

### “Isn't Rust a Problem?”

Behind me set the last span of the State Street Bridge in Bridgeport, Michigan, being readied for its three block trip to accompany the first span already in place at a restoration staging area nearby. The two-span Pratt truss bridge, built in 1906 by the Joliet Bridge & Iron Company in Joliet, Illinois, will soon begin its restoration process. It was an exciting day for the many who have worked to preserve this historic bridge, and the ever present digital camera recorded its every move through downtown Bridgeport.



“Isn't there a lot of rust on the bridge?” I was being interviewed by a local TV station and the first question from the young lady reporter was about rust! With the camera rolling and a big square microphone inches from my face, rust was the furthest thing from my mind. Eyebars, recessed nuts, perfectly preserved bridge plaques, rivets, a craftsman's record, but not rust. I said something like “rust is not a problem.” “Doesn't it have to be removed?” she asked with a somewhat skeptical look. What, couldn't I see the most obvious defect of the bridge? “Rust is not a problem, gives the bridge a little character,” I replied. The interview never made it to the evening news and probably made a quick trip to the recycle bin. Rust, like the bright yellow flower with jagged leaves that signals the start of spring, needs

to be annihilated quickly with a good dose of the most modern chemicals available. Rust is less of a problem than some historic bridge rehabilitation where much of the original material is destroyed. A rusted bridge doesn't necessarily have to be painted. Historic metal truss bridges have remained unpainted for over a hundred years and once restored could remain unpainted. The Hays Street Bridge in San Antonio, Texas (where I had the opportunity during the summer of 2009 to train Jay-Reese Contractors personnel to rivet), the trusses will remain unpainted. Patrick Sparks of Sparks Engineering, Inc. <[www.sparksengineering.com](http://www.sparksengineering.com)>, the design consultant for the project, said the only members of the bridge to be painted will be the floor beams and they will receive the standard three coat paint system used on highway bridges. Linseed oil will be applied to the trusses with no blasting of the truss members before the application of the linseed oil.



Hays Street Bridge, San Antonio, Texas

One of the main objectives in the restoration of the State Street Bridge is to save as much of the original bridge material as possible. Preserving its original fabric will provide future historians and preservationist with an accurate record of the materials and manufacturing processes used during the time these bridges were built. Replacing historic members without restoring or replication gives a distorted record of the craftsmen who built these historic structures, as few written records exist from the craftsmen who fabricated them. The State Street Bridge is unique among many projects in preserving so much of a valuable historic record.



The first span of the State Street Bridge begins its trip through Bridgeport.



State Street Bridge crosses Bridgeport's main intersection



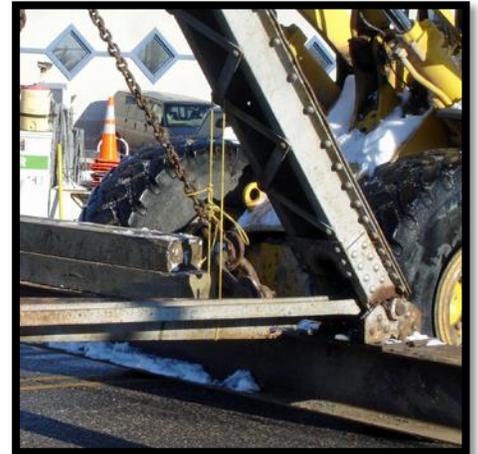
The final turn of the State Street Bridge into the restoration staging area.



Recessed nut and steel upset eyebars



End bearing pad and inclined end post



State Street Bridge being prepared for the move



Bill Boughton, Davis Construction equipment operator



From left to right: Mark Davis, Superintendent; Phil Scaggs, Jobsite Foreman; and Scott Miller, Project Manager.



From left to right, Darcy A. Czarnik Laurin and Tanya M. Moore from Spicer Group, Inc.; Vern Mesler, VJM Metal Craftsman, LLC; Kimberly Zimmer, Michigan Department of Transportation.

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## Mead Avenue Bridge, Meadville Pennsylvania

*“When the New York caisson hit the water it made such a wave that several tugs standing close by were tossed about in a ‘very sportive manner’ and two men in a rowboat, who had come in close for a better view, were immediately swamped and had to be rescued.”* The Great Bridge: The Epic Story of the Building of the Brooklyn Bridge by David McCullough.

The large timber caisson on which the 67,000 ton granite block tower of the Brooklyn Bridge would be built on Manhattan’s East Side, was launched in 1871. During the same year in Meadville, Pennsylvania, a wrought iron two-span Whipple truss bridge was erected across the French Creek. As the slow moving horse drawn wagons were replaced with heavy metal motorized vehicles the bridge began to deteriorate, and in 1912 an ingenious plan was developed to increase the capacity of the bridge without the expense of completely replacing the 1871 bridge. A second truss, a Baltimore design, was added on the exterior of the Whipple. For nearly ninety seven years a bridge within a bridge served as one of the main thoroughfares in Meadville before recently being closed permanently.



On December 21, 2009, at the request of Kitty Henderson, Executive Director for the Historic Bridge Foundation in Austin, Texas, I conducted an inspection of the Mead Avenue Bridge. During my visual inspection of the bridge I found a great deal of structural damage, especially in the cast iron sections of the 1871 Whipple truss. Over the years extensive repairs were made on both the 1871 Whipple truss and the 1912 Baltimore truss, as noted in the EADS Group inspection report (December 28, 2004) prepared for Crawford County Commissioners. These repairs appear to be made over several years, and the level of craftsmanship of the repairs varies from very poor to acceptable.

My recommendation was that one span of the 1871 Whipple bridge along with its attached 1912 span be removed from its abutments and placed at a location for dismantling. The Whipple truss bridge would be dismantled carefully for future restoration, whether or not the 1912 truss was preserved. For more information on the Mead Avenue Bridge check out the website below.

<http://www.historicbridges.org/truss/mead/index.htm>  
<http://meadvillebridge.com/>

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