

PRECIPITATION.

In General—The precipitation of rain and melted snow is shown by Chart No. III. The comparison, with the average for many years, shows a large excess in the South Atlantic States and Portland, Oregon, and a decided excess in the Eastern Gulf States and upper Mississippi valley. A deficiency is apparent in the Ohio valley and Tennessee.

Snow-fall.—The following snow-falls (in inches) are reported from the volunteer stations: Col., Golden City, 11.4, Estes Park, 5½; Conn., Southington, 3½, Colebrook, 10; Dak., Firesteel, 1½; Iowa, Monticello, 1, Council Bluffs, 5½ and 6.3, Rockford, 6½, Nora Springs, 7½; Kansas, LeRoy, 5, Ellinwood, 6½; Maine, West Waterville, 12½, Orono, 9; Mass., Somerset, 3½, Springfield, 4, Andover, 8, Lawrence, 13, Worcester, 13, (fell on 4th,) Westboro, 13, Waltham, 14, Florida, 15, (at close of month, the snow was 1 foot deep in the forests;) Mo., Corning, 3; Neb., Norfolk, 5, Genoa, 12½; N. H., Plaistow and Shelburn, 11½, Auburn, 29; N. Y., Jacksonville, 1, South Hartford, 2, South Trenton, 3½; Vt., Newport, 5, Woodstock, 12, Strafford, 16; Va., Snowville, 1; Wis., LeRoy, 2½, Neillsville, 6-8. The snow-storm of the 1st was, at Denver, Col., considered to be the severest experienced in eight years. The melting of the snow in the great Salt Lake valley gave rise to great floods there on the 26th, and on 30th creeks were steadily rising in Colorado.

Heavy Rains.—1st to 3d, Carlowville, Ala., in 40 hours 8.75 in. rain; also at Montgomery, Ala., over 8 inches; at Troy, Ala., on 1st and 2d, 4.8 in.; Guttentburg, 12th to 13th, 3.3 in. rain, causing floods in creeks; Oregon, Mo., heavy rain-storm 11th, raising the creek 6 ft. higher than ever known.

Hail.—Hail-storms, sometimes of considerable severity, were reported as follows: 1st, Brookhaven, Miss.; 12th, Mattoon, Decatur, Ill., Atchison, Kan., Woodmere Cemetery, Mich.; 14th, Fort Wayne, Ind.; 15th, Wabash, Ind.; 19th, Stanley, Kan; 22d, Topeka and Manhattan, Kan., (stones 2 inches in diameter fell, and to a depth of 10 inches;) 23d, Howard, Neb., 26th, Ellinwood, Kan.; 27th, Rock Island, Erie, Ill.; 29th, Ellinwood, Kan.

Drought.—But few droughts have been reported. At Newport, Fla., at the close of the month the potatoes were suffering from drought. At Wellborn, Fla., the month was dry, and cotton and corn were dying. At Wilsonville, Ala., crops were suffering at the close of the month.

Rainy Days.—The number of rainy days, as recorded by the Signal Service observers, is greatest in the Lower Lake region, where it amounts from 13 to 19; in the Upper Lake region it ranges from 7 to 9. On the Middle Atlantic coast, the range is from 11 to 17. In New England, from 10 to 15. In the South Atlantic and Eastern Gulf States, the range is from 6 to 10. In the Northwest, the numbers range from 8 to 15; Mt. Washington, 13. The greatest number of rainy days reported is 22 at Portland, Oregon, and 20 at Pittsburgh.

Cloudy Days.—The number of cloudy days, as reported by the volunteer observers, is about as follows: In the South Atlantic States, 3 to 9; Eastern Gulf, 7 to 10; Middle and Eastern States, 5 to 14; for the Lake region and Northwest, 6 to 12; for the Southwest, 3 to 6.

RELATIVE HUMIDITY.

