

The Engineering of COVERED BRIDGES

As early as 783 B.C., Babylonian records report covered bridges being used to cross the Euphrates River. In more “modern” times, an Italian named Palladios first used the Kingpost truss, the core support element of wooden bridges, in 1570. However, it did not gain popularity in Europe because of the beauty, durability, and strength of stone bridges.

Nearly 200 years later, the Kingpost truss was rediscovered as the need for bridges in the New World grew. The population of the northeastern United States expanded beyond its early tidewater region where streams, rivers, and bays served as major transportation routes. As people moved inland, agriculture and water-powered industrialization brought a need for overland transportation, and bridges were built by the score to ford the waterways.

Wooden structures were preferred for these early U.S. bridges for several reasons. The freeze-thaw cycle of the harsh Northeastern climate could overturn stone pavings, which were also more expensive to install in comparison to the bridges constructed of the readily available supply of lumber of the Northeast forest country. The exposed superstructures of these wooden bridges were vulnerable to rot, however, so covering and roofing them became a practical way to protect them from weather so they would last longer.

The Commonwealth of Pennsylvania became a leader in the construction of covered bridges and a resourceful state government gave high priority to private and public bridge building. At one time, Pennsylvania had 1,500 covered bridges. Experienced bridge builders were in great demand to build the heavy-duty bridges that were needed throughout the Susquehanna River Valley.

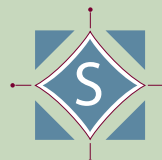
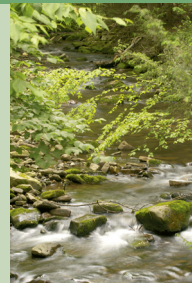
There is no doubt that covered bridges played a key role in the economic development of the United States during its early history. We can look with pride at these wooden monuments that have weathered time and the elements. They have become part of the rich heritage that is still alive today in Central Pennsylvania thanks to the efforts of concerned citizens and local government leaders who continue to make preserving our covered bridges a priority.



Susquehanna River Valley Visitors Bureau
81 Hafer Road, Lewisburg, PA 17837

Toll-Free: 800-525-7320 • Phone: 570-524-7234
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For more information about overnight accommodations, things to do, places to see, and much more, please stop by our Visitor Info Center, call us, or visit us on the web.



SUSQUEHANNA RIVER VALLEY

every turn a treasure

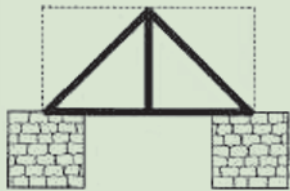
COVERED BRIDGES *of the Susquehanna River Valley*



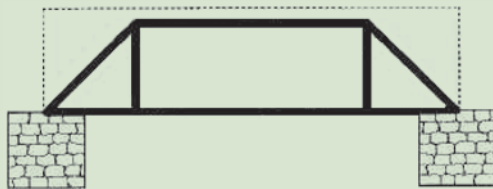
Bridges

TRUSS DESIGNS

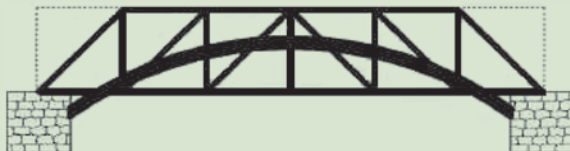
*Used in Covered Bridges of
the Susquehanna River Valley*



THE KINGPOST TRUSS



THE QUEENPOST TRUSS



THE BURR TRUSS

A Word About Truss Types

The true truss system consists of massive timbers assembled in a triangle – the only two-dimensional figure that cannot be distorted under stress. Each bridge consists of two truss systems, one on each side of the structure.

The Kingpost Truss is the oldest truss design used in bridge construction, initially used under the roadway rather than above. It consists of a stringer, a Kingpost (vertical beam), and two diagonals and is used primarily for short spans of approximately 20 to 30 feet.

The Queenpost Truss system followed the Kingpost in design chronology. It was also used to span long distances, frequently up to 75 feet. The Queenpost truss is really an expansion of the Kingpost design because of an additional rectangular panel in the center, which is placed between the two triangles that originally faced the center vertical Kingpost timber. The upper horizontal member of that rectangle, however, had to be placed below the horizontal upper chord of the exterior side framework. Frequently, additional diagonal timbers were placed between the corners of the central rectangle.

