CONSIDERATIONS CONCERNING THE PROPOSITION OF USING THE SUBTERRANEAN MINING SITES FROM DEALUL CRUCII ORE FOR EDUCATIONAL AND RECREATIONAL PURPOSES

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Abstract: The rich deposits of gold and silver from Dealul Crucii ore, boosted an early development of the mining in the area that finally lead to a serious volume of subterranean mining areas. In the context of re-organization of the mining activity in our country, many subterranean mining sites became available. The present work highlights a possible solution for using these mining sites for educational-recreational activities by introducing them in the tourism circuit of the area.

Key-Word: ore, gallery, shaft, chapel, tourism circuit

1 Introduction

The local mining activity has a long history, as for a very long period of time it represented the main industry in the area and the primary source of income for the local inhabitants, and this occupation was passed on from generation to generation[2].

The presence of the rich gold and silver deposits in the Săsar – Dealul Crucii mining area, boosted the early development of this perimeter, a fact proven by the historical and archaeological remains of the time[2].

These historical traces are visible even today in the surroundings of the Dealul Crucii ore and some of these mining works are still functional even today.

Consequently, it is recommended that these subterranean mining sites would be used as a museum area for recreational and educational activities by including some of the existing mining works and conducting some new ones in the Dealul Crucii ore.

2 Short Presentation Of The Dealul Crucii Ore

The Dealul Crucii ore is situated in the eastern part of the Săsar mining perimeter, being the most known in the entire perimeter and it is directly linked to the rising and development of Baia Mare. The city was developed in the proximity of this ore and the main economical activities were concerned with the extraction and processing of gold. A series of historical evidences and the initial development of the citty present these facts, while the old part of the town and the cultural centre had developed close to this ore.

The superior part of this ore has been opened and exploited before the XVI century, and in a description made by Sigismund Gelon in 1530, the existence of a 1278 m long gallery is specified together with side openings and an air shaft where the ore was extracted from a depth of de 150 m below the level of Săsar river[2].

3 Description Of The Mining Sites To Be Introduced In The Tourism Circuit

The access to the Dealul Crucii ore is made through 2 coastal galleries, one of these is the Lobkovitz transversal gallery that practically starts from Baia Mare municipality, at approx. 300 m from the old part of city , and it is mainly used for the personal's access and for providing drinkable water and electrical energy.

This coastal gallery is in perfect state of exploitation and has been manually excavated by using the chisel and the hammer between the years of 1765-1795, as it is indicated in the inscription above the entrance and it is in a perfect state of function. The length of the gallery up to the main

extraction shaft (the Werner shaft), is of 1100 m and has been mainly executed by a transversal elliptic section, sustained in its first 600 m with chiseled andesite rock to a median profile of the transversal section of 2,8 m^2. The gallery has been set up with simple railroad of wooden beams and below the elliptic section, under the railroad, the drainage channel of the mining water is situated (fig. 1).

The work that has been finalized more than 200 years ago, is well preserved as for stability and safety is concerned and it is used for the personal's access providing drinkable water and electrical energy. The only investments made during time were the replacement of the railroad's beams and rails and the setting up of pre-casted concrete tiles for the circulation of the personal.

This work, by its building characteristics and qualities is truly a ''work of art'' and has undoubtedly won its place in the tourism circuit of the area.

