

Mining Landmarks in Štiavnické Bane in Old Postcards

LUCIA DOMARACKÁ and PAVOL AMBROŠ

Institute of Earth Resources, Technical University of Košice, Letná 9, 042 00 Košice, Slovakia

Technical University in Košice, Letná 9, 042 00 Košice, Slovakia

(E-mail: lucia.domaracka@tuke.sk, pavol.ambros@tuke.sk)

ABSTRACT

The article deals with the village named Štiavnické Bane that is of high recognition as the mining tourism destination. The village has its world primacies from mining point of view. In the 17th and 18th centuries the most complex technical works originated here exceeding the era itself. Huge dumps, water reservoirs as well as construction, sacral and secular landmarks became the most typical objects we shall present as follows. Depiction of mining location is completed with historical postcards in the gallery.

Key words: Štiavnické Bane, technical works, water management system, hereditary shafts, water reservoirs.

HISTORY

The village Štiavnické Bane is situated within the district of Banská Štiavnica and nowadays its population reaches up to 810 and its area 10,16km² (Štiavnické Bane, 2016).

Štiavnické Bane, originally the settlement called Sigelisberg (recorded also as Siglisberg) has gone through many stages of change related mainly to ownership rights. At first it belonged to the property of the town Banská Štiavnica but sometimes before 1352 it was taken over by a burgrave of the castle Šášov. The settlement, later a village, became a castle property part from the 80's of the 14th century and as of 17th century of the Chamber Earl's mansion Šášov. In 1830 the mining exchequer formed a new Chamber Earl mansion Dekýš-Vysoká, while its administration was set to Sigelsberg.

The name Siegelsberg was changed to Perg in the 16th century (the new name was already recorded as a part of Šášov mansion), later Pjerg. Up to 1526 the written documents preserved several forms of Perg. Some newer field works introduced explanations Štiavnické Bane were formed by unification of three units - Vindšachta, Piarg and Siegelsberg. Historical sources of

17th and 18th centuries state Siglisber, later recorded also as Siglisberg, formed the grounds of present village territories and contained two settlements (Čelko, 1996).

The second territorial section forming present Štiavnické Bane was definitely Vindšachta, the settlement situated in the area of Banská Štiavnica. Mining development undoubtedly had an impact on its origin. During Turkish raids in the 17th century they built a huge fortification system.

Sigelsberg and Vindšachta, as original parts giving grounds for Štiavnické Bane establishment, were undoubtedly centres of European significance. Particularly from a half of the 16th century, when mining got concentrated to the mentioned territory while Banská Štiavnica still kept its administration role. Later on headquarters of mining administration, measurement and a hospital were set here. In 1948 the village Piarg was renamed to Štiavnické Bane. Piarg was established by unification of two originally neighbouring territories with rather different medieval development. Due to its unique historical objects of mining technology and architecture the village was declared a historical preservation area in 1994. The aim of the declaration was to ensure appropriate protection and



Fig. 1 A postcard - coloured pen drawing of the village by J.Mohling from 1802 (source: Herčko)