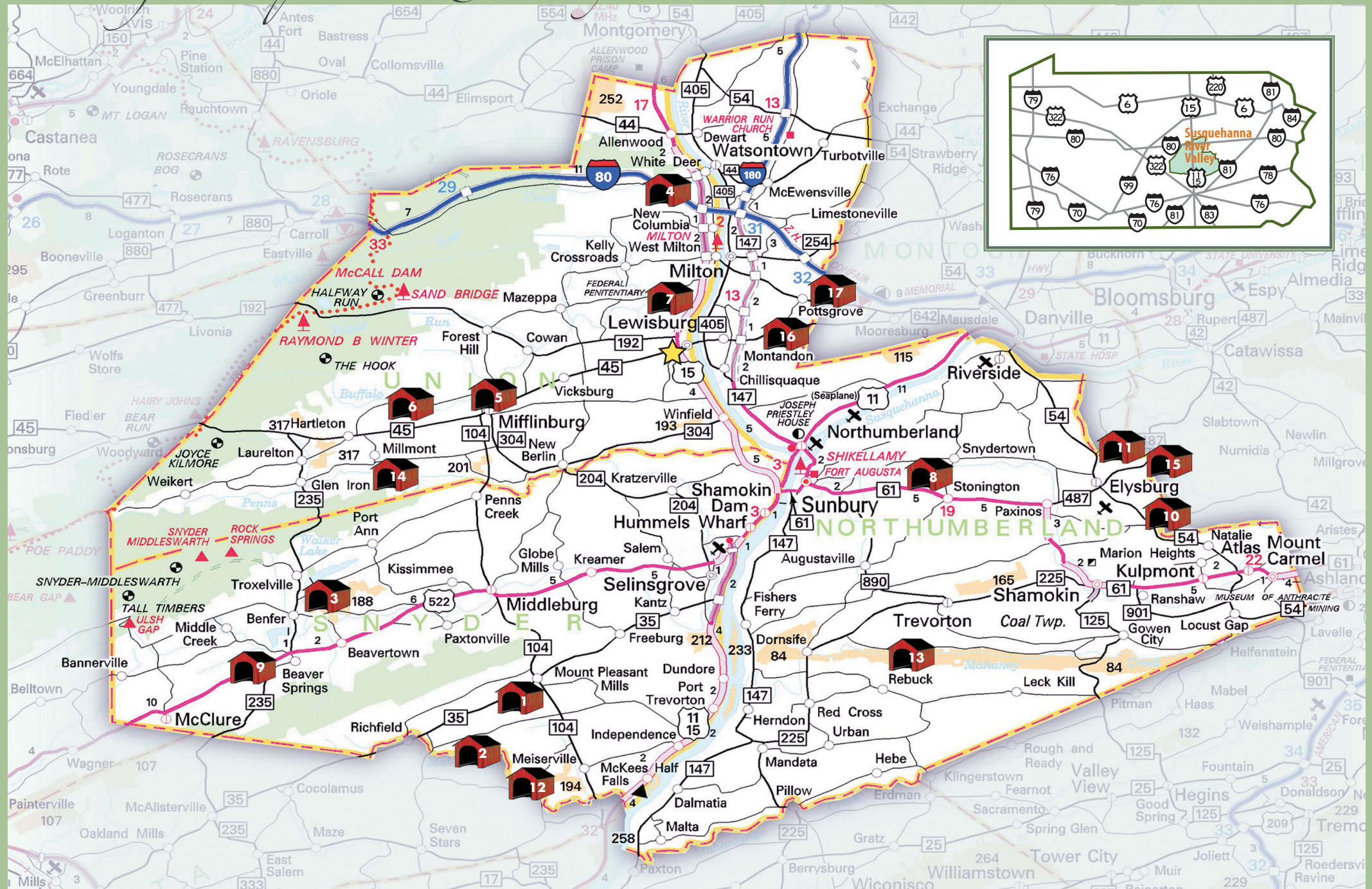
The Burr Truss is named for one of the earliest and most prominent bridge builders in our country-Theodore Burr from Connecticut. His career began in New York where he built a bridge spanning the Hudson River in 1804. The Burr Truss design soon became one of the more frequently used systems in bridge building. The Burr Arch Truss, as the design became known, used two long arches, resting on the abutments on either end, which typically sandwiched a multiple Kingpost structure. There are more bridges in Pennsylvania using the Burr Truss design than all other truss designs combined.

