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Harz . Braunschweiger Land . Ostfalen

Landmark 10

# Auerberg Mountain



assisted by

UNESCO

# Harz



# Networks of the Geoparks



The **Global Geopark Network** is a worldwide association of various Geoparks, all of which pursue common goals under the auspices of the UNESCO.



## European Geoparks



A **National Geopark** is a clearly defined region, which conveys both geological history as well as the development of a cultural landscape. In addition, the institutions responsible for the Geoparks are actively involved in the protection of its geological heritage.



The **Geopark Harz · Braunschweiger Land · Ostfalen** was founded in 2002. Its geographical position in Europe as well as the location of the individual landmark regions are depicted in the map above.

## 1

**Harz Basal Complex****Auerberg Mountain, Stolberg**

Even from a distance, the volcanic cone of Auerberg Mountain is easily discernible from the other peaks in the Lower Harz area, surmounted as it is by the Josephskreuz (Joseph Cross), which towers above the trees on the summit. From the parking area of the Schindelbruch Nature Resort, it is only a short climb to the top of the 579m high peak. There we find the 38 m high observation tower, the largest double cross in the world, which is named after its builder, the art enthusiast Earl JOSEPH ZU STOLBERG-STOLBERG (1771-1839). The Earl commissioned KARL FRIEDRICH SCHINKEL (1781-1841) as his architect. The famed Neoclassical master builder had 365 oak trees from the surrounding forest felled for the construction. The wooden construction was dedicated in 1834 but fell victim to a lightning strike in 1880.



*Stolberg "diamonds"*



*Geology and Forest Discovery Trail*

The tower was rebuilt by the principality according to the original plans with the assistance of the local branch of the Harz Club. This time it was constructed of metal fabricated by the Dampfkessel- und Gasometerfabrik Company in Braunschweig. The Eiffel Tower, which had been opened seven years earlier at the World's Fair in Paris, served as inspiration for the new tower. The Josephskreuz, which was reopened in 1990 after a complete renovation, received the Nature Park Prize as the most beautiful observation tower in the Harz Mountains. The tower and its surroundings are maintained by the owner of the Bergstübel restaurant and guesthouse.

The rhyolite lava of which Auerberg Mountain is formed is composed of a rapidly cooled, finely crystalline matrix in which crystals known as Stolberg "diamonds" 'swim'. The "diamonds" are dihexahedral quartz crystals between 1 and 13 mm, and orthoclase up to 8 mm in size.

**Josephskreuz**

**For opening times call: ☎ 0049 34654 - 454 or 19433**

## 2

## Borders

## Old Mint Museum, Stolberg

The area described here was earlier divided between the Earldom of Stolberg and the Principality of Anhalt. In the museum we can read that "In May 1563, four miners working in the Biewende Mine, belonging to the Municipality of Harzgerode in Anhalt, were taken prisoner by the Earldom of Stolberg." Such acts of violence went hand-in-hand with a decades-long legal battle. The cause of this conflict was the incorrect return – according to the House of Anhalt – of the castles and towns of Güntersberge and Harzgerode in 1536. These had been sold to the Earldom of Stolberg in 1498, a sale which had included a buy-back clause. The House of Anhalt demanded the return of lands which the Stolbergs insisted they had bought from, among others, the von Hoym family.



Museum exhibit – galena



The Old Mint Museum, Stolberg

Numerous investigative commissions appointed by the Imperial High Court were unable to adequately clarify who held the rights of ownership, as border markers and important documents had disappeared. Especially contentious were the terms of the contract of 1498 relating to the mines – mining rights were not included in the sale. This had, however, not stopped the Stolberg Earls from mining in the Anhalt lands. As the conflict was causing both parties significant economic damage, a compromise was reached in 1613. The Thirty Years' War (1618 – 1648) saw mining in the Stolberg territories come to a standstill. Despite starting up again in 1660 it met with only moderate success. New mining technologies and the imperial laws regarding coin minting led to a revival of the Strassberg mines at the end of the 17<sup>th</sup> century. A large part of the exhibition space is devoted to the history and technology of coin minting.



