

**RIVERS AND FLOODS, FEBRUARY, 1913.**

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Fortunately for the inhabitants of the lower Mississippi Valley the type of rainfall which prevailed during January, 1913, changed in the early part of the month, thus permitting the January flood in the Ohio which had reached Cairo, Ill., to pass down the Mississippi without any important increase in the volume of the flood water. The progress of that flood which began at Pittsburgh on the 9th is shown in the table below:

*January, 1913, Ohio and Mississippi River flood.*

Station.	Flood stage.	Crest stage.	Date.	Number of days above flood stage.
	<i>Feet.</i>	<i>Feet.</i>		
Pittsburgh.....	22	31.3	9	4
Parkersburg.....	36	45.1	13	8
Cincinnati.....	50	62.2	15	10
Louisville.....	28	39.5	14	11
Evansville.....	35	46.7	19	27
Cairo.....	45	48.9	26	21

While previous Ohio River floods have given higher crest stages and a longer period of flood stages, the January, 1913, flood, especially about the mouth of the Green River of Kentucky, closely approached in magnitude the greatest previous flood of which there is authentic record. The crest stage at Evansville, Ind., was within 1.3 feet of the highest water ever known at that place. As before stated the precipitation of February, 1913, was a small factor, either in augmenting the water already in the river or in prolonging existing high stages. Neither the Missouri nor the upper Mississippi contributed any important quantity of water to the stream below St. Louis. The total increase in the St. Louis gauge was a little short of 11 feet, or from -1.4 feet on January 14 to 9.4 feet on January 26. The Mississippi River at Memphis began to rise on January 7; the flood stage was reached and passed on January 21, and the crest stage of 40.5 feet was reached on February 3, and 11 days later the river fell below the flood stage, the total duration of the flood being 25 days.

In the 1909 and 1912 floods it was noted that the gauge relations between Cairo and Memphis had changed. Prior to that time the stage on the Memphis gauge was about 10 feet lower than that on the Cairo gauge. In the 1909 flood the difference was reduced to 8.7 feet, in 1912 to 8.4 feet, and in 1913 to 8.4 also. This change has been attributed to the extension of the levee system above New Madrid, Mo., thus confining to the river channel much of the water which had previously overflowed into St. Francis Basin. Another factor possibly concerned in the changed gauge relations is pointed out by Forecaster Emery, of the Memphis station, viz, the cutting of a new channel across a bend a short distance above Memphis, thereby shortening by several miles the distance the water has to travel, increasing the slope, and consequently the velocity of the current just before it reaches the Memphis gauge.

On January 25 a break occurred in the levee at Beulah, Miss., which later attained a width of several hundred

feet. At the close of the month the Mississippi was 0.3 of a foot below the flood stage at New Orleans and a still greater amount below at places between Cairo and Vicksburg. It was frozen from St. Paul to Davenport.

*Mississippi River flood of February and March, 1913.*

Station.	Flood stage.	Crest stage.	Date.	Number of days above flood stage.
	<i>Feet.</i>	<i>Feet.</i>		
Memphis.....	35	40.5	3	25
Vicksburg.....	45	49.0	16-18	22
Natchez.....	46	48.7	20	21
Baton Rouge.....	35	37.2	22	19
Donaldsonville.....	28	29.3	22	17
New Orleans.....	18	18.4	23	10

The Missouri River, on account of the open winter, was open as far north as Pierre, S. Dak.

On the Pacific coast low stages prevailed, especially in California. In the Gulf and South Atlantic States, while precipitation was not unusually heavy, it was sufficient to keep the rivers at a moderately high stage. Flood stages were reached in the rivers of Mississippi as follows: Pearl River on the 3d, 4th, and 5th; Pascagoula River, on the 5th and 6th; Chickasawhay River on the 3d. The Tombigbee River, of Alabama, was at relatively high stages, especially on the headwaters. At the end of the month the waters on the lowlands below Demopolis had not yet receded, hence final report is deferred. Moderately heavy rain fell in the upper Alabama watershed on the 26-27, but flood stages were not quite reached in any of the headwater streams. In Georgia the flood stage was reached in the lower valley of the Ocmulgee, caused by the heavy rains of the 2d and 3d. Another period of heavy rains set in on the 27-28, and flood stages were again reached. A marked rise occurred in the Coosa River at Rome, Ga., viz, from the 11th to 12th and again on the 27-28, both due to heavy rains on those dates. The Santee River, of South Carolina, was above the flood stage on the 2d and 3d at Rimini and Ferguson, S. C.

In the region of the Great Lakes flood stages, due to local ice conditions, occurred in the Grand River at Grand Rapids, Mich., on the night of the 1st-2d.

Further details may be had from the reports of the several district editors.

*Flood loss.*—In general, the loss by flood during February was small; complete statistics, however, are not at hand at this writing (Mar. 22), but will doubtless be included in the Review for March, 1913.

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.