

western sections, where there were extensive areas with little or no rain or snow during the entire month.

In much of this western area the precipitation was the least of record for November since observations began, or at most it was the second November of no precipitation in more than 50 years. At a few places in the northern Plateau region, November is usually the month of greatest precipitation, but in the present November these places were frequently entirely without precipitation.

As a result of this deficiency in precipitation the water supply is greatly depleted, rivers are at low stages, springs and wells have gone dry in many instances, the fire hazard has been greatly increased, and forest fires have been controlled only with difficulty; while vegetation has been greatly retarded, winter pasturage is largely exhausted, and much stock feeding has been necessary.

SNOWFALL

The distribution of snow partook largely of that of a winter month from the Rocky Mountains eastward, the falls being widely distributed and the amounts in localities the greatest of record for November.

From the Great Plains eastward to the Atlantic coast there was more or less snow in all save the more southern

districts, the falls being unusually heavy so early in the season over a considerable area from northwest Texas to the southern Appalachian Mountains, where falls near the end of the month ranged from 6 to 8 inches or more.

Farther north the amounts usually were less, until over North Dakota and some near-by areas where some snow that fell late in October remained unmelted at the end of that month, and, with amounts that occurred during November, formed a covering of snow that remained unmelted throughout the month. The total falls were comparatively heavy in the northern parts of the upper Lake region and locally in northern New York, but in New England the amounts for the month were mainly moderate. In the Rocky Mountains and over their eastern foothills good depths of snow were reported generally, but there was little in much of the Plateau region and practically none in the Sierra Nevada and Cascade ranges, none being reported from the highest peaks in California, a condition rarely experienced in that State.

RELATIVE HUMIDITY

Over much of the country from the Rocky Mountains eastward the percentages of relative humidity were above the monthly normals, save for small areas from the upper

SEVERE LOCAL STORMS, NOVEMBER, 1929

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the annual report of the chief of bureau]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Crossroads, N. Mex.	8					Heavy hail	Considerable damage to range over 50 square miles.	Official, U. S. Weather Bureau.
Portland, Me., and vicinity.	17-19					Ice	Public utilities, especially telephone and telegraph companies, suffer heavy loss; many shade trees stripped; factories closed.	Do.
Iowa (parts of)	27					Wind and sleet	Plate-glass windows broken; many small buildings in rural sections wrecked.	Do.
Des Moines, Iowa	29					Wind	Small out buildings demolished; plate-glass windows broken.	Do.

Lakes northeastward. In portions of the Rocky Mountains the departures from the normal were large, ranging up to 15 to 20 per cent. On the other hand, west of the Rocky Mountains, the humidities as represented by the departures from normal were mainly far less than normal, as would also be indicated by the great lack of precipitation in that area. This general dryness was augmented by the large percentage of sunshine in that region which averaged nearly 100 per cent of the possible at many places in California and other portions of the Southwest.

RIVERS AND FLOODS

By MONTROSE W. HAYES

There were overflows in November, 1929, in the South Atlantic States and the Ohio River basin, but they were of minor importance, except in the Tennessee River and in that part of the east Gulf drainage area lying between the Apalachicola and the Mississippi Rivers.

Excessive rains fell from the 10th to the 17th in northwestern Georgia, Alabama, Mississippi, and the Louisiana Parishes east of the Mississippi River. There were numerous falls amounting to 10 inches in eight days, and one station, Helena, Ala., had 15.97 inches. The rivers began to rise rapidly on the 12th and 13th, flood stages were reached about the 15th, and in the lower reaches the overflow continued until the 25th. The water levels were

not particularly high, but the inconvenience and damage were relatively great on account of the general overflow of all the minor streams, and the long continued flood in the larger rivers. The following tabular statement is a summary of the statistics of loss and damage. The information, of course, is not complete, but represents the best that is available.

	Alabama River system	Tombigbee-Black Warrior Rivers	Pascagoula and Pearl Rivers	Tennessee River	Total
Buildings, highways, bridges, etc.	\$27,450	\$89,000	\$36,000	\$2,200	\$154,650
Matured crops	71,100	24,200	3,600	31,000	129,900
Prospective crops	15,250	2,700			7,950
Movable property, including live-stock	850	80,000	2,500		83,350
Suspension of business, including wages	15,300	103,000	48,200	14,500	181,000
Total	119,950	298,900	90,300	47,700	556,850

<sup>1</sup>1,100 acres.

<sup>2</sup>1,200 acres.

The warnings issued were timely and adequate. The savings effected through their use have been reported to have been \$127,000 on the Alabama River system, \$229,000 in the valleys of the Black Warrior and the Tombigbee, \$26,000 in the Pascagoula and Pearl Valleys, and \$8,500 in the Tennessee Valley, a total of \$390,500.