Severe local storms, July, 1930—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Pena Blanca, N. Mex.	24	P. m.	1,760		$10,000	Cloudburst	12 homes demolished; land covered with sand	Official, U. S. Weather Bureau.
Rockland and Arbon Valley, Power County, Idaho.	25	3-4 p. m.	2-3 mi.		50,000	Hail	Large wheat fields completely ruined	Do.
Macon, Ga.	25	3:33 p. m.				Thunderstorm, wind, and rain.	Trees uprooted; telephone poles blown down; chimneys overturned. Some damage by lightning.	Do.
Benton and Buchanan Counties, Iowa.	25	6 p. m.			73,000	Wind and hail	Character of damage not reported	Do.
Story County, Iowa	26	9:30 a. m.	1,760		500	Tornado	No details reported	Do.
Boone, Hancock, and Kossuth Counties, Iowa.	26				70,500	Wind and hail	do	Do.
Coddington, Wis.	27	1:30 a. m.	880		10,000	Probably a tornado.	5 barns wrecked; other buildings damaged	Do.
Wright and Ida Counties, Iowa.	27	7 p. m.			12,000	Wind and hail	No details reported	Do.
Stoughton and Oregon, Wis.	27	11 p. m.	4 mi.		30,000	Hail	Chief damage to crops; path 9 miles long	Do.
Appelton, Wis. (near)	27			2		Thundersquall	Power lines blown down	Do.
Bruce to Ladysmith, Wis.	27				100,000	Thunderstorm and wind.	Many barns and silos partially or completely wrecked; other buildings damaged.	Do.
Ellsworth, Wis. (near)	27		6 mi.		30,000	Squall	A number of barns and silos demolished	Do.
Rice Lake, Wis.	27			1		Thundersquall	Electric wires blown down	
Wausau, Wis., and vicinity.	27				10,000	Wind and rain	Public utilities companies suffer losses; several barns blown down and roofs damaged.	Do.
Trenton, S. C., and vicinity.	27				7,000	Electrical	Home burned; mule killed	Do.
Dunkirk, N. Y.	28	P. m.		16		Thundersquall	Steamer George W. Whelan sank, drowning part of crew.	Do.
Greenville, S. C.	28				10,000	Thunderstorm	Duke Power Plant damaged	Do.
Rock Hill, S. C. (near)	28	P. m.			3,000	Electrical	Barn and contents burned; 6 mules killed	Do.
Greenville, Miss.	29	4 p. m.	220		5,000	Thundersquall	Character of damage not reported	Do.
Greenville, Tex. (near)	29	5 p. m.				Tornado	Boathouses, bathhouses and outbuildings overturned or damaged.	Do.
Dandridge and Murfreesboro, Tenn.	29					Wind	Trees and chimneys blown over; crops injured	Do.
Pittsylvania County, Pa. (north-central).	29					Hail	Crops destroyed over small area	Do.
Groveton, Tex. (near)	30	6 p. m.	2,640			Wind	Roofs torn off; crops badly damaged	Do.
Valley View, Tex.	30	do				Wind and hail	Outbuildings and crops damaged	Do.
Wichita Falls, Tex.	30	6.30 p. m.	332			Wind squall	2 houses unroofed; small buildings damaged; poultry killed.	Do.
Diboll, Tex.	30	10 p. m.				Wind	Considerable damage to buildings; corn hurt	Do.
LaSalle and Grant Parishes, La.	31	3-5 p. m.	2 mi.		60,000	Severe thundersquall, tornadic characteristics at times.	A number of buildings blown down; timber and oil derricks damaged; path 20 miles long.	

RIVERS AND FLOODS

By R. E. SPENCER

As part of his report on the results of the Red River flood of May, 1930, Mr. R. A. Dyke, of the Weather Bureau office at New Orleans, La., submits the following tabulation from a report of the New Orleans office of the Bureau of Agricultural Economics, United States Department of Agriculture. (The figures include the Louisiana acreage within both the Shreveport and the New Orleans river districts):

Crop acreage destroyed by flood waters in the Red River Valley in Louisiana, in May, 1930, acreage subsequently replanted, and percent replanted

Crop	Acreage destroyed by flood	Acreage replanted	Per cent replanted
Cotton	95,400	58,085	60.9
Corn	34,335	43,948	130.0
Oats	1,360	0	0.0
Tame hay	9,783	7,050	72.1
Irish potatoes	450	80	17.8
Sweetpotatoes	700	989	141.3
Peanuts	140	25	17.9
Sugarcane	520	0	0.0
Truck crops	375	340	90.7
Total	143,063	110,517	77.25

Number of head of livestock destroyed by the flood: Horses, 8; mules, 5; cattle, 112; swine, 215; sheep, 100; goats, 475; poultry, 580. Nearly all the cattle drowned were in Caddo Parish; nearly half of the swine were drowned in Avoyelles Parish; all the sheep and nearly all the goats were drowned in Natchitoches Parish.

