

Opal mines

Tourist guide

The unique Dubník's opal mines are located in the middle of northern part of Slánský mountains. From Prešov they are 28 km away and from Košice 35 km away. From Červenica is the former administration center of the noble opal mining, now an abandoned settlement, about 3 km away and from Zlatá Baňa about 5 km away. Dubník's deposits of noble opal, larger and more extensive Libanka and smaller Šimonka, are an outstanding phenomenon from the global world point of view. Nowhere in the world the noble opal was mined in ordinary mining in such a large extent and so long ago.

The noble opal, like other kinds of common opal is a hydro-gel with fluctuating amount of water. Its chemical formula is $\text{SiO}_2 \cdot n \text{H}_2\text{O}$. The content of quartz in the Slovak noble opal fluctuates from 89,0 – 93,3% and water content from 6,1 – 10,9%. The opal develops from low thermal post volcanic solutions by precipitation of a gel-like quartz substance. Beautiful and typical color play and opalizing of noble opal is caused by light interference on interfaces of submicroscopic layers of gel like opal tiny balls.

On the beginning of noble opal mining on the Slovak territory no written data have been preserved. The oldest information on noble opal at all comes from approximately 500 BC from the works of Greek and Roman authors. Relatively detailed information is supplied by Plinius in his work *Naturalis Historiae Libri XXXVII*, where he writes, among other things, “**no other noble precious stone is so pleasing by its appearance to the eye**”. It is quite possible, that the beginning of opal mining might reach up to the pre-Roman times

The first written reference on the noble opal on our territory is from 14 May 1597, further proof is a rescript from 5 November 1603. The fact, that the mining of noble opals is older than the first given written references, we consider proven, since Doctor Anselm Boetius de Boot, the personal physician of the Cesar Rudolf II., in his work *Gemmarum et lapidum historia* from 1609 remembers an old noble opal collapsed mine and open pit mines in operation. In 1771 there was found up to now the biggest known piece of noble opal, weighing 3035 ct (607 g), which due to its beautiful and strange color play, was called Harlekýn (Vienna Imperial Opal) and at present it is preserved in Vienna museum.

The biggest boom of noble opal extraction was achieved in the period from 1845 – 1880, when the Goldschmidt -family became the tenant. In opal mines there were more than 350 miners and up to 13 grinders employed and the noble opal from Dubník is highly appreciated and looked for on world markets. In this period the largest extent of mining work was done, either new galleries and shafts, or cross drifts, exploratory drifts, insets and extracting in older mine workings. Based on his knowledge in 1878 the surveyor Alexander Gessel expressed his assumption, that according to the extent of workings the beginnings of the noble opal extractions reach up to the 10-th or 11-th century.

In 1889, when Brothers Eggers became tenants, the biggest known nest of noble opal was opened, with the dimensions 75 x 50 x 30 cm , in which three small layers(stribers) of high quality noble opal were deposited with total weight over 120 000 ct. In 1891 the first written claim on the competition of Australian noble opals was registered.

From 1896 up to 1992, up to the closing of the mines the state conducted its business on the opal deposit . The state restricted extraction of noble opal due to lack of demand on extracted opals. The last extraction work was conducted in 1918 and until 1922 only maintenance work and securing of workings, which consisted in water pumping to prevent the flooding of 15m and 30 m horizon. Towards the end of this period 1.05.1922 the opal mines were hired by a French firm Bitter – Belangenay , which on 22.11.1922 finished its tenancy because of the lack of operational capital .

In the period from 1922 to 1991 several attempts were registered to renew extraction of noble opals but in official circles there was no sufficient interest for it. In all professional publications, that concern the topic of the Slovak noble opal deposits in Dubník ,it is stated that opal mines were not closed because of total extraction of opal deposits.

The first stage of the new search for minerals conducted by private companies was accomplished in 1998 with preliminary calculations of deposits exceeding 2,5 mil. ct, which, under the assumption of equal extraction as in times of the greatest boom of Dubník's opal mines , would be sufficient for 80 years of extraction. In cooperation with the firma Antika Trenčín a collection of jewels was made, fitted with Slovak noble opal. A reconstruction of the Viliam gallery opening was conducted and the renewal of the main Vilaim gallery passages. In 2000 a new shareholder company- Opálové bane Dubník (Dubník's opal mines) was founded ,whose main task is the resumption of extraction and processing of noble opal . Not less important a task of this new company is also preservation of old workings after the extraction of noble opals and creation of an open air mining museum.

In 1964 the Dubník's opal mines were proclaimed for a protected habitat of wintering bats . Their numbers since 1962 , when 2685 bats of twelve kinds were counted, gradually declined .The worst situation was in the years 1984 to 1993 when in the opal mines around 1000 bats were counted annually . Since 1994 , e.g. from the beginning of exploration work underground, in compliance with agreed principles of the protection of bat winter habitats the numbers of the bats counted were increase from year to year and since 2003 more than 4000 bats of 16 kinds are wintering here. From the overall point of view around 30% of rare bats from the Slovakian territory are wintering on this territory .For more wintering bat kinds this location has priority.

At the end of 1999 the foundation Nadácia Dubnické opálové bane came into being and its purpose is to support :

- protection of bat wintering in Dubník's opal mines as the biggest bat wintering habitat in Slovakia, that is based on securing, creation and protection of inlet openings and mine workings,

- a renewal, a reconstruction, a protection and accessing the cultural-historical and technical monuments , workings and constructions after the extraction of noble opals,
- establishment of an opal mine museum in Dubník, creation and maintenance tourist training ways in the area of opal mines, creation and maintenance of open air museum documenting the life, technology and culture of the first miners of noble opal.

Since its origin the foundation Nadácia Dubnické opálové bane has taken part in project realization in total sum of 4 mil SKK, with foundation financial costs exceeding half a million Slovak crowns.. The labor value of the foundation volunteer workers equaled 481 000 SKK. Beside the subsidy from the state budget, used mainly within the framework of welfare services or activation work, to the most significant partners and sponsors belong :

- Opálové bane Dubník a.s. 082 07 Červenica ,	1 654 000,-SKK
- Prime minister of the SR M.Dzurinda ,	290 000,- SKK
- Ministry of labor, social affaires and family	
- and European social fund	253 000,- SKK
- U.S.Steel Košice s.r.o.	250 000,- SKK
- AQUA, Krmanová 4, Košice 40 000,- SKK	40 000,- SKK
- Defense ministry of the SR, providing a tent camp valued	40 000,- SKK
- Union of Slovak Youth, Vrančovičova 44 , Bratislava	31 000,- SKK
- GEOKART Prešov, Konštantínová 3 , Prešov	23 000,- SKK
- The Group for bat protection, B.Nemcovej 141/5, Revúca	10 000,- SKK
- President of the SR I. Gašparovič	10 000,- SKK
- Municipality Zlatá Baňa, 051/7798225,	5 000,- SKK

The contributions of natural persons ,supporting the foundation activities equaled 170 000,- SKK

Within grant schemes supported by the EU the foundation has realized three independent projects – **Dubnické opálové bane** (Dubník’s opal mines) **Naučný chodník kutiskom Dubník** (Training way through exploration excavation) and **Informačné stredisko Dubník**(Dubník’s Information center)in the total amount of 171 970 €. The EU contribution in the form of grants amounted to 134 775 €, financial deposit of the foundation was 12 195 €, the costs of a co-financing partner, the Opálové bane a.s. presented the sum of 25 000 €.