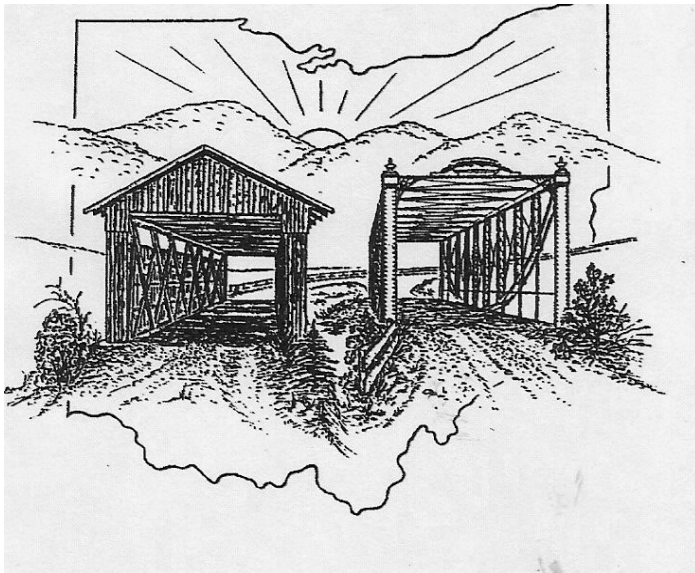


Latest Ohio Historic Bridge News



Bridges and Byways

Journal of the

Ohio Historic Bridge Association
Volume XXXVI
Summer 2022

Meeting Notes:

Sept. 17 Saturday Fall Bridge Tour: Southern Ohio. Details TBA.

NOTE: By popular demand, tours have been changed to Saturday rather than Sunday as in the past.

Nov. 20 Sunday 1:30 Annual Business Meeting
Ohio History Connection, Cardinal Room, 3rd Floor, Ohio History Center, 800 E. 17th Avenue, Columbus, OH (Exit 111 off Rt. I-71).

Ongoing: Union County, Ohio: Covered Bridge Trail Tour. A covered bridge sightseeing and culinary adventure which includes covered bridges and tasting bridge-themed cuisine and cocktails at more than 26 fun stops. Free download of a pass and guide that makes one eligible for prizes at www.visitunioncountyohio.org/covered-bridges

October 9 and 10, 2022. Ashtabula County Covered Bridge Festival

For details see www.coveredbridgefestival.org

October 14-23, 2022. Parke County (Indiana) Covered Bridge Festival For details see www.coveredbridges.com/covered-bridge-festival

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Renewal subscriptions were due by January 15, 2022 for 2022. See page 7 for details. Your mailing label has your subscription date above your name.

The OHBA Web site is now available at www.oldohiobridges.com/new/OHBA

OHBA is a not-for-profit organization incorporated in the State of Ohio and is recognized as a non-profit organization under 501 (c) 3 of the Internal Revenue Code.

The OHBA mailing address is

**Ohio Historic Bridge Association
PO Box 153
Galena, OH 43021-0153**

The President's Span.....Doug Miller



This year's weather fluctuations have made photographing bridges a real challenge. If you aren't totally washed out by snow or rain, then flooding means taking your life in your hands when trying to get into a stream and river bed for that great overall shot.

It seems recently we have had a flood of correspondence on historic structures. Some of these are just updates of previous studies, but others needing our input as a consulting party for the proper term as used by the Historic Preservation Office, Federal Highways and others. This gives us a place at the table for input when it comes to work on these structures. We can make our thoughts be known as to saving structures or suggesting that certain elements of the structure need to be replaced as original or what would be acceptable for historic preservation. For example, a truss in Trumbull

County (Newton Falls Cemetery Pedestrian Bridge over the Mahoning River, a 76' long through Warren truss built by the Ohio Structural Steel Co. of Newton Falls, Ohio, in 1928) is scheduled to be rehabilitated. A study has been performed, in which we received a copy, indicated with the inspection and analysis, the structure is still capable of supporting current pedestrian loading as long as certain members were repaired or replaced and the structure cleaned and painted. One of the items they identified was to drill out and replace deteriorated rivets. For bridge engineers, this is common practice to replace these rivets with new high strength bolts. However, as historic bridge preservationists, my fellow historians and I would prefer they not be replaced with bolts but with new rivets. There are many individuals who can install rivets and are currently performing this task. So, our comment to the owner was to replace the rivets in-kind and we gave them contact information of the specialists. This requirement will now be added to the scope of work for the rehabilitation project.

