



Organisation  
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- Harz - Braunschweiger
- Land - Ostfalen
- UNESCO
- Global Geopark

Landmark **18**

# Liebenburg Palace



 **GEO PARK**<sup>®</sup>  
Harz . Braunschweiger Land . Ostfalen

**Harz**



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UNESCO  
Global Geopark

On the 17<sup>th</sup> of November, 2015, during the 38<sup>th</sup> UNESCO General Assembly, the 195 member states of the United Nations resolved to introduce a new title. As a result, Geoparks can

be distinguished as **UNESCO Global Geoparks**.

As early as 2004, 25 European and Chinese Geoparks had founded the Global Geoparks Network (GGN). In autumn of that year Geopark Harz · Braunschweiger Land · Ostfalen became part of the network. In addition, there are various regional networks, among them the European Geoparks Network (EGN). These coordinate international cooperation.



In the above overview map you can see the locations of all UNESCO Global Geoparks in Europe, including UNESCO Global Geopark Harz · Braunschweiger Land · Ostfalen and the borders of its parts.

UNESCO-Geoparks are clearly defined, unique areas, in which geosites and landscapes of international geological importance are found. The purpose of every UNESCO-Geopark is to protect the geological heritage and to promote environmental education and sustainable regional development. Actions which can inflict considerable damage on geosites are forbidden by law.



## 1 On Lever Hill Liebenburg Palace

In 1291, during the territorial conflict with the House of Welf, SIEGFRIED II., Bishop of Hildesheim, had Harlyburg Castle, near Vienenburg, destroyed. In order to secure the eastern border of the territory belonging to Hildesheim, an independent Prince-Bishopric since 1235, he constructed Levenborch Castle. The castle came under the control of the Princes of Brunswick-Wolfenbüttel in 1523, as a result of the terms of the Treaty of Quedlinburg, and remained so until the Treaty of Hildesheim overturned those terms. More than 100 years later Clemens August of Bavaria had the well-fortified castle torn down and began construction of the baroque Liebenburg Palace on the site. The Prince-Elector and Archbishop of Cologne was also the Bishop of Hildesheim. Only ruins of the castle remain today, including the tower known as the Hausmannsturm, which underwent restoration in 1991. From the tower visitors can enjoy wonderful views over



*Spiral staircase in the Hausmannsturm*



*Sculpture „Dreischeibenkreuz“*

the Salzgitter Hills. With the end of the Holy Roman Empire, the Bishopric of Hildesheim lost its sovereignty. In the ensuing years Liebenburg Palace came under the control of the Kingdoms of Prussia, Westfalia, Hanover, and finally, in 1866, Prussia once more. Liebenburg Palace was the location of the central administrative office of Liebenburg Municipality until 1885, and of a district magistrates court until 1959. Today the palace is in private hands, owned by the artist GERD WINNER (b.1936). A modern sculpture park can be found in the palace grounds. The creation of this park has filled an historical gap because, as a result of the death of the Prince-Elector and Prince-Bishop CLEMENS AUGUST in 1761, the palace grounds remained uncompleted. While most of the sculptures themselves are made of modern materials, the walls surrounding the palace grounds reflect the geology of the region. The dominant building material in the palace complex is Rhaetian sandstone from the late Triassic (208 - 201 million years ago). This stone is quarried widely in the area.



**Liebenburg Municipality Residents Bureau**

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## 2

## A section through the Salzgitter Hills Flöteberg Hill, Heimerode

From Liebenburg Palace we drive back to the main road and follow the L 500 in the direction of Othfresen, passing two small lakes on the left. After ca. 3 km we arrive in the former miner's village of Heimerode. On the right is a mining car adorned with mining hammer and pick – a memorial of the Bismarck Mine, which was closed in 1962. Further on, in the direction of Othfresen, the L 500 passes through a cutting in Flöteberg Hill. At the end of this cutting, we come to a junction of the L 500 and a farm road where we can park. We now walk back through the cutting which was created during construction of the road. Here we find older layers of stone above younger stone. The reason for this inversion can be traced to the overturning of the western flank of the Salzgitter anticline. The horizontally-deposited layers were displaced by salt uplift, tipped past the vertical, and are now upside-down. The inversion



*Outcrop at Flöteberg Hill*

exposed stone from the Albian (early Cretaceous) as well as the Cenomanian and Turonian (late Cretaceous). The section profile begins with speckled marl, known as Flammenmergel. The late Cretaceous lithology begins with a layer of yellow-grey marl containing grains of green-black glauconite. This stone is also known as Ultimius clay. There then begins a thick series of grey, marly limestones, known as pläner limestone. Around the border between the Cenomanian and Turonian we find a conspicuous layer of red-coloured stone between 10 and 20 metres thick, known as Rotpläner. The marly limestone is rich in fossils, including large clam shells (Inoceramidae), brachiopods, and, more rarely, sea urchins and ammonites. Above the pläner limestone of the Turonian we find soft, non-descript marl from the late Cretaceous (Emscher marl). These strata are rarely visible on the surface. The section ends abruptly at the western foot of Flöteberg Hill.