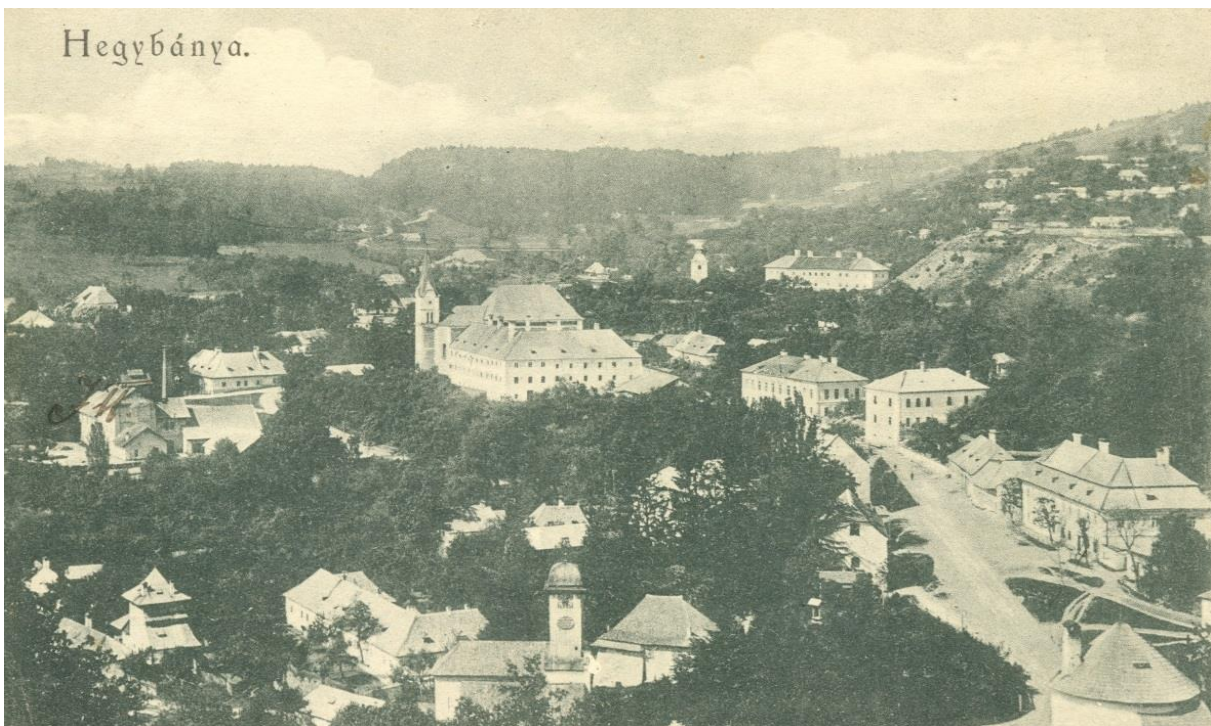


Fig. 2 A view on the village historical centre in about 1900 (source: Herčko)

The oldest more specific date on Piarg mining has been recorded in the oldest Banská Štiavnica Town Book so called Notationes iudiciariae (1364 - 1422) and 3rd Town Book including records on mining from 1470 - 1507. The data is so rare and issuing from it is not possible to form a

more complex picture on topography of mining works and then production. In the late 16th century quite a more data documented mining in Fusloch (Horná Roveň), but the data on Piarg mining is still rare. In the late 16th century particular private entrepreneurs and several extraction

companies out of which Brenner's Enterprise was the biggest one and was established in 1571 as the initiative of Lower Austria Chamber initiative by unification of several smaller extraction companies owned mines (Lichner et al., 2002).

Remarkable moments in mining technology development in Banská Štiavnica occur from the late 17th century when the situation in mines got worsens. Deepening mines increased inflow of water into mining premises, ventilation deteriorated and transport routes were lengthened which resulted in the cost increase. Majority of mines in Banská Štiavnica and its surroundings belonged to mining exchequer already as of 1640 so from the fall of Brenner's Extraction Enterprise financing construction of efficient machinery in order to increase extraction and to make water pumping more efficient which ensured drainage of mines under hereditary shafts.

Actions they took in the 17th century to replace human energy by animal energy (horse capstans) and water (water wheels) were not sufficient any more. In the early 18th century the problem in Štiavnické Bane deteriorated. Due to high expenses for pumping mining water the existence of mines was endangered.

Thanks to water pumping machines for water run the danger was partly resolved. New and efficient running engines enabled cheap pumping of mining water and the increase of richer ore extraction that resulted in many other troubles. A number of shafts were deepened, new horizons and cross-corridors extracted, direction corridors were lengthened to make them accessible for silver and gold extraction. A numerous shafts operating in Štiavnické Bane and its surrounding could be deepened.

