Original Bidwell Bar Suspension Bridge
Relocated to Bidwell Canyon Marina

Bidwell Bar Suspension Bridge

National Historic Civil Engineering Landmark

Completion Date

1855

Location

Oroville East, CA

39 32 14.8 N, 121 27 15.6 W

Typical of the suspension bridges constructed during California gold rush days, the Bidwell Bar Suspension Bridge is the only remaining suspension bridge of its time in the West.

"The beautiful and substantial structure is one which does full credit to the bridge company and the contractor Capt. Jos. A. Murray."
- Letter to Editor that appeared in the North Californian, January 9, 1856.

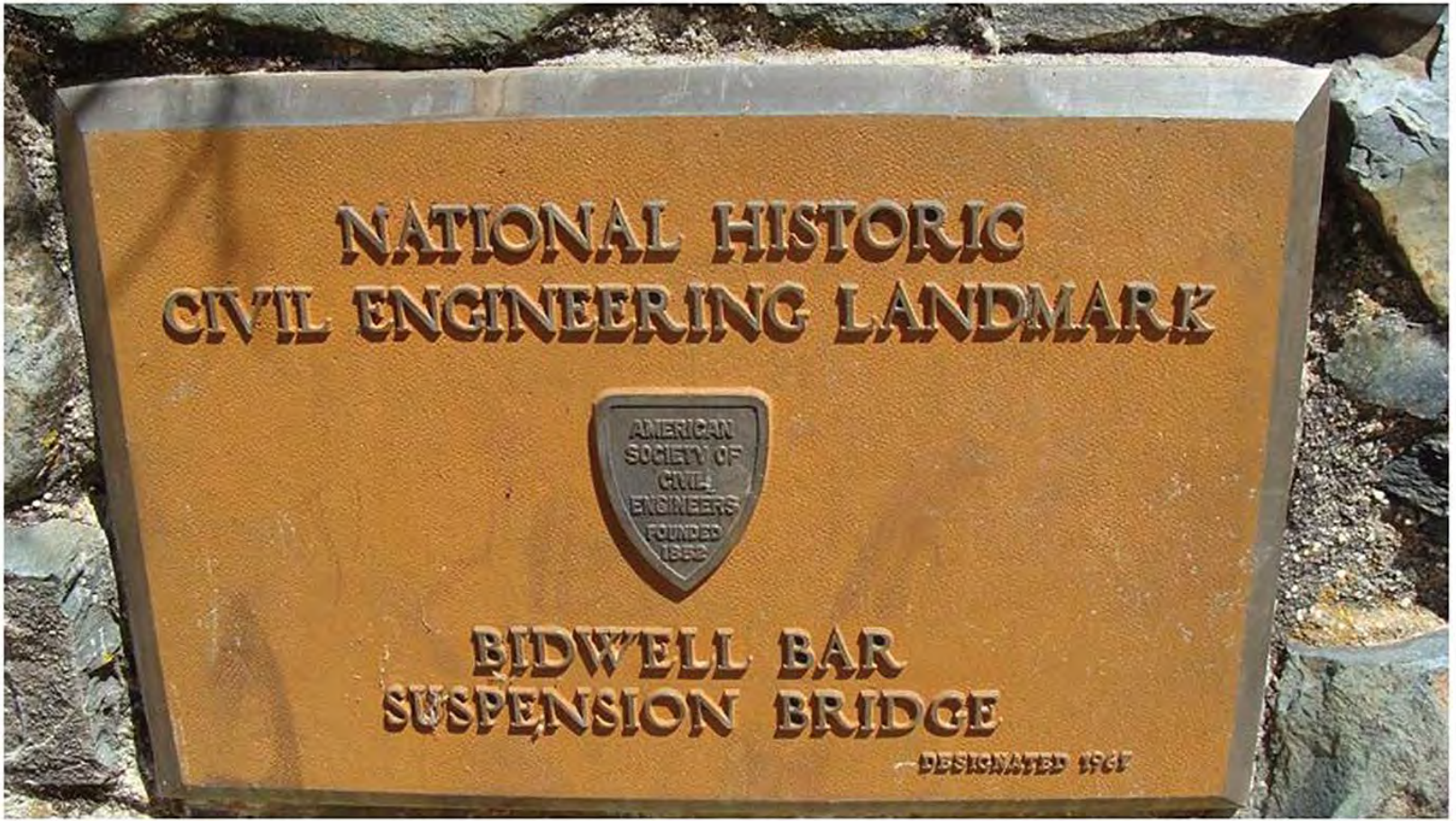
Soon after gold was discovered at Sutter's Mill near Sacramento in 1848, General John Bidwell found gold near the Middle Fork of the Feather River. His discovery brought hordes of miners to the scene and Bidwell Bar was born.

The Bidwell Bar Suspension Bridge over the Feather River was one of several suspension bridges built in the region in the 1850s, and is the only one that remains.
Wire ropes had been developed only within the decade before construction. Pioneer engineers brought these advances to California and designed, ordered the material, and constructed the bridge in the remote frontier.