A recent example of riveting is on the Historic Zenas King Bowstring Truss now in Tawawa Park in Sidney. This structure was added to the National Register of Historic Places through efforts by our organization. Another project, this one in Wood County, will rehab instead of replacing a stone slab top broken back culvert under SR 65 NW of Bowling Green. (Broke back means it is level under the road then follows the slope down to the Maumee River.) This culvert is made completely out of cut stone and built sometime between 1870 and 1920. This structure has also been recommended as eligible for listing in NRHP. There are other projects that are in this newsletter and others will be covered in future newsletters.

Doug Miller, PE
President

Circleville Gets an Iron Bridge

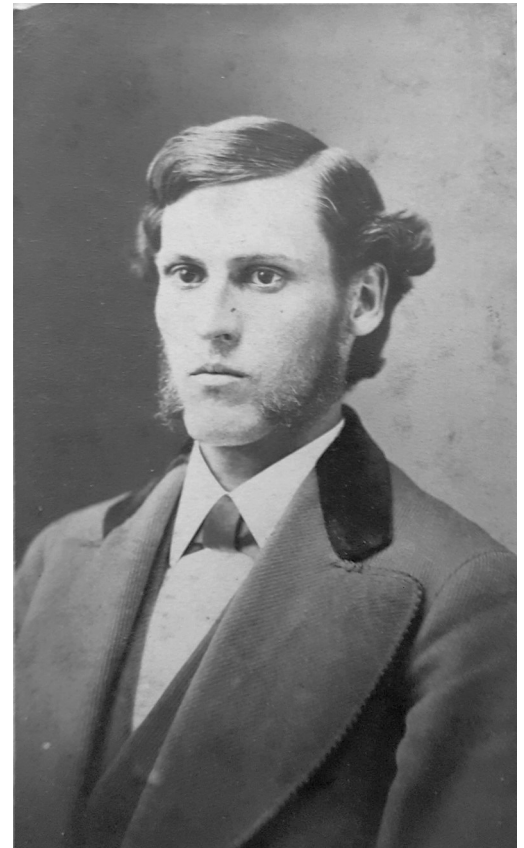
Modern consumers have seemingly endless possibilities when purchasing goods and services, especially when it comes to technology. But what if it's a form of technology that is unfamiliar? Typically, we will turn to a friend or knowledgeable acquaintance to help us navigate this uncomfortable ground. Such was the experience of the three Pickaway County Commissioners when it came to building an iron bridge over the Scioto River at the western edge of Circleville in 1881.

Recall that this was the site of a 540-foot lattice truss covered bridge, originally completed in 1839 (articles appeared in the Winter 2020 and Spring 2021 issues available at oldohio-bridges.com/new). In March 1881, that covered bridge was destroyed in a fire of unknown origin. It left the county in a serious bind without a way of bringing commerce into the county seat from the west side of the river.

A petition was immediately filed for a ferry across the river, but others insisted that would be a "needless expenditure." Further, the county prosecutor insisted it was not legally required. Nonetheless, a 54-by-12-foot ferry was soon fabricated by a Circleville planing mill and, operated by means of a rope and a single ferryman, placed in service near the site of the wooden bridge. It was reportedly able to handle a pair of large farm wagons at a time. Soon single day ferry counts totaled in the hundreds of buggies, wagons and horsemen. It also proved fortuitous when another fire broke out in a farm stable just west of the river, since it allowed city fire fighters to respond quickly.

The county had two different insurance policies on the lost bridge totaling \$15,000, but access to that money would require going through adjusters. In the meantime, the commissioners asked the General Assembly to authorize the county to shorten the bid process for a replacement bridge. With the fire fresh in the commissioners' minds, there was little question that they wanted the new bridge to be iron, but what kind would it be? To help clarify "the appearance, strength, and workmanship" needed in the new bridge, the commissioners proposed a junket to Chillicothe, just downstream in Ross County, where a new iron bridge had recently been erected over the Scioto by the Wrought Iron Bridge Company of Canton, Ohio.

