudy, 1st, 2nd, 4th, 6th, 12th, 14th, 17th, 20th to 31st; moonlight, 3rd, 5th, 7th, 8th; no observation, 9th. Oregon, Mo., 10th. Vevey, Ind., 14th. Starkey, N. Y., 11th, 26th. Iowa City, Iowa, 19th, 23rd.

Telegraphic Communication interfered with by Atmospheric Electricity.—Albuquerque, N. M., 31st; San Diego, Cal., 28th; Santa Fe, 3rd, 31st; Colorado Springs, Col., 27th, line heavily charged; Laredo, Tex., 11th, 28th; Graham, Tex., 11th, 31st; Mason, Tex., 26th; McKavitt, Tex., 12th; Castroville, Tex., 28th;

Eagle Pass, Tex., 28th; Cape Lookout, N. C., 29th, instruments had to be cut out; Chattanooga, Tenn., 11th, electricity entered telegraph office, passed two arresters with loud explosion.

OPTICAL PHENOMENA.

Solar Halos.—1st, N. Y., N. H., Ga., Or.; 2nd, Conn., Dak., Ia., Mass., Mich., N. H., N. Y., Ga.; 3rd, Mass., Wis.; 4th, Ia., Mich., Mo.; 5th, N. J., Mich., Ga., Or.; 7th, Ohio, Mich., Ga., Or.; 8th, Ohio, Ga.; 9th, Ohio; 10th, Ga.; 11th, Miss., Ohio, Ill., N. Y.; 12th, La., Miss., Mich., Ohio, Ind.; 13th, Conn., Dak., Ia., Ohio, W. Va., Ind., Mo., N. H., N. Y., N. C., Or.; 14th, Neb., Dak., Minn., N. H., Me.; 15th, Ohio, Ill., Pa., Vt.; 16th, Cal., Conn., Utah., Minn., Ohio, Md., N. J., Va., Or.; 17th, Cal.; 18th, Conn., Mass.; 19th, Mich., Neb., Or.; 20th, Conn., N. Y., Kan., Mich., N. J., Cal.; 21st, Utah, Wis.; 22nd, Utah, Ill., Me., Mass., N. H., N. Y., Vt.; 23rd, Kan., Dak., Ia., Ind., Mich.; 24th, Conn., Dak., Fla., Mo., Ill., Ia., Mass., N. H., N. J., N. Y., Vt., Ga.; 25th, Dak., Ia., Mo., Ohio, Ill., Ind., Ga.; 26th, Utah, N. J., N. Y., N. C., Conn.; 27th, Dak., Ill., Ohio, S. C.; 28th, Ohio, Ind., Mich.; 29th, Ia., Kan., Or.; 30th, Col., Md., N. J., N. C., Cal.; 31st, Utah, Ohio., Ind., Mich., N. J.

Lunar Halos.—1st, Utah, Nev., Wis., Minn., Mich., N. J. 2nd, N. M., Neb., Mich., N. Y., Ia., Mass., N. H., Vt. 3rd, Utah, Idaho, Neb., Ind. Ty., Tex., Dak., Mo., Wis., Mich., N. Y., Ia., Kan., Mass., Mo., Vt. 4th, Ala., Tex., La., Ia., Mo., Minn., N. Y., Ohio, Tenn., Ill., Ind., Kan., Me., Mass., N. J., Va., Vt., Ga. 5th, Cal., Neb., N. Y., Ohio, Ind., Kan., Mo., N. J., Pa., Ga., N. C., Va., Conn. 6th, Col., Dak., Wis., Mich., Ohio, Pa., W. Va., Ia., Me., Mo., Vt., Or. 7th, Col., Dak., Tex., N. Y. 8th, Col., N. Y., W. Va., Mich., Ga. 9th, Wis., N. J. 10th, Ga., Md. 11th, Mich., Ind. 12th, Tenn., Me. 13th, Vt. 14th, Tenn., N. Y. 16th, Idaho, Wis. 17th, Neb. 20th, Wis. 23rd, Utah. 25th, Miss. 26th, Tex., Ia., Mass., Conn. 27th, Ia., Ind., Ohio, Ga. 28th, Dak., W. Va., Mo., N. J., N. Y., N. C., Va., N. H. 29th, Idaho, Dak., Ohio, N. C., Or. 30th, Conn., N. M., Col., Kan., Mass., Mo., N. J., N. Y., Ga., Va., N. H. 31st, Kan., Tex., Ohio, Ind., Mo., N. J.

Mirage.—Olivet, Dak., 1st, 4th, 26th, 30th; Pembina, Dak., 24th; Breckenridge, Minn., 1st, 2nd; Lynn, Mass, 6th.