Truss information above comes from the book "Pennsylvania's Covered Bridges, A Complete Guide" by Benjamin D. Evans and June R. Evans.



*We shall not cease from exploration, And the end of all our exploring,
Will be to arrive where we started, And know the place for the first time.*
- T.S. Eliot (1888-1965)

Central Pennsylvania's COVERED BRIDGES *of the Susquehanna River Valley*



Restrictive load limitations do not permit covered bridges on today's major highway systems. They are most often found on little-used rural roads where they can best be preserved for their historic value. The roads selected for this tour were not chosen for travel quality or comfort, but rather for accessibility. Some are dirt or gravel, some macadam, some concrete, but all lead through a distinctive Pennsylvania pastoral beauty you will long remember.

1 ALINE/MEISERVILLE BRIDGE

GPS: 40° 40' 59" N 76° 58' 72" W

BASE POINT: **Mt. Pleasant Mills** - From the junction of Rts. 104 and 35, travel south on Rt. 104 for 4 miles.

This 60' burr truss bridge, built in 1884, crosses the north branch of the Mahantango Creek in Snyder County.

2 CURRY'S CORNER/ NORTH ORIENTAL BRIDGE

GPS: 40° 39' 71" N 77° 00' 67" W

BASE POINT: **Meiser's Mill/Sheaffer Covered Bridge** - Travel south 0.4 miles to the village of Oriental. At stop sign, turn right onto SR 2023 and proceed 1.9 miles.

This 69' king truss bridge crosses Mahantango Creek between Snyder and Juniata counties.

3 DREESE BRIDGE

GPS: 40° 46' 53" N 77° 08' 70" W

BASE POINT: **Beavertown** - Travel east on Rt. 522 for 2.2 miles. Turn left (north) onto Covered Bridge Road (TR 600) and proceed 0.9 mile.

This 103' burr truss bridge, built in 1870, crosses Middle Creek in Snyder County.

4 FACTORY/HORSHAM BRIDGE

GPS: 41° 04' 30" N 76° 54' 13" W

BASE POINT: **White Deer** - Travel west on White Deer Pike (SR 1010) for 1.6 miles. Turn left (south) onto Gray Hill Road and proceed 0.2 mile.

Built in 1880 at 63', this bridge has a modern king and queen truss structure.

5 HASSENPLUG BRIDGE

GPS: 40° 55' 46" N 77° 02' 99" W

BASE POINT: **Mifflinburg** - From intersection of Rts. 45 and 304, turn north onto N. Fourth Street and proceed 0.4 mile.

Located within the Borough of Mifflinburg, this 71' burr truss bridge, built circa 1827, crosses Buffalo Creek in Union County.

6 HAYES BRIDGE

GPS: 40° 55' 04" N 77° 05' 48" W

BASE POINT: **Mifflinburg** - From the junction of Rts. 104 and 45, travel west on Rt. 45 for 1.8 miles. Turn right (north) onto Hoover Road and proceed 0.6 mile.

This 70' king truss bridge, built in 1882, crosses Buffalo Creek in Union County.

7 HUBLER ROAD/ LEWISBURG PENITENTIARY BRIDGE

GPS: 40° 59' 09" N 76° 55' 40" W

BASE POINT: **Junction of Rts. 15N & 192** - Travel west on Rt. 192 for 1.7 miles. Turn right onto Strawbridge Road (TR 451) and proceed 1.6 miles to the farm lane leading to the bridge.

Built circa 1850, this 42' king truss bridge crosses Little Buffalo Creek in Union County. Bridge access is located on private property on one side and connects to the Lewisburg Federal Penitentiary property on the other. No public access to this bridge.

8 KEEFER'S STATION BRIDGE

GPS: 40° 52' 25" N 76° 43' 40" W

BASE POINT: **Sunbury** - From the intersection of Market and 11th Streets, travel east on 11th Street past Sunbury Hospital for 3.4 miles. Turn right (south) onto Mill Road (TR 699) and proceed 0.3 mile.

This 96' king truss bridge, built in 1888, crosses Shamokin Creek in Northumberland County.

