along these streams. Since the flood of 1903, the levee system on the Illinois side of the Mississippi River between Alton and Chester, Ill., protecting what is known as the Americans Bottoms, has been raised and strengthened. This afforded protection to much valuable land that would otherwise have been inundated as most of the levees in this system withstood the flood. The system, however, is still inadequate and a great deal of land in this district was submerged. It is estimated that about 300,000 acres of rich farm land were flooded between Hannibal and Chester. More than half of this district was under cultivation. The water extended back 8 or 10 miles to the bluffs in portions of the American Bottoms below St. Louis where there are no levees of importance. The total area submerged along the Missouri and its tributaries below Kansas City and along the Mississippi between Hannibal and Chester was approximately 1,000,000 acres, and more than half of this land was under cultivation. A number of towns and villages in this district were wholly or partially inundated, namely, Gault, Pattonsburg, Trenton, Gallatin, Barnard, Avenue City, Maryville, Chillicothe, and Cedar City, Mo., and East Alton, Venice, and Brooklyn, Ill. The overflowed district in St. Louis embraced some low bottom land in the northern portion of the city which is used as railroad yards, and Front street. The levees that protect East St. Louis, Granite City, and Madison, all held and no portion of these cities was under water. The loss in St. Louis, East St. Louis, Madison, and Granite City, was confined almost entirely to a suspension of business and to the expense necessitated by the removal of merchandise, and was, therefore, nominal.

It is estimated that the loss of, and damage to, property, including railroads, live stock, farm buildings, and farm machinery, for the entire district, amounted to about $700,000, and that the value of crops destroyed was about $5,500,000. The loss would have been greater had it not been for timely warnings issued by the Weather Bureau. These warnings were given wide dissemination through the press and by telegraph and afforded farmers an oportunity to save an immense amount of wheat which was ready to be harvested, and to remove portable property to places of safety. Corn and miscellaneous crops were a total loss in the affected district as the flood occurred so late in the summer that it will not be possible to replant any of the crops. It is roughly estimated that the warnings of the Weather Bureau were instrumental in saving property valued at $1,000,000. Farm land was probably damaged $100,000 by erosion and deposit, and the loss by suspension of business and for the protection of property was probably $150,000. As far as known, only four lives were lost.

The loss and damage resulting from the flood in the Missouri River is estimated at $7,000,000, and the value of property saved by the flood warnings of the Weather Bureau at considerably more than $1,000,000.

The flood in the upper Neosho River, July 11 to 15, inclusive, caused considerable damage, but owing to the efficient flood warning service in that vicinity, property to the amount of about $150,000 was saved. The unavoidable losses on the upper Neosho were as follows:

Loss and damage to property, including railroads and excluding crops	$250,000
Loss and damage to crops	735,000
Damage to farm lands by erosion	5,000
Loss through enforced suspension of business, etc.	9,000
Total	999,000

Warnings were promptly issued and well disseminated in ample time for precautions to be taken.

Unseasonably high water also prevailed during the month in the Mississippi River from below Keokuk, Iowa, to the mouth of the Missouri River. The river was above the flood stage at Hannibal, Mo., from the 7th to the 13th, inclusive, and damage to crops between Hannibal, Mo., and Quincy, Ill., to the extent of about $75,000 resulted. Other losses were of minor importance. Property to the value of probably $2,000 was saved by by the flood warnings of the Weather Bureau.

Exceptionally high water for the month of July also prevailed at Cairo, Ill., but the river did not reach flood stage, and no losses of importance resulted.

At Memphis, Tenn., conditions were much the same as at Cairo, Ill., although the river rose to slightly above the flood stage and remained so from the 21st to the 26th, inclusive. The rise at Memphis is remarkable for the fact that it reached the highest stage ever recorded in July, and with one exception, the highest on record for any month later than May. The previous highest stage for July was 31.5 feet in 1875, in which year the river also reached a stage of 33 feet in August. The condition of the ground in regard to dryness, low-water supply in the swamps and small streams, and evaporation played an important part in restraining the rise, or much higher stages would have been reached.

The flood which swept the valley of the Marais des Cygnes River in eastern Kansas and western Missouri during the early part of July did considerable damage to crops, but an estimate of the amount of loss is not available.

A severe local freshet occurred at Springfield, Mo., on July 7 and 8, in the Jordan River, a small stream that flows through that city. Excessive rains on the 7th and 8th, over Greene and Christian counties, caused that comparatively insignificant stream to become a raging torrent, and the resulting damage amounted to between $400,000 and $500,000. The greatest losses were sustained by farmers, railroad companies, wholesale firms, and the Springfield Water Works Company.

Another local freshet, somewhat similar to that at Springfield, Mo., occurred at Sioux City, Iowa, on July 9 to 12, caused by heavy rains over the watershed of Perry Creek, a small stream that flows into the Missouri River at Sioux City.

Hydrographs for typical points on seven 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.

SPECIAL PAPERS ON GENERAL METEOROLOGY.

RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZHUGH TALMAN, Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a ——.

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Field, J. H. Kite flights in India and over the neighboring sea areas during 1907. p. 125-139.
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Schuster, Arthur. Molecular scattering and atmopheric absorption. p. 97-98. (July 22.)
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Boutquin, A. L'Asie centrale. p. 275-285. (16 août.)
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—— Le tremblement de terre de Provence. p. 319-321). (1 sept.)
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Deutsche Sewarte. Wilhelm Jakob van Bebber. p. 433-435.
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Kähler, Karl. Registrierungen des luftelektrischen Potentialgefälles an nahe benachbarten Stationen. p. 347-355.
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Kähler, Karl. Ueber die Einwirkung von Blütenstaub auf das Potentialgefälle. p. 360-362.
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Marchand, E., & Bouget, J. Der Einfluss der unteren Wolkenschicht auf die Höhenverteilung der Vegetation in den Zentralpyrenäen Frankreichs. p. 407-408.
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—— Zum Klima der Eisenküste. p. 417.
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Grundmann, H. Zur Theorie des oberen Berührungsbogens des Halo von 46°. p. 419–420.
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—— Meteorologische und magnetische Beobachtungen zu Loanda im Jahre 1908. p. 423.
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Dove, Karl. Südwestafrika und die Wettervoraussage. [On relation between European and South African weather.]

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Lo Surdo, A. Il funzionamento dei seismografi. p. 129–137.

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RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Librarian.

The following have been selected from among the titles of books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be lent for a limited time to officials and employees who make application for them. Anonymous publications are indicated by a ——.

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