Syndicat d'Initiative
Stolzebuerg

Visit of the copper mine in Stolzemburg

Station 1, museum:

Dear visitor. We warmly welcome you in the museum of the old copper mine in Stolzemburg.

The remains of the former copper mine are located 1.5 km away from Stolzemburg. Since the beginning of the 17th century, the copper-bearing ore veins of the "Klangbaach" have attracted many investors to Stolzemburg, even though it was located far away from any industrial area. After the Second World War it became quiet in the valley of the "Klangbaach", until in 1998 the newly founded tourist association took the initiative to revalue the former copper mine.
We start the tour, which takes a total of 2-3 hours, here in the museum, then we walk together on the geological trail to the former copper mine. There you will receive the necessary clothing: helmet, rain jacket and boots before we descend together into the underground galleries. We would also like to draw your attention to the fact that the galleries are narrow and sometimes very low. At the end of the tour you have to climb a 27 meter high staircase. It becomes clear under which conditions the work was carried out, because the mine should be presented as authentically as possible.
Here in the copper mine museum, the geology of the Ösling and the development of the landscape of the Ourtal is explained to the visitor on the basis of explanatory boards. The history of the mine and a large number of minerals complete the museum. A video with eyewitness reports from former miners gives you first impressions of the difficult mining of copper in earlier times.
The history of the copper mine is very varied.
The galleries of the Stolzemburger copper mine are on 12 different levels and reach a depth of 169 m. Copper is contained in the mineral chalcopyrite (copper pyrites). The rock that surrounds the copper veins is the Stolzemburger slate. The veins themselves are composed of gangue minerals on which the ore rests. The most common minerals in Stolzemburg are: anchorite, quartz and copper gravel.
Copper is obtained by heating copper pebbles together with charcoal in shaft furnaces made of clay to high temperatures (500 to 1100 ° C). A chemical reaction creates metallic copper.
Copper is part of our everyday life today: It is an excellent conductor of heat and electricity in electrical devices such as cell phones, computers and telephone cables. Copper is also used for precision parts, coins, (example euro coins) cutlery, objets d'art, musical instruments and much more. It's a relatively expensive metal.

Station 2, museum video

(https://www.youtube.com/watch?v=faYQzjBtapI

Station 3, village square

Stolzemburg, with 170 inhabitants, is one of 7 villages that belong to the municipality of Pütscheid.

Stolzemburg is located in the charming Ourtal, 6 km upstream from the tourist town of Vianden. The varied landscape invites every nature lover to hike through extensive forests and narrow valleys. The 96 km long Our River forms the border between Germany and Luxembourg. A few years ago, the “Ourdallpromenade” was built with a cycling and hiking trail near the lower basin of the pumped storage power plant between Vianden and Stolzembourg.
The church with the bell tower built before 1585 and the castle above it with its curtain wall form the symbol of Stolzemburg. The castle was destroyed a first time in 1454 by the governor Antoine Croy and in 1679, a second time, by the troops of Louis XIV. It was rebuilt in 1898 in the Scottish style. Today the castle is privately owned. The "Schiefer von Stolzemburg" was used as building material.
The Luxembourg geologist Michel Lucius referred to the Oeslinger rock layers as am Schist von Stolzemburg ’that are best recognizable here along the Our. Slate is a very fine-grained, homogeneous, dark rock. Increases in pressure and temperature caused its foliation; so the stone splits particularly well in one direction. The original sediment of the ‘Schist von Stolzemburg’ was deposited about 385 million years ago. The slate is dark gray to blue-gray and splits into more or less regular plates a few centimeters thick. It does not provide the best building blocks, but was still preferred to imported building blocks due to the high transport costs until the beginning of the century.
This monument, which a section of the underground galleries, shows the natural oxidation of copper. The copper first turns dark brown or almost black before the patina turns blue-green. In terms of color, copper could easily be confused with bronze, but bronze is an alloy of copper (at least 60%) and tin. Not to be confused with brass, this is a copper alloy with up to 40% zinc.

Station 4, "Pannegaass"

Here you can see the brook, the “Klangbaach”, before it flows underground into the Our. Before the road to the copper mine was made mobile at the end of the 1920s, the “Klangbaach” also served as a transport route for the copper ore.

The residents of Stolzemburg noted with concern that their pets who drank at the "Klangbaach" were suffering from copper poisoning. The investigation at that time of the water confirmed the unusually high content of copper salts. An ore vein consisting of several minerals was soon discovered on the upper reaches of the “Klangbaach”.

The narrow valley of the ‘Klangbaach‘ is bordered by relatively steep slopes. The sessile oak and English oak form the tree layer. In the lower, more humid slope areas with deeper soils, hornbeam and hazel are occasionally found. In the lower section of the valley, which is directly connected to the houses, fruit and vegetable gardens were created that are no longer cultivated today. Low-yielding beech forests and fields were also afforested with spruce.

Station 5, former stone quarry

In this abandoned quarry, the quarrying of the slate was facilitated by three different dividing surfaces: the stratification, the foliation and the crevices. Here these dividing surfaces are formed almost orthogonally to each other and thus simplify the separation of the slate into individual blocks. The stratification area separates two layers of rock lying on top of each other. It was formed about 385 million years ago when the layers of mud and sand were deposited on the sea floor. These layers compacted and were bound to solid rock. The foliation enables a more or less thin-leafed cleavage of the slate. This was caused by increased pressure and temperature during the folding of the rock layers about 300 million years ago. Fissures are dividing surfaces in the rock where the rock masses on both sides have not shifted against each other. These fissures formed a few million years ago when the upper layers were removed.