9 KLINEPETER BRIDGE

GPS: 40° 44' 83" N 77° 12' 66" W

BASE POINT: **Beaver Springs** - Turn south off of Rt. 522 into the village of Beaver Springs. Turn onto Spring Street, then make an immediate right onto Railroad Avenue.

This single span, 105' burr truss bridge, built in 1871, crosses a dry bed in Snyder County.

10 KRICKBAUM BRIDGE

GPS: 40° 50' 84" N 76° 30' 44" W

BASE POINT: **Richards Bridge** - Turn right (south) at east end of Richards Bridge and follow Happy Valley Road (TR 302) for 0.5 mile. Bear right at the Y onto Bear Hollow Road (TR 800) and proceed 1.4 miles. Turn left and continue 0.4 mile.

This 62' queen truss bridge spans the south branch of Roaring Creek between Northumberland and Columbia counties.

11 LAWRENCE L. KNOEBEL BRIDGE

GPS: 40° 52' 62" N 76° 30' 33" W

BASE POINT: **Knoebels Amusement Resort** - Located in Knoebels Amusement Resort on Rt. 487.

This 41' queen truss bridge, built at another location in 1875, was dismantled and reconstructed at its present site with modifications. It crosses the south branch of Roaring Creek between Northumberland and Columbia counties.

12 MEISER'S MILL/SHEAFFER BRIDGE

GPS: 40° 38' 21" N 76° 59' 53" W

BASE POINT: **Meiserville** - Travel south on Rt. 104 for 1.5 miles. Turn right (west) onto Oriental Road (SR 3002) and proceed 2 miles to Mahantango Creek. Bridge can be seen on the right, but it is located on private property.

This 90' burr truss bridge, built in 1907, crosses Mahantango Creek between Snyder and Juniata counties.

13 REBUCK-HIMMEL'S CHURCH BRIDGE

GPS: 40° 43' 26" N 76° 43' 05" W

BASE POINT: **Route 225** - From Rebeck, go east 0.4 mile on SR 3010 to Himmel's Church. Turn left (north) and proceed 0.3 mile.

Constructed in 1874, and rebuilt in 1983, this 42' king truss bridge crosses Schwaben Creek near the village of Rebeck in Northumberland County.

14 RED/MILLMONT BRIDGE

GPS: 40° 52' 42" N 77° 09' 19" W

BASE POINT: **Mifflinburg** - From the junction of Rts. 45 and 104, travel south on Rt. 104 for 1.8 miles. Turn right (west) onto Red Ridge Road (SR 3004) toward White Springs and proceed 3.9 miles. At stop sign, turn left onto Creek Road. Proceed 1.6 miles.

This 154' burr truss bridge, built in 1855, crosses Penn Creek in Union County.

15 RICHARDS BRIDGE

GPS: 40° 52' 04" N 76° 30' 48" W

BASE POINT: **Elysburg** - From the junction of Rts. 54 and 487, travel north on Rt. 487 for 2.1 miles. Turn right onto Jepko Road (TR 805) after the golf course, but just before Knoebels Amusement Resort. Proceed 0.8 mile.

This 64' king and queen truss bridge, built in 1875, crosses the south branch of Roaring Creek between Northumberland and Columbia counties.

16 RISHEL BRIDGE

GPS: 40° 57' 59" N 76° 48' 97" W

BASE POINT: **Montandon** - Driving east from Montandon along Rt. 45, go past the Rt. 147 intersection. Turn right onto Covered Bridge Road (TR 573), then turn left on Ridge Road, 0.4 mile south of Rt. 45.

Built in 1830, Rishel Bridge is a 121' burr truss bridge that crosses Chillisquaque Creek in Northumberland County and is still used for local traffic. Some consider this to be the oldest remaining original covered bridge in Pennsylvania.

17 SAM WAGNER BRIDGE

GPS: 41° 00' 06" N 76° 46' 13" W

BASE POINT: **Potts Grove** - Travel east on Rt. 642 for 0.5 mile. Turn left (north) onto Creek Road (SR 1029) and proceed 0.8 mile. Bridge is on the right.

This 85' burr truss bridge, built in 1881, crosses Chillisquaque Creek between Northumberland and Montour counties.



VISITOR INFORMATION CENTER

Route 15 & Hafer Road - Two miles north of Lewisburg

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