TIMBER COVERED BRIDGES ON THE SLOVAK TERRITORY

Ivan Baláž1(*), Zuzana Kamenická1, Yvona Koleková2
1Department of Metal and Timber Structures, Faculty of Civil Engineering, Slovak University of Technology in Bratislava, Bratislava, Slovak Republic, European Union
2Department of Structural Mechanics, Faculty of Civil Engineering, Slovak University of Technology in Bratislava, Bratislava, Slovak Republic, European Union
(*Email: ivan.balaz@stuba.sk)

ABSTRACT

Probably the oldest set of 30 photographs of the timber covered bridges on the Slovak territory may be found in the book of the Czech author (Kolář, 1926). A large investigative study of the historical covered timber bridges on the Slovak territory was consequently done by two professors of Slovak University of Technology in Bratislava Dutko, P. and Ferjenčík, P. in the 1954 and 1980. They published their results in the fifties (Ferjenčík, 1955a, 1955b, 1956), sixties (Dutko, Ferjenčík, 1965), seventies (Ferjenčík, Dutko, Chladný, 1979) and eighties (Ferjenčík, 1980), (Frejenčík, Dutko, 1984). Also their results enabled to the authors to identify all bridges and their details on the more than 100 photographs of originally unknown bridges, which are property of The Monuments Board of the Slovak Republic in Bratislava (PÚ SR – Pamiatkový úrad Slovenskej republiky). The aim of the authors is to perform a study of all historical and modern covered timber bridges on the Slovak territory. The photographs of modern bridges made of various structural materials built on the Czech and Slovak territory may be found in (Baláž, 2014; Dušan 1984, 2000, 2011, 2012; Paulík, 2012, 2014; Pechal 2009).

Keywords: bridges, timber, historical, modern.

INTRODUCTION

The authors have collected historical data about: erection, opening, strengthening, reconstruction, destroying of bridges, geometry, details and other characteristics of bridges and their designers from archives, chronicles, owners, the oldest inhabitants, contemporary engravings, veduta paintings, old photographs and various publications. Some data it was very difficult to gain or to verify.

HISTORICAL TIMBER COVERED BRIDGES ON THE SLOVAK TERRITORY

About the year 1556 a mining settlement Švedlár was founded on the right bank of the Hnilec river. At that time a timber covered bridge was constructed to transport ore. It is not known any detail about this bridge. It is supposed that the bridge over Hron river in Zvolen is the oldest known timber covered bridge on the Slovak territory, which is possible to see on the painting by Jan Willenberg from 1599. The length of this bridge was 25 m.

The authors of (Dutko, Ferjenčík, 1965) found that in 1954 there were only 9 bridges from originally 29 timber covered bridges. In 1980 there was only 1 bridge over Horňád river at Kluknava (Fig. 19-25). The most bridges were built over rivers Hnilec (10), Poprad (5) and Horňád (5). Probably the longest timber covered bridges were 2-spans (later 5-spans) bridge...
over Poprad river in Plaveč (Fig. 29) from 1850 with the length 68,2 m and the 7-spans bridge over Topľa river at Bardejov (Fig. 32) from 1870, which was long 78,5 m. The largest bridge in 1954 was the Upper bridge over Hnilec river in Gelnica (Fig. 3-9) from 1831, which served after several strengthenings more than 100 years The most advanced bridge was the bridge over Hornád river at Kluknava (Fig. 19-25), which after reconstructions survived till today.

TIMBER COVERED BRIDGES OVER HNILEC RIVER

Fig. 1 - Ten timber covered bridges over Hnilec river were: 1. in Hnilec; in Nálepkovo (2. upper, 3. bottom bridge), former name of Nálepkovo was Vondrišel; 4. in Švedlár; … in Mníšek nad Hnilcom (5. upper, 6. middle and 7. bottom bridge); 8. at Mníšek nad Hnilcom; in Gelnica (9. upper and 10. bottom bridge).

The valley of river Hnilec, which originates under Král'ova Hol'a mountain and flows approximately 75 km through a romantic valley up to Margecany, merging there with river Hornád, belongs to those places in Slovakia, which tourists like the most. The centre of the Hnilec valley is city Gelnica. It is located at 375 meters above sea level, but surrounding zone of mountains reaches heights from 655 to 1030 m above sea level.