The crop acreage destroyed is divided by parishes as follows:

Bossier	6,460	Winn	7,330
Caddo	26,460	Natchitoches	55,005
De Soto	3,890	Avoyelles	1,410
Red River	33,175	Grant	6,300
Webster	1,025	Rapides	1,865
Bienville	143		

Mr. Dyke's report continues—

Approximately half of the inundated crop acreage of 33,920 in Caddo and Bossier Parishes is in the Shreveport river district. Confining the estimated losses to the New Orleans district, the total agricultural loss, exclusive of farm equipment, approximated $1,235,000 for crops and $6,000 for livestock. Cotton and corn losses are estimated at $1,073,600, with oats, hay, potatoes, sweet potatoes, sugar cane, and truck making up the remainder of the crop losses.

There were also some losses of household goods, unestimated. There was some damage to highways, and highway traffic in much of the valley was interrupted for a few weeks. More than 10,000 persons were rendered temporarily homeless, about 7,500 being cared for in refugee camps. Others, remaining in or near their homes, were supplied with provisions by boat. The loss of life, amounting to about nine persons in the State, in most cases was only indirectly connected with the flood, occurring mainly on bayous in the area, where efforts were being made to remove livestock or to travel by boat.

An estimate of the money value of the Weather Bureau flood forecasts is impracticable from the data available. But it is known that general heed was given to the warnings and the active efforts made to save livestock and other property resulted in large savings.

Excepting that referred to in the paper immediately following this report, no flood damage of importance is reported for July. A discussion of the effect of the drought upon stream stages will appear in the August

issue of this Review. The usual table of flood stages and dates for July follows:

[All dates in July unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI DRAINAGE					
	Feet			*Feet*	
Canadian: Logan, N. Mex.	4	14	16	6.0	14
		23	25	7.0	23
WEST GULF DRAINAGE					
Trinity: Dallas, Tex.	25	27	(1)	[2] 27.2	31
Rio Grande: San Marcial, N. Mex.	3	15	15	3.4	15
		23	25	3.9	23
PACIFIC DRAINAGE					
Colorado: Parker, Ariz.	7	(3)	(1)	10.5	June 7, 17–20

[1] Continued at end of month.
[2] Artificial stage, caused by construction of temporary dam necessary for levee work below gage.
[3] Continued from last month.

The following discussion of effects of the heavy and concentrated summer-time rains of the Rocky Mountain region is submitted by Mr. J. Cecil Alter of the Weather Bureau office at Salt Lake City, Utah:

A series of sudden, rapid, local showers during the evening of July 10th sent short-lived mud streams dashing out of a number of steep gullies and ravines on the face of the Wasatch Mountains between Centerville and Farmington, Utah, also from side gullies in Spanish Fork Canyon, Parleys Canyon near Salt Lake City, and in Weber Canyon (near Ogden) in the vicinity of Devils Gate, causing altogether a property loss and repair expense approaching $100,000 in a comparatively few minutes.

Several mud washes crossed the highway in Parleys Canyon, stalling automobiles for a few hours, and similar damage was done in Spanish Fork Canyon, southeast of Spanish Fork town. One short slide spent itself on the higher land above Centerville; but three other washes toward Farmington left masses of soil, sand, gravel, rocks, and bowlders more than a mile in length, largely through farming sections, ranging from a few yards to nearly a thousand feet in width and from one to twelve feet in depth, resulting in property damage of about $50,000. The paved highway was cleared only after a week's work with men, teams, and steam shovels, the three cuts being from 300 to 500 feet in length and from 1 to 10 feet deep.