The average relative humidity for the month is from 70 to 75 per cent. at stations on the immediate Gulf coast; about 65 per cent. for stations on the south Atlantic coast; about 70 per cent. for the middle Atlantic coast stations. It diminishes as we proceed toward the Ohio valley, where it ranges from 52 to 57 per cent.; but again increases as we proceed northward and westward, and amounts to 69 per cent. for the Northwest and 65 per cent. for the Lake region. The average, uncorrected for elevation, is: Mt. Washington, 92 per cent.; Santa Fe, Denver, Colorado Springs and Cheyenne, about 41 per cent.; San Francisco and San Diego, 70 per cent.

WINDS.

Prevailing Winds.—The prevailing directions of the wind for the month are shown by the arrows upon chart No. II. They are from the northwest in New England and the Middle States; from the south in the Gulf States; from the southwest at the Rocky Mountain stations.

Total Movements.—The largest total movements of the air have, when above 10,000 miles, been as follows: Manhattan, Kan., 11,522; Kittyhawk, 11,438; Long Branch, 11,158; Sandy Hook, 11,075; Thatcher's Island, 11,065; Cape Hatteras, 11,043; Indianola, 10,928; Dodge City, 10,923; Barnegat, 10,417; Breckenridge, 10,209; Cheyenne, 10,043. The smallest total movements of the air, when below 4,000 miles, have been as follows: Lynchburg, 3,036; Augusta, 3,179; Nashville, 3,307; Wytheville, 3,354.

High winds or severe storms have been reported from Carbondale, Ill., on the 20th; Cresco, Iowa, on the 4th and 21st; Genoa, Neb., 4th and 9th. A velocity of 50 miles per hour was reported from Flushing on the 7th and 29th, and of 52 miles per hour on the evening of the 4th. High wind, 29th, at Belmont Farm, Texas. Violent gale, 3d, at Coalville, Utah.

Tornadoes.—One began in Iowa, in the evening of the 11th, in Wright county, traversing Franklin county, and last heard of in Clayton county, 150 miles to the east of its origin; a second occurred near Louisville, Ky., on the 14th. Water-spout at Fountain, Minn., 13th. Tornado near Barnegat, N. J., 16th, and near Dodge City, Kan., 26th.

Highest Winds.—Among the maximum velocities of winds, reported at the Signal Service stations, are the following: Bismarck, 56 miles; Breckenridge, on the 9th, 63; Cheyenne, on the 15th, NW., 56; Eastport, on the 5th, NE., 58; Long Branch, 21st, NW., 60; Milwaukee, on the 5th, W., 52; Mt. Washington, 70; New York, on the 7th, SW., 58; Manhattan, on the 19th, 50; St. Paul, on the 9th, SE., 52; Sandy Hook, on the 7th, NW., 60; Thatcher's Island, on the 4th, NE., 73; Boston, on the 5th, NE., 54; Port Huron on the 14th, SW., 50 miles.

VERIFICATIONS.

Cautionary Signals.—154 Cautionary Signals have been displayed at the U. S. Signal stations, of which 29 were not justified and 5 were too late, and 120, or 78 per cent., justified, by high winds known to have occurred within 100 miles of the stations.

Probabilities.—The comparison of the published tri-daily Probabilities with the weather of the succeeding 24 hours gives a general average of the percentage of verifications of 83.6. The averages for the sections are as follows: New England, 80; Middle States, 83; South Atlantic States, 79; East Gulf States, 86; West Gulf States, 88; Tennessee and Ohio valley, 85; Lower Missouri valley, 80; Upper Mississippi valley, 86; Upper Lake region, 85; Lower Lake region, 84.

NAVIGATION.