### 3 Geological and biological diversity Gypsum hollow, Othfresen

After we pass back through the cutting in the direction of Heimerode, we walk south onto a farm road. Our destination is a barren hilltop which bears witness to a heritage landscape worthy of preservation. The task of preserving this landscape has long been an aim of the Nature and Environment Preservation Society of Goslar, which has purchased numerous pieces of land in the area. The Society was, and is, focussed on the regeneration and preservation of the species-rich dry limestone grassland found in the Salzgitter Hills, as well as the Hirsch and Backen Hills near Heisum. The Society's members are working toward their vision of establishing an interconnected system of habitats. The geological diversity of the pedogenic rock is the foundation for the diverse flora. As we walk further south we arrive at the gypsum hollow, about 500 m southwest of Heimerode. Here, amidst the limestone, we find another white stone:



*Gypsum outcrop*



*Common kidneyvetch*

gypsum. Its geological age is unclear. It dates back to either the mid-to-late Permian (Zechstein) or to the early-to-mid Triassic (Rt Formation of the Bunter). It extends across an area of almost two hectares. Exposed outcrops like this, of anhydrite or gypsum in the vicinity of salt structures, are rare. The preservation and care of this geotope is therefore of wider-scale importance. Gypsum from around Othfresen was quarried from at least the 19<sup>th</sup> century for the production of stucco and building plaster. Now that this area has been regenerated, we can once again find many of the species typical of dry limestone grassland. Also conspicuous are the chert and greywacke scree deposits in the area around the gypsum hollow. Here we are standing on the oldest valley floor of the Innerste River! In the past, the river, which rises in the Harz Mountains, flowed north-east through the Salzgitter Hills. Those who would like to undertake a longer hike can follow the traces of the ore railway belonging to the abandoned Fortuna Mine directly to Point 4 of the tour.

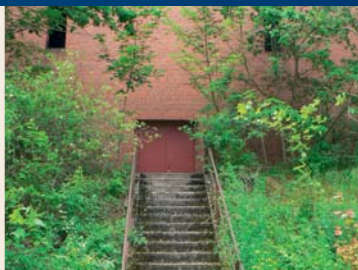
## 4

Monumental Testimonial to Iron Ore Mining  
Fortuna Mine, Groß Döhren

We now follow the L 500 back through Liebenburg and turn right onto the L 510, toward Vienburg, as we leave the village. When we arrive at an intersection on the edge of the village of Groß Döhren, where we can see the town sign, we turn right onto Weißer Weg and drive east, uphill, towards the forest. At the crest of the hill, beside the road on the left, we find a small outcrop of late Cretaceous limestone (Weißpläner). Here we find ourselves on the eastern anticline flank of the Salzgitter Hills, in the strata overlying the iron ore deposit. At the next intersection we turn left and park near the imposing remains of the Fortuna Mine buildings. Fortuna is an abandoned iron ore mine and was part of the Salzgitter mining district. It was, along with the Ida-Bismarck Mine, last operated by the Barbara Mining Corporation. Fortuna was the largest iron ore mine in the southern section of the Salzgitter



*Preserved tower at Fortuna mine*



*Nature reclaiming the area*

Hills and is architecturally comparable to many of the large coal mines of the Ruhr area. Here a detrital ore deposit from the early Cretaceous was mined using both open pit and subsurface methods. After an initial period of ore extraction (from 1857), the mine experienced a varied history. During the build-up to the Second World War, development of the mine and excavation of ore started once more. With the completion of the connecting tunnel between the Fortuna and Morgenstern mines in 1959, constructed at the 50 m horizon, an underground connection existed between numerous mines. Ore-extraction reached a high-point in 1959 at 593,100 tons. However, by 1961, the mine's end was in sight. The steel concerns in the Ruhr area were no longer purchasing domestically mined iron ore because imported ore was cheaper. In 1963 the mine was closed.

