

WINDS.

In General.—The prevailing winds at Signal Service stations are shown by arrows on chart No. II, from which it will be seen that the prevailing winds were southerly throughout the Atlantic States and west of the Mississippi, tending to westerly in the former and to easterly in the latter district. Throughout the Mississippi and Ohio valleys, Tennessee and Lake region, the winds were northerly, tending to westerly, especially over the Lower Lakes, Ohio valley and Tennessee. On the Pacific coast the prevailing winds were northerly or westerly.

Total Movements.—The largest total movements have been as follows: Mt Washington, 13,075 miles; North Platte, 9,591; San Francisco, 8,923; Cape May, 8,260; Dodge City, 8,127. The smallest movements have been as follows: Indianapolis, 2,012; Lynchburg, 2,026; Augusta, 2,107; Nashville, 2,247; Springfield, 2,320.

The highest velocities in miles per hour, have been as follows: 5th, Breckenridge, 50 miles; 6th, Denver, 75. North Platte, 60; 7th, Cape Lookout, 60; 21st, Cambridge, 50; 28th, North Platte, 66; 29th, Morgantown, 59.

Local storms, tornadoes, &c., have been reported, as follows, (unless specially noted, it is understood that the following list of high winds include only local storms, and not such gales as prevailed simultaneously over a large region):—6th, about 4.50 p. m., a severe hail-storm visited Denver, Col., lasting about twenty minutes. For about three minutes the wind blew from the northwest, at the rate of 75 miles per hour, tearing off portions of the roofs of the jail and Broadway school building. The rain-fall was the heaviest experienced for several years, amounting to one inch in 25 minutes, flooding cellars and doing considerable damage to stocks. Hail commenced at 5 p. m., and fell for 8 minutes, doing extensive damage to window glass. 6th, a severe wind and rain storm occurred at Council Bluffs, Iowa, between two and three o'clock a. m., coming from the northwest. The new building of the Deaf and Dumb Institution was left a mass of ruins; the roof was caught up bodily, carried to the southeast and literally torn into fragments, one piece weighing not less than five tons, being carried forty rods, while other pieces weighing between two and three tons, were carried still farther away, and fragments scattered over the country, for more than a mile. To give some idea of the force of the wind, the front wall of the main building, having a stone basement two feet in thickness, is said to have been moved seven inches at the top, gradually decreasing to about one half an inch at the base; the brick walls of the third story in some places were blown entirely down, and the fourth story was almost entirely demolished. The buildings in the rear of the main building and somewhat protected, were also greatly damaged; the roofs of the engine and gas houses being torn away and two chimneys blown down. 8th, Starkey, N. Y., 1 p. m. Heavy hail-storm, lasting twenty minutes; came from NW.; path one mile wide. Hail-stones were size of cherries. Grape, peach, tobacco and corn crop badly damaged. The wind preceding the hail, blew down trees, took tops off grain-stacks, &c. 9th, Orrville, Ohio, severe storm fields of corn destroyed, the stones being as large as walnuts. 10th, A tornado visited Coney Island N. Y., doing considerable damage to hotels and bathing-houses; several beams and timbers of the new depot were also torn from their positions and the car-house blown level with the ground. 11th, early this morning a severe wind and hail storm visited Cordova, Ill., destroying two churches, two business houses, several dwellings, and doing considerable other damage; at Walcott, near Davenport, Iowa, six horses were killed by lightning. 12th, Jamestown, N. Y., at 1.15 p. m., "during a thunder-storm, a ball of fire, apparently two feet in diameter, entered a church, killing one boy and severely burning several persons; instantly the whole interior of the building grew hot and dry, the air hard to breathe and supremely oppressive." 12th, Louisville, Ky., 2 a. m., severe thunder-storm, doing some damage. 14th, New York, heavy thunder-storm, one schooner capsized and another struck by lightning; Clinton, Ill., severe storm, completely destroying a church, school-house, mill and a number of dwellings, and doing great damage to crops; Stamford, Conn., violent tempest, uprooting trees, blowing down fences, destroying crops, track of devastation northeasterly and about half a mile wide; Ottawa, Ontario, Can., severe thunder-storm, doing considerable damage to buildings; at Aylwin a school-house was struck and damaged. 16th, a hail and severe thunder-storm passed over northern part of New Jersey; the track at Carpenterville was flooded several inches deep with hail-stones and water; at Springtown, one child was killed by lightning and several others rendered insensible; Glen's Falls, N. Y., house struck by lightning and one person killed. 16th, Concord, N. H., severe thunder-storm, during which several persons were stunned; Guelph, Ontario, Can., heavy and prolonged thunder-storm, streets flooded and considerable damage to goods stored in cellars, one man was killed and another stunned by the lightning. 17th, a heavy hail and thunder-storm raged from Houston, Texas, to south of Victoria. 18th, Hartford, Conn., 12:10 to 6:30 p. m., violent wind did much damage to trees and chimneys. Rain fall, 3.45 inches, flooding streets and cellars. 18th, Gofestown Centre, N. H., 4 p. m., heaviest thunder-storm ever known; Methodist church completely destroyed, loss, \$4,000, and several other buildings damaged. 21st, Chestertown, Kent county, Maryland, a violent wind and hail-storm, extending, also, to Queen Anne's