Two days later, less than a week after the fire, W. (William) C. Row, the county surveyor, prepared specifications for a new "wrought iron bridge." We know that W. C. Row "studied engineering," but don't know if he was self-taught or university-trained. We do know that his specifications required mathematical methods of calculating the capacity of the bridge's tension members, as well as their compression members—known as Gordon's Formula—found in the widely read writings in America by the Scottish engineer W. J. M. Rankine, first published during the 1860s.

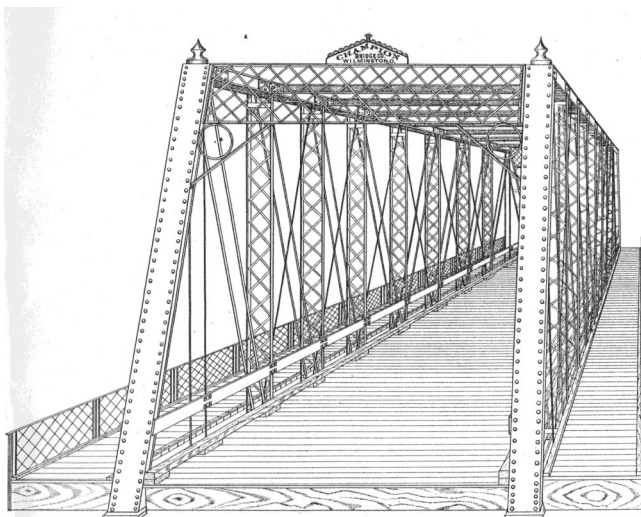


William C. Row was only 27 when he first began working for Pickaway County in 1876. He served as county surveyor for a decade beginning in 1877.
Courtesy of Marilyn Fountain

Row served as Pickaway County Surveyor from 1878 to 1887, and again from 1916 until his death in 1922 when he stepped in front of a “machine” while crossing a street. Local government seemed to have been in Row’s blood, for he also had time at the turn of the century to serve two terms as mayor of Circleville and was also functioning as city engineer at the time of his death.

Bids for the replacement bridge were due in early April—a mere two weeks. The specifications emphasized that “Contractors will find this a work of considerable importance.”

It may have been the expectation of reaping insurance money or perhaps the obvious determination of the commissioners, but the request for proposals aroused the interest of ten different iron bridge builders, eight from Ohio and two from out-of-state. The minds of the commissioners—a harness maker, farmer, and miller—along with the auditor were clearly boggled by the competing proposals offered by the various company agents. Once again, a trip to the various bridge works and examples of their bridges was needed to help clarify things in their minds. Accordingly, County Surveyor Row joined the other four officials on a circuit from Dayton, Toledo, Napoleon, Fremont, Cleveland, Massillon, Canton, Mt. Vernon, to Columbus, visiting company facilities and multi-span river bridges similar in scale to what they intended to build.



CHAMPION BRIDGE COMPANY, WILMINGTON, OHIO.

Champion Ad
Champion Bridge Company’s proposal to use lattice-type verticals was opposed by some Pickaway County officials in 1881.
Courtesy David A. Simmons

A week later, county officials reconvened in a marathon session that dragged on into the evening. Aesthetic concerns initially came to the fore. Commissioner Hezekiah J. Crownover, who had been elected the previous year “by the largest majority ever received by any person” in the county, pointed out that because the pier placement required unequal span lengths, three of the firms had proposed trusses of varying height. He proposed eliminating them and keeping only those which showed a common height. Varying truss heights would have helped reduce material costs and result in more competitive bids, but it led to the dismissal of bids from Dayton’s Columbia Bridge Works, the Massillon Bridge Company, and Corrugated Metal Company of East Berlin, Connecticut, that specialized in lenticular trusses. Then Commissioner John Pickering noted that King Bridge and Champion Bridge both intended to use lattice-type verticals instead of solid

and suggested they also be thrown out. Row, who undoubtedly knew both designs were equally strong, declined to support that motion, but it still passed. That left a comparison of bids from The Wrought Iron Bridge Company of Canton, Mt. Vernon Bridge Company, Toledo’s Smith Bridge Company, and the Penn Bridge Works of Beaver Falls, Pennsylvania. In the end, the three commissioners, Crownover, Pickering, and Daniel Ludwig, chose the proposal of The Wrought Iron Bridge Company, the same firm whose work they had seen in neighboring Franklin and Ross counties. A reporter for the *Democrat & Watchman* insisted that the commissioners had made a wise choice in contracting with the “largest and best” bridge builder in Ohio. Ultimately, as is common when considering new forms of technology, familiarity played a key role.



