The Red River Raft

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In the United States many of the rivers with natural barriers have defied navigation. The Red River was no exception, and its unique Great Raft was the most extensive example of a natural log jam in an American stream. It was immense in size and extremely difficult to remove.

Theories based on evidence of the Raft's conformity and on certain changes in the regional topography have supplied the knowledge of its formation. The channel of the Red River flows through a valley of alluvial deposit of a light loamy character, free of rocks, which causes the river banks to be subject to washing and caving. Since the river originates in the treeless region of northern Texas, it swells rapidly after prolonged rainy seasons, which occur quite frequently. Freshets rushing downstream caused the banks to cave, throwing large numbers of trees into the water to be carried until they lodged. The trees with heavy roots eventually anchored in the silt of the river bottom, their upper extremities protruding to snag floating trees or driftwood. Sand-bars in the river channel also aided in catching deposits. A collection of debris thus grew in width until it extended across the channel, then in depth as stream tributaries constantly brought other trees and drift.

The Raft was not a continuous mass but a series of log jams. As new collections of drift wedged downstream the upper terminus of a raft grew leaving open spaces between it and the next accumulation farther downriver. These rafts continually built upstream, for as time passed the older, lower log jams decayed and floated downstream, causing new jams.

Sections of the raft varied in size and strength. As trees in the accumulations became water-soaked, they sank to the river bottom and other debris replaced them. The raft, therefore, grew into a solid mass. In certain places it was sufficiently compact to form a bridge across.

At one time the Raft extended as far south as Alexandria, Louisiana, where a series of rapids offered an excellent lodging place for drift. Some theorists contend that the Raft continued to the mouth of the Red River, retarding the current and creating whirlpools and backwater stagnation near the junction of the Red and Mississippi rivers. It is certain, however, that if the Raft once extended through the lower portion of the river, by 1700 the channel to Natchitoches was clear of debris.

The Raft in the Red River impeded navigation and consequently restricted travel, trade, and the development of the upper basin of the river. Navigation was never entirely impossible, for there were always routes around the barrier through bayous and lakes which lay on either side of the river valley. These waterways, however, proved quite hazardous because of shallow water, overhanging trees, narrow passages, and small accumulations of drift. In addition, the Raft slowed the flow of water in the river channel, a
circumstance which caused a build up of silt and resulted in poor drainage. This lack of outflow created bayous which contained more volume of water than did similarly lengthy channels of the Red River. The Raft gradually blocked the mouths of the bayous draining into the river, and thus the bayou waters backed up to form a series of lakes. Such bordering bodies of water existed until the Raft was removed, and then the channel of the river was restored to its original depth.

Although the date of the first formation of the Raft is unknown, tribes of Indians knew about the accumulation long before their contact with the white man. The Natchitoches, Washitas, and Capicicas—Caddoan tribes—were the first to navigate the Red River for trading purposes. They ascended the river to the head of the log jam, then skirted each barrier by carrying their canoes to the next navigable span.

With the establishment of French and Spanish colonies in the vicinity of the Red River, the Raft soon became known to the white man. While seeking to establish missions on the Neches and Red rivers in 1691, the Spaniard Domingo Teran de los Rios found the Red River impossible to navigate because of its narrow width and its great quantity of driftwood. In addition, he reported that trees which had been uprooted and carried downstream also impeded navigation. In the Spring of 1700 Jean Baptiste Le Moyne, Sieur de Bienville, a brother of the French explorer Pierre Le Moyne, Sieur de Iberville, and Louis de Saint Denis, a French captain of Canadian descent, ascended the stream to Natchitoches, where they found it impossible to penetrate further because of the Raft. Thirteen years later, Saint Denis again navigated the Red River to Natchitoches, where he carried on trade with the Indians near the head of the Raft. Another Frenchman, Bernard de la Harpe, utilized the marginal bayous above Natchitoches to achieve greater trading profits.