**Tourist-Information Stolberg**

☎ 0049 34654 - 454 or 19433

[www.tourismus-suedharz.de](http://www.tourismus-suedharz.de)

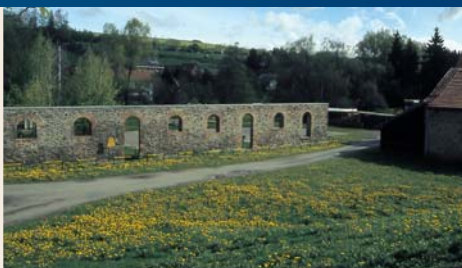
## 3

## Mining in the Earldom of Stolberg Glasebach Mine, Strassberg

The mine may be reached by road, following the provided signs, or by foot, from the Hüttenplatz stop on the Selke Valley railway. In the grounds of the mine artefacts connected to mining in the period after the Second World War are on display. Information and displays about earlier mining are found in the mine itself. Our tour begins on the surface in the wheel pit with the huge, reconstructed water wheel. Here, before going further, we will don protective clothing. We will explore water elevation technology, excavation and tunnel support construction methods (inc. oakwood timbering from the 18<sup>th</sup> century), inclined shafts and richly-coloured mineral deposits. The first two levels are accessed via a stairway that has been built into the main shaft. The tour takes ca. 80 minutes. In the 15<sup>th</sup> century, after the opening of the Heidelberg Silver Mine, north of Strassberg, the first



*Buildings at Glasebach Mine*



*Smeltery which belonged to the Earldom of Stolberg*

blast furnace for silver metallurgy was put into operation at the Strassberg smeltery, which belonged to the Earls of Stolberg. Around 1690 we find the first mention of the Seidenglanz Mine. During the heyday of Strassberg mining in the first half of the 18<sup>th</sup> century, when up to 500 miners were working here, the name was changed from Seidenglanz to Glasebach Mine. At the turn of the 19<sup>th</sup> century the Principality of Anhalt-Bernburg declared the Strassberg mining industry bankrupt. Almost 150 years later, in 1950, the old mining shaft was reopened and Glasebach Mine was investigated anew. In the years that followed fluorite (also called fluorspar) was mined. The miners transported it underground to a shaft known as the Fluorschacht (fluorite shaft), between Strassberg and Siptenfelde, where it was brought to the surface.



**Opening times: April to October**  
**Tuesday-Thursday 10 am – 4 pm,**  
**Saturday & Sunday 10 am – 5 pm**  
**Group tours: ☎ 0049 39489-226**

[www.grube-glasebach.de](http://www.grube-glasebach.de)

## 4

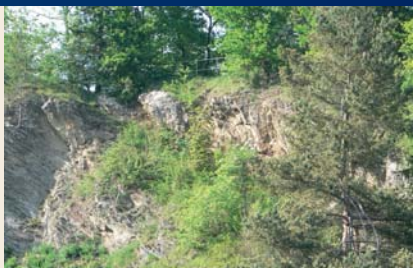
Window on Geologic History

## Pfungstfelsen Cliffs, Stolberg

From the Stolberg market square, we drive along Rittergasse to the Chalet Waldfrieden Hotel. KARL FRIEDRICH SCHINKEL was also the architect of this imposing building, which was erected in 1810 on behalf of the Earls as a clubhouse for local marksmen. Today the building contains the hotel, a restaurant and the Coffee Machine Museum. We walk on past a swimming lake and equestrian centre. An especially scenic view opens up here over the Schweizer (Swiss) smelter. The trail, marked by signs with a wide yellow bar on a white background, is also known from here on by the curious name of 'Besoffener Weg' (Drunk's Path). The Lude burbles along to the left of the path. Near where water flowing from the cliffs meets the Lude, the Pfungstfelsen (Whitsun) Cliffs form an impressive rampart fronting Benedixköpfe Hill. The cliffs present a section through the South Harz surface-layer in which marine ellipsoidal lava interstratified with metabasalt tuffs is visible.