The bridge served as Circleville’s western “gateway to the city” for more than seven decades. A state inspection report in 1953 noted the main deficiency was the 20-foot roadway, not its strength, vertical clearance or overall condition. So in 1957, the state replaced it with a new concrete bridge. It was, in turn, replaced by the present bridge in 1970 and then widened in 2003. Today, all that remains of the wooden/iron predecessors is a stone abutment on the western shore of the river.

In 1881, The Wrought Iron Bridge Company erected a four-span, double-intersection Pratt truss with a single five-foot sidewalk that stretched over 600 feet across the Scioto River at Circleville. They later featured it in company catalogs.
Courtesy Ohio History Connection

Bridge News.....Doug Miller, David Simmons, and Elma Lee Moore

March Meeting.....Elma Lee Moore

We had two presentations at our March meeting. The first was about the Knowlton Covered Bridge OH/35-56-18, by Mick Schumacher, Monroe County Commissioner who updated us about the bridge. The county is still in the process of raising funds to restore the bridge. Oak timber has been identified to use for the restoration and a certified Amish bridge builder has been contacted. Mick described the collapsing of the bridge as “an emotional roller-coaster.” When the first section of the bridge collapsed in 2019, the debris was all washed away in rains of the next day, When the south section fell the next year, there was so much debris that it could not be removed so most of the debris in the river below was burned. However, some remnants were saved and made into four benches which were auctioned off for \$2,100. Schumacher also talked about the restoration of The Monroe Theatre in Woodfield. Although Monroe County has a population of only 14,000, there is civic pride and nostalgia about both the bridge and the movie theatre.

As an added bonus, both Commissioner Schumacher and our member Ron Mattox, brought in the same relic from the bridge which spawned extensive discussion. (See photo on back cover.) The relics were unique “hangers” which have not been documented for use in any other bridges. There were 50 of these hangers on the bridge which supported the transverse floor beams.

Photo: David Simmons Collection



Bridge News.....Doug Miller, David Simmons, and Elma Lee Moore

Our second speaker Bill Vermes made an excellent presentation about the Beatty Park Stone Arch Bridge in Steubenville (Jefferson County). The bridge is located in the Beatty Park which was originally a nature preserve founded in 1797. The bridge was built in 1884. The bridge is included on the National Register as a contributing structure in the Beatty Park historic district. The park was allowed to deteriorate considerably over the years but a group called Friends of Beatty Park under the direction of Flora VerStraten-Merrin has been instrumental in making many improvements through volunteers in the community.



A portion of the bridge collapsed three years ago and the bridge was closed to traffic. The closing blocked entrance to a parking lot and the usage of a shelter. In 1984, on the west spandrel, a corner of the bridge washed out. This section was put back together and is holding well. The east section though is showing movement. The bridge has deteriorated because of increased building and construction outside the park which has diverted more water into the stream that flows under the bridge. What was once a peaceful meandering stream is now a rushing river which is causing damage to the bridge because of debris and washing out around the supports.

A previous feasibility study, done by a firm that had done work for the city in the past, outlined several options — removing and reconstructing the bridge, a labor-intensive option the firm didn't even price out; installing a steel plate arch liner inside the existing arch, costing an estimated \$290,000 with a 20-year life expectancy; placing a prefabricated superstructure behind the existing structures, costing an estimated \$450,000 with a 50-year life expectancy; or replacing the existing arch with a precast concrete arch, costing an estimated \$310,000 with a 70-year life expectancy. Precast concrete contractors attempt to imitate stone with form liners and they can add color and texture, but they are poor substitutes. Vermes, however, indicated that there has been a more current proposal for \$200,000 for placing an arch above the current one on the upstream side.