Stage of Water.—From the table on Chart No. III, showing the highest and lowest waters, it will be seen that the Red River fell from 29 to 20 feet, and the Missouri varied irregularly between 6 and 13 feet at stations above Leavenworth; between that point and St. Louis it was above the "danger line" during a considerable portion of the month. In the Ohio a moderate flood wave descended the river during the first half of the month, after which the river fell steadily. The principal feature in regard to the upper Mississippi was the slow rise during the first half of the month. At Keokuk the river was above the "danger line" for several days; at St. Louis the river was 9 inches below the "danger line" on the 20th; between Cairo and Vicksburg the river remained above the "danger line," with slight intermissions throughout the greater part of the month. An important change in the river channel has been made at Vicksburg by the completion of the cut-off, and a formation of a new channel about 3 miles west of Vicksburg, by which the distances on the river channel are shortened by about 8 miles. This cut-off, which has been anticipated since the year 1828, and whose progress has been carefully observed, was finally accomplished on the 26th of April, and was accompanied by a decided rise of about 9 in. on the Signal Service gauge at Vicksburg.

Freshets in Rivers.—The volunteer observer at Havana, Ill., reports that the maximum height of the Illinois river was 16 feet above low-water mark, and Guttenberg, Iowa, reports on the 12th and 13th, in consequence of the heavy rains elsewhere mentioned, destructive freshets in the neighboring rivers. At Moorhead, Minn., the Red River of the North began to rise on the 8th, reached maximum, 14 feet above low water, on the 19th; Oregon, Mo., on the 11th, creeks higher than ever known before in consequence of sudden rains; Pennville, Penn., high water in the west branch of the Susquehanna on the 14th; Rochester, N. Y., highest water, 35 feet, on the 7th, lowest, 33 feet 6 inches, 30th; Keokuk, Iowa, the Des Moines river rising and destructive floods, 13th to 18th; Shreveport, La., low places overflowed, 8th to 12th. The combination of east wind and high tide produced an unusually high water on the New Jersey coast on the 25th.

Ice in rivers and harbors is reported as follows: Fort Niagara, on the 5th, no ice in river for several days; quantities of floating ice on the 14th, 29th and 30th; Madison Barracks, N. Y., ice in lay, and teams crossing, 1st; Firesteel, Da., ice moving out of James river on the 7th; Nora Springs, Iowa, river clear of ice on the 8th; Standish, Me., ice left Sebago lake on the 30th; Mt. Desert, Me., ice left the harbor on the 5th; a thin skim of ice on river and harbor on the 28th; Traverse City, Mich., ice cleared out of Grand Traverse bay on the night of the 19th; Shelburne, N. H., Androscoggin river opened on the 17th; Auburn, N. H., lake free from ice on the 16th; Cazenovia, N. Y., the lake fully open on 21st; Cooperstown, N. Y., ice left Otsego lake 26th; West Charlotte, Vt., Lake Champlain opened 21st; Lunenburg, Vt., ice cleared out of Connecticut river on the 22d; Bloomfield, Wis.; Geneva lake opened on the 6th; Madison, Wis., Lake Monona clear of ice 8th, and Lake Mendota clear of ice 11th; Buffalo, N. Y., harbor ice-bound during month; Milford, Penn., Delaware river cleared of ice on the 6th; Escanaba, Mich., ice left Green bay on 24; still firm in Escanaba harbor 26th; left the harbor on the 30th; Breckenridge, Minn., river rising and ice breaking away on the 11th; river fell and ice breaking 15th; La Crosse, Wis., ice moving 6th, and river clear 7th; St. Paul, Minn., ice gorge broke 8th; river clear 10th; drift 11th, 12th and 16th; Bangor, Me., harbor clear of ice 11th; Albany, N. Y., river clear 1st; Port Huron, Mich., harbor free on the 6th; floating ice 7th; large ice field 11th; Alpena, Mich., bay clear of ice 20th; Pembina, Minn., river ice moving 19th; free, excepting floating ice, 22d.

Opening of Navigation.—Fort Ontario, first vessel arrived 6th; Madison Barracks, navigation open and vessels leave 24th; Gardiner, Me., the Kennebec river opened on the 7th. West Charlotte, Vt., regular