

November, 1877. Eleven bridges have been washed away, the loss of which will reach \$6,000. Every bridge over North Mays River and Marrowtown Creek has been washed away, and six mill-dams have been washed out by the heavy pressure of water. Great damage was done to the Danville and New River Railroad, and the first train from Stuart came down this evening. No trains will be here from Danville for a week, and no mail has been received since the 30th of July. The growing crops along all streams have been almost completely ruined, and the total amount of damage cannot be estimated.—*The Lynchburgh, Va., News, August 3.*

Staunton, Va., 6th: the damage done by the recent continuous rain, from Roanoke to Winchester, is distressing. Three-quarters of the wheat crop was caught by the rain while in shocks in the fields, causing it to sprout and grow in the shocks. Altogether these have been the most disastrous rains in the valley for twenty years, and the loss amounts to millions of dollars. Three-quarters of the hay has also been lost, and most of the oats are sprouting as they stand unreaped.—*The Lynchburgh, Va., News, August 6.*

Pueblo, Colo., 10th: the late heavy rains have caused a rapid rise in the Arkansas River, and, owing to an incomplete levee near the Santa Fé bridge, the high water spread over a large portion of the southern part of this city, the water being in places two feet in depth, causing much damage to property.

Kansas City, Mo., 13th: the country between Topeka, Kans., and this city is flooded; all trains from the west, to-day, were late, some not arriving at all. Nearly all the main lines were under water, and round-about detours were taken in order to reach this city. The Santa Fé railroad suffered the greatest damage. For ten miles this side of Topeka the road is completely washed away. A few of the western trains on the Santa Fé and Southern Kansas roads were abandoned and all the bridges on these roads have been washed away. A big land-slide occurred on the Kansas City, Council Bluff, and Saint Joseph Railroad. A similar slide occurred on the Chicago, Milwaukee, and Saint Paul road near Randolph and delayed the trains from Excelsior Springs.—*Saint Louis, Mo., Republican, August 14.*

Lincoln, Nebr., 13th: heavy rains have swollen the streams in southwestern Nebraska to an unusual height. Railroad traffic is considerably interrupted, and much damage has been done to property. The Atchison and Nebraska Railroad is under water between Firth and Table Rock, and at Tecumseh the rise in the river drove many people from their homes. At Beatrice and Blue River, houses on the bottom lands are flooded; the people escaped in boats. The Northwestern tracks near Lincoln have been washed away. Salt Creek and the salt basins are one vast lake, and the water as yet shows

no sign of subsiding. From three hundred to five hundred houses are flooded and the people had to move out of danger.—*Denver, Colo., News, August 15.*

HIGH TIDES.

Asbury Park, N. J., 29th: the high northeast wind has caused the surf to rise higher and rougher than it has been any time during the summer. At high tide the waves washed over the plaza. Deep cuts were made at many points, and the new bulkheads were damaged at several places.—*Rochester, N. Y., Times, August 29.*

STAGE OF WATER IN RIVERS AND HARBORS.

The following table shows the danger-points at the various stations; the highest and lowest water for August, 1889, with the dates of occurrence and the monthly ranges:

Heights of rivers above low-water mark, August, 1889, (in feet and tenths).

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Date.	Height.	Date.	Height.	
<i>Red River:</i>						
Shreveport, La.....	29.9	1	13.2	31	4.9	8.3
<i>Arkansas River:</i>						
Fort Smith, Ark....	22.0	2	11.5	28	2.0	9.5
Little Rock, Ark....	23.0	1	16.4	30, 31	4.2	12.2
<i>Missouri River:</i>						
Fort Buford, Dak.....		1	2.5	31	-0.7	3.2
Omaha, Nebr.....	18.0	2, 3, 4	8.4	31	6.0	2.4
Leavenworth, Kans....	20.0	17	11.4	31	7.0	4.4
Kansas City, Mo.....	21.0	14	13.9	31	6.1	7.8
<i>Mississippi River:</i>						
Saint Paul, Minn....	14.5	29, 30, 31	3.2	15	2.3	0.9
La Crosse, Wis....	24.0	31	4.1	1, 2, 7	2.4	1.7
Dubuque, Iowa....	16.0	13, 14, 30, 31	2.9	9	2.2	0.7
Davenport, Iowa....	15.0	1	1.8	{ 8, 9, 11, 12, 27, 28, 29, 30 }	1.3	0.5
Keokuk, Iowa....	14.0	1	2.3	29, 30, 31	0.8	1.5
Saint Louis, Mo....	32.0	1	13.0	30	6.4	6.6
Cairo, Ill.....	40.0	5	22.0	31	8.5	13.5
Memphis, Tenn....	34.0	1	17.0	31	8.1	8.9
Vicksburg, Miss....	41.0	5, 6, 7	23.5	31	12.0	11.5
New Orleans, La..	13.0	8	8.1	30, 31	4.4	3.7
<i>Ohio River:</i>						
Pittsburgh, Pa.....	22.0	2	4.5	31	0.4	4.1
Parkersburg, W. Va....	38.0	1	8.5	31	2.9	5.6
Cincinnati, Ohio....	50.0	5	19.3	31	6.9	12.4
Louisville, Ky.....	25.0	6	8.2	31	4.1	4.1
<i>Cumberland River:</i>						
Nashville, Tenn....	40.0	1	15.5	31	2.4	13.1
<i>Tennessee River:</i>						
Chattanooga, Tenn....	33.0	4, 5	10.1	24	3.8	6.3
<i>Monongahela River:</i>						
Pittsburgh, Pa.....	29.0	2	4.5	31	0.4	4.1
<i>Savannah River:</i>						
Augusta, Ga.....	32.0	4	20.0	23, 24	7.0	13.0
<i>Willamette River:</i>						
Portland, Oregon..	15.0	12	4.9	21	1.6	3.3