## 5

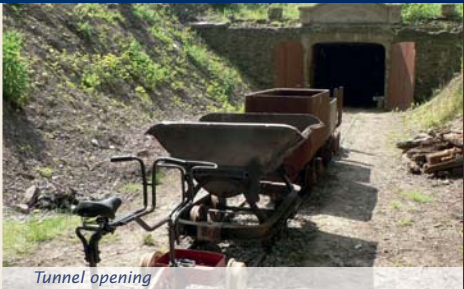
## Living Testimonial to Underground Mining

## Schroeder Tunnel, Klein Döhren

We now return the way we came, pass through Groß Döhren and continue along Weddinger Strasse (L 510) until we reach a small area of forest on the right. Park near the edge of the forest and we continue on foot. On the other side of this tree-covered tailings pile we find the entry to the Schroeder Tunnel. The tunnel was constructed in 1922 to facilitate the transport of ore mined in the Dörnten area through the hills. The tunnel ended at the Georg Friedrich Mine near Dörnten. The tunnel was named after the government geologist and mining commissioner Prof. Dr. HENRY SCHROEDER and is 2,206 metres long. The Dörnten ore fields lie at the southwest end of the Salzgitter Hills. There, in the core of the anticline, the last Triassic layers appear. Further south only Lias layers (early Jurassic) may be found in the anticline core. Above these layers is the early Cretaceous with the iron ore deposits at their base. On the eastern flank the



*Inside the mine tunnel*



*Tunnel opening*

Triassic layers are at their most visible. The western flank, in contrast, slumps along a fault, and we find only Lias strata. The tunnel crosses the central section of the anticline and offers the finest geological exposure in the entirety of the Salzgitter Hills. The Schroeder Tunnel Working Group reopened the entry to the tunnel in 2005. The tunnel has been renovated and guided tours are possible by arrangement. The Schroederstollen offers a real tunnel experience. For the tour the visitor gets a helmet with headlight and explores the tunnel from the miners' point of view. We now return to the main walking trail and head uphill in the direction of Schneeberg Hill. Along the trail we find marly limestone from the Turonian and, on the right we can see a quarry where it was extracted. Rot-pläner limestone and Cenomanian pläner limestone can be seen as we continue along the trail. Shortly thereafter, we come to the road (K 32) connecting Groß Döhren and Hahndorf. The plain that we can see from here sits atop soft Jurassic claystone.

## ➤ Glossary

**Landmarks** are points in the landscape or actual localities which are highly visible and well-known. They serve as an initial orientation in one of the largest Geoparks worldwide and give the specific areas their names. Every landmark area is represented in a special leaflet.

**Geopoints** are points of particular interest. At these points, the geological history of the area or the evolution of the cultural landscape are evident and can be conveyed to visitors. Geopoints are numbered in sequence within the region of a Landmark. They can be combined to constitute an individual Geo-Route. The Geopoint No. ① is always the place which has given its name to the Landmark.

The map section helps you to plan your personal **Geo-Route**. The map will help you plan your personal route through the region surrounding Liebenburg Palace. The sculpture park in the palace grounds is part of the "Peace Trail". This international trail was conceptualised by the artist OTTO FREUNDLICH (1878-1943). His idea was that sculptures by a variety of international artists should be erected along a path that would connect different peoples and cultures. Today, there are more than 80 sculptures along the "Peace Trail" between Paris and Moscow.

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## 6

The Harly, Vienenburg

## Kraeuter-August-Cave

We now drive to Woeltingerode where, north of the monastery, we reach the Harly. This steep, narrow anticline, which was formed by salt tectonics, runs parallel to the Harz Mountains. In the western section, due to upthrust of salt and the resultant uplift, a geological sequence from the Lower Buntsandstein to the Upper Muschelkalk has been exposed. On the southern side of the Harly are the remains of the former Vienenburg Hercynia potash mine. With the founding of the Hercynia 1883 Mining Company Ltd. rapid development of potash mining outside the region around Stassfurt began. Long before this, gypsum had been quarried in the Harly. There is documentary evidence of "Alabaster from Woeltingerode" from as early as 1571. Today, the Harly is part of the Natura 2000 nature protection area Harly, Ecker and Oker Valley, Vienenburg. An itinerary for an interesting tour through this area is included in the NATURA Tipp 14 brochure



Entry to the Kraeuter-August-Cave



Harly Tower

published by the Regionalverband Harz (only available in German). This handy brochure also gives an overview of the many valuable animal and plant species that can be found in this EU nature conservancy. All of the NATURA Tipp brochures can be ordered from the Regionalverband Harz (for contact information please see the imprint).

