TEMPERATURE OF WATER.

The temperature of water, as observed in rivers and harbors at Signal Service Stations, with the average depth at which observations were taken, is given in the table on the left hand side of chart No. II. At the following stations observations were not made on the dates indicated: Galveston, 5th to 26th, inclusive; New London, 28th to 31st; and San Francisco, 13th to 31st.

ATMOSPHERIC ELECTRICITY.

Thunder-storms were reported in the following States from one or more stations on almost every day in the month: New York, New Jersey, Pennsylvania, Virginia, North Carolina, Georgia, Florida Louisiana, Texas, Ohio, Michigan, Indiana, Illinois, Iowa, Wisconsin, Nebraska, Kansas, Colorado, and Washington Territory. In the following States they were reported on the dates indicated: *Maine:* 3rd, 7th, 16th, 20th, 26th to 29th. *New Hampshire:* 15th, 22nd, 26th to 28th. *Vermont:* 1st, 2nd, 3rd, 6th, 9th, 10th, 16th, 18th, 20th, 26th to 29th. *Massachusetts:* 6th, 9th, 10th, 15th, 16th, 20th, 26th, 29th and 30th. *Connecticut:* 2nd, 3rd, 6th, 9th, 10th, 11th, 17th, 20th, 26th and 27th. *West Virginia:* 5th, 10th, 19th and 26th. *South Carolina:* 5th, 12th and 17th. *Alabama:* 4th, 14th and 16th. *Mississippi:* 7th, 8th, 10th to 16th. *Tennessee:* 2nd to 5th, 8th 10th, 12th, 15th, 19th and 27th. *Kentucky:* 1st to 6th, 9th, 10th, 14th and 15th. *Arkansas:* 3rd, 9th and 15th. *Indian Territory:* 3rd, 4th, 18th, 19th, 20th and 31st. *Minnesota:* 2nd, 7th, 8th to 13th, 16th, 24th, 28th and 31st. *Dakota:* 1st to 10th, 18th, 20th to 26th. *Montana:* 1st, 4th, 6th, 10th, 11th, 16th, 25th, 26th and 27th. *New Mexico:* 6th, 15th and 16th. *Utah:* 22nd, 27th and 28th. *Nevada:* 17th. *Idaho:* 6th, 18th and 22nd. *Oregon:* 5th and 18th.

Auroras.—Auroral displays were observed north of the 40th parallel from Maine to Montana, on the 1st, 5th, 6th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 26th, 28th, 29th and 31st. The most extensive as well as the most brilliant was the aurora of the 13th, which was observed at many places along the entire northern boundary of the country from Mt. Washington to Helena, Montana, and as far south as New Corydon, Ind. At Pembina, Dak., it appeared brilliant about 8:30 p. m., and continued through the night. At first the whole northern portion of the sky, from about 140° to 300° azimuth, with an altitude of about 90°, was lit up with a pale, white light, differing in nothing from an ordinary twilight except that its upper margin was more distinctly defined. After remaining in this condition about half an hour some appearance of arches and striation began to appear but no distinct arch was formed. The color also changed from a pale white to yellowish green and the quiescent state gave place to one full of motion. The vibrations also partook of the usual dancing motion, still there were but few merry dancers. The quantity of light given off was very great, owing more, however, to the great extent of the light-giving surface than to the intensity of the illumination. On the summit of Mt. Washington an auroral arch was observed from 8 p. m. to midnight, extending from a little W. of N. to NE. In addition to the arch there were several luminous beams through which the stars were shining brightly. Arch and beams were of a white or very pale yellow color. Burlington, Vt., brilliant, a display from 10 p. m. of the 13th to 1:30 p. m. of the 14th. Dark segment not well defined but arch of light was distinct and very brght; the usual bright spots in the extreme WNW. and ENE. were especially brilliant, the streamers after midnight were numerous but did not extend upward very far, the light was a pale emerald green. At New Corydon, Ind., it was visible from 11 p. m. of the 13th to 1 a. m. of the 14th; at midnight, extension 80°, white arch, altitude 12°, a few beams in the eastern part from 12° to 15° altitude and of a greenish hue. The displays on the other days were faint and merit no extended description. The U. S. S. *Jamestown* at Sitka, Alaska Ty., reports on *January* 18th, 1880, at 1 a. m. "A magnificent aurora borealis appeared, stretching in an arch more less regular, at times perfect, from west around to NE. and for two hours presented a grand spectacle. During the display, which is the first that we have had, our compasses were watched and no effect was produced upon them."

OPTICAL PHENOMENA.

Solar Halos were reported in the following districts on the dates indicated: *New England*, 1st to 6th, 10th, 12th, 16th, 19th, 21st, 22nd, 25th: *Middle Atlantic States*, 5th, 12th, 14th, 18th; *South Atlatnic States*, 31st; *Florida*, 6th, 13th, 18th, 19th, 29th: *Gulf States*, 2nd, 7th, 23rd, 24th, 26th, 31st: *Ohio Valley and Tennessee*, 3rd, 5th, 7th, 10th, 14th, 18th, 23rd, 26th, 28th, 31st; *Lake region*, 1st, 2nd, 3rd, 5th, 11th, 12th, 17th, 22nd, 23rd, 25th, 29th, 31st; *Northwest*, 2nd, 3rd, 4th, 5th, 9th, 17th, 19th, 22nd to 26th; *Utah*, 8th, 15th, 16th; *California*, 12th; *Oregon*, 11th.

Lunar Halos were reported in the following districts on the dates indicated: *New England*, 1st, 21st, 23rd, 24th. *Middle States*, 11th to 14th, 16th, 17th, 20th, 21st, 30th, 31st. *South Atlantic States and Florida*, 12th, 14th, 15th, 17th to 22nd, 24th, 29th. *Gulf States*, 11th, 13th, 18th to 21st, 26th. *Ohio valley and Tennesse:* 11th, 12th, 19th, 21st and 31st. *Lake region:* 11th to 14th, 17th, 18th, 19th and 23rd. *Northwest:* 13th to 21st, 26th and 30th. *Indian Territory:* 15th and 16th.

MISCELLANEOUS PHENOMENA.

Zodiacal Light.—Nashville, 6th, 8th, 25th, 29th and 31st; Summit, Col., 30th; Monticello, Ia., 28th; Yates Centre, Kan., 10th, 26th, 27th and 31st; Fall River, Mass., 7th. Mr. Chas. Hassel-