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SECTION IV—RIVERS AND FLOODS.

RIVERS AND FLOODS DURING AUGUST, 1917.

By ALFRED J. HENRY, Professor in Charge.

[Dated: River and Flood Division, Sept. 26, 1917.]

The rainfall of August, 1917, was not uniformly distributed, as might be expected of a summer month. The total amount was considerably more than usual in portions of Florida, Georgia, and Alabama in the South; portions of Oklahoma and Kansas in the West; in north-eastern Pennsylvania, south-central New York, and in Vermont in the East.

While the rains in Alabama were local, to a large extent, they continued almost daily for such a time as to produce a moderate flood in the Alabama River on August 10 and in the Tallapoosa River on the 7th. Both floods quickly subsided. On August 31 and September 1 heavy rains fell in the upper watershed of the Yadkin River in North Carolina, but coming after a rather long spell of dry weather only a moderate flood in the lower river resulted; meanwhile, stock and perishable property in the lowlands had been removed.

On the 8th heavy rains fell quite generally throughout the watershed of the North Branch of the Susquehanna, particularly in the neighborhood of Binghamton and to the westward as far as Elmira. The small streams in this region were filled to overflowing and much damage was done to crops and farm buildings along the streams. The damage in the city of Binghamton to buildings, streets, and gardens is said to have totaled \$30,000.

On the 15th heavy rains again fell in the vicinity of Hornell, N. Y., and in Tioga and Bradford Counties, Pa., southeast of Hornell. Crops of buckwheat, corn, and oats suffered damage. Some loss was suffered by the railroads due to overflows. On the next day heavy rains again fell in Bradford County, Pa., in the vicinity of Troy, causing the streams to overflow their banks with considerable damage to bridges, culverts, and railroad tracks. Landslides added to the difficulty of maintaining railroad traffic.

Severe rainstorms, attended by intense electrical discharges, visited Syracuse, N. Y., on the 22d and in the neighborhood of Saint Johnsbury, Vt., on the 17th.

Property losses by flood (mostly estimated) in August, 1917.

| District. | Tangible property, roads, bridges, etc. | Crops and gardens. | Live stock. | Suspension of business. |
|---|---|--------------------|-------------|-------------------------|
| South central New York and northeastern Pennsylvania..... | \$150,000 | \$20,000 | \$500 | ..... |
| Pee Dee Basin (N. C.)..... | 50,000 | 500 | ..... | \$3,000 |
| Bisbee, Ariz..... | ..... | ..... | ..... | ..... |
| Total..... | 180,000 | 20,500 | 500 | 3,000 |

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.

TABLE 1.—Floods in various rivers in the United States during August, 1917.

| River. | Station. | Flood stage. | Above flood stages—dates. | | Crest. | |
|-----------------|-----------------------|--------------|---------------------------|-------|------------|-------|
| | | | From— | To— | Stage. | Date. |
| Tar..... | Greenville, N. C..... | Feet. 13 | (†) | 3 | Feet. 14.6 | † 31 |
| Alabama..... | Selma, Ala..... | 35 | ..... | ..... | 30.8 | 10-11 |
| Tallapoosa..... | Milstead, Ala..... | 40 | 7 | 8 | 46.0 | 7 |
| Cottonwood..... | Emporia, Kans..... | 19 | ..... | ..... | 18.3 | 17 |
| Smoky Hill..... | Lindsborg, Kans..... | 20 | 16 | 17 | 22.6 | 17 |

† July.

MEAN LAKE LEVELS DURING AUGUST, 1916.

By UNITED STATES LAKE SURVEY.

[Dated: Detroit, Mich., Sept. 5, 1917.]

The following data are reported in the "Notice to Mariners" of the above date:

| Data. | Lakes.* | | | |
|--|--------------|---------------------|--------------|--------------|
| | Superior. | Michigan and Huron. | Erie. | Ontario. |
| Mean level during August, 1917: | | | | |
| Above mean sealevel at New York..... | Feet. 602.69 | Feet. 581.90 | Feet. 573.57 | Feet. 247.35 |
| Above or below— | | | | |
| Mean stage of July, 1917..... | -0.04 | -0.05 | -0.29 | -0.11 |
| Mean stage of August, 1916..... | -1.00 | -0.85 | -0.75 | -0.01 |
| Average stage for August, last 10 years..... | -0.05 | -1.10 | -0.95 | -0.75 |
| Highest recorded August stage..... | -1.24 | -1.61 | -0.54 | -0.91 |
| Lowest recorded August stage..... | -1.09 | -2.05 | -2.19 | -3.00 |
| Average relation of the August level to— | | | | |
| July level..... | -0.2 | 0.0 | -0.2 | -0.3 |
| September level..... | -0.1 | -0.2 | -0.3 | -0.4 |

* Lake St. Clair's level: in August, 576.62 feet.