Shortly before the United States acquired the Louisiana Territory, the French explorer Francois Marie de Lac Perrin ascended the river to DuPont Bayou, twelve miles above Natchitoches. Several years previous to his exploration, the Frenchman wrote in his memoirs that boats had navigated the left branch to avoid the Great Raft which blocked navigation of the main channel. Now in 1802, even the left fork was obstructed with timber. Two years later, by presidential order, William Dunbar and Dr. George Hunter explored the Red River and discovered that the Raft blocked the entire river for more than fifty-six miles. According to this account, the log jam, continually augmented "by driftwood brought down by every flood, [supported] a vegetation of everything abounding in the neighboring forest, not excepting trees of considerable size."

It was not until 1805, however, that the first official report on the Raft was submitted to the United States Government. Writing from Natchitoches to the War Department, Dr. John Sibley, the Federal Indian Agent at Natchitoches, stated: "At the upper house [of Campti, about thirty miles above Natchitoches, by the river] the great raft or jam of timber begins; this raft chokes the main channel for upwards of one hundred miles... not [in] one entire jam... but only at points."

He found that the lowest
extremity of the Raft was just about Chango Bayou. Boats could ascend the bayou, which extended only three miles into Lake Bistino. Once ships left the lake and entered the main channel, however, navigation became impossible, for the Raft blocked passage for twenty-nine miles.\(^9\)

In 1806 President Jefferson, in order to determine something about the disputed territory popularly known as "No Man's Land"—an extensive area stretching from a point west of Natchitoches to Sabine Pass and running indefinitely north—ordered the War Department to send an expedition up the Red River to map and report important findings. The party was led by Thomas Freeman, a United States surveyor who had just completed a survey of the boundary line between the present states of Mississippi and Florida. After two months of travel Freeman encountered the first raft, which he reported to be only forty yards long. The second was somewhat larger, and the third, composed of red cedar logs one to three feet in diameter, extended nine hundred feet. Upon reaching Loggy Bayou, the expedition found it impossible to continue navigating the river because of the Great Raft.\(^1\)

Twenty-three years later, Dr. Joseph Paxton of Hempstead County, Arkansas, in a letter to the Congressional delegate from the Territory of Arkansas, indicated that the lower extremity of the Raft reached Natchitoches. Evidence revealed that the log jam once extended much farther downstream and that the obstruction profoundly modified the entire course of the Red River through Louisiana.\(^1\) The reports of the Corps of Topographical Engineers and of the Department of War subsequently, included frequent and complicated descriptions of these natural barriers. In 1852, on his second trip to the Texas area, Captain Randolph B. Marcy explored the headwaters of the Red River and reported that the Great Raft extended from where the arid prairies of the Texas plains met the wooded regions of the northern border, to the chain of lakes that rimmed the river channel.\(^2\)

One of the best accounts was that of E. A. Woodruff, Chief of Engineers, who directed the final removal of the rafts in 1872-73. Woodruff related that the rafts were composed of "trees which have been exposed on some sand bar to the sun of one or more low water seasons." The "principal bulk of the whole raft," he continued, "was cottonwood."\(^7\) In time the Raft, continually creeping downstream, would have disappeared. But the process of disintegration was too slow to satisfy the demands of a rapidly increasing American population attracted by the fertility of the area above the Raft.\(^2\) At a time when most of the larger rivers of the United States served as highways of development, the Red River was unnavigable because of its log jams. Canoes, pirogues, keelboats, and small steamboats maneuvered around the barriers, but the increase in the number and size of river vehicles added to the necessity for the removal of the Raft.\(^7\)

Realizing the potential of the river, steamboat owners and cotton planters, who suffered constant flooding of their fields, proposed governmental consideration of a project to remove the barrier. As early as 1825 the Arkansas legislature requested Congress to secure passage of the upper Red River. Ordered by General Winfield Scott, commander of the western department
of the Army, Captain George Birch detailed twenty-five men from Fort Jessup to destroy the barrier. After careful observation, however, the soldiers recognized the impossibility of their mission and did little more than report their findings.23