The mining technology in Štiavnické Bane but also in mining territories was highly advanced for its era and unique from the world scope. It was due to the Court Chamber in Vienna investing into technical

progress of ore extraction in order to exploit mineral sources of Slovakia. Apart from extraction of precious metals, copper, lead or iron ore forming the grounds for metallurgy production and its related procession fields. The state presented its interest for their use by visitation of three Emperors in Banská Štiavnica ore district that took place in 1740, 1751 and 1783. Slovakia started to educate technical staff in specialised mining schools (Banská Štiavnica, Smolník) and mining technicians in the Mining Academy which created positive conditions for mining science and technology development enabling to resolve and get over many deteriorating natural obstacles in extraction and minerals procession.

Mining in Štiavnické Bane was halted in 1909. Many remarkable historical landmarks right in the village territory remained there (Kladivík, 1996)..

MINING

Mineral sources of Banská Štiavnica ore region enabled the territory to extract precious metals for several centuries. The minerals were extracted out of about 120 dikes and streaks. Due to deposit zonation and cementation of the surface zone precious metal minerals were found in surface sections. By penetration to depths they started to use extraction of other metals (lead, zinc, copper) forming a substantial part of extracted ores. Gold and silver was gained in smaller amounts. Mining had an impact on the countryside by its extraction, surface mining as well as building technical premises. Mining works - shafts and galleries - were created under the ground; extraction towers and procession facilities were built on the surface. Waste created in dumps and heaps, running mining devices needed building up an original system of water reservoirs also known as "tajchy". Some other premises were necessary for the mining needs - powder storages and knocking towers,



Fig. 3 Overview on village Štiavnické Bane (source: Herčko)

