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# No. 30 – Stádlec – suspension chain bridge over the River Lužnice

road suspension bridge

South Bohemia Region

Tábor district

close to Stádlec village

national cultural monument

49°22'02.28"N 14°30'52.54"E



CTU

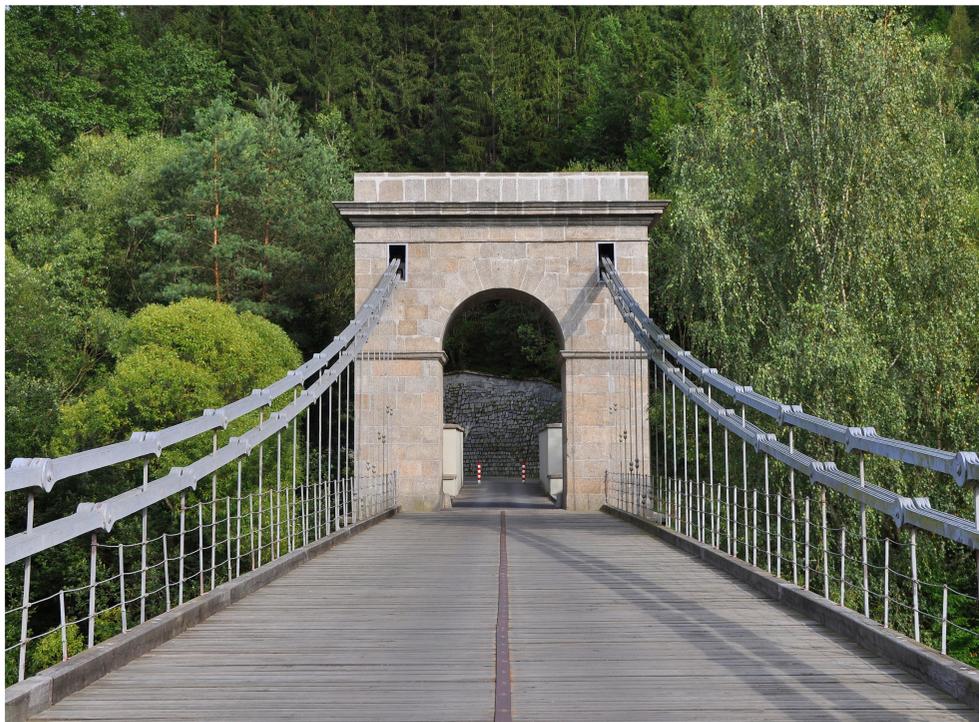
CZECH TECHNICAL UNIVERSITY IN PRAGUE

## History

The bridge was built in 1847 by Vojtěch Lanna according to the plans of engineers Schnirch and Gassner. Chain bridges were built from the turn of the 18th and 19th century, not only in the Czech lands, but throughout Europe. There were 13 of them in Bohemia and Moravia, and the bridge in Podolsko was the last bridge of this kind to be built in the Czech Republic. It was located on an important trade route across the River Vltava from Písek to Tábor, and replaced the ferry at these locations. At the time of its construction, it was an exceptionally important bridge, as other bridges over the Vltava were located in Prague or Týn nad Vltavou. The laying of the foundation stone on the 6th of May 1847 was attended by Archduke Stephen of Lorraine, accompanied by Vojtěch Lanna. On this occasion, the bridge was completed in the revolutionary year of 1848, due to which the event was conducted without ostentatious celebrations. It served its purpose for nearly 113 years, but gradually became unsuitable – firstly because a new 510 m long reinforced concrete arch bridge was built over it during World War II, spanning the entire valley, and secondly because of the gradual filling of the Orlický Dam.

Fortunately, in 1958 the bridge was declared a national cultural monument and another suitable use for it was sought. Fortunately, the bridge was declared a national cultural monument in 1958 and another suitable use was sought. After a long period of time, the valley of the Lužnice River near the village of Stádlec, where only the ferry had been previously used, was chosen from 13 selected sites and the bridge was moved there in 1975.

The bridge has been preserved in its original dimensions and mass, which was a requirement of the conservationists.

