

RIVERS.

The Mississippi River below St. Louis, the Ouatchita, and the Red Rivers changed very little during the month.

The upper Arkansas and small tributaries carried about the normal amount of water for the season of the year. Below Dardanelle, Ark., low stages prevailed during the first half of the month, but it was at fairly good stages and navigable during the latter half.

The White River was low during the first three weeks, but it was fairly high during the closing week of the month.

HEAVY RAINS AND RESULTANT FLOODS IN SOUTHWESTERN LOUISIANA SEPTEMBER 26 TO OCTOBER 4, 1913.

By ISAAC M. CLINE, District Forecaster.

An area of low pressure, which made its appearance off the mouth of the Rio Grande River on the morning of September 25, moved slowly toward the northeast and caused unusually heavy precipitation over southwestern Louisiana from September 26 to 30, inclusive, which, following heavy rains earlier in the month, caused unprecedented floods and great damage to crops. The total rainfall, in inches, during the five days was reported as follows: Calcasieu Parish—Jennings, 8.96; Lake Charles, 10.66; Sugartown, 16.77. Cameron Parish—Cameron, 8.89; Lakeside, 15.55. Vermilion Parish—Abbeville, 15.26; Florence, 14.10. Acadia Parish—Rayne, 13.20. Lafayette Parish—Lafayette, 8.65. Iberia Parish—Jeanerette, 15.10; New Iberia, 13.20. St. Martin Parish—Cades, 15.30. Rapides Parish—Cheneyville, 14.32; Richland Plantation, 11.56. St. Landry Parish—Grand Coteau, 10.33; Opelousas, 9.19.

As a result of these rains all of the streams in southwestern Louisiana overflowed their banks, and the greater portion of the country was flooded to some extent. At Lake Charles the Calcasieu River reached a stage of 16.3 feet on October 1, which is said to be the highest water of record. Low portions of Lake Charles were flooded from September 29 to October 4. The street car service, the water and electric light plants, many manufacturing and business concerns, and railroads were forced to suspend operations during this period. Farming operations were at a standstill for more than 10 days on account of the roads and fields being impassable. Some reports state that the water was not off all the fields as late as October 11.

It is estimated that about 350,000 acres of agricultural land was overflowed. Rice, cotton, corn, sweet potatoes, hay, and truck gardens suffered injury on lowlands ranging in different sections from one-tenth to one-half the crop, and in some localities the crops were totally destroyed. Hon. C. J. Edwards, cooperative observer at Abbeville, Vermilion Parish, says: "Cane, cotton, and rice were under water ranging in depth from 1½ to 5 feet," and similar conditions existed in many other portions of southwestern Louisiana. Even where the lands were not overflowed the crops were injured by the ex-

cessive rains. The damage from the excessive rains and floods is conservatively estimated as follows:

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| Money loss due to property damage, including that to railroads, but not crops..... | \$150,000 |
| Money loss from damage to crops in the field..... | 1,085,000 |

Loss due to suspension of business, including wages, must have been heavy, in view of the fact that in a number of parishes there were several days during which very little work could be accomplished on account of the continued rains and high water, but it is not possible to estimate this loss.

STORMS IN SOUTHEASTERN LOUISIANA OCTOBER 23, 1913.

By ISAAC M. CLINE, District Forecaster.

Thundersqualls and severe local storms occurred in southeastern Louisiana between midnight and 3 a. m. October 23, 1913. A tornado passed over the Abby and Energy plantations near Thibodaux, La Fourche Parish, between 1 and 2 a. m. on that date, the débris from which clearly showed the rotary movement of the winds. The storm moved from the southwest toward the northeast, and the path of greatest destruction was about 800 feet wide. The damage to buildings, farm machinery, household effects, etc., amounted to about \$15,000. Four persons were killed and 18 were injured.

A severe thunderstorm passed over New Orleans, La., between 1 and 3 a. m. The wind attained a maximum velocity of 35 miles an hour from the southwest at 2.45 a. m. Trees, frail buildings, smokestacks, telegraph and telephone poles, and signs were blown down in many parts of the city. The high winds were in gusts of short duration and apparently only a few hundred feet in width, but the débris did not indicate that the damage resulted from tornadoes. The total damage in New Orleans is estimated at about \$10,000. A few persons were slightly injured.

These storms occurred in connection with the eastward movement over Louisiana of an area of low pressure, which was centered on the morning of October 22 in the vicinity of Abilene, Tex., where the barometer was 29.70 inches. By 8 p. m. the low-pressure area had moved eastward to southern Arkansas, with the lowest barometer reported, 29.78 inches, at Shreveport, La. The gradients were not steep, but the storm developed to the southeastward and was centered at 8 a. m., October 23, in the vicinity of Jackson, Miss., where the barometer at that time was 29.76 inches. The lowest barometer reading at New Orleans during the passage of the storm was 29.70 inches, at 2.15 a. m., there having been a steady fall from 29.78 inches at midnight. There was a rapid rise in the barometer, from 29.70 inches at 2.15 a. m. to 29.77 inches at 2.45 a. m. The wind shifted from the southeast by the way of the north and west to southwest at 2.16 a. m., indicating that a secondary low-pressure area had developed during the early part of the night to the southwest of New Orleans and moved northeastward, its center passing over the city.