Pfungstfelsen Cliffs



Schneckenberg Quarry

## 5

Mining in Anhalt

## To Schneckenberg Quarry

From the Liebeslaube (Love-nest) shelter on Loop Trail 4 between Harzgerode and Alexisbad we have a clear view into the quarry, which was closed down in 1938. Below the quarry is the new sewage works of Harzgerode. In the quarry four different limestone facies were extracted, including princeps limestone which contains rich deposits of lower Devonian (416 - 398 mya) fossil fauna. The limestone deposit is a large olistolith forming part of the Harzgerode olistostrome. Olistostromes are deposits formed by gravity-induced flows of unconsolidated sediments. The unlayered, chaotic mass of stone comprising the Harzgerode olistostrome is the result of submarine gravitational sliding. Olistoliths are pieces of rock and rock sequences, varying widely in size, which are embedded in the marl, sand and clay matrix of an olistostrome.



Coffee Machine Museum

Opening times: weekends and public holidays 2 pm - 5 pm

[www.cafe-maschinen-museum.de](http://www.cafe-maschinen-museum.de)

## Glossary

**Landmarks** are widely visible or particularly well-known ground points or places serving for a first orientation in one of the largest Geoparks of Europe giving its name to one of its part areas. Up to this point the landmarks and their surrounding area have been described so far.

**Geopoints** are points of special interest. The geologic history and the development of the natural and cultural landscape can be seen and conveyed on them. Geopoints of the area of one landmark are continuously numbered and can be connected to individual Geo-Routes. Geopoint 1 is always the place of the landmark.

This map will help you plan your personal Geo-Route in the area covered by Landmark 10 – Auerberg. You can visit two former royal seats: Stolberg and Harzgerode. Stolberg was the seat of the Imperial Duchy of Stolberg-Stolberg until 1806, while Harzgerode was the seat of the Principality of Anhalt-Bernburg-Harzgerode which existed from 1635 to 1709.

Order more leaflets  
Information en français  
[www.harzregion.de](http://www.harzregion.de)



## 6

Selke Valley Trail

## Pioneer Tunnel, Alexisbad

A pleasant half-day excursion on the Selke Valley Trail begins at the Verlobungsurne (Betrothal Urn) on Habichtstein Hill, high above Alexisbad. The climb leads to the Harzgerode olistostrome. Characteristic of this formation is the argillaceous shale of the olistostrome matrix and chaotically deposited olistoliths, ranging from lenticular to lanceolate in shape, which were deposited later, during the Variscan orogeny (FRANZKE & SCHWAB, 2011). Further on, the path passes the Birkenhäuschen (Birch Hut) shelter, the Friedensdenkmal (Peace Monument), and the Luisentempel (Luise Temple) before it leads through the Pioneer Tunnel. The 2<sup>nd</sup> Company of the 4<sup>th</sup> Magdeburg Pioneer Battalion built the tunnel in May 1900. Its construction is similar to a mine tunnel and it offers shelter from rain or a cool spot to rest on hot summer days. The path continues on to Mägdesprung, past the Köthener Hütte shelter and Mägdetrappe and back to Alexisbad through the valley.



Pioneer Tunnel



Lode tract

## 7

German Emperors and Kings Route

## Mühlenberg-Zug unter der Erichsburg

Coming from the direction of Mägdesprung, we arrive at Alexisbad at the point where the 'German Emperors and Kings Route' crosses the valley. We follow this route up through Frieden Valley and quickly reach a spot, washed clean by flowing water, where deeply-worn ruts formed by the passage of ironbound wheels can be seen. Here we can also see vertically layered slate that was used to stabilise the ground and to provide secure footing for draught animals. This laborious construction process demonstrates the importance of the traffic that used the road. Next we come to the remains of a series of cascading reservoirs where water used to power the waterwheels of the various works in the Selke Valley was stored. Finally we reach the entry of the Prince Karl Wilhelm Mine where copper pyrite was mined between 1708 and 1741.