Three years later Dr. Paxton advanced several economic and strategic reasons for removal of the Raft. The people of the region, he wrote, wanted the reclamation of more than four hundred square miles of choice farmland, the prevention of flooding of additional fertile acreage, and the opening of the river for navigation. If these aims were accomplished, new settlers would be attracted to the reclaimed lands.24 Paxton's letter reached Congress three months after an appropriation of $25,000 had been authorized, not for raft destruction as he had recommended, but for a preliminary survey of a passage around the jams through bayous and lakes.25

Yet there had been enough pressure in favor of removal to effectuate definite plans. In 1832 the people of Arkansas urged Congress to eliminate the natural barrier so that boats might ascend to the newly established Fort Towson, located on the river north of Clarksville, Texas. During four months of the year there was sufficient water for steamboats to navigate this section, but the Raft prevented settlement of the country above it. A congressional resolution in February, 1834, authorized Henry M. Shreve, a steamboat captain who was superintendent of the Corps of Engineers at Louisville, to clear the river.26

Shreve, determined to remove the Raft, devised two battering-ram types of steam craft for the project and began work in May, 1833, at Campti.27 At first he advanced rapidly, for he found the Raft rotten and easy to displace. As he progressed up the river, however, Shreve discovered that the newer regions of the Raft were much more difficult to dislodge, and it became necessary to resort several times to the digging of canals across sharp bends of the river. The construction of these channels made the task of displacing the longer jam around each fork in the stream unnecessary, diverted the flow of the Red River, enhanced the current in the river channel, and provided depository areas for the removed debris of the Raft. Besides cutting across bends Shreve choked the mouths of the marginal bayous with great quantities of drift, hoping to restore the original water depth in the river channel.28

After a year the steamboat captain had removed seventy-one miles of the Raft to the location of the Caddo Agency. He had found the Raft to consist of fifty-six separate sections spanning collectively one-third of the length of the river from Campti. Shreve reported that the logs, averaging twenty-five feet in depth, were solid to the river bottom in a number of places. There were, however, according to an estimate, seventy miles of river still to be cleared. Each succeeding year of work proved much more difficult, for during the seasons Shreve did not work on removal, drift materials continued to accumulate. The operation took five years to complete. When finished, Shreve had opened the Red River for navigation to Fort Towson, 720 miles above its mouth.29
The elimination of the Great Raft immediately affected the Red River Valley. Newly-drained, fertile soil afforded prime land for cultivation and settlement. Steamboats plied the river, transporting settlers and merchandise into the region and produce out of it.

Foreseeing that the rafts (now termed in the plural since Shreve successfully removed what had been known as the Great Raft) would continue to form until the bed of the Red was sufficiently deepened and its banks cleared of timber, Shreve proposed that the War Department maintain a boat to keep the river free of debris and that the trees along the river banks be cleared. These suggestions were not approved, however, and for the next forty years sections of the once Great Raft continued to form, necessitating additional removal operations. Nevertheless, the Great Raft had been destroyed.79

Only four months after Shreve completed his work a new jam 2,300 feet long formed three miles below the head of the old dam. Each succeeding freshet added its quota to the raft, until by 1841 it had reached twenty miles in length. When dredging could not completely remove the obstacle, Congress appropriated $75,000 and assigned a government engineer, Captain Thomas Taylor Williamson, to reopen the main channel. Williamson had the authority to make cuts across certain river bends, as had Shreve, for storage of new raft material as it floated downstream. Although the Louisiana legislature also sanctioned this action, opposition from planters fearing inundation caused Williamson to abandon the project in January, 1844.80 A limited effort continued for another year under Captain Thomas B. Linnard, a member of the Corps of Topographical Engineers, but his failure to receive necessary appropriations terminated all clearing operations on the Red River.81

