

= Pont @-@ y @-@ Cafnau =

The Pont @-@ y @-@ Cafnau ( English : Bridge of Troughs ) , sometimes written Pont y Cafnau or Pontycfnau , is a 14 @.@ 2 @-@ metre ( 47 ft ) long iron truss bridge over the River Taff in Merthyr Tydfil , Wales . The bridge was designed by Watkin George and built in 1793 for his employer , the Cyfarthfa Ironworks , to support both a tramway and an aqueduct to carry limestone and water into the works . A Grade II \* listed building and Scheduled Ancient Monument , the Pont @-@ y @-@ Cafnau is the world 's earliest surviving iron railway bridge .

= = History = =

The Cyfarthfa Ironworks were founded in 1765 and grew to the world 's largest ironworks by the early 19th century . In 1771 , the works obtained the right to quarry limestone from the Gurnos Quarry for use in the works ' blast furnaces , and a 4 ft ( 1 @,@ 219 mm ) gauge tramway was built between 1792 and 1793 to carry the limestone from the quarry into the plant . Pont @-@ y @-@ Cafnau is situated shortly downstream of the confluence of the Taff Fawr and the Taff Fechan to form the Taff . A weir had previously been built upstream of the plant on each river , and leats were built to convey water into the works . The leat from the Taff Fawr was conveyed in a cast iron elevated aqueduct which ran along the north bank and crossed the Taff Fechan before crossing the Taff at Pont @-@ y @-@ Cafnau and entering the works to power a 50 @-@ foot cast iron water wheel known as Aeolus . The leat from Taff Fechan was at ground level and again crossed the Taff at Pont @-@ y @-@ Cafnau . This supplied water to the Cyfarthfa brick works . The three levels of Pont @-@ y @-@ Cafnau thus carried the elevated Taff Fawr leat , the tramway and Taff Fechan leat across the Taff River . The bridge was built between January and June 1793 , replacing a previous wooden structure , and is the world 's oldest known iron railway bridge . The elevated trough carrying the Taff Fawr leat was removed by 1850 , having been replaced by a leat along the south bank of that river .

= = Design = =

The present bridge was designed by Watkin George . George had been trained as a carpenter , but in 1792 became the chief engineer of the ironworks and a partner in the business . The bridge is composed of two cast iron A @-@ frame trusses supporting a rectangular 2 @-@ foot by 6 @-@ foot @-@ 2 @-@ inch cast iron trough . This lower trough carried the Taff Fechan leat and acts as a girder supporting the plates acting as the railway sleepers , into which the rail chairs are integrally cast . Wooden uprights were attached to the iron risers that passed through the apex of each of the A @-@ frames and these supported the upper trough carrying the Taff Fawr leat . Reflecting its designer 's roots in carpentry , the members composing the trusses are joined by dovetail and mortise and tenon joints commonly used in wooden structures .

= = Heritage = =

On 22 August 1975 , the bridge was listed as a Grade II \* listed building ( reference number 11408 ) . It is also listed as a Scheduled Ancient Monument ( reference number GM424 ) . It has been refurbished by the local authority and is used as a footbridge .