county; hail-stones, large as hen's eggs, doing much damage to orchards and window-glass. 21st, about 4 p. m., the sixth and most destructive hail-storm of the season occurred between Centreville and Ruthsburg, Queen Anne's county, Md., coming from the east and veering to southwest. The hail-stones were as large as hen's eggs; one, weighing one-quarter of a pound, killing poultry and breaking the leg of a hog. The destruction to fruit and grass amounts to almost a total loss, while the corn is more than one-third destroyed. 21st, Oconto, Wis., severe squall, doing damage to shipping in harbor. 24th, a severe thunder-storm visited Rochester, Charlotte and Summerville, Monroe county, N. Y., during which the lightning struck several buildings, stunning and burning a number of persons. A violent rain-storm also occurred in north portion of Harford county, Md., flooding streams and carrying away bridges, horses, cattle and sheep. 25th, Omaha, Neb., a severe wind and rain-storm passed over eastern Nebraska and Kansas, blowing a hurricane at Omaha about 3:30 a. m. Two spans of the Missouri river bridge, one hundred and fifty feet each, and the stable of the Omaha Omnibus Company, were blown down. At Omaha the tornado advanced from a point a little east of north along the course of the river; it appears that the atmospheric commotion was at first high above the country, and when the sudden fall of the river embankment was reached it swooped down in its course, spread havoc in its path, and as suddenly lifted itself again above the surrounding country. One observer says he saw an immense cloud passing down the river, lifting up the water in vast quantities and whirling it around in a funnel-shape. The spans destroyed were at the eastern terminus of the bridge; the wrought iron stringers and columns of the bridge-spans were twisted and bent like so many pieces of paper and carried partly into the river and partly against the eastern embankment of the river, on the south side of the bridge. 29th, New London, lightning struck barn at Fort Trumbull, killed one horse and set barn on fire. Macon, Ga., drayman struck and two mules killed by lightning. 30th, Pittsburgh, Pa., severe wind and rain storm, during which buildings and trees were damaged. 31st, St. Louis, Mo., heavy wind and rain storm, doing considerable damage at the Arsenal. Detroit, Mich., a series of storms, of unusual violence, uprooting trees, &c. Windsor, Ont., violent wind and hail. Sandwich, Ont., tornado moving in a southeasterly direction, damaged trees, houses, &c. Toledo, heavy wind, rain and hail-storm, hail as large as pigeon's eggs; wind 36 miles per hour at 2 p. m. Collingwood, Cuyahoga Co., Ohio, new chapel totally destroyed by wind-storm. Sandusky, Ohio, a series of violent wind, rain and hail-storms visited this city; hail as large as musket balls. Cleveland, Ohio, a most severe wind and hail-storm struck city about 10 a. m., hail-stones fell as large as walnuts; trees, flagstaffs, churches, &c., were much damaged. About 11 a. m. the water rose in the Lake, at the mouth of the Cuyahoga river, about three feet, and flowed rapidly up stream, and about 4 p. m. again fell to about 40 inches below its normal height; at the government pier the total change in the water is reported to have been about seven feet. Pittsburgh, Pa., severe wind and rain-storm, damaging roofs, flooding cellars, &c. Erie, Pa., severe storm, with tremendous sea on Lake. Ypsilanti, Mich., severe storm, damage several thousand dollars. Adrian, Mich., terrific storm.

VERIFICATIONS.

Indications.—The detailed comparison of the tri-daily weather indications with the telegraphic weather reports, for the succeeding twenty-four hours, shows a general per centage of omissions of 0.5 per cent., and of verifications of 82.7 per cent. Out of 3,698 predictions, 2,260, or 60.8 per cent., have been fully verified; 680, or 18.3 per cent., have been three-fourths verified; 487, or 13.1 per cent., have been one-half verified; 178, or 4.8 per cent., have been one-fourth verified; 93, or 2.5 per cent., have failed. The percentages of verifications for the four elements have been: weather, 83.3; wind, 79.5; temperature, 87.0; barometer, 81.8. The percentages of verifications by geographical districts have been; New England, 79.8; Middle States, 82.2; South Atlantic States, 81.1; East Gulf States, 81.6; West Gulf States, 85.0; Lower Lake region, 85.8; Upper Lake region, 82.3; Tennessee and the Ohio valley, 80.9; Upper Mississippi valley, 83.2; Lower Missouri valley, 84.2.

Cautionary Signals.—During the month 38 Cautionary Signals have been displayed at stations on the Gulf and Atlantic coast, and on the Lakes. Forty instances of high winds, where no signals were displayed, have also been reported from these stations. Telegraphic communication with the North Carolina coast stations was re-established on the 16th.

NAVIGATION.

Stages of Water.—In the table on Chart III, are given the highest and lowest readings on the river gauges, for the month, from which it will be seen that a general fall has taken place in all the rivers, averaging in the Missouri, Ohio and Cumberland rivers, from two to four feet; in the Upper Mississippi from seven to thirty inches, and in the Lower Mississippi from five to fourteen feet. Occasional slight rises have occurred in consequence of heavy rains, the most marked occurring in the Upper Mississippi during the last