The Kraeuter-August-Cave in the Harly is a former sandstone quarry. Here, thickly-bedded sandstone deposits are interspersed with thinly-bedded mud- and sandstone strata. Wavy ripples visible on the bedding planes are evidence that the sediments were deposited in a marine environment more than 244.5 MYA. A hermit who lived in the cave supposedly provided information to passers-by – in return for small donations – about where healing herbs grow in the Harly and how to make use of them. According to the story, the cave is named after him.

When the Harly lookout tower is open, the flag flies from the flagpole on top (Sundays and public holidays, 10 a.m. – 5 p.m.).



**Railway knot Vienenburg with one of the oldest preserved reception buildings in Germany**

## 7 The Classic Square Mile of Geology Butterberg Ridge near Bad Harzburg

We drive to Bad Harzburg, to Geißmarstrasse, where we can park at the cemetery. From here it is only a short distance to the top of Butterberg Ridge. An information board provides details about the interesting geology and flora of this ridge. With its ribs of erosion-resistant, calcium-carbonate-rich sandstone from the Sudmerberg formation of the middle Santonian, Butterberg Ridge is part of the uplift zone that forms the northern margin of the Harz Mountains. The sediments were deposited offshore during the last Cretaceous transgression, lithified, and lifted upward as the Harz Mountains were formed. The erosive action of the Cretaceous sea wore down the thick-bedded layers of the late Jurassic. For this reason we find a mixture of fossils from the Cretaceous and the Jurassic on Butterberg Ridge.



*Outcrop on Butterberg Ridge*



*Pan grinder in the powder factory*

## 8 Ironworks and Gunpowder Factory on the Innerste, Kunigunde

Kunigunde was conveniently close to the iron ore deposits. For this reason JOBST EDMUND VON BRABECK founded an ironworks here in 1682, although it was closed down soon after. There was also a mill, a copper trip-hammer forge and a powder mill at Kunigunde. The powder mill supplied black powder to the mining consortia in the Harz Mountains for many years until losing importance in the late 19<sup>th</sup> century. ALFRED NOBEL'S (1833-1896) invention of dynamite, partly based on knowledge accrued by miners in the Harz Mountains, meant the mines in the upper Harz were lost as consumers. Demand for blasting powder and saltpetre from the potash mines grew from the start of the 20<sup>th</sup> century, and production facilities were expanded to cope. During the world wars the facility supplied the armaments industry. Today the production plant is operated by the WANO Schwarzpulver Co., which continues a history of over 300 years of black powder and detonation cord production.

## 9 Karst Spring Kirschensoog

The K 67 road runs westwards from Alt Wallmoden. In a field on the left-hand side of the road before it reaches the bridge over the Neile River, a tributary of the Innerste, is the karst spring called Kirschensoog. This intermittent spring is located in a 4 m deep hollow. It flows mostly after heavy precipitation or after the spring thaw. Its outflow can reach 1,000 l/s – an amount equivalent to seven full bathtubs. The spring flows into the Neile and functions as a "pressure relief valve" for an underground karst channel. This channel stretches for 27 km, as the crow flies, to Goslar. Water in the karst channel moves at a speed of around 100 m/h. The channel's flow path is marked here and there by sinkholes. The flow path was discovered in 1889 as a result of disposal of alkaline waste solution from the Langelsheim Potassium Chloride Plant. The factory processed



*Kirschensoog intermittent spring*



*Partial view of the manor in Alt Wallmoden*

potash from the "Hercynia" mine in the Harly. The alkaline-rich water then flowed from, among others, the Kirschensoog spring. It and other karst springs are located in the Innerste basin. The basin contains karstic limestone from the Upper Cretaceous. Towards the centre of the basin the limestone is overlaid by an aquiclude of marlstone. This dams the karst water and redirects it.

Water power continues to be used at the Dampfuhs mill, located at the confluence of the Innerste, Neile and Spring. The mill has operated here since 1460. 700 t of wheat can be milled per day here at the Ringelheim facility of the Rueningen Stefan Engelke GmbH company.

A three-winged manor house is the defining feature of the village of Alt Wallmoden. The oldest section, the north wing, was constructed in the 16<sup>th</sup> century. Also of note is a chapel, the first church built in the village, from 1248.



