



*A Short History
of
The Steubenville (Market Street) Bridge*

*By
Mike and Judy Lohr
November 2010*



A Short History of The Steubenville Bridge

Which Steubenville Bridge is *the Steubenville Bridge*, you ask? What local residents now know as the Market Street Bridge, was for many years known as the Steubenville Bridge. It was built in 1905 by the Ohio Steel Erection Company using steel girders and framework fabricated by the Penn Bridge Company, according to records shown on the historicbridges.org website.

The Steubenville Bridge was not the first bridge across the Ohio River near Steubenville, that honor belongs to the railroad bridge situated between the Market Street Bridge and the newest bridge, the Veteran's Memorial Bridge, carrying US 22, and completed in 1990. That railroad bridge was built in 1857 known then as the First Panhandle Bridge, renovated several times and owned by several entities, the most noteworthy being the Pennsylvania Railroad. Historical documents prior to construction of the current Market Street Bridge in 1905, refer to the railroad bridge also as the "Steubenville Bridge", so names get to be tricky. Not to mention that the Ft. Steuben Bridge was also known as the "Steubenville-Weirton Bridge" and at least one reference called it the "Steubenville Bridge".

The Steubenville Bridge Company had been formed in order to get the Steubenville Bridge (Market Street Bridge) built and as the story goes from the Ohio Historic Inventory, Steubenville businessman Dohrman Sinclair had made a deal with the Follansbee brothers of West Virginia

that if Sinclair built the bridge, the Follansbee brothers would build a tin mill opposite on the West Virginia side of the river on farm lands controlled by the Mahan family. Most valley residents know this area as being the former Wheeling-Pittsburgh Steel Coke Works and Koppers Chemicals. Sinclair's streetcars from his Tri-State Traction Company would carry workers across the river to the new mill and all would benefit. The arrangement has served the two towns and the area well for over one hundred years.

According to the West Virginia DOT, the Steubenville Bridge is a steel suspension bridge with a 22 foot wide deck, 3 main spans totaling 1794 feet, the longest span being 700 feet and suspended almost 75 feet above the Ohio River by wire cables from steel towers rising 210 feet above the cut stone piers sunk into the river bottom. The box-like steel truss that surrounds the driving deck is known to students of structural engineering as a quadrangular Warren with verticals. The original steel for the bridge was fabricated by Jones & Laughlin Steel and Bethlehem Steel, both now victims of the decline of the steel industry in America.



The bridge was designed by Pittsburgh consulting engineer E.K. Morse, who provided services to Jones & Laughlin Steel, Carnegie Steel and local governments in and around the Pittsburgh area, and later heading up the Pittsburgh Flood Commission. The original design was to carry light rail and pedestrian traffic. The suspended cable design was proven and made popular in America in large part through the efforts of John A Roebling, a German immigrant known for his advances in the manufacture of spun wire rope and his successful bridge building projects. His designs span many rivers including multiple crossings of the Ohio, Allegheny, Monongahela, Kentucky, Niagara, and his most famous, and last, The Brooklyn Bridge across the East River in New York.

