



Historic Bridge Foundation Facebook Archives

Did You Know... In the past, metal truss bridges were reconfigured and reused in some bizarre ways?

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The relocation and reuse of historic metal highway and railroad truss bridges for preservation and use on non-motorized facilities on trails and in parks is something that many preservationists are familiar with today. However, the relocation and reuse of metal truss bridges, due largely to their unique ability to be disassembled and reassembled with relative ease, has been present throughout the history of the metal truss bridge. In the past, relocation and reuse was done not in the name of preservation, but instead for utilitarian and cost-saving reasons.

Doniphan County, Kansas, is home to several unusual reuses of metal truss bridges: reuses that go beyond simply relocating a bridge without alteration. Evidence in the field alone is enough to demonstrate that these bridges have been reused. All of the alterations/relocations described below occurred long ago, so rivets were still in use, and were used to execute alterations.

The bridge carrying Larkinburg Road Cottonwood Creek is a relocated truss bridge with an unusual, but relatively minor alteration: the bridge was shortened to some extent, presumably to fit the different dimensions of its new crossing. The bridge is an otherwise traditionally composed example of a pin-connected Pratt through truss. One hint that this bridge might not be in its original location is its abutments. The concrete design looks perhaps a bit out of place with a pin-connected truss bridge, and the abutments also have an unusual sloped design. There is a possibility that they encase stone abutments from a previous bridge, although this is pure speculation. Stronger evidence of the truss being shortened is found in the center panel which is far shorter than the other truss panels. Panels are normally all approximately the same length on a truss, and having a panel as short as this bridge's center panel is unheard of. Closer inspection of this panel offers more detailed evidence. The lower chord eyebar shows evidence of being shortened. A riveted splice in the center of each bar shows that what was originally a single bar was cut and riveted back together. A similar riveted splice appears at the center of the upper chord at the same location. The overhead lateral bracing was simply removed for this panel. The diagonal members do not show obvious alteration, however being center panel "counters" they have turnbuckles, and so the rod might have been simply cut shorter and re-threaded.

The Randolph Road Bridge over Duncan Creek is a very unusual bridge. The bridge is a Parker through truss, albeit with only four slopes and with a span length of only 86 feet: very short for a through truss. The unusually massive members, particularly the hip verticals, of this bridge are very much like those seen on railroad truss bridges. The short length, unusual four slope Parker truss design, and presence of many empty rivet holes and other alterations are strong evidence that this is not merely a relocated truss bridge, but more likely a bridge built from scratch using parts salvaged from one or more railroad truss spans. Several items stand out as noteworthy. The struts (sway bracing) of the bridge have large holes at the end where lateral bracing might be expected to have been placed, yet instead the lateral bracing on this bridge is tied right into the main upper chord connection pins. The ends of the upper chord appear to be flame cut to match the end post slope. Nearly all bridge members have varying quantities of empty rivet holes on them, and these holes are in locations that serve no purpose on the bridge seen today. There are various areas where steel has been flame cut to allow the members to fit together, or in some areas to perhaps shorten the dimension of the reused member. There are vertical members that end prematurely and have extensions riveted onto them at the top. Lastly, on one of the end posts, a section of angle has empty rivet holes. However, with one hole, someone must have grown weary of trying to drive the rivet out: a rivet that is only partially driven out remains in place.

Lastly, there is a bridge that was located on Monument Road and, much like the Randolph Road Bridge, also appears to have been reused from a variety of truss bridge parts. The bridge features a very unusual truss design that resembles a Waddell A-Frame truss. Unlike the Randolph Road Bridge however, the Monument Road Bridge's parts may have come from a highway truss, as they are not as massive. The Monument Road Bridge has end posts, vertical members, and diagonal members that all have numerous empty rivet holes and serve no purpose on the bridge. The members with these holes are rolled channels and the numerous rivet holes suggest these channels may have previously been part of a built-up beam, such as back-to-back channels with lacing bars or battens. Even the gusset plates have some empty rivet holes, including some partial holes right on the edges of the plates. The plates are flame cut (cutting torch), further evidence that they are reused. At least some of the bridge parts may have come from a pin-connected truss bridge: A large pin hole is visible at the base of one of the current bridge's end posts.

This bridge has more recently been relocated to nearby Troy in the community park. Here, the trusses were used as non-functional decorations on a small load-bearing stringer structure. The outriggers that were on the trusses were removed, and an angle was added between the topmost connection turning what was originally a pony truss into a very small through truss.



larkinburg_1600_1_2f - Larkinburg Road Bridge with the narrow center panel clearly visible.



larkinburg_1741 – Larkinburg Road Bridge: Upper chord at center panel showing riveted splice.



larkinburg_1732 - Larkinburg Road Bridge: Lower chord at center panel showing riveted splice.



larkinburg_1645 - Larkinburg Road Bridge: Lower chord at center panel showing riveted splice.



larkinburg_1603 - Larkinburg Road Bridge: Concrete abutment.



monumentroad_1564 – Monument Road Bridge: Upper chord connection gusset plate with numerous empty rivet holes, including some right on the edge. Also note the torch-cut edge of the plate, and the unequal length of the horizontal portion of the plate to the left and right of the vertical member.



monumentroad_1561 – Monument Road Bridge: Lower chord connection gusset plate with numerous empty rivet holes, including some right on the edge.



monumentroad_1507 – Monument Road Bridge: View showing the bridge in its current location. Note the load-bearing stringers under the trusses.



monumentroad_1480 – Monument Road Bridge: View showing the bottom of the end post. Note the large unused hole, which undoubtedly was the pin plate for the connection of the previous bridge.



p1810412 – A typical built-up beam (vertical member) from a pin-connected truss bridge. Note the two channels. The channel members of the Monument Road Bridge might have been salvaged from a similar member.



randolphroad_1438_39_40d – Randolph Road Bridge: Note the large, heavy members.



randolphroad_1429 – Randolph Road Bridge: End post detail showing empty rivet holes as well as one unused rivet hole where the rivet was not fully removed and remains partially sticking out.



randolphroad_1384 – Randolph Road Bridge: Sway bracing. Note the torch cut angle located top and back in this photo.



randolphroad_1381 – Randolph Road Bridge: Sway bracing connection to upper chord. Note the large unused holes, likely for a different style of lateral bracing connection for the previous bridge. On this bridge today, lateral bracing can be seen in this photo tied into the main connection pin.



randolphroad_1372 – Randolph Road Bridge: Vertical member. Note numerous empty rivet holes. Also note at the top there is a riveted extension of the original vertical member.



randolphroad_1318 – Randolph Road Bridge: Detail at the end of the upper chord which appears to be torch cut to match the slope of the inclined end post, which in turn was covered up with a flame cut plate. In the foreground of this photo to the right the portal knee brace can be seen as well, with numerous empty rivet holes.