Toward the terminals of these earth washes fairly clean sand and soil buried this season's crops and damaged the land more or less, but farther up a considerable acreage of farming land was ruined for agricultural or residence purposes by heavy deposits of soil, rocks, and bowlders, some of them from four to six feet through, besides destroying the growing crops, bearing orchards, fences, irrigation waterways, barns, siloes, coops, and other structures, including two or three brick cottages which were so badly flooded, damaged, or buried as to necessitate abandonment along with the land. A small loss of poultry, pigs, and sheep occurred, along with some farming implements and vehicles. Three automobiles on the State highway were caught in one flood at South Farmington and were buried to the radiator tops, though the passengers escaped safely.

A large quantity of earth was deposited across the highway and railroad track just within the mouth of Weber Canyon, but the largest slide of the series occurred near Devils Gate, where an immense mass of débris from an adjacent gully piled into the canyon 35 feet high and 400 feet wide, extending nearly across the canyon. The Weber River, one of the State's largest, was completely dammed and the entire stream diverted onto the railroad and highway a distance of several hundred feet. It required the continuous effort of steam shovels, drag lines, teams, and laborers more than a week to turn the stream back into its natural channel and clear and repair the roadways.

Near by two loaded trucks on the highway and one passenger automobile were half buried, but later excavated safely. Just after the river broke over the artificial dam the stream was turbulent for a few hours, washing the railroad grade pretty badly in one place, leaving the rails hanging in space; and many fish were drowned in the roily waters. The supply flume for the Davis and Weber Counties canal system was broken by the mud slide, and the intake ditches farther down were silted full; but the rain on the crops was about equal to the watering missed while cleaning and repairing the damaged lines. Other minor damages were reported farther north, in Cache Valley.

These mud slides were not landslides, but mere washes, resulting from the sudden, rapid, and rather heavy downpours of rain, on very dry, steep, scantily covered slopes, which had not been washed recently. The three larger mud runs near Farmington were on the crests of broad, well developed talus cones which have doubtless resulted from similar washes at intervals through the ages past. However, other near-by gullys, ravines, and canyons some of which have only in recent years disgorged similar or worse masses of earth, failed to do so in this storm, indicating the apparently limited extent of the areas of heaviest rainfall.

The storm was rather general in northern Utah, though precipitation amounts were mostly only moderate, ranging from 0.35 to 0.85 inch at the measuring stations Losses aggregating $44,000 have been estimated in the Centerville-Farmington district; and the cost of clearing the highways and railroads and making repairs is considered to have exceeded $50,000.

EFFECT OF WEATHER ON CROPS AND FARMING OPERATIONS, JULY, 1930

By J. B. KINCER

General summary.—The outstanding feature of the month's weather was the development of severely droughty conditions over central parts of the country, attended by extremely high temperatures.

During the first decade generally good harvest weather prevailed in the main Winter Wheat Belt, with much sunshine and only local showers, but in the more Northwestern States high temperatures and dry weather were unfavorable. In the South local showers were beneficial, but a good, general rain was needed over this area, while droughty conditions continued in the east-central sections, principally in Kentucky, West Virginia, and adjacent States. Most crops needed a generous rain throughout central areas of the country.

During the second and last decades there was no relief from the drought, with high temperatures serving to intensify conditions in most places. Local showers afforded some relief, but crops, in general, suffered severely from extreme heat and the absence of rain. During the month temperatures of 100°, or higher, were reported from first-order Weather Bureau stations on 4 to 6 days in the Middle Atlantic sections and from 6 to as many as 15 days in nearly all sections from the northern portions of Alabama, Mississippi, Louisiana, and northeastern Texas northward over the Ohio and Mississippi Valleys and Plains States to eastern South Dakota. The latter part of the month lower temperatures overspread much of the country, but were beneficial only in checking the rapid deterioration of growing crops, while at the close generous rains were needed badly to replenish water supplies and aid crops that were not too far gone.

Small grains.—Harvesting and threshing winter wheat progressed throughout the month, with practically no interruption by rain. The extreme heat was very unfavorable for men and horses, however, with reports of many horses dying in some central and upper Mississippi Valley areas. The weather during the latter part of the winter wheat season was practically ideal for gathering the grain in excellent condition. Some damage to spring wheat occurred through deficient moisture and hot winds, but at the close of the month harvesting the early crop was well advanced. Oat harvest progressed favorably, with threshing returns varying widely; at some places results were better than anticipated. Flax showed some injury from dryness, particularly the late crop, while some abandonment of rice fields was necessary in Arkansas, although showers were helpful elsewhere. At the close of the month plowing and disking for winter wheat was making excellent advance in Kansas.

Corn.—The weather during the month was especially unfavorable for the corn crop, with general drought