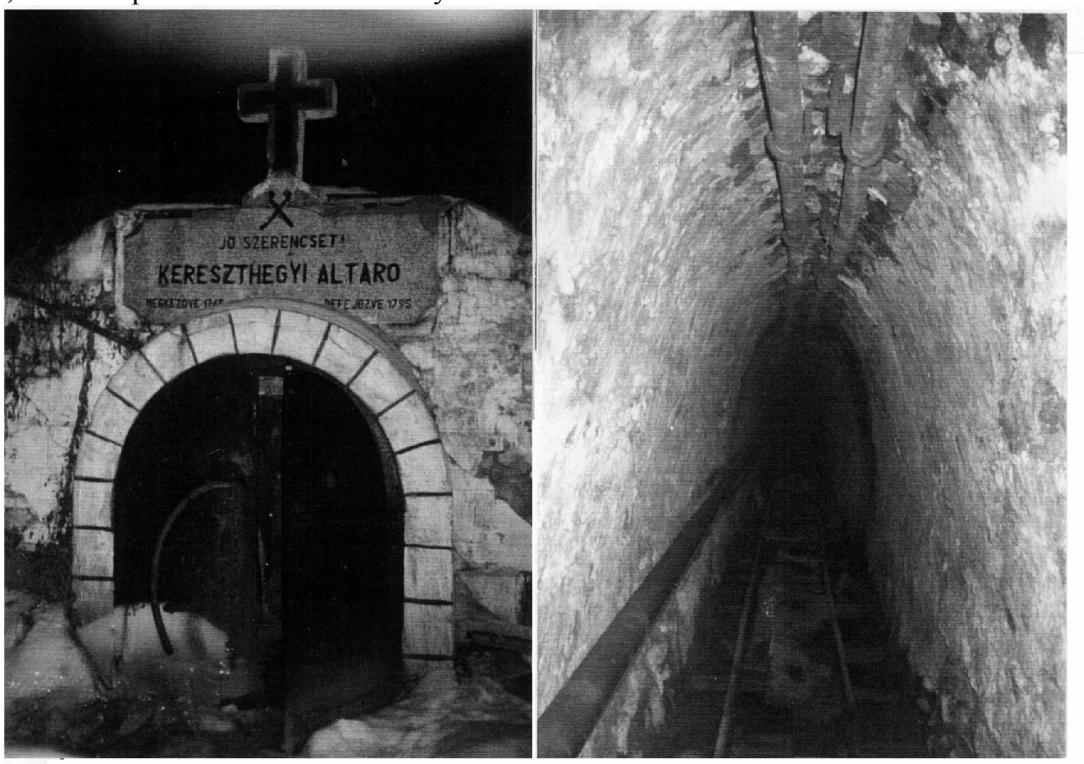

Fig. 1. Lobkovitz coastal gallery

The proposal for introducing this mining site in the tourism circuit of the area is based not entirely on the above mentioned reasons, but also on the fact that at 870 m from the entrance into the coastal gallery, at the intersection with the transversal gallery that links Dealul Crucii ore with Săsar mine, there is an excavated chapel in the magma rocks of the area[6]. The chapel dates from the beginning of the XIX century and had its walls covered with mine flowers that in the light of the candles and nowadays electricity are an astonishing sight. This chapel exists even today, sheltering a brass statuette of Jesus Christ on the cross, but after the regime changes of 1989, the mentalities changed also, in some cases to the worst, and nowadays the beautiful mining flowers have almost entirely disappeared.

At approx. 300 m NE from Werner shaft, there are 2 galleries used for water adduction into mine. The water ensures the functioning of an old extraction machine that was used at Werner shaft until the XIX century, before a new steam machine was installed in 1840. These galleries were manually digged using the chisel and the hammer with a width of 50-60 cm and a height of 3 m. These galleries were divided in two compartments, the one below was used for water adduction and the upper compartment was used for the circulation of people who assured its maintenance of the maintenance personal. These compartments are visible, even today. This subdivision can be seen even today, as the gallery is filled with industrial water necessary for the Dealul Crucii mine.

Another element that should be taken into account during the proposal of using the subterrain mine sites is the Werner shaft assed is the Werner shaft.

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This shaft has a rectangular section, has no retaining walls, and the period of excavation is unknown, but some historical sources place it at the end of the XVIII century and the beginning of XIX century.

Due to the physical-mechanical characteristics of the magma rocks where is excavated, the shaft required no retaining walls, being well keep even nowadays when it is used for the transport of the production, materials, personal access, electrical energy and water supply, ventilation . The annual topographical measurements for determining the verticality and stability of the shaft indicate that it hasn't suffered any severe changes over the time.

The ore offers the possibility of observing different exploitation methods used in different periods of time for the extraction and exploitation of the gold and silver deposits.

4. Presenting The Suggested Tourism Circuit

In the situation of using the subterranean areas for recreational and educational activities, it is necessary to set up a circuit that would comprise the coastal gallery up until the crossing with the main transport gallery, the chapel and then the gallery of the Werner shaft, visiting the area of the extraction machine[6].