Remains of other ore deposits can still be found in the north of Luxembourg. Antimony was mined in Goesdorf, there was a lead mine in Allerborn and slate was mined in Asselborn.

Station 6, experimental gallery

The operating company "Société des Mines de Stolzembourg" received the mining rights on an area of over 2000 hectares. For this reason, test galleries can still be found in several valleys that were built in the hope of finding rich copper veins.

The experimental tunnel on the right follows, 14 m long and 1.7 m high, a 1 to 2 cm thick layer of clay running in the same direction (approximately north) as the copper ore veins.

Station 7, wooden sledge

In 2016 a model of a wooden sledge was built. During the earlier mining periods - the access route to the copper mine was not completed until 1929 - all transports were carried out by the "Klangbaach". These wooden sledges were pulled through the stream by horses and served as a means of transport for the necessary material and tools as well as the removal of the extracted copper.

Station 8, dewatering of the mine

History clearly shows that the utility of the water was small compared to the drainage problem in the pit. In order to work in depth, the water had to be drained away faster than it flows in. This was done by pumping the water to the surface. As soon as a more efficient pumping technique (muscle power, steam, electricity, ...) was available, the exploitation was resumed and continued in the depths. Another solution to the overpowering water inflow was drainage tunnels. The first was completed in 1858, was on the third level (-27m) and is still working. In the area of this table the ‘Klangbaach’ partially seeps away. The water penetrates from the creek bed into the nearby drainage tunnel, only to reappear 50 m downstream. The second

drainage tunnel, located at a depth of 91 m, was supposed to drain the water directly into the Ourtal 1088 m away. Work was stopped in 1913 after 340 m of tunnels had been dug. The mouth of the drainage tunnel is one of the rare indications of the existence of a copper mine in the village.

Station 9, ore heap

The copper-bearing veins run approximately in a north-south direction with a 65 ° incline to the west. The ore has an average copper content of 14 to 18%. The metal we are looking for is in the mineral chalcopyrite or copper pyrites. The rock that surrounds the copper veins is the 'Stolzemburger Schiefer'. The veins themselves are composed of gangue minerals on which the ore rests. The minerals have settled in the existing crevices, in which a liquid circulated, the temperature of which was between 100 ° and 250 ° C.

The most common minerals in Stolzemburg are: anchorite, quartz and copper gravel. Secondary minerals include red copper gravel, aragonite and malachite.

Station 10, office building

The offices and electrical installations were located in the only building that is still intact. At the beginning of the 1950s the workshops and the silos were destroyed.

The plan shows you the cross-section of the underground galleries. There is a map on the other side of the building.

Every visitor in the building now receives the necessary protective clothing: helmet, boots and a rain jacket.

Station 11, entrance to the drainage gallery

We get to the main shaft through the 395 meter long drainage tunnel. On the way we pass 2 ventilation shafts where you can see the daylight. Inside the pit the temperature is about 11 degrees Celsius. Before we enter the underground tunnels together, we ask you to observe the following safety instructions:

- It's an obligation to carry the helmet during the entire tour.
- There is a risk of tripping over a stone or slipping; therefore always grasp the safety rope on your right-hand side.
- The tunnels are under water and you have to be stooped to some extent
- In case of claustrophobia, it is recommanded to not enter the galleries
- Please do not touch the electrical cables.
- In the event of a electrical failure, the instructions of the visitor guide must be followed.
- It is strictly forbidden to climb over the barriers.
- We ask you to take special care of children under 6 years of age.

The last visitor in the group should please close the door, all doors can be opened from the inside.

Station 12, air shaft, main production shaft

On your right side you can see the metal staircase which we use to get out of the pit at the end of the tour. On the left it goes to the main shaft. We are here on the 3rd level, 50 meters underground. In the main shaft you can see the metal rails for the transport trolleys and the supply lines for water and air. All of the deeper galleries that lead to -169 meters are under water.

The known history of the Stolzembourg copper mine began in 1717 with a first concession. As early as 1881, under the "Société des Mines de Stolzembourg", artisanal mining gave way to industrial exploitation, above all thanks to the use of steam engines for pumping water. The underground galleries were dug with a pickax and black powder, later with dynamite. Until 1913, workers descended into the mine using ladders. The bags filled with ore were brought up by a cable pulled by a merry-go-round operated by men or domestic animals. During the last period of operation, which began in 1938, the use of electric pumps solved the dewatering problems. The miners were already separating the ore qualities underground. They filled the carts with rich ore, with ore on gangue minerals or with ore-free overburden. The workers pushed the carts over rails to the main shaft. Here they dumped the ores, sorted by quality, into a container that hung on a wire rope along two rails. An electrically driven pulley system brought the ore into separate silos. The rich ore and gangue were dumped through a chute onto a truck that brought it to Neuerburg, Germany, from where it was transported by train to Siegen near Cologne for further processing. The ore-free overburden was loaded onto lorries, which were pushed over a wooden bridge to the overburden dump.

The Battle of the Bulge in winter 1944 put an end to all activities in the mine.

We thank you very much for your interest in the copper mine and hope that you enjoyed your visit. If you are still interested in other sights in our region, please contact your guide, who will certainly give you valuable tips.

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