The German Emperors and Kings Routes are described in a series of 7 leaflets.

To order them go to: [www.harzregion.de/de/shop.html](http://www.harzregion.de/de/shop.html)



## 8

## The Allocation of Forestry Rights Bergrat Müller Pond

The Mühlenberg Dyke, a mineral-filled mountain fissure, is a source of iron and arsenical pyrite as well as copper pyrite. The Erichsburger Pond (1709) and the Bergrat Müller Pond (1737-1738) were constructed to provide water-power for the Prince Karl Wilhelm Mine. Bergrat (Inspector of Mines) Müller was an important mining expert of his time. A small, heavily overgrown quarry near the pond exposes Ramberg binary granite with a well-developed weathering belt (Upper Carboniferous). Worth noticing is the border marker on the dam wall of the pond. It is evidence of territorial divisions for the allocation of forestry rights, which was the responsibility of the Forestry Commissioner of the Principality of Anhalt, JOHANN JACOB BÜCHTIG (1729 – 1799). He was the first German forestry worker with a university education and held the office of Mining Inspector in Harzgerode from 1765.



*Bergrat Müller Pond*



*Erichsburg Castle Ruin*

## 9

## Robber Barons

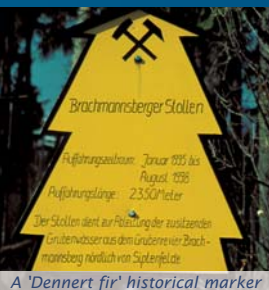
### Erichsburg Castle Ruin

From the cottages in the holiday park we follow Beckstrasse for 700 m in the direction of Siptenfelde where a small trail leads us to the left up the slope. Here we find the rampart and remaining ruins of a castle keep, one of the residential towers of a larger castle complex. Erichsburg Castle was sold to the Stolberg Earls in 1320. Its later history is reported in Spangenberg's 'Mansfeld Chronicle' from 1572. There it is recorded that Earl Hermann von Stolberg used it as his base while he operated as a robber baron of the worst kind, until the Landgrave of Thuringia, along with citizens from Erfurt, Mühlhausen and Nordhausen, captured the castle. Hermann was faced with harsh judgement. He was forced to agree never to rebuild the castle and it has lain in ruins since. It is possible that mining activity was undertaken in the immediate vicinity of the castle during the Middle Ages.

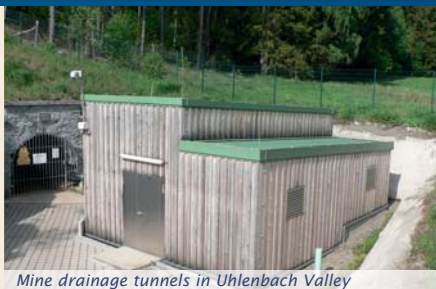


## 10 Old Mining and its consequences Brachmannsberg Quarry

After approximately 1 km we leave Beckstrasse to the right, descend into the valley and follow the trail markers to the idyllically located Uhlenstein forest lodge. From here we descend further to the abandoned Brachmannsberg Quarry. In recent years this quarry was partially backfilled with material from the excavation of a water drainage tunnel in Uhlenbach Valley. At the quarry we also find the 50 – 55 m deep main shaft of the Brachmannsberg Mine, sunk in 1784. Fluorspar (fluorite,  $\text{CaF}_2$ ) was mined here. This raw material was utilised in the smelting of metal, the production of fluorine and in the glass industry. The dispersal of fine particles of pyrite ( $\text{FeS}_2$ ) was responsible for the creation of noxious mine water that, even now, requires appropriate handling before it can be released into the drainage run-off.