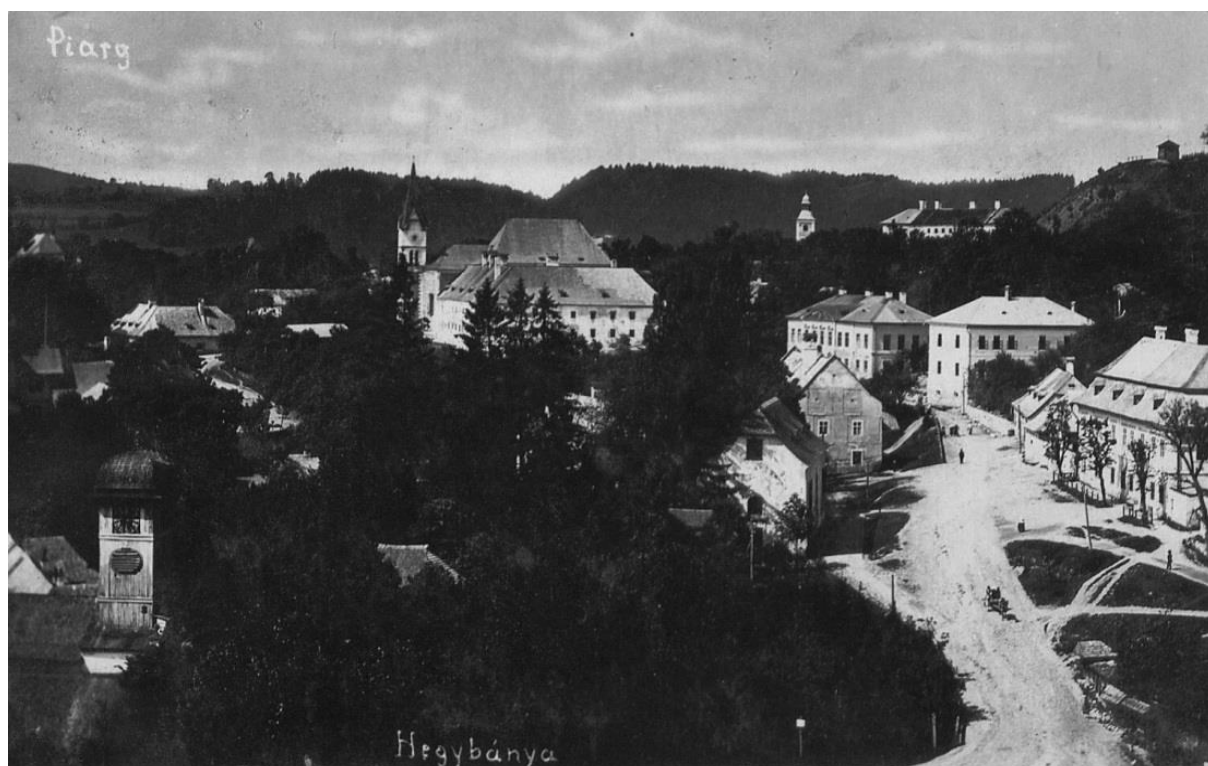


Fig. 4 A view on administration building of Upper Bieber Shaft Enterprise with Christina shaft dump (source: Herčko)

premises of mining surveyorship, mining hospitals and administration buildings (Kladivík, 1989).

WATERMANAGEMENT SYSTEM

Banská Štiavnica mining region used to belong to the world famous mining regions

mainly due to the introduction of remarkable mining devices and machinery that were constructed by dozens of significant masters, technicians and professors of the Mining and Forestry Academy. It was crucial particularly when mining works went to far depths and miners permanently faced troubles with water inflow. Pumping was even more difficult for the lack of surface water. Underground mining water was a significant factor the existence of Banská Štiavnica mining depended on. Its pumping was expensive and suffered because of staff lack and animals lack. Even though they resolved the lack of them, the shafts depth reached several tens of metres and there was so much of ground water they were not able to pump it out with then technical devices. Not manual pumps, winches, horse capstans nor hereditary shafts were sufficient. Hereditary shafts made in Banská Štiavnica ore region in 14th century at latest under the level of then mining extraction went under the level of new extraction by deepening shafts. Extraction of similar works would take several or even dozens of years and would cost a fortune so no exchequer and

no private extractor could afford it (Lichner et al., 2002).

Although Banská Štiavnica mining outputs were enormous, expenses for mining water pumping during the 17th century began to grow and more often they exceeded mining activities income. We may introduce the example in 1687 in the main mining enterprise - Upper Bieber Shaft Enterprise - 720 workers and 196 horses were dealing with water pumping out of the overall number of 2173 mining staff. In 1696 the enterprise involved 600 horses for water pumping (some of them also for vertical transport). The same enterprise employed about 1000 people for manual water pumping in the consequent decade.

Replacement of by then insufficient and inefficient but highly energy consuming by a new energy source became a clue. The clue could be the use of waterpower that was for free if there was not a lack of it.

The water management system built in the 18th century rescued Banská Štiavnica mining. While in 1710 extraction was thought to be stopped because of high costs of pumping mining water, in a half of the 18th century extraction itself got increased