A recent update in the July 28 Herald Star indicates that the Steubenville City Council is considering several options and is looking at grants to fund the project, including one that helps with stream restoration, which is playing a major role in the bridge's deterioration. It is possible that American Rescue Plan funds can be used. City Engineer Mike Dolak told council he plans to recommend they hire Burgess & Niple to provide professional engineering services for Phase I, which consists of a structure type study and related tasks. The firm's projected lump sum cost was \$76,748, but that was before council decided to eliminate the most costly of the option — removing and reconstructing the original bridge, stone-by-stone. The proposal calls for a site visit, field survey control and topographic study, high-definition, 3D laser scan and processing, as well as survey base mapping. Included would be an environmental review and comparisons of the options — replacing the existing bridge with a pre-cast arch-top culvert more or less with 20th century materials which could be stamped sandstone in color, and take some of the existing features on the bridge and transpose (them) on the new bridge, or rehabilitating the existing stone arch bridge.

(Photos: Flora VerStraten-Merrin on Facebook)

OHBA Officers & Membership Information

President: Douglas D. Miller, 7228 Pineview Dr., Englewood, OH 45322-2600 937-657-6356
(cell) dmiller94@woh.rr.com

1st VP: Edmund Chapdelaine, 217 E. Main Street, West Lafayette, 43845.
740-545-6696 suechapdelaine@gmail.com

2nd VP: David Simmons, Ohio Historic Bridge Association, PO Box 153, Galena, OH 43021-0153 740-965-4023 (home) everetsherman1877@gmail.com

3rd VP: Elma Lee Moore, 4489 Choctaw Trail, Jamestown, OH 45335 937-675-9115 (home)
elmphd@aol.com

Treasurer: Joseph W. Charles, Jr., 726 Newark-Granville Rd., Granville, OH 43023-1451, 740-587-2266, jcd43023@gmail.com

Corres. Sec'y and Historian: C/O David Simmons at address above.

Rec. Sec'y: Janis Ford, 1489 Denbigh Dr., Columbus, OH 43220-2632, jford3@columbus.rr.com

Trustees: Ken & Linda Cash, 1657 Spruce St., Zanesville, OH 43701, 740-453-3840

Editor of Bridges & Byways: Elma Lee Moore, 4489 Choctaw Trail, Jamestown, OH 45335
937-675-9115 elmphd@aol.com

Web Master: Pat Hoffmannbeck, 2457 Willis Rd., Dublin, Oh 43016,
614-579-3823 phoffmannb@gmail.com

DUES: Senior (age 55 and over) \$8; Student \$8; Single \$10; Family \$15; Contributing \$25; Supporting \$40; Life \$250. Annual dues include subscription to Bridges & Byways, quarterly journal of the OHBA. Dues period is the calendar year. Dues paid after October 1st cover the succeeding year. Renewal dues to be paid by 1/15.

Please fill out the membership application form below and send it with your check made out to the OHBA to **Mr. Joseph Charles at 726 Newark-Granville Rd., Granville, OH 43023-1451.**
Be sure to include your 9 digit zip code.

I wish to join/renew (circle) membership with the OHBA.

My name is _____

My mailing address is _____

City _____ State _____ Zip Code(9 digit) _____

My email address is _____

My phone number is _____

Enclosed is my check made out to the OHBA in the amount of _____ for a _____ year senior/single/family/contributing/supporting/life/student (circle) membership.

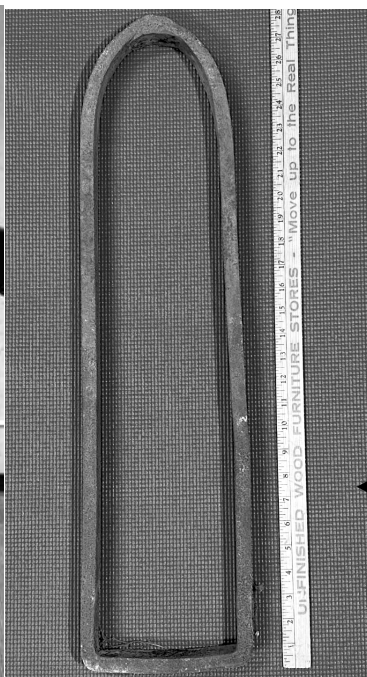
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Photo: Jane Porter Gresham



What is David Simmons Holding?

See pages 4 and 5 for
interesting details about
its use on a covered
bridge.

← *Photo: Ron Mattox*