

HISTORIC AMERICAN ENGINEERING RECORD

NEWPORT BRIDGE

HAER No. AR-12

LOCATION: Spanning the White River on U.S. Highway 67 at Newport, Jackson County, Arkansas.

UTM: 15/3941365/655025

QUAD: Newport, Arkansas

DATE OF CONSTRUCTION: 1930

ARCHITECT: Ira G. Hedrick

CONTRACTOR: Missouri Valley Iron and Bridge Company, Leavenworth, Kansas.

PRESENT OWNER: Arkansas State Highway and Transportation Department, Little Rock, Arkansas 72203.

PRESENT USE: Vehicular bridge.

SIGNIFICANCE: The 400-foot, double-cantilevered bridge at Newport was a major construction project in 1929-30. The bridge, along with two similar bridges at Augusta and Clarendon, Arkansas, was designed by renowned bridge engineer Ira G. Hedrick, and became part of a main interstate highway route.

HISTORIAN: Kathryn Steen

DESCRIPTION BY: Corinne Smith  
Arkansas Historic Bridge Recording Project, 1988.

In 1927, Arkansas Governor Martineau sponsored a bill to increase funding for the building of Arkansas highways and bridges. What the Arkansas legislature ended up passing was a law which would make \$52 million in state funds available for highway improvement over the next four years. The law also had the state assuming many debts of counties who had been unable to handle the financial strain of road construction. One of the bridges that was partly funded by this legislation was the state-owned toll bridge at Newport, Arkansas.(1)

### TOWN HISTORY

The White River is a tributary of the Mississippi River. It starts in the Ozarks of northwest Arkansas, and meanders into Missouri before coming back into Arkansas and growing to a navigable size about twenty miles upstream from Newport, the county seat of Jackson County in northeast Arkansas. Local folklore says that Newport was a town created out of spite in 1872 when the St. Louis, Iron Mountain and Southern Railroad crossed the White River a few miles from Jacksonport, a town that had declined to help the railroad pay for a bridge. Existing records show, however, that Newport was present as early as 1835.(2) By the 1920s, the railroads had become the Missouri Pacific and a branch of the Rock Island Railroad, and Newport industries included lumber and cotton-related products.(3) One unique business in Newport was the making of buttons out of mussel shells pulled from the White River.(4)

Another river industry was the ferry service. Two ferries carried the traffic across the river at Newport. One of the ferries, the "upper" or Newport ferry operated right in Newport. The "lower" ferry was two miles downstream. In good weather and low water stages, an automobile

could cross for 25 cents. When the water was much higher than normal the automobile fee might be \$5.00, provided one could cross at all.(5)

### THE BRIDGE

The location of Newport was becoming more important because of Route 67, a major thoroughfare that was scheduled for improvements. On October 18, 1926, a franchise was given to Hamilton Moses of Little Rock and Steve Graham of Tuckerman to build and maintain a toll bridge over the White River at Newport, although the franchise was revoked after they failed to start work on the bridge within the allotted year starting December 3, 1927.(6)

By February of 1928, efforts were made to enable the Arkansas Highway Commission to build a toll bridge at Newport. U.S. Representative Oldfield's bill presented to the House requested authorization to bridge the navigable White River and also asked for federal financial assistance.(7) There was some delay, however, as it was made clear by the Arkansas Highway Department that they would prefer that the federal assistance come in a "lump sum" rather than be specifically appropriated for the Newport bridge. Since a toll bridge could conceivably pay for itself and a road could not, the department wanted the authority to distribute the federal funds in a way that would, in the department's estimation, most benefit the other highway and bridge projects.(8)

As news of the proposed state-owned toll bridge spread, word reached the Delaware Viaduct and Bridge Company office in Hot Springs, Arkansas. They had acquired the Moses and Graham franchise and, not knowing that the franchise had been canceled, had developed plans and worked out traffic and earnings estimates. In late March 1928 the company made a sales pitch to the bridge committee of the Jackson County Chamber of Commerce. The bridge company proposed to build

and operate a bridge for twenty-five years, at which time the bridge would be turned over to the county free of charge. The suggested toll rates that they published shortly after were significantly lower than the state proposed rates.(9)