MISCELLANEOUS PHENOMENA.

BOTANICAL.—*Alabama*—Green Springs, in bloom, 10th, dogwood, 15th, sassafras, 17th, red buckeye and yellow jessamine, 18th, fish poison, 28th, calycanthus, 29th, sweet gum. *Arkansas*—Mt. Ida, in bloom, 6th, peach and plum, 15th, apple and pear, 22nd, quince, 20th, dogwood and red oak. *Colorado*—Georgetown, 15th, few miles below station trees in bloom and in leaf, grass three inches high. *Dakota*—Olivet, 6th, sowing wheat; 8th to 12th, plowing. *Florida*—Houston, 10th, corn planting begun; 31st, cotton planting commenced, Milton, all peach trees in full bloom; 6th, oak trees in blossom; 17th, small figs on trees, stalks of Irish potatoes one foot high; 31st, roses and other hardy flowers in full bloom. *Georgia*—Forsyth, 31st, vegetation ten to fifteen days earlier than for many years, corn planting begun. Augusta, in bloom, 5th, wistaria, 6th, plum, 18th, jonquils; 8th, tree buds swelling; 11th, Irish potatoes sprouting, trees leafing; 22nd, asparagus, beets and English peas in market. *Illinois*—Riley, 10th, some farmers sowing wheat. Anna, in bloom, 26th, peach. *Indiana*—Vevay, Prof. Chas. G. Boernr reports as the result of a series of fourteen years observations (in the same exposure) upon the first flowering of the "Crocus," that "the earliest opening of the flower occurred on February 18th, 1877, and the latest on March 19th, 1870, being a difference of four weeks in the extremes." New Corydon, 31st, wheat, winter barley, rye and clover are in a very good condition, orchards and vineyards have not suffered by cold, pear trees will be covered with blossoms. St. Meinrad, in bloom, 9th, crocus and tulip. *Indian Territory*—Ft. Gibson, in bloom, 9th, wild plum, 10th, peach, plum, cherry and apple, 11th, wild daisies and red bud, 13th, jonquils, tulips and hyacinths, 27th, forest trees leafing. *Iowa*—Vail, 10th, spring work commenced, sowing grain and plowing. Keokuk, 8th, trees budding. Dubuque, in bloom, 10th, maple, six days earlier than for thirty years. *Kansas*—Holton, in bloom, 9th, elm; 31st, most fruit thought to be killed, forest trees leafing. *Maryland*—Woodstock, 10th, grass in sheltered places beginning to grow, swamp willow budding; 22nd, white maple budding. *Massachusetts*—New Bedford, 11th, in bloom, snow-drop and crocus. Fall River, in bloom, 7th, snow-drop. Waltham, 31st, buds of poplar and willow swelling. *Michigan*—Northport, in bloom, 20th, polyanthus. *Missouri*—Oregon, sprouting, 6th, tulips, 9th, dandelions, 22nd, hops; in bloom, 7th elm, 8th, red maple, 29th, crocus. *Mississippi*—Brookhaven, 25th, second crop of strawberries ripening; 31st, finished planting corn and sugar cane, acreage of latter very large for this section, oat crop looks well, fruit crop very promising. *Nebraska*—Howard, 31st, peach trees reported killed throughout the county. *Nevada*—Winnemucca, in bloom, 21st, apricot and other fruit trees twelve miles south of station; Boise City, in bloom, 2nd, yellow jessamine, 28th, apricot, 31st, peach; 1st, blackberries frozen. *New Jersey*—Atco, in bloom, 27th, moss vine. *New York*—Flushing, in bloom, 30th, yellow tulip. *New Mexico*—Santa Fé, in bloom, 27th, apricot, plum and peach, much earlier than usual. *North Carolina*—Weldon, plums, 17th, peach, 23rd, white mulberry; in bloom, 23rd, peach and plum; leafing, 23rd, maple and weeping willow. Murphy, in bloom, 31st, peach, pear and plum. Fayetteville, 31st, wheat and oats in fine condition, fruit uninjured. *Ohio*—Ruggles, 31st, wheat very poor, badly winter killed: Jacksonburg, 8th, winter wheat and barley very promising. *Oregon*—Portland, in bloom, 22nd, peach, 30th, plum. *Tennessee*—McMinnville, in bloom, 1st, iris, 3rd, maple, 8th, wild flowers, 9th, spirea and peach, 21st, plum. Knoxville, in bloom, 11th, peach. Chattanooga, in bloom, 1st, japonicas and hyacinths, 10th, peach, 12th, pear, 26th, apple and cherry. *Texas*—Melissa, in bloom, 5th, wild flowers, some corn planted.