

The Pratt Truss

The Pratt truss was first developed in 1844 under patent of Thomas and Caleb Pratt. Prevalent from the 1840s through the early twentieth century, the Pratt has diagonals in tension, verticals in compression, except for the hip verticals immediately adjacent to the inclined end posts of the bridge. Pratt trusses were initially built as a combination wood and iron truss, but were soon constructed in iron only. The Pratt type successfully survived the transition to iron construction as well as the second transition to steel usage. The Pratt truss inspired a large number of variations and modified subtypes during the nineteenth and early twentieth centuries.

The majority of Maryland's surviving metal truss bridges are Pratt through and pony trusses, including both pin-connected and riveted examples. Known early examples described in existing Maryland Historical Trust historic resource survey forms include the Four Points Bridge over Tom's Creek in Frederick County (MHT F-6-9; pin-connected through truss built 1876 by Wrought Iron Bridge Company of Canton, Ohio) and the Gapland Road Bridge in the same county (MHT F-2-3; pin-connected pony truss built 1879).

Major subtypes of the Pratt design included:

Double Intersection Pratt Truss (Whipple, Whipple-Murphy, or Linville)

This subtype was patented in 1847 by Squire Whipple and modified in 1863 through addition of crossed diagonals by Lehigh Valley Railroad Chief Engineer John W. Murphy. Prevalent through late nineteenth and early twentieth century. The Double Intersection Pratt bridge is characterized by additional diagonals extending across two panels of the basic Pratt truss. This subtype was widely used for long-span railroad bridges. The only known previously surveyed Maryland example of a Double Intersection Pratt is the Poffenberger Road Bridge (MHT F-2-5 and HAER No. MD-35) in Frederick County, a pin-connected version.

Pratt Half-Hip Truss

The Pratt Half-Hip subtype was developed during the latter part of the nineteenth century. Characterized by inclined end posts that do not extend the length of a full panel, this subtype became popular in the United States from the 1890s into the early twentieth century. Research has uncovered one previously identified Maryland example, a half-hipped, pin-connected pony truss built at an undetermined, early

twentieth century date by the Smith Bridge Company to carry Newcomer Road over Beaver Creek in Washington County (MHT-WA-II-475).

Parker Truss

The Parker truss was developed by C.H. Parker in a series of patents he filed between 1868 and 1871. Characterized by Pratt design but with an inclined top chord, the Parker truss was popular for longer spans well into the twentieth century. Maryland examples located through research include the Bullfrog Road Bridge over the Monocacy in Frederick County (MHT-F-6-8, a riveted through bridge built 1908 by York Bridge Company) and several spans constructed by the State Roads Commission during the 1930s.

Baltimore (Petit) Truss

Developed in 1871 by engineers of the Baltimore and Ohio and Pennsylvania Railroad, the Baltimore (Petit) truss subtype was popular into the early twentieth century. The Baltimore (Petit) truss was characterized by Pratt design featuring additional, auxiliary sub-struts or sub-ties linking the chords and the diagonal and vertical members. Maryland examples located through research include Bridge 1679, a steel bridge taking the Western Maryland Railroad over the National Road at Cumberland (MHT-AL-V-B-151, built 1912) and the Old Post Road Bridge near Havre de Grace (MHT-H-12073, built of steel in 1905 by American Bridge Company).

Pennsylvania (Petit) Truss

The Pennsylvania (Petit) truss was introduced during the mid-1870s as a variant of the Parker truss. Like the Baltimore (Petit) design, the Pennsylvania (Petit) was characterized by the addition of sub-struts (to resist stresses) or sub-ties (to transmit stresses) to a demonstrably useful form (the Parker). Pennsylvania (Petit) trusses were erected well into the twentieth century. A known, significant Maryland example is the 1924 Glendale Road Bridge in Garrett County, comprising two spans built by McClintic-Marshall during the construction of Deep Creek Lake (HAER No. MD-88).

Camelback Truss

Also a variation on the Parker truss design, the Camelback truss was

characterized by its distinctive polygonal top chord consisting of exactly five slopes. The Camelback truss was popular for through spans primarily from its inception in the late nineteenth century through the mid-twentieth century. Maryland examples discovered through research may include a group of bridges built in the 1920s and early 1930s under the aegis of the State Roads Commission.