Just when the public was thinking a private bridge might be the path to follow, Justin Matthews, a member of the State Highway Commission, made a public appearance in Newport. On April 10, 1928, Matthews warned against private toll bridge companies who "would build a cheap bridge and timber approaches," insisting that the published rates would not be sufficient to cover costs and the company could go to court to get the rates raised later on.(10) Matthews was sufficiently persuasive and, with "almost unanimous public sentiment," the decision was made at the county level to let the State Highway Commission take care of the bridge.(11) A week after Matthews' public meeting, Senator Oldfield's amended bill was put before the House.(12)

Progress was looking promising as congressional approval was granted in June 1928. Another delay emerged, however, when lawsuits were filed against the State Highway Commission for "exceeding its authority" in planning the Newport and several other state toll bridges. Various suits argued against the commission's "issuance and sale of highway notes," the impinging on county judges' authority and the illegality of state-owned toll bridges.(13)

## PLANS

The suits managed to delay, but not halt progress on the Newport bridge. In January 1929 consulting bridge engineer Ira G. Hedrick and State Highway engineer C.S. Christian examined potential sites near Newport and found a preference for the spot where the Newport ferry ran in town. That site was favored in part because a concrete viaduct could be built over the Missouri

Pacific tracks which lay close to the river.(14) Besides the examination, the Arkansas Highway Commission had hired the consulting firm of Ford, Bacon & Davis, Inc. of New York to write up a report on the "Estimated Traffic and Revenue" of a Newport toll bridge. The firm had done traffic measurement in June 1928 and issued the final report on February 15, 1929. The report considered factors such as population growth, motor vehicle registration, and the increased traffic stimulated by a first class bridge and highway (Route 67) to figure the bridge's feasibility. It was understood that the ferries would be discontinued, thereby eliminating some of the proposed bridge's competition. With an average toll of 60 cents (50 for autos and more for the larger vehicles), the consultants estimated a net income of \$50,500 for the first year of operation, increasing to \$64,000 by the fifth year.(15)

Plans were drawn up by bridge engineer Ira G. Hedrick who had an office in Hot Springs. Hedrick had an impressive credential list by the time he was hired by the Arkansas Highway Commission to design several of the new toll bridges. He had studied in Arkansas for a short time around the turn of the century and his first wife was from Fayetteville, Arkansas. As a professional engineer, Hedrick was first an assistant and then a junior partner to bridge engineering great J.A.L. Waddell. Over the course of his life, he was a member of several engineering firms and also of the American Society of Civil Engineers.(16)

Hedrick's plan called for a double cantilevered arch bridge with a main span of 300 feet. Parts of the plans, such as this main span, were identical to another proposed toll bridge over the White River at Augusta, Arkansas. The two sister bridges were announced at the same time, bids to be opened on the same day. For each, the "bridge proper" and the approaches were to be

separate bids, in the hope that, by breaking the project up, the competition of smaller firms, who could not necessarily handle the whole project, would keep the price to taxpayers down.(17)

One more necessary hurdle before contracting was the sanction of the War Department's Memphis engineering office in charge of the region's navigable waterways. They withheld approval of the planned location near the middle of town, saying that there needed to be more clearance here than an arch bridge would allow. Rather than change the type of bridge to accommodate the chosen site, the site was move upstream one-half mile to accommodate the chosen bridge. The new site met with the War Department's approval and consent was granted by May 1, 1929.(18)

### CONSTRUCTION

On May 15, 1929, bids were received for both the bridge and its approaches. With a low bid of \$218,662, the Missouri Valley Bridge and Iron Company of Leavenworth, Kansas, won the contract for the bridge. The List and Weatherly Construction Company of Kansas City, Missouri had the low bid on the approaches at \$239,662.(19)

The lack of contemporary newspaper articles to the contrary suggests that progress went fairly smoothly in the bridge's construction. The first project undertaken was pneumatically sinking two piers. By February 1930, the "overhead steel spans [were]. . . more than halfway across the river."(20) By the beginning of April all the main span's steel was in place.(21) In the course of construction, it was decided that the west approach, as previously planned, was too steep and the approach was altered from a Second Street to a Third Street entrance. The west approach was also changed to concrete, rather than wood as originally intended.(22)

