

Making the Mississippi River Over Again: The Development of River Control in Mississippi

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Article:

“The military engineers of the Commission have taken upon their shoulders the job of making the Mississippi over again — a job transcended in size by only the original job of creating it.”

Mark Twain, *Life on the Mississippi*, 1874

When Mark Twain wrote those words in the 1870s the United States government was just beginning to forge a massive river control system on the Mississippi River. The post-Civil War period witnessed an explosion in levees, wing-dams, dikes, jetties, and other constructions. This colossal project along more than 2,300 miles of the river continues to this day. It has had a major impact on the economy and the natural environment of the State of Mississippi and the Mississippi River Valley.



Mississippi River meander carves out new shore line. Courtesy U.S. Corps of Engineers, Mississippi Valley Division.



1884 flood puts Vicksburg, Mississippi, under water. Courtesy U.S. Corps of Engineers, Mississippi Valley Division.

The need for river control

Human control of the Mississippi River has served many economic and political purposes. The major reason that river control is needed is the high probability of flooding. Because of geological conditions, all points along the river south of St. Louis, Missouri, are particularly susceptible to periodic flooding. On average one flood occurs every three years. Some floods have lasted for months, such as the one from December 1734 to June 1735 that inundated New Orleans and other places on the lower river. Recurrent flooding made the Mississippi Delta perfect for various forms of agriculture because silty flood waters refertilized the soil with fresh nutrients. But, flooding also destroyed crops, equipment, and buildings, and it killed livestock and people.

River meander causes problems for landowners along the river. River meander is a complex phenomena that describes the river's natural carving out of the shore line and depositing the sediment at new points which

results in new river courses and changes in direction. As the river changes course, waterside property can suddenly become landlocked hundreds of yards or even miles inland. Property that once was some distance from the river can just as quickly become waterfront acreage. The river's unpredictable behavior has played havoc with property values and the ability of landowners to manage their farms and plantations.



Crevasse in levee on Mississippi River. *Courtesy U.S. Corps of Engineers, Mississippi Valley Division.*

In addition, earthquakes strike in the Mississippi Valley and sometimes radically alter the course of the river. Indeed, the central Mississippi Valley has more earthquakes than any other part of the United States east of the Rocky Mountains. The most dramatic was the New Madrid Earthquake of 1811-1812 that created waterfalls, destroyed towns, removed islands, formed new lakes, and forced the river to flow briefly upstream.

Improving the river channel for shipping has also consumed modern engineers, although it did not become a major focus of river control efforts until the late 1800s. Engineers made shipping safer and faster by the removal of natural obstacles, such as fallen trees, boulders, and sandbars; the deepening of certain river channels; construction of navigation aids; and straightening of the river. Humans, dating back thousands of years to the first American Indians in the area, have always used the Mississippi River and its tributaries as major transportation routes. From the Mississippi River a boat can access over half of the United States. Today, one river tow pulling fifteen barges of a commodity has the same carrying capacity as two and a quarter freight trains or 900 trucks.

Because of the various potential river hazards, the economic benefit of a controlled Mississippi River seems obvious. But there have always been the issues of who is responsible for paying for such river alterations and who is capable of managing such a monumental task. Politics, in other words, has shaped the direction of river control as much as any other factor.



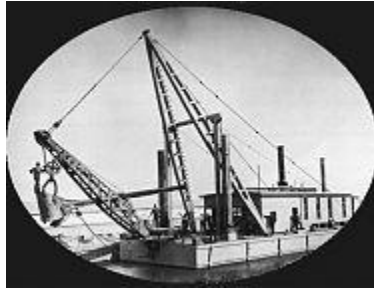
A tent city set up on levee after the 1927 flood. *Courtesy U.S. Corps of Engineers, Mississippi Valley Division.*



Barge moving goods on the Mississippi River. *Courtesy U.S. Corps of Engineers, Mississippi Valley Division.*

Efforts to control the river

Before the Civil War, state and local governments waged the war against flooding. Ever since Europeans began settling along the lower Mississippi River at places like New Orleans and Natchez, they built levees in an attempt to prevent flooding. Initially, individual landowners were responsible for constructing levees along their portion of the river banks. This approach did not provide comprehensive planning nor enforced standards of engineering and construction, and left the levee system from New Orleans upriver patchy and inadequate. This resulted in major crevasses (levee failures) during floods. Following Louisiana's example, the Mississippi Legislature authorized creation of levee districts in the 1850s. The districts were supervised by county-appointed or elected officials to ensure levee construction and maintenance. Levee officials could, for example, order plantations along the river to turn over their slaves for use in shoring up levees during a flood or other emergency.