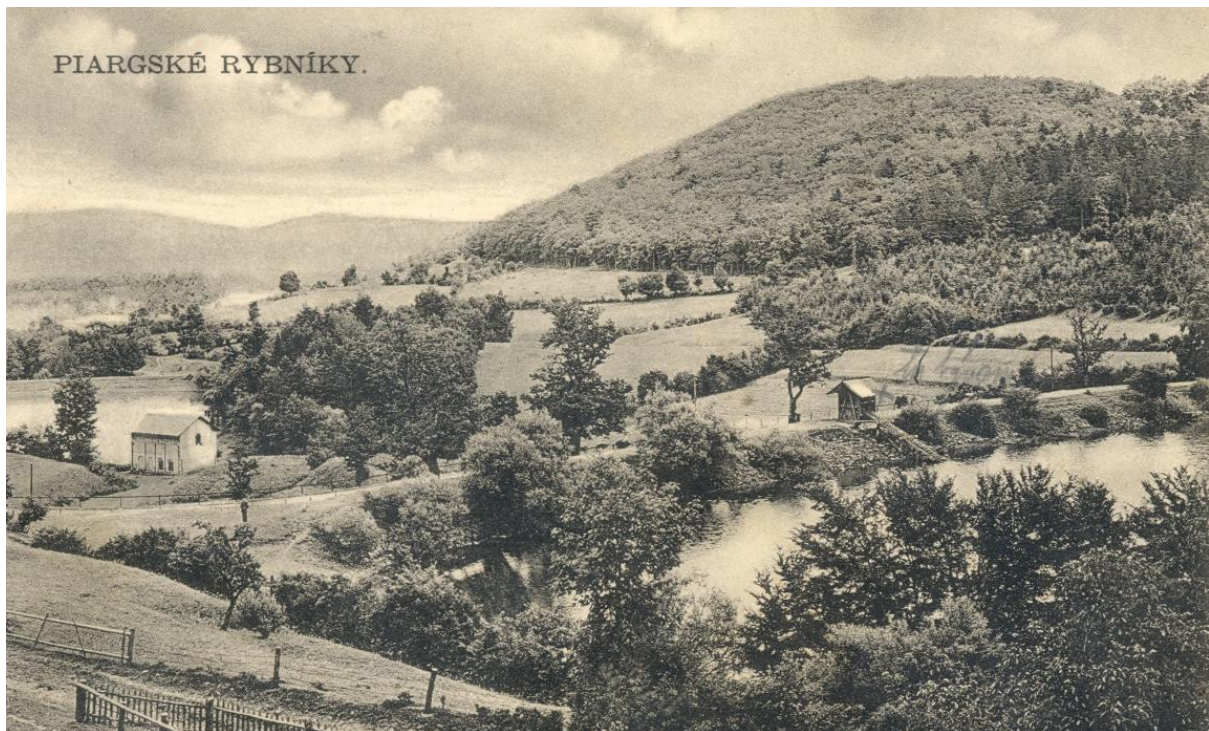


Fig. 5 A view on Vindšachta and Evička water reservoir (source: Herčko)

as never before or after due to newly built water pumping devices using water from new or extended water reservoirs and sufficiency of water energy for tens of stamp mills.

The most efficient water pumping mechanisms in the world (water column, beam and air mechanisms) were invented in Banská Štiavnica ore region in a half of the 18th century based on water use principle, out of which mainly water column pumping device was gradually distributed also to other mining centres in Europe, mostly to Bohemia, Germany, France, England, Norway etc. The way of ore extraction - water pumping, processing and metallurgy technology was definitely the most advanced both in Europe and in the world in those times. Its high advancement was achieved thanks to the Hells family, particularly Matej Kornel Hell and his son Joseph Karol Hell who continued in his father's restoration programme. In 1738 he constructed his own beam-pumping device and two mentioned devices were inbuilt in the Siglisberg shaft. Hell's beam pumping devices were operating only for a short time and did not achieve success, as they

deserved.

So J.K.Hell started to construct his water column pumping devices in 1749 but used high pressure of water column causing movement of working piston. The new devices were inbuilt in the Leopod shaft in the level of Bieber Hereditary Shaft. Later they were used for upgraded constructions of water column pumping devices adapted by Jozef Shittko (1828) and Ferdinand Hellwig (1857 and 1860).

Atmospheric steam (fire) pumping devices were built above shafts in Štiavnické Bane for pumping water. English mechanic Izák Potter built the first two of them in 1734 above the Joseph shaft and a year later two similar were launched in the Magdalena shaft. The fifth most advanced and biggest fire device was built in December 1738 above the shaft named Königsegg (Lichner, 1997).

ARCHITECTURAL SIGHTS

In Štiavnické Bane there are found also artistic objects apart from technical mining landmarks. In a half of the 18th century



Fig. 6 A view on premises of water pumping devices on the left. (source: Herčko)

there was built a monastery complex behind Saint Joseph Church with the help of mining exchequer, the Main Chamber Earl Office and hieronymites (order Sancti Hieronymi). Chamber Earl F.X.Sternbach invited technically gifted brother of hieronymites in 1733. The church was built in 1736 and consecrated in 1754. It contains with its main altar and the painting of Saint Joseph by French painter working for the court of Francios Vidon from 1745 (1703-1785), a mining countryside with adoring miners and donors are depicted in its lower section.