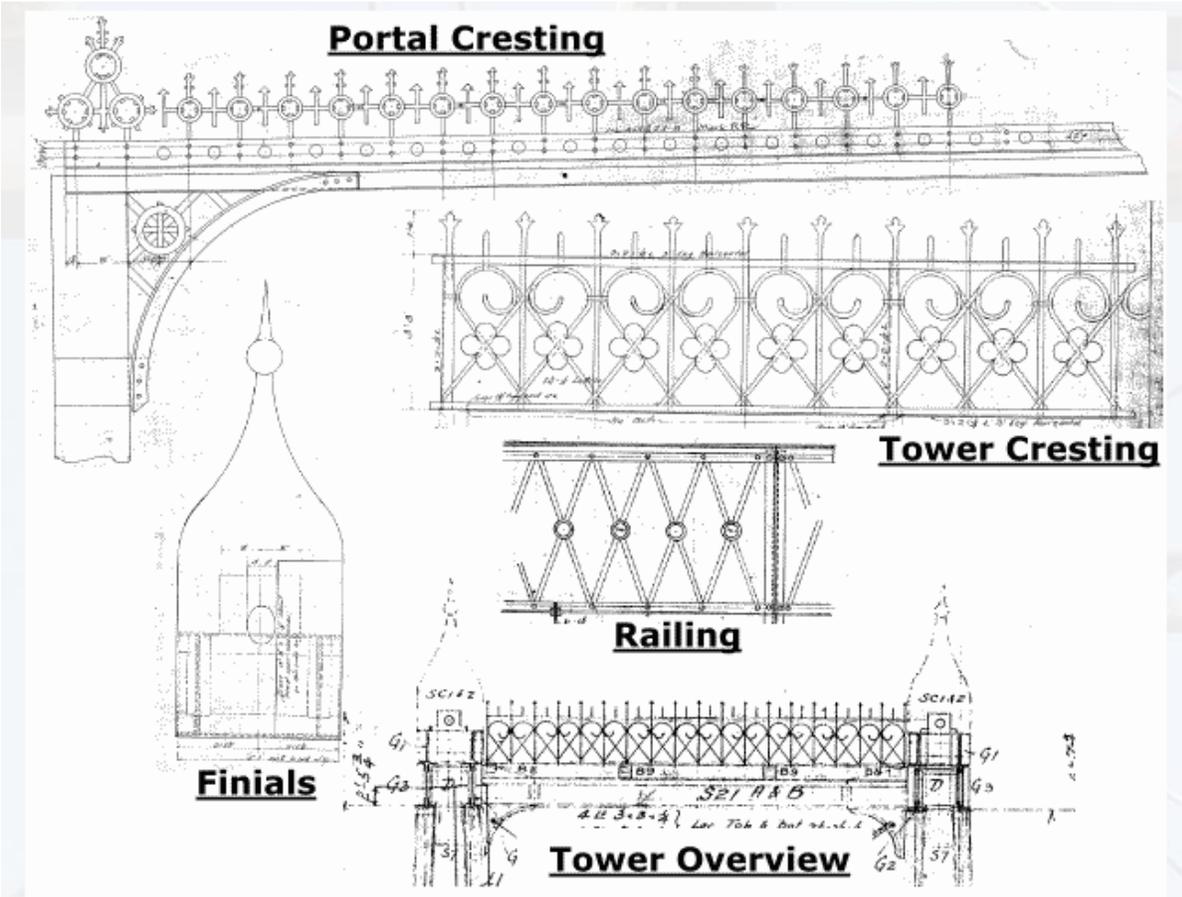
The Steubenville Bridge was an immediate success when completed in 1905, but had a severe cable failure in 1922. Repairs were designed then by Dr. David Steinman, according to Sandy Day in her history of Steubenville. Dr. Steinman went on to do a major rehabilitation of the

Brooklyn Bridge in 1948, then to engineer the famous Mackinac Bridge, opening in November, 1957, connecting upper and lower Michigan and being the 3rd longest suspension bridge in the world. The Mackinac also features the same style of open steel grate bridge deck in addition to having paved driving lanes. The open grating, as in the Market Street bridge, offers the additional safety advantage of being far less susceptible to wind force vibrations and swaying.

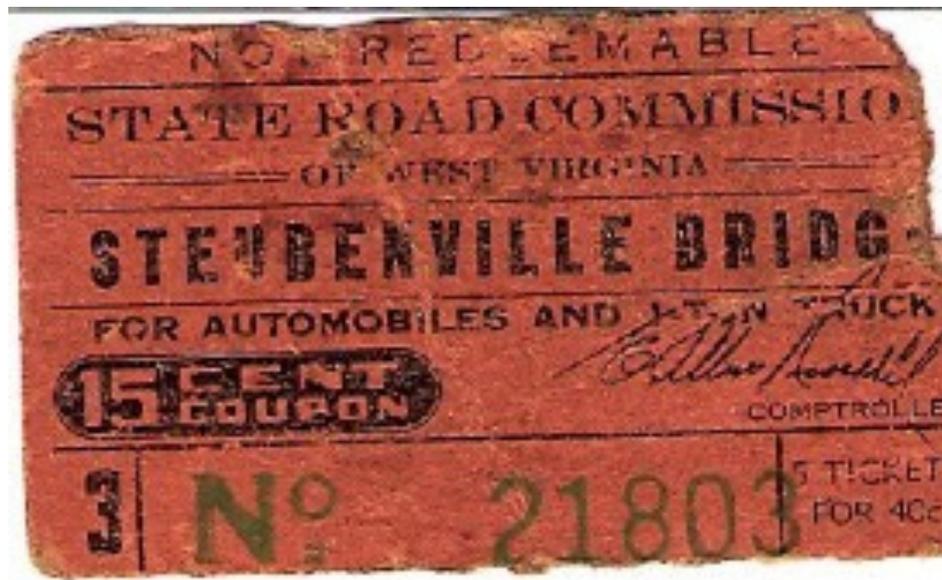
Dr. Steinman had proposed a design for the infamous “Galloping Gertie” bridge (Tacoma Narrows Bridge, Washington). His design was not selected, and he wrote then and predicted a failure which, in fact, occurred and was captured on video. Failure occurred due to wind induced resonating vibrations. So, the Market Street bridge was well re-engineered in the 1920s by one of the most proficient and prolific bridge experts in the world. This work in the 1920s was some of Dr Steinman’s earliest works, but laid the foundation for one of his best known bridge building innovations, the open deck design.

