

pletely inundated. At Shelby, on the 7th, a heavy rain flooded a tract of country about two miles wide, causing great injury to crops. On the 23d a very heavy rain occurred at Dayton; streets and cellars were flooded, and travel was delayed owing to washouts on the railroads.

Pennsylvania: Heavy rains occurred in the Cumberland valley on the 6th. The town of Chambersburg was inundated and great damage to property occurred; creeks overflowed and caused much injury to growing crops, and several washouts occurred on the railroads. Heavy rains occurred in Lancaster county on the 7th; at Refton, the Beaver creek rose twelve feet in an hour, washing away a bridge and destroying one hundred feet of railroad track. The tobacco crop suffered severely.

Texas: Heavy rains occurred in San Saba county on the 4th; streams were swollen, and the corn and oat crops were damaged by the continuous rain. A heavy rain storm began at 8:30 p. m. of the 23d at Concho, and continued in torrents until the morning of the 24th, the total amount of precipitation being 6.86 inches. On the morning of the 24th, the South Concho river was thirty feet above its level and rising with great rapidity, reaching its highest point at about 4 00 p. m. of that day, when it was reported to have been forty-five feet above its ordinary level. Houses were swept away, and the inmates were drowned in the rapid current; many persons sought safety by clinging to the tops of the strongest trees, but these, in many cases, were washed away, and the occupants drowned. The town of Ben Fiehl in was completely washed away, only the court-house and jail being left standing, in the former of which the water remained to a depth of several feet. The town of San Angelos was also inundated; the telegraph line was covered with water, and all communication was cut off. The river was one mile wide in many places, and large numbers of cattle and horses were washed away. It is estimated that fifty persons were drowned in this flood, and that from 10,000 to 15,000 horses, cattle, and sheep were lost. The damage to property amounted to more than \$150,000. In Erath county, the Bosque river overflowed, destroying property to the amount of \$50,000. One family was drowned, and others saved themselves by clinging on the roofs of their dwellings. Serious washouts occurred on the Texas Pacific railroad, interrupting communication between Dallas and Fort Worth.

Virginia: Variety Mills, Nelson county, 4th. A heavy rain storm occurred about ten miles north of station; the creeks rose rapidly, and much damage was done to fencing and to the corn and tobacco crops.

Wisconsin: Milwaukee, 3d. The heavy rain of the 3d was very destructive; the streets were flooded, and large quantities of merchandise stored in cellars and basements, was completely ruined. Much damage was done to streets and sewers. Outside of the city the losses were very serious. Wheat, corn and oats were badly damaged, and several barns were undermined. The damage to the city amounted to between \$50,000 and \$100,000. In Sheboygan, Wausheka, and Jefferson counties the rain caused much damage to crops, especially in the first-mentioned county.

Madison, 14th. The heavy rain that accompanied the storm of the 14th caused slight damage to railroads and other property; but the principal damage to crops appears to have been caused by the heavy and destructive hail which fell during the storm. The country near Cross Plains was flooded, causing some damage to railroad bridges.

HIGH TIDES.

Coney Island, New York, 28th. The high easterly wind which prevailed during the 27th and 28th, caused very high tides and rough sea. The marine railroad between Manhattan and Brighton was damaged by the waves.

TEMPERATURE OF WATER.

The temperature of the water as observed in rivers and harbors at the Signal Service stations, with the average depth at which observations were taken, is given in the table on the

right hand of chart number ii. In the first column of the table is given the maximum temperature observed during the month; and in the second column the minimum temperature observed during the same period.

The following table gives the highest and lowest temperatures of water at the several stations, with the range of water temperature, mean temperature of the air at the station, and the depth of water at which the observations were taken. The greatest ranges occurred as follows: 20° at Galveston; 18°2 at Cleveland; 17° at Duluth. The smallest are: 2°8 at Port Eads; 3° at Marquette; 3°7 at Block Island; 3°5 at Eastport; 3°8 at Portland, Oregon, and 4° at Baltimore.

Temperature of Water for August, 1882.