*Ohio River.*—Pittsburgh, Pa.: on account of low water, navigation was suspended to points below this city on the 12th.  
*Monongahela River.*—Pittsburgh, Pa.: boats left Lock No. 1 for points above this city on the 23d.

ATMOSPHERIC ELECTRICITY.

AURORAS.

Auroras were observed during the month, as follows: 2d, Amana, Iowa. 6th, Wedgwood, N. Y. 15th, Vevay, Ind.; Grantsburgh, Wis. 28th, Arcade and Wedgwood, N. Y.; Saint Vincent, Minn.

Saint Vincent, Minn.: an aurora was observed at 9.10 p. m., 28th. It consisted of a dim glow on the northern horizon, which increased in brilliancy until it attained its maximum intensity at 10.30 p. m., at which time an irregular arch extended from azimuth 135° to 270°, and to altitude about 20°. Numerous "needles" of more or less brilliancy appeared, none of them reaching beyond altitude 30°. After 10.40 p. m. the display waned rapidly and the aurora took the form of a low broad arch, which did not materially change while observed. The display ended during the early morning of the 29th.

THUNDER-STORMS.

The more severe thunder-storms of the month are described under "Local storms." Thunder-storms were reported in the

greatest number of states and territories, thirty-three, on the 3d; in thirty-one on the 1st and 14th; in thirty on the 9th and 10th; in twenty-nine on the 2d; in twenty-eight on the 4th and 13th; in twenty-two on the 7th and 12th; in twenty-one on the 6th and 11th; in from fifteen to twenty, inclusive, on the 5th, 8th, 15th, 16th, 17th, 20th, 22d, 23d, 24th, 26th, 29th, 30th, and 31st; and in from ten to fourteen, inclusive, on the 18th, 19th, 21st, 25th, 27th, and 28th. There were no dates for which thunder-storms were reported in less than ten states or territories.

Thunder-storms were reported on the greatest number of dates, thirty-one, in Florida; on twenty-five in Arizona; on twenty-four in Arkansas and Kansas; on twenty-three in Texas; on twenty-one in Colorado, Georgia, Minnesota, and Utah; on twenty in Mississippi; on from fifteen to nineteen, inclusive, in Alabama, Dakota, Illinois, Iowa, Louisiana, Michigan, Nebraska, New York, North Carolina, South Carolina, and Tennessee; on from ten to fourteen, inclusive, in

Indiana, Indian Territory, Maryland, Massachusetts, Missouri, New Jersey, New Mexico, Pennsylvania, Virginia, Wisconsin, and Wyoming; on from four to eight, inclusive, in California, Connecticut, District of Columbia, Idaho, Kentucky, Maine,

Montana, Nevada, New Hampshire, Ohio, Rhode Island, Washington Territory, and West Virginia; and on two in Oregon. There was but one state or territory, Delaware, in which no thunder-storms were reported.

## MISCELLANEOUS PHENOMENA.

## DROUGHT.

Fort Assiniboine, Mont., 8th: no rain has fallen in this section for three weeks. The soil is in need of rain, and the creeks and rivers are scantily fed by the mountain streams. The hay crop is everywhere reported short, and vegetation wears a parched appearance. 31st: 0.10 inch of rain fell during the month, and the water supply is giving out.

Helena, Mont.: the long-continued drought was broken by the heavy rain on the 19th.

Springfield, Mo., 25th: the drought of the last eleven days has been injurious to the corn crop and pasturage.

Fort Sully, Dak., 30th: the prevailing dry weather has seriously injured corn, oats, and other late crops in this section.

Motes, Ala.: the month has been unusually dry, and crops have suffered to some extent.—*Report of Mr. A. M. Weiler.*

Grand Haven, Mich., 31st: the prevailing drought in this section is severely affecting crops.

Port Huron, Mich., 31st: no rain has fallen in this section since the 30th of May, and the drought is beginning to entail hardship and suffering to the agricultural community. Wells in many places are dry, necessitating hauling of water long distances. Pastures are so dry that farmers are obliged to feed stock in the yards.