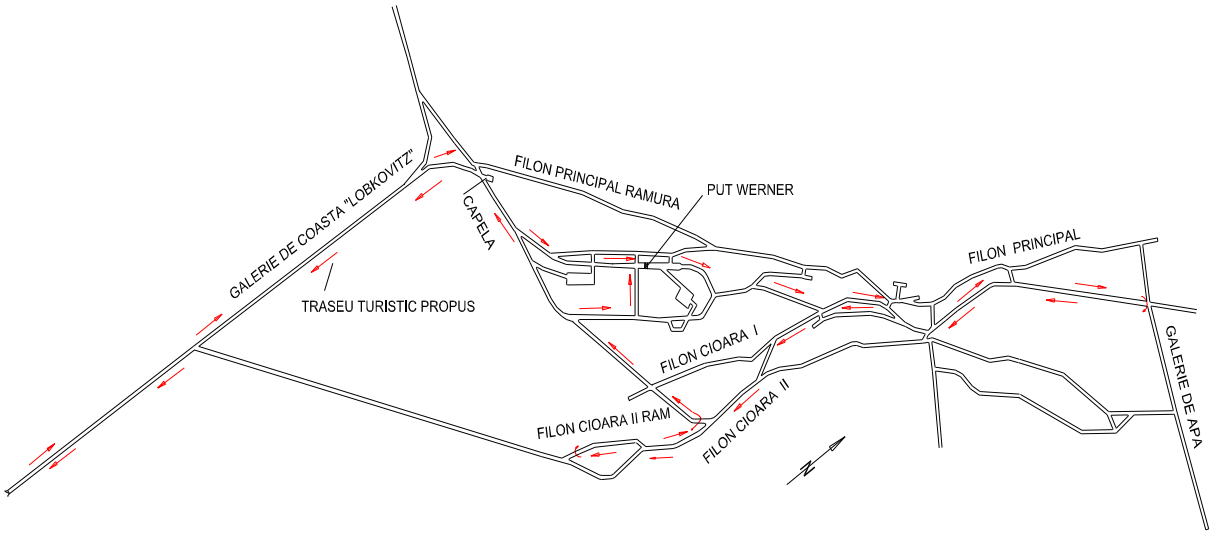

Fig. 2

The circuit continues on the by-passing gallery of the main vein from the level of the main horizon (horizon 0 – level 241) towards the water gallery by returning on the same route until the crossing with the directional gallery from vein Cioara I (fig. 2.).

From the intersection with the directional gallery from vein Cioara I, the route continues on this gallery until the crossing with the connection gallery between veins Cioara I and Cioara II, that will be comprised together with the directional gallery Cioara II in the entire circuit[5].

Cioara II vein has a roof branch, Ciora II branch, that is separated from it at approx. 20 m from horizont I (elevation 189,5), a branch recently discovered (1999), 50-60 cm thick that stretches for 65-70 m and has no economical value because of its metal contents.

In this context, it is suggested that starting with horizon 0 that will remain un-exploited , two exploitation blocks of small dimensions should be set up the main principles and equipments in order to present two methods of exploitation and its main functional principles: the exploitation method with storage of the ore in the exploited area and the exploitation method with remaining cavities where

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the ore is redirected on directional sub-levels on the vein.

These methods were chosen as a consequence of the fact they were used almost exclusively in the Dealul Crucii ore.

From Cioara II directional gallery, the circuit will comprise the exploitation blocks from vein Cioara II Branch, continuing through the directional gallery from vein Cioara II, the transverse gallery Cioara II through the circuit shaft until the Werner shaft.

After having presented the functioning of the shafts and cages equipments , the route continues with a descending in the shaft with a low speed (revision speed) to observe the natural interior of the shaft and the setting up method of the buntons in the shaft until horizon I (level 189,5) where The directional gallery from vein Cioara will be visited in order to observe a frontal card dumper and the old remaining of the exploitation from vein Cioara I,exploited in the past. The circuit will be ended back at the shaft by ascending up to the main horizon and continuing by the circuit of the gallery and the coastal gallery until reaching the surface.

For more diversity, taking into consideration the large transverse section of the gallery (12 m^2) – the Werner shaft, a small exhibition of mining flowers and different mining equipments could be set up in the northern part and in the excavated sites of the rock which sourounds the shift .

The circuit presented above could be used not only for purposes of tourism but also as instructive-educational instrument for students.

It must be specified that this proposal for using the subterranean mining areas and setting up a tourism circuit in Dealul Crucii ore is a very reliable one as the exploitation of the useful mineral substances in the area has ended as a consequence of the restructuring of the mining sector in Romania.

6. Conclusion

In order to materialize this proposition , the incurred costs are minimal and are mainly directed towards the improvement of the circulation line of the personal, illumination, the setting up of the two mentioned galleries and the small exhibition where the main pieces could be easily acquired from "REMIN" SA National Company.

As for the economical efficiency of this proposal, the matter should be assessed taking into consideration the consumption of the useful mineral reserves in the area and the restructuration of the mining industry that created an excess of well prepared work force that could be re-integrated and used for the materialization of this proposal.

The international experience in this field showed the success of these initiatives (Poland, Czech republic, Germany, Romania-Praid, Slănic Moldova, Slănic Prahova, Ocna Dej etc), without leaving aside the important educational and instructive benefits.

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