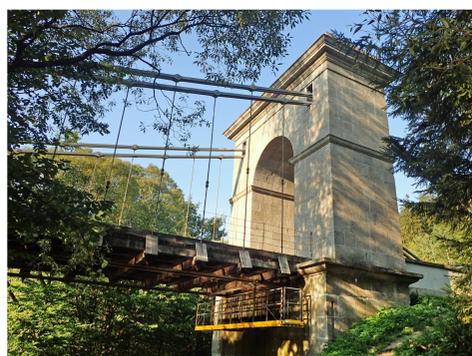


View of the bridge deck, chains and pylon in 2019

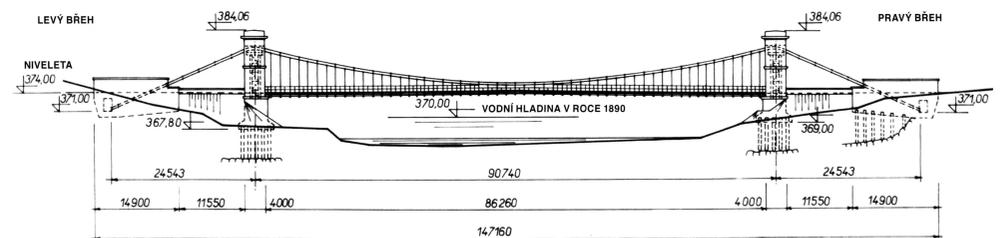
It is a single-span chain suspension bridge with a lower suspension bridge deck, and the perpendicular clearance of the span is 86.26 m. The basic supporting structure is represented by four main wrought steel chains arranged in two pairs above each other. The chain consists of six links of 3,15 m in length, the connecting pins are 53 mm long, and the end pin 105 mm long. The chains are mounted on two stone pylons measuring 3,5 m × 9 m with an opening of 3,82 m and a height of 15,08 m and 16,26 m respectively. The pylons are made of stone blocks, filled with concrete and founded on piles 35 cm in diameter. The ends of the chains are anchored to the pins embedded in the hooks of eight iron anchor plates, each weighing 2.3 tonnes. The carriageway is made up of wooden bridges 16 cm high, and the railings are made of 1 m high steel. The load bearing capacity of the bridge was designed as normal – 0.85 t, exclusive – 5.08 t and exceptional – 9.24 t.



View of the chains forming the main support system



View of the brick pylon of the bridge



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## Technical features of the structure

The Stádlecký Bridge over the River Lužnice is the last preserved Empire chain bridge in the Czech Republic. It is a suspension bridge whose supporting system consists of two pairs of chains made of flat strips. The chains run through the side openings of the pylons and are anchored behind the pylons into the masonry blocks. The timber bridge deck is made up of crossbeam, stringers and floor beams. The timber crossbeams consist of a pair of profiles joined together by steel plates and bolts. The stringers of rectangular cross-section are placed on the cross-beams, and in total there are 7 stringers in the cross-section of the bridge. The running surface is formed by timber floor beams of square cross-section that are placed perpendicular to the stringers. The floor beams are terminated on both sides by a timber cornice. The bridge deck is supported by vertical hinges at the point of each crossbeam, which are connected to the chains by a pin connection. The hinges are metal bars of a square cross-section.

## Relocation of the bridge

The chain bridge, built in 1847–1848, originally crossed the River Vltava between Podolsko and Temešvár. The road bridge connected Tábor with Písek. But gradually the bridge became unsuitable and so a new reinforced concrete road bridge was built in the immediate vicinity of the bridge. Moreover, after the construction of the Orlický dam, the original bridge was threatened to be flooded. For these reasons, it was decided to move the bridge, declared a national cultural monument, to another location, which was the valley of the Lužnice River near the village of Stádlec.

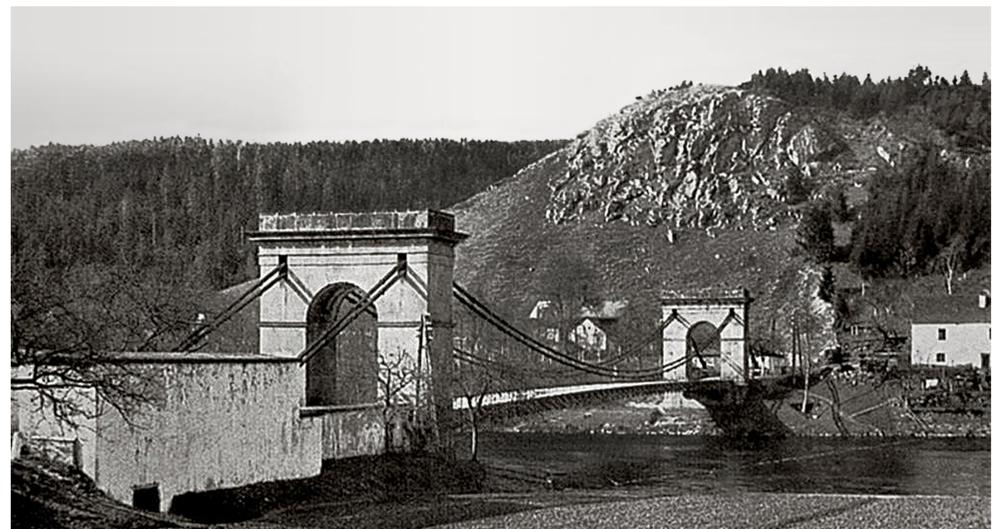
The bridge in Podolsko was dismantled piece by piece and the individual stone blocks of both pylons were marked with Arabic and Roman numerals in white and red. The parts of the bridge – 2,000 stone blocks and 1,100 steel parts with chains – were then temporarily stored for 10 years in the open area of the former concrete factory near the new reinforced concrete bridge.

The designer of the new bridge construction, realized in 1971–1975, was Ing. František Stejskal (Hutní projekt Praha). The builder was the Regional Investor Department of Road Management České Budějovice, and the contractors were Silnice České Budějovice, Hutní montáže Ostrava and Stavby silnic a železnic. Some of the iron parts of the chains and other materials were damaged or went missing during storage (14 tonnes of new iron parts were needed out of a total weight of 102 tonnes). Also, several stone blocks had to be supplied anew.

However, the bridge length of 147.16 m was too long for the new location in the narrow Lužnice valley, so the slope had to be cut on one side, a retaining wall had to be built and the bridge had to be placed at an angle of 73° between the weir and the original ferry. The cable from the original ferry was used for determining the height of the lower edge of the bridge deck, to which an extra 1.5 m was added. The resulting height above ground level is 5.09 m.

The bridge was inaugurated on 25th of May 1975 and, as in 1847, a commemorative box with period objects was inserted. In 1989, the bridge was declared a national cultural monument and gradually became the model for a medal, a postage stamp and a commemorative coin.

Today the bridge is used by pedestrians and, with limited access, by vehicles.



Original position of the bridge in Podolsko