Covered Wooden Bridges

History of the wooden truss
Burr Arch-Truss
Town Lattice Truss
Long Truss
Howe Truss
Restoration and rehabilitation
European Truss Bridges
(1570 - 1756)
Early American Bridges
Cayuga Bridge.
Permanent Bridge (1806)
Timothy Palmer
"The Colossus (1812)
Lewis Wernwag
Theodore Burr and the Burr Arch-Truss
Fig. 4.—Highway Bridge, across Hudson River, between Waterford and Lansingburg, N. Y. Built by Taconic Buse, 1894.

Cross Section.
Fig. 5.—Trenton Bridge. Built by Theodore Burr, 1864-66.

Fig. 6.—Trenton Bridge; Cross Section.
Fig. 7.—Mohawk Bridge at Schenectady, N. Y. Built by Theodore Burr, 1808.
Burr Arch Truss (1817 Patent)
Theodore Burr
Ithiel Town and Town Lattice Truss
CONTOOCOOK BRIDGE
Spanning Contoocook River
Contoocook, New Hampshire

Double-Web Town Lattice Truss - 1889

In 1889, the Contoocook Railroad was chartered to build a bridge from Contoocook to Damariscotta Mills, Maine. This bridge was the first span of the Contoocook River on a 350-foot-truss covered bridge. In 1889, the Boston & Maine Railroad took over the line, and in 1899, the bridge was replaced with the present-day double-truss Town lattice truss covered bridge. At the turn of the century, there were an estimated one hundred Town lattice truss covered bridges on Boston & Maine lines, mainly due to the work of bridge engineer Jonathan Parker Silver (1835-1903), and several of these bridges are still in use today.

Due to its heavy construction, the Contoocook Railroad Bridge was constructed of wrought iron. In 1889 and 1899, and continued to carry rail traffic until 1945. It was subsequently used as a warehouse until 1990 when ownership was transferred to the New Hampshire Division of Historical Resources. The Contoocook Railroad Bridge is one of eight surviving covered wood-reinforced bridges in the United States and an excellent example of the work of prominent bridge engineer Jonathan Parker Silver.

Published in the National Register of Historic Places (NRHP), the Contoocook Railroad Bridge is a part of the Historic American Engineering Record (HAER), a long-range project to document nationally significant engineering and industrial works in the United States. HAER is run by the National Park Service, U.S. Department of the Interior. The National Park Service arranged the project. The University of Vermont (Prof. Jon Houser, Elizabeth, Historic Preservation) and Prof. Jean-David Belanger, Director of the National Park Service, supervised the project. The University of Vermont (Prof. Jon Houser, Elizabeth, Historic Preservation) and Prof. Jean-David Belanger, Director of the National Park Service, supervised the project.

The preliminary drawings, historical reports, engineering reports, and photography were completed under the direction of Christopher S. New, Project Director. Romantic images for this project were taken by Sarah Hallock. The Boulder Mill was completed by Paul Gildea, photo editor at Contoocook. The preliminary drawings were created by Fred W. White, design engineer at Contoocook. Engineering reports were prepared by Frederick H. K. Kunkel, consulting engineer, and photography was taken by J. L. Spry (Boston, Mass.), and Meg N. Nusbaum, consulting engineer, and photography was taken by J. L. Spry (Boston, Mass.). The project was completed by Paul Gildea, photo editor at Contoocook.
Stephen H. Long and the Long Truss
William Howe and the Howe Truss
Future of Covered Wooden Bridges
Around 1795, Stephen Taft built a saw and grist mill factory near this site on the Ottauquechee River, and a small industrial hamlet, later known as Taftsville, grew up around it. The date of the first bridge at this location is not known, but there are records of at least three bridges existing here prior to 1836, when Solomon Enozzo III built this structure at a cost of $1,200. The bridge underwent major flood repairs in 1865, laminated arches were added at an unknown date and road plates installed as wage labor in 1952, but the town withers appear to be mostly original.

The Taftsville Bridge represents the early craftsmanship tradition of wood truss bridge construction and may be described as an elaborate multiple kingpost truss with a laminated wooden arch. More American builders favored simpler framing styles, but the Taftsville Bridge appears to show the influence of Swiss precedents. Since the basic multiple-kingpost truss, the bridge has a series of roughly-squared arch braces, which form an intricate structural system. Solomon Enozzo may have designed his own bridge or on his own, but it is possible that he was influenced by Swiss plans he had seen in contemporary literature. The Taftsville Bridge still carries vehicular traffic and is a rare surviving example of the early craftsmanship tradition of wood truss bridges.

Phase III of the National Covered Bridges Recording Project was undertaken during the summer of 2003 by the Historic American Engineering Record (HAER). A long-range program to document historically significant engineering and industrial records in the United States. HAER is a joint project of the American Historical Commission of Field Surveys, National Park Service, U.S. Department of the Interior. The Federal Highway Administration undertook the project. The University of Vermont (Prof. Tom Vissers, Director, Historic Preservation and Prof. John V. Belviso, Chairman of Civil & Environmental Engineering) hosted the field team. Woodworking experts from the Taftsville Historical Society, and Prof. William Wilson (Professor of the Taftsville Cooperative Society), Lisa Wilson and Prof. William Wilson (Director of the Taftsville Cooperative Society) provided assistance.

The measured drawings, historical reports, engineering reports, and photographs were prepared under the direction of Christopher H. Nolle, and the work of Christopher H. Nolle, Nollie Hernandez, and Richard O'Connell, Senior Historians. The team included archaeologists from the State Historical Commission (ECONOM), historians (ECONOM, Germany), architects (ECONOM, Italy), historians (ECONOM, Italy), and historians (ECONOM, Italy). Engineering analyses were produced by ECONOM, Italy, working with Prof. John O'Connell, and Prof. John Oliver (ECONOM, Italy). Large format photography was produced by Jim Tinsley, HAER Photographer. Joseph Cornell wrote the HAER historical report.