STATION.	Temperature at bottom.		Range.	Average depth feet and inches.	Mean temperature of the air at station.
	Max.	Min.			
Atlantic City.....	78.6	69.0	7.6	6 9	72.6
Alpena.....	72.8	64.1	8.7	12 0	65.4
Augusta.....	86.5	74.0	12.5	7 7	79.3
Baltimore.....	84.0	76.0	4.0	10 0	73.9
Block Island.....	68.8	65.1	3.7	8 2	70.2
Boston.....	67.5	66.0	7.5	25 0	69.9
Buffalo.....	73.8	69.8	6.0	10 2	68.9
Burlington.....	79.0	69.0	10.0	18 0	69.5
Cedar Keys.....	87.0	81.0	6.0	10 3	81.4
Charleston.....	88.6	79.4	7.2	40 7	81.7
Chicago.....	74.5	68.4	6.1	8 2	71.2
Chincoteague.....	84.0	70.0	14.0	6 0	74.1
Cleveland.....	78.7	58.5	18.2	14 0	69.9
Detroit.....	73.0	70.0	3.0	24 4	71.3
Duluth.....	69.0	52.0	17.0	15 9	63.6
Eastport.....	49.5	45.7	3.8	17 1	61.7
Escanaba.....	70.0	58.0	12.0	15 0	64.6
Galveston.....	87.0	67.0	20.0	14 9	81.4
Grand Haven.....	73.8	65.3	8.5	19 0	68.8
Indianola.....	87.4	81.0	6.4	9 4	81.4
Jacksonville.....	89.0	83.0	6.0	18 0	81.6
Key West.....	90.0	77.0	13.0	16 4	84.6
* Mackinaw City.....	68.8	63.3	5.5	13 0	66.3
Marquette.....	61.8	58.8	3.0	10 6	62.4
Milwaukee.....	72.5	65.0	7.5	8 0	68.3
Mobile.....	84.5	79.5	5.0	15 6	79.4
New Haven.....	81.3	70.2	11.1	15 6	69.7
New London.....	72.0	66.0	6.0	12 10	70.4
Newport.....	72.2	65.5	6.7	10 11	70.2
New York.....	77.0	71.0	6.0	21 9	71.7
Norfolk.....	84.0	78.0	6.0	17 3	77.3
Pensacola.....	85.1	79.1	6.0	18 0	78.8
Portland, Me.....	68.0	56.9	7.0	19 2	69.7
Portland, Oreg.....	70.2	66.4	3.8	68 1	64.8
Port Eads.....	82.8	80.0	2.8	9 5	80.6
Provincetown.....	74.0	67.0	7.0	14 0	69.9
Punta Rasa.....	91.6	84.5	7.1	11 11	80.8
Sandusky.....	77.6	69.7	7.9	10 0	71.1
Sandy Hook.....	74.3	69.8	4.5	1 9	73.3
San Francisco.....	62.0	57.5	4.5	31 7	57.6
Savannah.....	84.9	81.3	3.6	12 10	81.7
Smithville.....	86.0	80.0	6.0	10 0	79.4
Toledo.....	78.5	69.5	9.0	11 11	72.1
Wilmington.....	83.0	78.0	5.0	13 0	79.6

*Observations from 26th to 31st, inclusive.

ATMOSPHERIC ELECTRICITY.

AUROEAS.

The most remarkable and widely observed display of the month occurred on the evening of the 4th, and may be classed as one of the most brilliant and extensive displays of the year. It was observed throughout the northern part of the United States, from Maine to Oregon, and as far southward as northern Florida along the Atlantic coast. In the interior of the country, the most southerly stations at which the display was observed were, Louisville, Kentucky, and Wellington, Kansas.

The following are some of the most noteworthy descriptions of the display:

Portland, Maine: Brilliant auroral display from 9:10 to 10:30 p. m., consisting of diffuse white light with rose colored streamers and merry-dancers extending from the northern horizon to the zenith.

Mount Washington, New Hampshire: The display began at 9:05 p. m. Two arches appeared at 9:10 p. m., and at 9:30 an almost complete corona was formed. Waves of whitish light flashed continually from the horizon to the zenith with great rapidity. Near the horizon, the light was of a greenish color. The brilliancy of the display was very variable, and was greatly lessened by the rising moon at 10:00 p. m., and ended during the early morning of the 5th.