Archaeological findings in Nálepkovo and in Švedlár testify about prehistoric information of the Hnilec valley, which document a settlement in Stone and Bronze Ages. The name Gelnica, derived from the name of the river Gnilec (Hnilec) from which was later created
German name Göllnitz and from it also Slovak name Gelnica. Significant expansion of original village occurred soon after incursion of Tartars in 1241. After this event Gelnica and neighbourhood were colonised by Germans from Bavaria, Thuringia and Rhineland on contrary to the earlier colonisation flow of Saxons to Spiš. Next to Spiš, Saxon province in the Hnilec valley was created community of mining villages, centre of which has become Gelnica. With arrival of Germans, Gelnica started its development very quickly into city organism and in 1264 it received city rights from king of Hungary - Belo IV. Fast development of royal mining city was supported also by construction of a new castle in the first half of 13" century (1234) and by establishment of Dominican monastery in 1288. In 14" and 15" century Gelnica was in its peak of bloom. In Gelnica and its vicinity copper, silver, gold, mercury, lead and iron ore were mined. City rights were extended and confirmed to Gelnica by King Charles I. in 1317, and by King Ladislaus I. in 1359 and by emperor Sigismund in 1435. Based on these rights Gelnica has become free royal mining city. In 1726 there was recovered union of seven mining cities in Hnilec valley (Gelnica, Smolník, Štós, Švedlár, Mnišek, Medziev and Vondrišel). On 28 October 1918 the Czechoslovak Republic was declared. During 1921-23 crises significantly affected the whole Hnilec valley. Mining consequently stopped its production in years 1921-23. Inherent effect of this situation was emigration of its residents abroad. Hnilec Valley was Hunger Valley.

Upper bridge over Hnilec river in Gelnica

Fig. 3 - Upper bridge over Hnilec river in Gelnica. View A-B-C. Built in 1831, probably repaired in 1881, later strenghtened according to Fig. 4, dismantled in 1957. Length 35,79 m, width 4,8 m, height 5,1 m.
Located at the end of the city. Ruin of the castle at the hill.
Fig. 4 - View A-B. a) Originally Howe truss; b) strengthening by strut frame & queen-post truss, c) added support.

Fig. 5 - Upper bridge in Gelnica, View A-B. Photo from summer in 1925. (Kolář, 1926).

Fig. 6, 7 - Dismantling in 1957 (Ferjenčík, Dutko, 1984)

Fig. 8 - View B-C. Photo from summer in 1925. (Kolář, 1926)

Fig. 9 - Inside A-D view. (PÚ SR).

**Bottom bridge over Hnilec river in Gelnica**

This bridge was replaced the similar bridge in 1901. It was built near railway station in Gelnica. It had red roof. During repair the structure original queen-post truss was strengthened by two pairs of steel rods with ø 30 mm. There are different data concerning its length: in 1901 – 25,75 m, in 1925 – 25,10 m, in 1954 – 25,30 m, or elsewhere 24,60 m.
After repairing in 1953 the load carrying capacity of the bottom bridge over Hnilec river in Gelnica was limited to 1 ton. In Fig. 12 it is possible to see a Canadian Military Pattern (CMP) truck Ford F15. It was a class of military truck - of various forms - made in large numbers in Canada during World War II to British Army specifications for use in the armies.
of the British Commonwealth allies. Standard designs were drawn up just before the beginning of the war. The photographs were made in fifties after World War II.

Fig. 14 - Inside views D-C. (PÚ SR).

Fig. 15 - Detail at support. (PÚ SR).  Fig. 16 - Detail at support. (PÚ SR).  Fig. 17 - Bottom of deck. (PÚ SR).

TIMBER COVERED BRIDGES OVER HORNÁD RIVER

Fig. 18a - Five timber covered bridges over Hornád river were: 1. in Spišská Nová Ves; 2. at brick factory in Spišská Nová Ves; …
Bridge at Kluknava

Only bridge at Kluknava survived till today. It was built by company Waldbürgergesellschaft in 1832.

![Structure of the bridge at Kluknava. Howe truss combined with queen-post truss.](image)

The roof and siding enclosure were renewed in 1932. A military unit performed reconstruction in the period 1981-1984 after complete dismantling. Some missing parts in the roof, side enclosure and in the deck were added in 2003 and 2004.

![Bridge over Hornád river at Kluknava.](image)  
View A-B-C. (PÚ SR).