A 'Dennert fir' historical marker



Mine drainage tunnels in Uhlenbach Valley

## 11 Back to Selke Valley Mine Drainage Tunnels

Lower down the valley we have to cross the B242 and then walk ca. 100 m along the other side. Soon we arrive at the mouth of the Bachmannsberg Gallery, which was driven between 1995 and 1998. Along with the Biwend Gallery on the other side of the valley, it serves to provide controlled drainage for the historic mines. After the two drainage tunnels were opened a water treatment plant was built between the two gallery mouths. At the termination of the Uhlenbach Valley where it meets the Selke Valley, our route leads to the right along the small road to Silberhütte. There, where initially there were a potash works and an oil mill, a silver smelter was established in 1692. In 1752 this smelter was replaced by a glassworks belonging to the principality. Here, a large cast-iron plaque informs us that Duke ALEXIUS FRIEDRICH CHRISTIAN VON ANHALT-BERNBURG (1767–1834) had the smelting works modified and improved in 1825.



12

Open Air Museum

## Harzer Waldhof, Silberhütte

The Harzer Waldhof Open Air Museum has developed into an attraction that is not just for school trips and families with children. The museum was established in 1998 by the Forestry Commission of Harzgerode as part of their public relations activities. Together with a supporters group, the State Forestry Commission and the State Centre for Forestry and the Environment have improved the facility and added exhibits (e.g. traditional motor saws) in the former railway station of the Selke Valley railway. In the grounds, which are accessible all year-round, are displays about the development of forestry and its (former) importance for the mining and charcoal industries, as well as the contemporary economic (timber), environmental (soil, water, and nature conservation) and recreational importance of forests. Each year on Arbour Day a tree of a different species is planted here.



At the Harzer Waldhof Open Air Museum



Former 'Blauer Schacht' (Blue Shaft)

13

Mining History

## Pfaffenberg Mine, Neudorf

A geological discovery trail across Wolfsberg Mountain begins at the Harzer Waldhof Museum. At Birnbaum (Pear Tree) Lake we find the head of the Neudorf Mining Loop Trail. Prince OTTO VON ANHALT (d. 1304) awarded mining rights in the area to the monasteries in 1300. Once in Neudorf, it is worth spending some time looking around, because the village is full of sights connected to the history of mining. From 1887 to 1912 a 4.5 km long mine railway ran from here to Silberhütte. There was an ore extraction shaft directly in Neudorf. From the former location of this shaft we walk along the street called 'In den Eichen', past the Blauen Schacht (Blue Shaft), to the Prince Christian Shaft of the Pfaffenberg Mine. Here a number of mine drainage tunnels connect with the Meisberger Gallery where ore cars were emptied. Water from these tunnels was used to power a waterwheel. In 1822-1823 a steam powered engine was built here to extract groundwater.



If you would like to hike along the state border in the Harz Nature Park, we recommend the map: "Anhalt(en) im Naturpark Harz" available on [www.harzregion.de/publikationen](http://www.harzregion.de/publikationen)

## 14 Last But Not Least Güntersberge Lake

You will have noticed that Geopoints 5 to 13 can form a hiking route with the common theme of mining and geological history. The starting point is in Harzgerode where the castle was, until the 19<sup>th</sup> century, the location of the Anhalt Mining Authority. A panel on the fountain in the market square of the former royal seat gives an overview of the ore lode tract that was mined here. From the Pfaffenberg Mine we can make our way back to Harzgerode via the dam wall of Neudorf Reservoir, the Stahlquelle spring (Checkpoint Nr. 193, Harz Hiking Badge System), Wegehaus and Taterhöhe. Those who are tired after their hike can take the Selke Valley railway to Güntersberge. From the Harz Narrow Gauge Railway station there it is only a short distance to the lake (swimming and boat rentals available). Güntersberge Lake, also known as Mühlenteich (Mill Pond), was originally created to supply the mills,



Güntersberge Lake



Selke Valley railway

forges and mining industry in Selke Valley with water. On the slope of the southern shoreline is an important natural landmark: the “Aufschluss Teichdamm” (dam wall exposure), a stratotype exposure of Devonian hercynian limestone in a lower Carboniferous olistostrome. An information board explains the geology. A nature discovery trail, along which 15 points of interest can be visited, begins below the dam. Our goal is the ruin of Güntersburg Castle, an extensive fortified settlement, which already lay in ruins at the beginning of the 17<sup>th</sup> century. The protective rampart, along with the foundations of the gate towers and a few other buildings can still be made out. Here stood wooden houses with slate roofs built on stone foundations. As early as 1319 the road that ran below the castle was known as the High Road (Hohe Strasse).