Almost all the material used to build the bridge was brought "around the horn" (i.e. fabricated on the East Coast and shipped around Cape Horn to California).

Facts

- Travelers crossed the river by ferry before the Bidwell Bar Suspension Bridge was built. The ferry cost 25 cents to cross on foot, $1.50 for a light wagon, and $2.00 for a heavy wagon.
- The Court of Sessions licensed the original Bidwell Bar Toll Bridge in May 1851. That bridge was destroyed in April 1852. In December 1854 a license was granted to the Bidwell Bridge Company to build a toll suspension bridge.
- The bridge was built by Jones and Murray, contractors in Sacramento. The total cost of the structure was $34,922.
- The original components of the bridge were primarily wrought iron and cast iron from Troy, New York
- There were four cables, two on each side. Each cable was seven inches in diameter and made up of about 300 No. 10 wires laid in parallel strands. Each bundle was then spirally wrapped with a wrought iron wire, and the entire cable was coated with paint
- The cables were anchored to bent bars, which were cemented into recesses in the rock embankment. The anchorages were originally thought to be bent wrought iron bars packed in oil. When the bridge was repaired in the early 1900s and the anchors scraped to remove rust, they were found to be bronze, not iron.
- Each tower consisted of four cast iron posts, each measuring about 20 inches at the base, tied together with a cross of cast iron plate at the base. The Starbuck Iron Works of Troy New York manufactured the piers.
- The bridge was in use until after World War II, when a new bridge was built to carry vehicular traffic. In 1964, the bridge was dismantled to make way for the Oroville Reservoir. Local crews relocated the bridge and adjoining tollhouse to Bidwell Canyon on the south end of Lake Oroville, 1.5 miles downstream from their original location.