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50 cents and \$1.00. Livestock were charged at 5 cents per head and a pedestrian went free.(28) The day after the toll list was released, the first traffic crossed the bridge. That first day, Thursday, September 18, 1930, 220 vehicles went across the new Newport bridge. Despite the fact that the Ford, Bacon & Davis consultants had been informed the state would eliminate the competing ferry business, on the bridge's opening day, the Weekly Independent reported that both ferries did some business; it is conceivable that the state assumed the ferries would die a natural death after the bridge had operated for a while.(29) In November, the toll was cut to 25 cents, the lowest price the ferries had charged at low water.(30)

#### REMOVAL OF TOLL

The bridge operated according to plan for the next seven years. In 1937, the U.S. Congress authorized the Federal Bureau of Roads to refund half the cost to states for making certain post-1927 toll bridges free. (31) It was too good an offer to pass up and at 8:00 a.m. on April 1, 1938, the Newport bridge became toll free.(32) On May 3, the tollhouse was towed to the Highway Department's oil station in the east part of Newport.(33) The announcement of the freeing of the bridge gave the town short notice, but another celebration was organized and executed on May 26, 1938. "Several thousands" also turned out for the occasion, celebrated with political speakers, Miss Jackson County, seven bands, a banquet, a baseball game, and a street dance; this was, in part, a special effort to draw attention to the freeing of the bridge in order to attract business that may have been deterred by a toll bridge.(34)

### ENGINEERING DESCRIPTION

The Newport Bridge is a two-lane, double cantilever truss, with 121-foot anchor-arms. Two cantilever-arms of 138 feet and a suspended span of 125 feet make the main opening 400 feet wide. The top chord of the anchor-arms and cantilever-arms are polygonal, with a slight concave upward curve to a peak at 60 feet above the 24-foot-wide road deck. The suspended span has a horizontal top chord at a constant height of 25 feet.

The truss design uses the philosophy of a Warren truss, where diagonal members carry compressive and tensile forces. The vertical members brace the triangular web system. All panels are 20 feet wide. Most web members and chord members are one of two basic sections: four angles with lacing or two channels with lacing. The top chord in the two panels to either side of the peak is the exception to this rule because it uses four eyebars to support the tremendous tensile forces imposed by the cantilevered suspension span. Large pins connect the top chord together and to the anchor-arm and the cantilever-arm. All other connections, except for the suspension joints, are riveted.

The suspension span is also hung by pins at U12 and L12 (see highway drawings) from the cantilever-arms. Member U12-U13 is referred to as an idle member because it carries no force. The suspension span acts as a truss which is supported at L12 and L20. The compression forces in its top chord are transmitted through member L12-U13, which acts as an impost, to the bottom chord. The forces from the suspension span are then distributed to the cantilever-arm by the bottom chord and web members.

The bridge is supported by reinforced concrete piers at the ends and underneath the two peaks. The concrete approaches are on 14-inch-square concrete pilings, extending an average of 50

feet into the ground. The west approach from Newport is 1,278 feet long, and the other approach is 911 feet long. Electric lamps once lined the approaches.

The Newport Bridge has a twin, also over the White River, at Augusta, Arkansas. The two bridges differ only in their approach lengths. The cantilevered bridge at Clarendon over the White River is also similar, but has two more panels in the anchor arms.

