

**Penn's Manor, Bucks county:** at 4 p. m. of the 19th, a very violent and destructive storm occurred in this vicinity. The storm came from the southwest, making its appearance suddenly, and was of about twenty minutes duration. Large numbers of dwellings and trees were blown down, and the railroads were blockaded with the fallen débris. The total loss caused by the storm is estimated at \$25,000.

**Harrisburg:** this city was visited by a very severe storm during the night of the 17th. Many buildings were unroofed and trees and telegraph poles prostrated.

**Province of Ontario.**—Chatham: during the afternoon of the 18th a severe wind and rain-storm passed over this section. An unfinished bridge across the Thames river was completely destroyed. Several trees were uprooted and other damage done.

**Province of Quebec.**—Saint Johns: a severe storm of rain and hail visited this section on the afternoon of the 6th. A number of houses were unroofed and a large amount of lumber was blown from the wharves into the river.

**Tennessee.**—Memphis: between midnight and 1 a. m. of the 23d a violent thunder-storm passed over this city; no serious damage was reported.

**Texas.**—Greenville, Hunt county: a severe storm occurred at this place on the night of the 2-3d, causing damage estimated at from \$50,000 to \$70,000. One person was killed and several injured.

**McKinney, Collin county:** a tornado occurred west of this place on the evening of the 9th, which caused much injury to crops. The path of the tornado was about one hundred and fifty yards wide. At this place a heavy hail storm occurred, the hail-stones being of unusual size.

**West Virginia.**—Martinsburg: a very severe and destructive storm passed over this locality at about 4 p. m. of the 9th. It continued for forty minutes, causing great damage in the immediate vicinity to fruit trees and other property. The estimated loss is about \$5,000.

**Wisconsin.**—Fond du Lac, Fond du Lac county: a severe wind and rain storm visited the southern part of this county at 6 a. m. of the 2d. In the immediate vicinity of this city very little damage was done, but at Oakfield, nine miles south, the storm was more destructive. About one hundred and fifty barns in this county were destroyed. The loss to property in this county, aside from the damage to crops, is estimated at \$50,000.

**Brandon, Fond du Lac county:** a severe storm passed over this village on the morning of the 2d. The most serious damage done was to the shade trees and orchards. Numerous buildings were unroofed and sheds and light outbuildings were blown down.

**Port Washington, Ozaukee county:** a severe storm passed over the northern part of this county between 6 and 7 a. m. of the 2d, causing a large amount of damage. Over two hundred buildings were destroyed in the towns of Belgium and Fredonia, at which places the storm raged with unusual violence.

**Necedah, Juneau county:** during a severe storm, on the morning of the 2d, a part of the bridge over the Wisconsin river, three miles east of this place, was carried away, entailing a loss of 4,000. Buildings and crops in Adams county were damaged to a considerable extent.

**Elmo, Grant county:** a violent storm occurred at this place on the afternoon of the 11th. A freight train on the Galena division of the Chicago and Northwestern railroad was lifted from the track. A large amount of damage was done in this vicinity.

**Beloit, Rock county:** a violent storm occurred at this place at about 6 p. m. of the 11th. A large number of houses were unroofed and great damage was done to the mills and factories along the water power. The water in the river rose very rapidly, flooding many cellars. The bridge of the Chicago and Northwestern railway was totally destroyed. Three persons were reported to have been killed. The damage caused by the storm is estimated at \$100,000.

#### LOW TIDES.

Indianola, Texas, 24th, 26th, 27th.

#### VERIFICATIONS.

##### INDICATIONS.

The detailed comparison of the tri-daily indications for June, 1883, with the telegraphic reports for the succeeding twenty-four hours, shows the general average percentage of verifications to be 85.10 per cent. The percentages for the four elements are: weather, 85.04; direction of the wind, 84.73; temperature, 85.27; barometer, 85.39 per cent. By geographical districts, they are: For New England, 85.24; middle Atlantic states, 86.62; south Atlantic states, 90.01; eastern Gulf, 85.08; western Gulf, 82.84; lower lakes, 81.46; upper lakes, 85.55; Ohio valley and Tennessee, 85.99; upper Mississippi valley, 85.70; Missouri valley, 82.39.

There were sixty-two omissions to predict out of of 3,600, or 1.72 per cent. Of the 3,538 predictions that have been made, one hundred and sixty-nine or 4.78 per cent., are considered to have entirely failed; eighty-seven or 2.46 per cent were one-fourth verified; four hundred and eighty-one or 13.59 per cent., were one-half verified; two hundred and nine or 5.91 per cent., were three-fourths verified; 2,592 or 73.26 per cent., were fully verified, so far as can be ascertained from the tri-daily reports.

The following percentages of verifications are for the month of August, 1882, which were not published in the REVIEW for that month:

The detailed comparison of the tri-daily indications for August, 1882, with the telegraphic reports for the succeeding twenty-four hours, shows the general average percentages of verifications to be 84.6 per cent. The percentages for the four elements are: weather, 91.0; direction of the wind, 84.4; temperature, 80.8; barometer, 81.6 per cent. By geographical districts they are: for New England, 84.1; middle Atlantic states, 84.9; south Atlantic states, 87.1; eastern Gulf, 86.5; western Gulf, 86.7; lower lakes, 86.9; upper lakes, 82.5; Ohio valley and Tennessee, 84.9; upper Mississippi valley, 79.9; Missouri valley, 80.7; north Pacific, 88.9; middle Pacific, 98.2; south Pacific, 99.1. There were one hundred and twenty-three omissions to predict (nineteen being due to the absence of reports from the Pacific coast) out of 3,813, or 3.2 per cent. Of the 3,690 predictions that have been made, one hundred and fifty-four, or 4.2 per cent., are considered to have entirely failed; one hundred and nine, or 2.9 per cent., were one-fourth verified; four hundred and fifty-six, or 12.4 per cent., were one-half verified; four hundred and ten, or 11.1 per cent., were three-fourths verified; 2,561, or 69.4 per cent., were fully verified, so far as can be ascertained from the tri-daily reports.

#### CAUTIONARY SIGNALS.

During June, 1883, fifty-one cautionary signals were displayed. Of these, forty-one, or 80.39 per cent., were justified by winds of twenty-five miles or more per hour at or within one hundred miles of the station. These do not include signals ordered at display stations, where the velocity of the wind is only estimated. No cautionary off-shore signals were ordered during the month. Three signals were ordered late.

One hundred and thirty-eight winds of twenty-five miles or more per hour were reported for which no signals were ordered; many of these were high local winds or strong sea breezes.

#### NAVIGATION.

##### STAGE OF WATER IN RIVERS.

In the lower Missouri river, and in the Mississippi in the vicinity of Saint Louis, the water rose above the danger-line during the latter part of the month. The Missouri, at Leavenworth, Kansas, reached its highest stage on the 26th, when it was five inches above the danger-line.

The Mississippi, at Saint Louis, Missouri, was above the danger-line from the 17th to the end of the month. The highest stage occurred on the 25th, on which date the water was