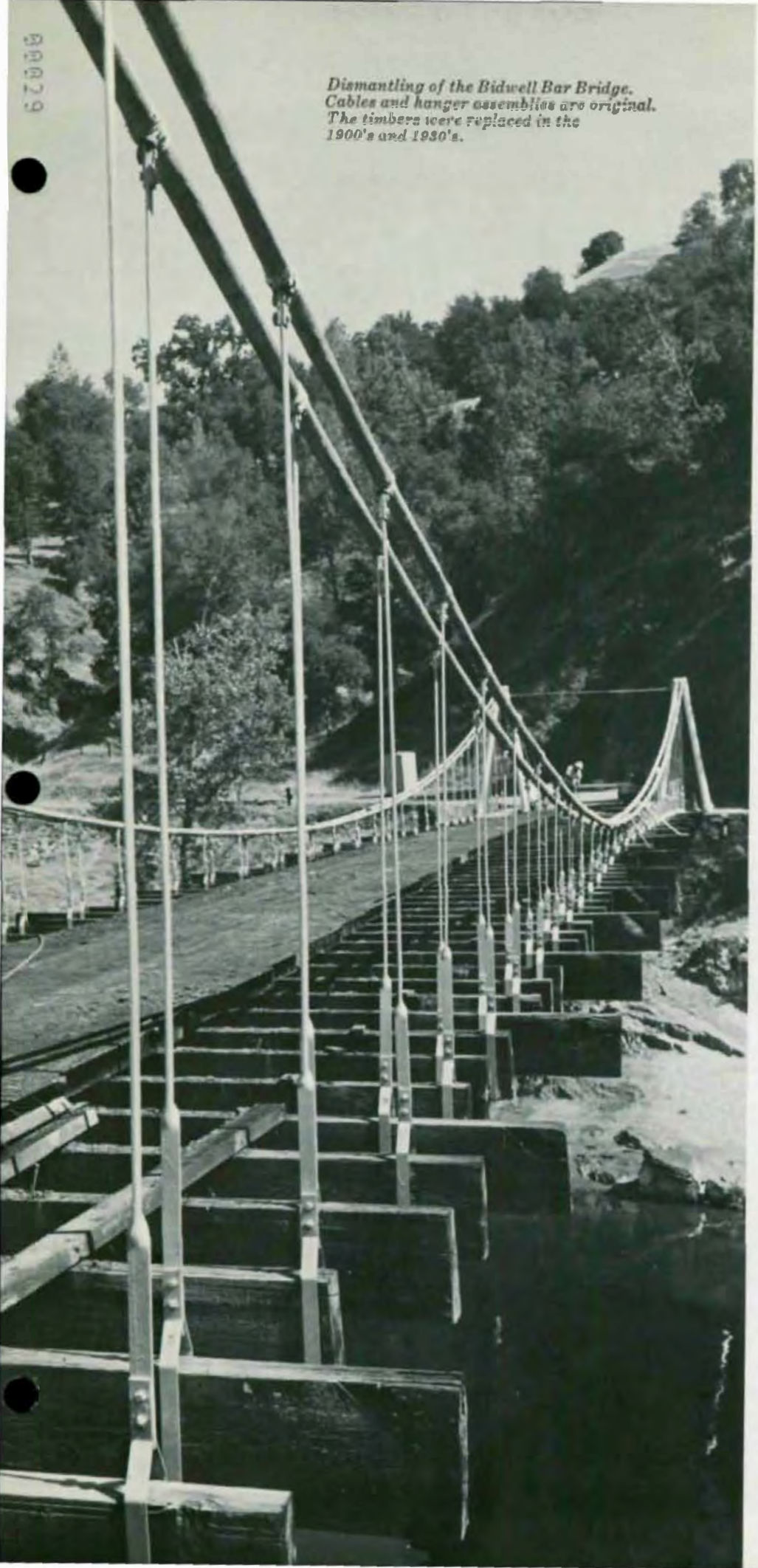

NATIONAL HISTORIC
CIVIL ENGINEERING LANDMARK
AMERICAN SOCIETY OF CIVIL ENGINEERS
FOUNDED 1852
BIDWELL BAR
SUSPENSION BRIDGE
DESIGNATED 1967

Plaque at west end of bridge CL94 [ATLAS OBSCURA USER]

Bidwell Bar Suspension Bridge

jhcafirstbidwell.jpg

First Suspension Bridge West of the Rockies
Bidwell Bar, on the Feather River, California



Dismantling of the Bidwell Bar Bridge. Cables and hanger assemblies are original. The timbers were replaced in the 1900's and 1930's.

Bidwell Bar Suspension Bridge — A Historic Landmark

by Ernest C. James

The Bidwell Bar Suspension Bridge near Oroville was one of several suspension bridges constructed in Northern California in the 1850's. One was constructed at Whiskey Bar, one at Rattlesnake Bar, one at Condemned Bar, and one at Comanche. There may have been other suspension bridges built in the gold rush areas in California during this period, but the Bidwell Bar Suspension Bridge is the only one remaining. All were significant in their contribution to the development of the northern part of the Sierras during the gold rush period.

The design and construction of relatively complex structures such as this provided a great step forward in the history of civil engineering. The names and backgrounds of the designers responsible for this work are not known today, but it is obvious that they had an engineering background.

The original Bidwell Bar Toll Bridge at this site was licensed by the Court of Sessions in May 1851. It was built, but was lost in a flood during April 1852. A second license was granted to Thomas A. Sherwood and Joseph E. V. Lewis in October of 1852 for construction of a toll bridge. In the meantime a ferry

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plied the river at the site. The bridge apparently was not built, as additional franchise applications were made during 1854. In December 1854 a license was granted to the Bidwell Bridge Company to build a suspension toll bridge. Advertisements for bids were entered in the Butte Record from January to March 1855. A contract was awarded in May 1855 for erection of the bridge. The successful bidders, Jones and Murry, contractors from Sacramento, completed the bridge in 1856.

Manufacturing processes for wire used in the Bidwell Bar Bridge were developed in the late 1830's. Records show that the manufacture of wire in any quantity did not take place until the middle 1840's. It is amazing that the pioneers during the gold rush period brought these technical advances to California, and had the capabilities of designing, ordering materials, and constructing structures of this magnitude under the extreme frontier conditions of the early 1850's.

The original structural components of the Bidwell Bar Suspension Bridge were primarily of wrought iron or cast iron. The four 2-in. diameter cables were made up of about 300 No. 10 wires laid in parallel strands. Each cable was then spirally wrapped with a wrought iron wire of the same size and then heavily painted. Anchorages were bent wrought iron bars, buried deep in the foundations. The towers consisted of four cast iron posts tied together with a cross of cast iron plate at the base. Each assembly was capped with a specially fabricated cast iron cap, topped with a cast iron saddle on rollers which could move with the cables. The towers were made by the Starbuck Iron Works in Troy, New York. In 1964 all components of this bridge, including the anchor bars, were in excellent condition.

The Bidwell Suspension Bridge spanned the Feather River at Bidwell Bar approximately ten miles northeast of Oroville. In 1964 the bridge was dismantled because of the construction of the Oroville Dam and Reservoir. The State of California plans to construct the bridge in a historical park somewhere near its original location as part of the recreational facilities of Oroville Reservoir. Components are stored in the Oroville area, and are marked and classified for this reconstruction. Dismantling was done under the guidance of personnel from the State Office of Architecture and Construction, specializing in reconstruction of historical artifacts.

The California State Department of Water Resources is supervising construction of Oroville Dam and Reservoir, key facility of the $2.8 billion State Water Project, which will carry surplus Northern California water southward to areas of need. A new Bidwell Bar Bridge has been built as a part of the project.

This historic structure was named a National Historic Civil Engineering Landmark by the American Society of Civil Engineers in May 1967. Presentation of the bronze plaque will be made when the Bridge is reconstructed.

Bridge and toll house before dismantling.

Anchor assembly of wrought iron bars and pins. Little or no corrosion was noted even though these bars were buried for 110 years.

General appearance of cables throughout the bridge.

Cast iron cable saddle and roller assembly.

Cable covering deterioration near the anchorage. Exposed wires show little evidence of deterioration.