ENDNOTES

1. "White River Bridge at Newport will Be Major Highway Project in 1928," Newport Weekly Independent Vol. XXVII, No. 38 (December 23, 1927), p. 1.
2. Virgil H. Holder, "Historical Geography of the Lower White River," The Arkansas Historical Quarterly Vol. XXVII, No. 2 (Summer 1968), pp. 132, 142.; Ernie Deane, Arkansas Place Names (Branson, Mo: The Ozarks Mountaineer, 1986), pp. 46-7.
3. Ford, Bacon & Davis, Inc., consultants, "Report: Estimated Traffic and Revenue, Proposed Toll Bridge Across the White River at Newport, Arkansas," February 15, 1929, p. 11.
4. Holder, p. 143.
5. Ford, Bacon & Davis, p. 9.
6. "Toll Bridge Franchise Canceled," Newport Weekly Independent Vol. XXVII, No. 36 (December 9, 1927), p. 1.
7. "Bridge Bill Introduced by Oldfield," Newport Weekly Independent Vol. XXVII, No. 47 (February 17, 1928), p. 4.
8. "Bridge Should Be Constructed By State Commission," Newport Weekly Independent Vol. XXVIII, No. 1 (April 6, 1928), p. 6.
9. "Privately Owned Toll Bridge Proposal Made at Meeting Yesterday," Newport Weekly Independent Vol. XXVII, No. 52 (March 30, 1928),p. 1.
10. "Many Attend Meeting at Court House," Newport Weekly Independent Vol. XXVIII, No. 2 (April 13, 1928), p. 1.
11. "Toll Bridge in Hands of Commission," Newport Weekly Independent Vol. XXVIII, No. 3 (April 20, 1928), p. 1.
12. "Bridge Bill Introduced in Congress," Newport Weekly Independent Vol. XXVIII, No. 3 (April 20, 1928), p. 1.
13. "Court Actions Cause Delay in Highway Work," Newport Weekly Independent Vol. XXVIII, No. 30 (October 26, 1928), p. 6.

14. "Engineers in Favor of Locating Bridge at Newport Ferry," Newport Weekly Independent Vol. XXVIII, No. 43 (January 25, 1929), p. 5.
15. Ford, Bacon & Davis, "Report", p. 26.
16. John William Leonard, Who's Who in Engineering, 1925, 2nd ed. (New York: Who's Who Publications, Inc., 1925), p. 937.
17. "To Save Money on Bridge Contracts," Arkansas Gazette Vol. 110, No. 173 (May 12, 1929), p. 6.
18. "Bids Received on Highway Projects," Arkansas Gazette Vol. 110, No. 177 (May 16, 1929), p. 12.
19. "Bids Received", p. 12.
20. "Bridge Work Continues to Move Rapidly," Weekly Independent Vol. XXIX, No. 47 (February 21, 1930), p. 1.
21. "Bridge Span Over River Connected," Weekly Independent Vol. XXX, No. 1 (April 4, 1930), p. 2.
22. "Bridge to be Landed upon Third Street," Weekly Independent Vol. XXIX, No. 45 (February 7, 1930), p. 10.
23. "Falling Shaft Kills Negro at Bridge Site Here," Weekly Independents Vol. XXIX, No. 36 (December 6, 1929), p. 7.
24. "Vester Stillwell is Shot and Killed by Missouri Youth," Weekly Independent Vol. XXIX, No. 42 (January 17, 1930), p. 2.
25. "Bridge Tolls House will Be Finished Soon," Weekly Independent Vol. XXX, No. 21 (August 29, 1930), p. 2. : Ira G. Hedrick, plans, "Bridge Over Main Street at Newport, Arkansas, date.
26. "Newport Bridge Opened Formally," Arkansas Gazette Vol. III, No. 294 (September 11, 1930), p. 2.
27. "Bob Laird to Be Supervisor of New Bridge," Weekly Independent Vol. XXX, No. 23 (September 12, 1930), p. 2.
28. "Newport Toll Bridge is Put in Operation," Weekly Independent Vol. XXX, No. 24 (September 19, 1930), p. 1.

29. "220 Vehicles Cross Bridge on First Day," Weekly Independent Vol. XXX, No. 24 (September 19, 1930), p. 1.
30. "Bridge Tolls Reduced to 25 Cents for those Purchasing \$2.50 Books," Newport Weekly Independent Vol. XXX, No. 31 (November 7, 1930), p. 2.
31. "Toll on Local State Bridge May Be Lifted," Newport Weekly Independent Vol. XXXVII, No. 50 (March 11, 1938), p. 1.
32. "Formal Opening on Freeing of Local Bridge," Newport Weekly Independent Vol. XXXVIII, No. 6 (May 6, 1938), p. 7.
33. "Approach to Bridge Open," Newport Weekly Independent Vol. XXXVIII, No. 6 (May 6, 1938), p. 7.
34. "Arkansas Welcomes Toll-Free Bridges", Newport Weekly Independent Vol. XXXVIII, No. 9 (May 27, 1938), p. 1.
35. Arkansas State Highway Department. Bridge inspection report, April 24, 1986.

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