![View B-C-D. (PÚ SR).](image)

Fig. 18b - ...3. at Kolínovce; 4. at Kluknava; 5. at Margecany.
Fig. 22 - Edge C (PÚ SR).

Fig. 23 - View A-D (PÚ SR).

Fig. 24 - Edge C (PÚ SR).

Fig. 25 - Dismantling in 1981. (Ferjenčík, Dutko, 1984).

Fig. 26 Timber covered bridge over Hornád river at Kluknava today.
Fig. 27 - Bridge over Hornád river at Kolínovec. It served in period 1870-?. Length 28,5 m, width 5,6 m, height of two covered Howe trusses 2,45 m. In 1923 supported by 3 intermediate supports to prevent a collapse. Photo from summer in 1925. (Kolář, 1926).

TIMBER COVERED BRIDGES OVER POPRAD RIVER

Fig. 28 - Five timber covered bridges over Poprad river were: 1. between Huncovce and Veľká Lomnica; 2. at Holumnica; 3. on the road between Podolinec and Lomnička; 4. at Stará Lúbovňa; 5. in Plaveč.
Fig. 29 - Bridge over Poprad river between Huncovce and Veľká Lomnica. It served in period 1884-1945. Two covered Howe trusses. In 1923 supported by 3 intermediate supports to prevent a collapse. Length 35 m, width 6.45 m. Original load carrying capacity was 4 tons. Photo from summer in 1925. (Kolář, 1926).

Fig. 30 - Bridge over Poprad river in Plaveč. Built about 1820. Length 68.2 m. Originally had two spans with main span 36 m. After fire it had six spans. Width 4 m. Load carrying capacity was 4 tons. Photo from summer in 1925. (Kolář, 1926).

TIMBER COVERED BRIDGES AT BARDEJOV

Originally there were five bridges at Bardejov.

Fig. 31 - Four timber covered bridges at Bardejov were: 1. over Topľa river; 2. over Kamenc (former name Breznik) stream; 3. over Lukavica stream in Bardejov; over Lukavica stream at Bardejov.

Fig. 32 Bridge over Lukavica stream at Bardejov. It served in the period 1872-1945. The length was about 26,1 m, width 6,6 m. Howe truss girders where strengthened by strut frame and queen-post truss. It was not enough, the bridge was later supported by a support in the midspan. It was necessary to pay toll, people used therefore the near ford. Photo from summer in 1925. (Kolář, 1926).

Fig. 33 Bridge over Topľa river at Bardejov. Built in 1870. Seven spans, each about 11 m long. Queen-post truss. With the length 78,5 m it was the longest bridge from 25 at that time existing bridges. Width 5,7 m. Load carrying capacity was 4 tons. Photo from summer in 1925. (Kolář, 1926).

HISTORICAL TIMBER COVERED BRIDGES ON THE SLOVAK TERRITORY

The longest timber covered footbridge in Slovakia is today the bridge over Little Danube river in Kolárovo (Fig. 34-35) built in 1992 by local workers as a copy of the previous footbridge. In 1997 24 m were added giving total length 86 m. It is the longest bridge in the Central Europe in the category of all-wood covered bridges.

Fig. 34 - Bridge over Little Danube river in Kolárovo. Built in 1992. Length 86 m. (Paulík, 2012, 2014).
Fig. 35 - Bridge over Little Danube river in Kolárovo. (Paulík, 2012, 2014).

Fig. 36 - Footbridge over Orava river in Dolný Kubín. Built in 1994. Length 102 m. (Paulík, 2012, 2014).

Fig. 37 - Footbridge over Orava river in Dolný Kubín. (Paulík, 2012, 2014).
Fig. 38 - Footbridge No.1 over Road E77 in Donovaly. Built in 1995. Span of the arch 17.5 m.

Fig. 39 - Footbridge No.2 over Road E77 in Donovaly. Built in 1995. Span of the arch 17.5 m.

CONCLUSION

This contribution shows information and photographs of a) 8 historical timber covered bridges selected from set of 30 similar bridges, which were investigated by the authors and b) 6 modern timber covered bridges on the Slovak territory. The historical bridges were built in the 2nd half of 19th century. The modern bridges were built in nineties of the 21st century. The result of authors study helped to identify all till that time unknown historical bridges on the more than 100 photographs in archive of The Monuments Board of the Slovak Republic.

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