The repairs started in 1922 increased the carrying capacity of the bridge. The bridge was subject to multiple rehabilitation projects over the years and was purchased by the State of West Virginia in 1941, for \$1.3 Million, at which time tower repairs were made and the bridge deck completely replaced and converted for vehicular traffic. The purchase was somewhat ironic in view of the ferocity of opposition from Wheeling and the then Virginia government, who in the mid 1800s strongly opposed construction of the Steubenville and Pittsburgh Railway and associated bridge across the Ohio just upstream. It was felt then that this was a threat to the budding dominance of Wheeling in the commercial transportation of goods going south and west from Baltimore and Pittsburgh.

Quite interesting, and not well known, is that according to plans held by HistoricBridges.org, the original construction for the Steubenville Bridge included tower and portal cresting that was quite ornate. This was removed during one of the many rehabilitation projects over the years. It is not clear exactly when that occurred. The below clip, excerpted from HistoricBridges information shows the cresting from the original plans.



It is also not well known, especially to residents born after 1950, that the Steubenville Bridge was for many years a toll bridge. Below is a scan of one of the original toll tickets, left in a tool box given to the author by Mr. Paul W. Albaugh, father of the author's new wife Judy, in about 1975. The date on which the ticket was purchased is not clear, and perhaps can be tracked with the number shown, but the ticket shows the toll coupon at 15 cents, with 5 tickets purchased for 40 cents. The tolls were initiated after the purchase of the bridge by West Virginia in 1941 to pay for the \$400,000 in repairs done at that time, and were removed, in less time than originally promised, in 1953. Readers with additional information are encouraged to contact the authors.



It is unclear exactly when the Steubenville Bridge started to become called the Market Street Bridge, but in the Electric Railway Journal of Oct 6, 1917, one can find the following citation:

West Penn Railways, Pittsburgh, Pa – It is reported that the West Penn Railways has purchased the Market Street Bridge leading from Steubenville, Ohio, into West Virginia from the Steubenville Bridge Company at \$500,000.

References in the literature are many for both Market Street Bridge and Steubenville Bridge. Current West Virginia DOT information refers exclusively to the Market Street Bridge, even in its historical documentation and most valley residents recognize the name Market Street as the

name of the bridge at the junction of Steubenville's Market Street and the Ohio River. It appears that the names have been used interchangeably over the years.

Current WVDOT planning includes rehabilitation and painting to occur in the 2009-2010 time period. West Virginia sponsored a poll of local residents to select bridge colors for the final painting and the color combination receiving the most votes was a dark blue for the towers and cable, and a dusty yellow for the truss members. The adjacent rendition shows the final selection, courtesy of WVDOT.

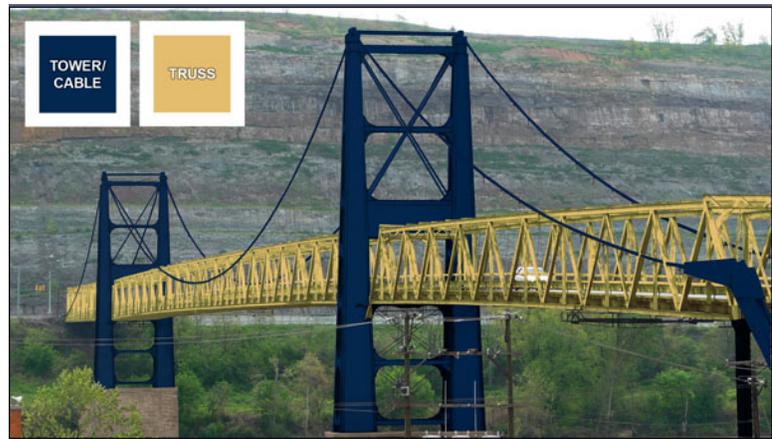


Photo taken from the hilltop on W. Va. side, showing the progress of the 2010 rehabilitation work by West Virginia DOT, taken Aug 28, 2010. Yellow paint on box truss frame visible as is the blue on the main cable. Tarps cover areas being sand blasted. Courtesy of Mrs. Donna Diserio of Follansbee, W. Va.