Before the close of 1843, a new raft accumulated just two miles above the point where the previous jam had occurred, and by 1854, it extended thirteen miles. It seemed now that the river would always have jams and that even the Army would be unable to prevent them without exorbitant expenditures. In 1855 the government sent a surveyor to examine the raft region and suggest a procedure necessary to restore adequate navigational facilities. Congress appropriated $150,000 for the survey, but the project was never completed. During the next fifteen years several privately financed efforts were made to open steamboat toll routes around the barrier, but these canals also became choked with logs. The Civil War suspended all federal plans for opening the river, and raft formations continued unchecked.82

By 1872 an obstruction measuring thirty miles had advanced within five miles of the Arkansas border and had greatly impaired navigation below Shreveport. Lieutenant E. A. Woodruff of the United States Army Engineers Corps then began the third government attempt to remove the raft. The use of nitroglycerin hastened the progress of his work, and within a year he had reached the head of the raft. Although Woodruff destroyed the barrier and opened navigation to Fulton, Arkansas, 176 miles above Shreveport, he did not eliminate the causes of the rafts' accumulation. Log jams formed immediately, only to be broken up by the government boats, both state and
federal, which were to maintain passage. The operations of 1872-73 caused a significant reduction in the amount of water being diverted from the regular channel into the bordering lakes and bayous. By 1893 much of the land previously a part of these marginal bodies was under cultivation, and thousands of acres of productive soil had been drained and reclaimed. Today, the Red River, though seldom navigated, flows through the valley below Fulton completely raft-free.

The year 1873 marked the final removal of the rafts, but oratory, political agitation, and "logrolling" kept the project very much alive before Congress and its committees from 1872 to 1913—more than forty years. Practically every Congress from the 42nd to the 62nd had the issue of improving the waterway presented to it, and more than half of them made appropriations for that purpose. Funds specifically for channel maintenance continued to be appropriated until 1882; thereafter, congressional sums provided for the construction of levees, the elimination of debris, and the closure of outlets. For eighty years the expenditures on the river below Fulton amounted to $2,784,687.

NOTES


2. Geological Survey for Louisiana, Report for 1899-1900, (Baton Rouge: State Experiment Station), 164.


4. Ibid. The Raft was estimated to have been one hundred and forty miles long and approximately three hundred years old.


6. Letter from Dr. Joseph Paxton, Hempstead County, Arkansas, to Hon. A. H. Sevier, Delegate to Congress from the Territory of Arkansas, Senate Documents, 20th Cong., 2nd Sess., 1829, No. 78, p. 5. Hereafter cited as Paxton Letter, Senate Documents, 20th Cong., 2nd Sess., 1829. The most popular theory concerning the formation of the marginal lakes has been the "Earthquake Theory." According to this concept, the lakes were created by the sudden sinking of a vast portion of the earth's crust during the violent New Madrid, Missouri Earthquake of 1811-1812, which affected over one half of the total area of the United States. Myron L. Fuller, "The New Madrid Earthquake," United States Geological Survey Bulletin, 494, pp. 64-66.


Cox, "Louisiana-Texas Frontier," *Texas State Historical Association Quarterly*, X, 11.


Pichardo, *Treatise on Louisiana and Texas*, II, 82.


Grant Foreman, "River Navigation in the Early Southwest," *Mississippi Valley Historical Review,* XV, 1928, 47-49. Hereafter cited as Foreman, "River Navigation," *Mississippi Valley Historical Review,* XV. Fort Jessup, Louisiana, named in honor of Thomas S. Jessup, forty-two years in the United States Army, was established in 1822 and abandoned in 1846.


Norman, "Red River," *Louisiana Historical Quarterly,* XXV, 514. The Eradicator, built by Captain Shreve, was the first snag-boat on the Red River which he used in 1837 to remove the Raft. Other such vessels used by Shreve in his operations were the Archimedes, the Heliopolis, the Java, the Pearl, and the Souvenir.


Ibid.

Ibid.