Dredging the Mississippi River. *Courtesy U.S. Corps of Engineers, Mississippi Valley Division.*

Louisiana, Mississippi, and Arkansas maintained different standards on levee size and composition. By the late 1850s, the officials thought the 2,000 miles of levees constructed on both shores of the river at a cost of over \$40 million would protect the lower Mississippi Valley from any future flooding. The flood of 1858-1859, the largest known to that date, temporarily destroyed their hopes at controlling the river as levees cracked and fell by the dozens.

Levee construction stopped during the Civil War, but Delta plantation owners resumed levee building immediately after the war ended. In November 1865, they acquired the authority from the Mississippi Legislature to form the Board of Levee Commissioners, later called the Mississippi Levee District. The board had the power to tax most land in Bolivar, Washington, and Issaquena counties, to place a duty on cotton, and to issue bonds for funding the new levee-building project.

The catch to this scheme was that money derived from cotton production was the only source of revenue and land value in the Delta, yet cotton could not be grown successfully without construction of levees and protection from floods. Financing from state and local sources was inevitably lacking. Gradually, as revenue for building the levees became harder to acquire and accurate technical knowledge of the river's hydraulics became a necessity, Mississippi plantation owners turned to the U.S. government for help.

In 1884, the Mississippi Legislature created the Yazoo-Mississippi Delta Levee District, which encompassed the remainder of the Delta area not already within the Mississippi Levee District, and built levees along the Yazoo River and other state tributaries of the Mississippi River. Levees in Mississippi were constructed entirely by local boards from 1865 to 1882. The federal government offered assistance to these local boards from 1882 to 1917, and the government took over levee building in 1917.

Floods continued to destroy river-control efforts in Mississippi after the Civil War, with major overflows in 1874, 1882, 1883, 1884, 1890, 1897, 1903, 1912, 1913, and 1927 (the levees held in the floods of 1886 and 1893).

The 1927 Flood

The flood of 1927 had the most dramatic impact of all the twentieth-century floods. Secretary of Commerce (and later President) Herbert Hoover called it "the greatest disaster of peace times in our history." The flood

overwhelmed the levee system throughout the lower Mississippi Valley, flooded 23,000 square miles, forced 700,000 people from their homes, and destroyed about \$400 million worth of property.

With this disaster and the passage of the 1928 Flood Control Act by the U.S. Congress, the federal government assumed responsibility for managing the entire Mississippi River system. A program based only on levees was abandoned in favor of contained floodways with a series of dams and reservoirs on every major tributary of the Mississippi. The U.S. Army Corps of Engineers, which had been active on the river since the mid-nineteenth century clearing obstructions and improving navigation, took over all engineering and construction. To date, the Corps of Engineers has spent billions of dollars to control flooding and assist barge traffic on the Mississippi and other American rivers.

Impact on the environment

Without question, human alteration of the Mississippi River has dramatically changed the natural environment and culture of the lower Mississippi Valley. It is nearly impossible in this short article to discuss the impact on the environment, such as the loss of wetlands and plant and animal species, that human re-engineering of the Mississippi River produced. But one major impact of Mississippi River control on the State of Mississippi must be mentioned. Cotton would never have become the dominant crop that it did after the Civil War if not for the huge infusions of money and labor into levee construction. Short-staple cotton grows well in the Delta soil, and cotton farming offered virtually the only moneymaking activity after 1865. But floods made dependable cotton production a risky endeavor and prevented the building of an infrastructure (such as roads, towns, railways, and homes) necessary for large-scale plantation agriculture.

In order to build flood-control projects and make cotton farming profitable, post-Civil War Delta plantation owners came to depend upon their power to tax at the local level, their control of labor resources in their ex-slaves, and taxpayer assistance through state and federal governments. Once levees began protecting the Delta after 1865, towns grew, railways were built, and cotton production boomed and spread throughout the entire lower Mississippi Valley. At its height, acreage in cotton production in Mississippi reached 4,136,000 acres in 1930, the record crop of 2,692,000 cotton bales occurred in 1937, and the plantation system continued well into the twentieth century.

Ironically, the twentieth-century's greatest scourge on cotton — the boll weevil — spread throughout the lower South because of the success of cotton production made possible by river control. First spotted in south Texas in 1892, the boll weevil spread quickly through the endless fields of cotton. The insect infested the Mississippi Delta around 1910. Since World War II, the primary method of combating the boll weevil has been to spray cotton plants repeatedly with insecticides. These and other agricultural chemicals then enter the water systems of the Delta and flow downriver to the Gulf of Mexico. Along the way, fish and marine life, and perhaps human health, are affected. Moreover, large quantities of chemical fertilizers must now be used to maintain Delta soils that no longer receive natural refertilization from flooding.

The substantial costs of river management have yet to be calculated in full. Even with the modern system of river control, devastating floods, such as one in 1993, still happen as the funneling of the river through narrow man-made channels raises the height and speed of floods and increases the potential damage of breaks in the levee.

Mark Twain was right.

Suggested Readings:

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