The bridge remains of high value and importance to local citizens and businesses on both sides of the river, from both historical and practical perspectives. The communities of Follansbee, Wellsburg, and downtown Steubenville all rely heavily on this vital transportation link, even with the advent of the beautiful Veteran's Memorial Bridge, a little more than a mile upstream. Long-term viability of the bridge remains in question and the time extension made possible with the current rehabilitation could be the last. Currently, WVDOT is in the preliminary planning

stages and feasibility studies for a crossing of the Ohio south of Wellsburg, connecting WVA Route 2 with Ohio Route 7.

Whatever lies ahead for the bridge, it will remain forever embedded in local history and in the minds of the many who traveled it throughout the years. The sound of rubber tires on the steel open grid decking unmistakably says “Market Street Bridge” to so many local residents. As well, your first view down through the open bridge deck to the water surface below, when stopped on the bridge, is equally unforgettable. Far fewer are those who have braved the walkway on the south side of the bridge, having experienced the dramatic view of the water during the day and the lights of downtown and the mills just downstream, at night.



Author’s photo taken July 24, 2007, traveling east towards West Virginia just after the hillside terracing project by WVDOT. Walkway railing visible on the right side.

[Google Map View of Steubenville Bridges](http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=115019451221266941132.0004959125dad5a1bc690&t=h&z=14)

<http://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=115019451221266941132.0004959125dad5a1bc690&t=h&z=14>

RESOURCES

West Virginia Department of Transportation (WVDOT)
<http://www.wva.state.wv.us/wvdot/marketstreetbridge/default.aspx>
Referenced July 2010

HistoricBridges.org
<http://www.historicbridges.org/ohio/market/>
Nathan Holt – Author and Webmaster
Referenced July 2010

James Morton Callahan, West Virginia Semi-Centennial Commission
Semi-Centennial History of West Virginia
Digitized by Google Books
<http://books.google.com/books?id=FjYTAAAAAYAAJ&lpg=PA207&ots=PRC7DmJXn0&dq=steubenville%20bridge&pg=PP1#v=onepage&q=steubenville%20bridge&f=false>
Referenced July 2010

University of California Calisphere online digital documents
Weirton-Steubenville Bridge: Redesign and Technical Controversy
Notes from interview with Tung-Yen (T.Y.) Lin, renowned civil engineer and pioneer in use of pre-stressed concrete.
<http://content.cdlib.org/view?docId=kt4w1003s9;NAAN=13030&doc.view=frames&chunk.id=d0e12969&toc.depth=1&toc.id=d0e12620&brand=calisphere>

The Autobiography of Andrew Carnegie
Chapter IX – Bridge Building
Copyright, 1920, by Louise Whitfield Carnegie
GoogleBooks link at
<http://books.google.com/books?id=pygaAAAAAYAAJ&dq=The%20Autobiography%20of%20Andrew%20carnegie&pg=PR3#v=onepage&q&f=false>
Referenced July 2010

John A. Roebling Sons Company
Suspension Bridges – A Century of Progress
Trenton Publishers 1935

Appleton's Cyclopaedia of American Bibliography
1900 Edition
John Augustus Roebling
Wikisource link at

http://en.wikisource.org/wiki/Appletons%27_Cyclopædia_of_American_Biography/Roebling,_John_Augustus

Referenced August 2010

Sandy Day and Alan Craig Hall

Steubenville

Copyright 2005, Published by Arcadia Publishing

Erection of New Steubenville Bridge Introduces New Problems

Trade Journal *Railway Age* , April 2, 1927

Digital Shoebox link at

<http://www.digitalshoebox.org/cdm4/document.php?CISOROOT=/steubenbks&CISOPTR=55493&REC=2>

The Mackinac Bridge Authority

<http://www.mackinacbridge.org/>

Referenced August 2010

American Society of Civil Engineers – Biography

David Barnard Steinman

<http://www.asce.org/PPLContent.aspx?id=2147487323&terms=David+Steinman>

Referenced August 2010

Structurae: International Database of Structures

David Barnard Steinman

<http://en.structurae.de/persons/data/index.cfm?ID=d000035>

<http://en.structurae.de/structures/data/index.cfm?ID=s0009566>

Referenced August 2010

About the authors

Mike and Judy Lohr are longtime Steubenville residents currently residing in Cape Coral, Florida. Both were raised in Steubenville, attending the public schools. Mike graduated Steubenville Big Red in 1971 and Judy in 1972. Mike was employed by Wheeling-Pittsburg Steel Corp and Judy by Coumbia Gas. They return often to visit friends and family still in the area.