In the Beginning was a Sea

## Geologic Development of the Area

An understanding of the area surrounding Auerberg Mountain calls for a look back at the early formation period of argillaceous shale and greywacke. It is the period of the earth's history covered by the Silurian, Devonian and Upper Carboniferous periods (444 – 318 mya) when the central Europe of today was covered by ocean. Over millions of years an enormous amount of sediment was deposited in this ocean. The finest particles were deposited far from the coast in the form of clay mud which solidified under great pressure. In other parts of the ocean deep fissures formed in the ocean floor from which molten basaltic magma flowed, creating the diabases which are spread widely throughout the Harz region today.

The further development of the area was described by Knappe (1976) as follows: "This continuously sinking ocean trough, or geosyncline, was constantly filled with clay, sand, limestone and volcanic rock material." During the Upper Carboniferous (ca. 300 mya) the Variscan folding, advancing SE to NW, met this sediment-filled trough. As a result of continuous upwards movement, this entire complex was eventually pushed up above sea level (i.e. the Variscan orogeny). At the end of the folding period molten masses of rock, chiefly granite, once more rose from the depths, were pressed into the folded strata and slowly solidified into directionless, coarse-grained plutonites (Gabbro, granite).

By the 19<sup>th</sup> century geologists had already recognised a connection between granite masses (e.g. Ramberg Mountain) and ore lodes. As large magmatic bodies underwent their long cooling phase, hot (100° - 400°C) metal and mineral-rich solutions cooled slowly as they rose and deposited the metals and minerals as ore lodes or granite minerals in the available fissures and cracks.

The centre of lower Harz lode mineralisation lies in the Strassberg-Neudorf-Harzgerode area (Liessmann, 1992). Auerberg Mountain, also formed by a volcanic effusion, is a younger equivalent of the Ramberg Mountain plutonic body. It is likely that the two share a common source.



Selected Points of Information

## Restaurants and Accommodations

**A** Naturresort Schindelbruch  
Stolberg/Harz  
[www.schindelbruch.de](http://www.schindelbruch.de)  
☎ **0049 34654-8080**

**B** Hotel Beutel „Chalet  
Waldfrieden“ Stolberg/Harz  
[www.hotel-beutel.de](http://www.hotel-beutel.de)  
☎ **0049 34654-8090**

**C** Ferienpark Merkelbach  
Friedrichsbrunn  
[www.ostharz.de](http://www.ostharz.de)  
☎ **0049 39487-740955**

**D** Berghotel „Glück auf“  
Güntersberge  
[www.berghotel-guentersberge.de](http://www.berghotel-guentersberge.de)  
☎ **0049 39488-301**

**E** Kinder- und Erholungs-  
zentrum Güntersberge  
[www.kiez-harz.de](http://www.kiez-harz.de)  
☎ **0049 39488-7622**

**F** Bergstüb'l Josephskreuz  
Stolberg/Harz  
[www.bergstuebl-josephskreuz.de](http://www.bergstuebl-josephskreuz.de)  
☎ **0049 34654-476**



## REGIONALVERBAND HARZ E.V.

The Regional Association Harz is a non-profit association of the following counties: Goslar, Harz, Mansfeld-Südharz, Nordhausen and Osterode am Harz. It promotes the protection of the natural environment as well as cultural life in the region. It is supported by a network of over one hundred contributing members. Its goals are realized in part within the administrative context of the Nature Parks of the Harz Region. As a corporate member of the Geopark Harz · Braunschweiger Land · Ostfalen GbR, founded in 2004, the Regional Association is responsible for the southern portion of the region. Its corporate partner, the association FEMO in Königslutter, is responsible for the northern portion. The Geopark Harz · Braunschweiger Land · Ostfalen is a member of the European and Global Geopark Networks under the auspices of the UNESCO.

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