Thornville, Mich.: August was a continuation of the July drought and the damage done is very extensive. Corn and potatoes on the uplands are complete failures.—*Report of Mr. John S. Caulkins.*

Montevideo, Minn., 31st: all streams are the lowest ever known; mills on the Minnesota and Chippewa rivers are idle from lack of water. Corn is badly damaged by the severe drought.—*Report of Mr. L. G. Moyer.*

Belvidere, Ill., 29th: a destructive drought is prevailing in this and surrounding counties. Everything is literally burning up. There has been no rain during the month, and crops and pastures are suffering severely.—*Post-Express, Rochester, N. Y., August 29.*

Woonsocket, Dak., 31st: the ground is dryer than it has been for the past eight years. Corn, that promised a full crop on the 1st of the month, will not yield more than one-third, and oats and barley have also suffered considerable damage.—*Report of Mr. L. O. Libbey.*

Huron, Dak., 31st: the long and protracted drought, which was already felt on the 5th, has become very serious. Late crops are much injured; many farmers are cutting corn for use as fodder, as the ears cannot mature; wells are running dry, and the Dakota River is lower than ever known before.

Cresco, Iowa, 31st: the last half of the month has been very warm, dry, and dusty. Corn and potatoes are badly injured, and fall plowing is not practicable on account of drought.—*Report of Mr. Gregory Marshall.*

Dubuque, Iowa, 31st: the month has been the dryest on record; in many places wells and cisterns are dry; pasture land is parched, the grass is dead, and the cattle are fed on fodder as in winter.

Concordia, Kans., 31st: this section is suffering from a protracted drought.

New Frankfort, Mo., 31st: the month has been very warm and dry and all vegetation is suffering in consequence. The Missouri River at this point is the lowest ever known.—*Report of Mr. Geo. W. Hawkins.*

West Milton, Ohio, 31st: owing to the warm and dry weather during the month late corn is a failure, and all pastures are parched.—*Report of Mr. L. S. Motte.*

Tiffin, Ohio, 31st: the drought during the latter half of the month has become very severe; wells and cisterns are failing; pastures parched; wheat and potatoes suffering; and it is difficult to prepare the ground for autumn wheat.—*Report of Rev. T. H. Soneckecker.*

Brady, Tex., 31st: the drought has caused great injury to cotton, and the crop will be a failure over most of the county.—*Report of Mr. W. H. Potter.*

Taylor's Ranch, Utah, 31st: reports show that unusually dry weather prevails in Castle, Pleasant, Utah, Tintic, and Juab valleys, and that crops and fruit will fall short in those sections.

## FOREST FIRES.

Boisé City, Idaho: forest fires were burning in the mountains, about thirty miles north and east of this city, on the 1st and 2d. Reports received on the 9th state that the fires were extinguished or under control.

Los Angeles, Cal., 16th: extensive forest fires prevailed on the hills east of this city during the day.

Phillipsburgh, Mont., 17th: this town is surrounded by forest fires, and all of Georgetown flat is burning. The strong wind during the day has brought the fires within six miles of this place.—*Denver, Colo., News, August 17.*

Seattle, Wash., 26th: for several weeks past this part of the country has been clouded by smoke, caused by extensive forest fires in every direction. The entire eastern slope of the Cascade Mountains, from Natchez Pass north to the boundary, is reported to be in flames.—*The Daily American, Nashville, Tenn., August 27.*

Port Huron, Mich.: fire broke out in the brush along the railroad west of this city during the forenoon of the 29th, and, owing to the prevailing drought, the fires spread rapidly, and several buildings were consumed. The fires in this immediate vicinity were extinguished on the 30th. Distant fires, west of this city, were observed on the 29th and 30th.

Hobart, Mich.: forest fires are raging in all directions.

Sullivan, Mich., 30th: forest fires are burning in the neighborhood, west of here, near Spencer's Mill. A great amount of damage has been done by them.—*Post-Express, Rochester, N. Y., August 30.*

Helena, Mont., 31st: destructive forest fires prevailed in this section during the entire month; many million feet of lumber and thousands of acres of timber have been consumed. The heavy rain on the 19th failed to put out the fires.

Portland, Oregon, 31st: the fires in the state during the month have caused considerable damage to the forests; fences, barns, and a few houses have been consumed. The rains during the latter part of the month have quenched them considerably.

Fort McKinney, Wyo., 31st: three large forest fires started in the mountains west and south of this place on the 20th, and they are still burning fiercely.

Forest fires were also reported as follows: Tuohy's, Cal., 14th, 15th; Red Bluff, Cal., 19th to 31st; Fort Buford, Dak., 7th; Fort Sill, Ind. T., 11th, 31st; Port Huron, Mich., 29th; Fort Custer, Mont., 24th; Powder River, Mont., 27th; Mount Washington, N. H., 6th.

## PRAIRIE FIRES.

Pearsall, Tex., 4th: a recent prairie fire in this (Frio) county, which lasted several days, burned over nearly 5,000 acres of grass.—*Express, San Antonio, Tex., August 6.*

Miles City, Mont., 15th: the prairies, a few miles north and southeast of this place, are on fire. The fires cover several thousands of acres of land. Extensive prairie fires are also