Four side altar paintings by A.Schmidt contain the most precious one - the altar of Saint Anna with water pumping device of J.K.Hell from 1749 at the back. The baroque organ with tin engraved pipes with a mining symbol (the symbol of the Mining Chamber) and sculptures of two miners (probably made by Dionýz Stanetti, the most remarkable sculpturer of mining towns in baroque).

The one nave church is connected to the three-winged object of the monastery with its paradise court and a well in the middle. Unfortunately, the monastery and church were rebuilt in the 19th century and

especially in the 70's of the 20th century. Even before hieronymites arrival there was a section of Jesuits in Vindšachta who built Saint Joseph Church in the 17th century - torn down in the 19th century. It was situated in the Chapel of Saint John Nepomucký with precious sculptures of adoring miners - lower management staff - from 1855 (Čelková, 1996).

Some other preserved objects worth mentioning are definitely bastions from the 17th century, a building of the oldest mining hospital from 1650 and a mining school, the Chamber Court building (nowadays the seat of the village management), buildings of mining measurement, a drugstore, a pumping device, a bell tower with sun clock or a monastery school (Chovanová & Vošková, 1996). The village is connected with the world primacies of mining practice. Apart from those already mentioned we could also introduce the first lightening conductor fixed in the warehouse of gunpowder in 1871 according to the proposal of Anton Ruprecht (Herčko, 2002). Štiavnické Bane had a core impact on the history of shaft transportation when in the Christina shaft and upon the proposal of Ferdinand Landerer, the main



Fig. 7 Historical centre and a view on the monastery (source: Herčko)



Fig. 8 The mining Chapel of Saint John Nepomucky (source: Herčko)



Fig. 9 A gunpowder warehouse with a lightening rod by professor Ruprecht. (source: Herčko)

mining administrator and inspector of stamping mills in the Upper Bieber Shaft from 1839, they built the first plaited steel hoist rope was made in hemp ropes way (Blázy, 1979).

CONCLUSION

The article tried to present the village history of Štiavnické Bane and its primacies. We took a closer look onto Štiavnické Bane and its surroundings history. We divided landmarks into mining and water management system with the most significant objects and architectural sights. Historical postcards from the private archive of Ivan Herčko complete its overall survey.

REFERENCES

- Blázy, M.** (1979) The first factory for production of plaited wired ropes. From the history of science and technology in Slovakia., pp. 393-412
- Chovanová, I.** and **Vošková, K.** (1996) Architectural values of historical preservation, cultural sights and their preservation. Collection from the seminar Štiavnické Bane in history. Štiavnické Bane.
- Čelko, M.** (1996) History of Štiavnické Bane from 1526 by written records. Collection from the seminar Štiavnické Bane in history. vol. 1, 30-37.
- Čelková, M.** (1996) Fine art in Štiavnické Bane. Collection from the seminar Štiavnické Bane in history, Štiavnické Bane.
- Herčko, P.** (2002) Anton Ruprecht on the decree Millennium Project. From the Metallurgy History, pp. 100-110.
- Kladivík, E.** (1989) Seminar on preservation of mining technical sights in Slovakia. Collection of the Slovak Mining Museum.
- Kladivík, E.** (1996) From the history of mining technology in mining of Štiavnické Bane. Collection from the seminar Štiavnické Bane in history. Štiavnické Bane.
- Lichner, M.** et al. (2002) Banská Štiavnica. Testimony of time., Harmony, Banská Bystrica, 2002.
- Lichner, M.** (1997) Banská Štiavnica water reservoirs, Harmony, Banská Bystrica, p. 109.
- Štiavnické Bane** (2016) Official webpage, available at:<http://www.stiavnickebane.sk/index.php?id=3&ni=20> (10. December 2015).