## Begegnung I & Begegnung II

To the east, the area surrounding Landmark 18 reaches as far as the former border between East and West Germany. In the year of publication of the current version of this brochure, it is 30 years since the "Iron Curtain" came down. In many places the fences and other border security measures were completely removed. East of Wiedelah it became ever more difficult to find any remnants. Twenty years after the border was opened, therefore, the Regionalverband Harz, being responsible for the Geopark, and also as a regional association taking in an area which includes the administrative district of Goslar, decided to create a place of remembrance using the medium of visual art. Two memorial sites were created as a result: Begegnung I (Encounter I) and Begegnung II (Encounter II). They stand opposite each other on the edges of a large field. If you look from one toward



*Begegnung I*



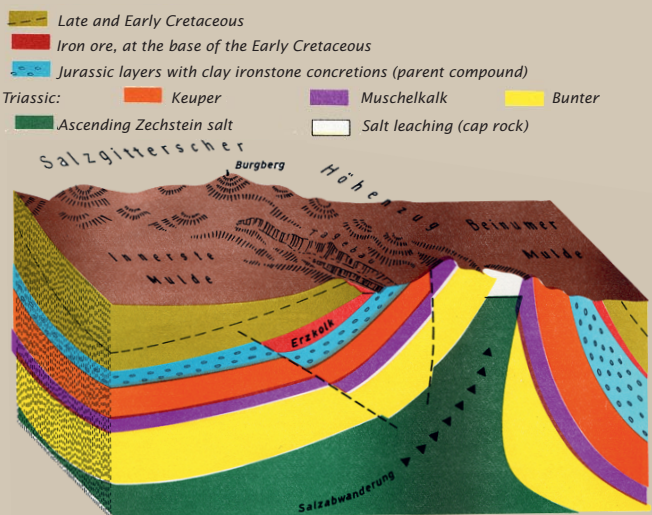
*Begegnung II*

the other, your line of sight will trace the course of the deadly former border. The artwork produced by a working group of artists comprising DETLEF KIEP, NICOLE MENTNER and ANNA KOELLE may be interpreted in a number of ways. One interpretation is as follows: In the wall of Begegnung I there is a crack. On the top of the wall, the sections of which belong together and can be taken to symbolise Germany, stand two groups of people facing each other. The crack prevents them from meeting: it depicts the course of the eastern border of the state of Lower Saxony. The whole structure resembles a box lock. Could the crack be a keyhole? If we look through the crack, we can see the Begegnung II memorial in the distance. Is it the key-bit that fits the "box lock"? Who held it in their hand, this key that opened a door into the future of a unified Germany? It was the people of East Germany. The key was the peaceful revolution of autumn 1989!



# Geological Development of the Region

A reverse fault has seen the Harz Mountains uplifted over their foreland and, as a result, geological strata have been tilted and vertically aligned – for example, those forming Butterberg Ridge near Bad Harzburg. The uplift of the Harz Mountains has gone hand-in-hand with the subsidence of the Subhercynian Cretaceous basin to a depth of 2,000m. Simultaneous with the uplift of the Harz massif, the overlying deposits were eroded. As a result, in the area surrounding the Harz Mountains, we find clastic deposits comprised of shale from the Harz. In the Subhercynian Basin are Cretaceous (145.5 – 65.5 mya) sediments up to 750m thick. The Cretaceous sandstones found in the anticlines are morphologically conspicuous (e. g. the Bodenstein Cliffs). The salt domes are an anomalous characteristic of the region. At the end of the Palaeozoic, in the Permian (299 – 251 mya), the present European continent was partly covered by the shallow Zechstein Sea. In that period a basin formed which was isolated from the open ocean by a barrier. Seawater steadily flowed into the basin and evaporated in the hot climate of the time. Limestone was deposited first, followed by dolomite, gypsum, halite, and, finally, potassium salt. The halite has a lower density than the overlying rocks. Under the pressure exerted by the overlying deposits it exhibits plasticity and reacts as a tough, viscous mass. Fractures are possible catalysts for resultant mass movements. Salt was ascending from the late Triassic, through the Tertiary and into the Cenozoic era. The salt structures of the Salzgitter Hills, Harly and Hainberg Hill were formed in a manner analogous to laying your head on a pillow. As your head pushes down in the middle of the pillow, it swells upward on either side.



Grafik: Dr. Heinz Kolbe



Selected Points of Information

## Overnight accommodations



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## REGIONALVERBAND HARZ E.V.

The Regionalverband Harz is a non-profit association. Its full members include the administrative districts of Goslar, Goettingen, Harz, Mansfeld-Suedharz and Nordhausen, as well as the World Heritage-listed city of Quedlinburg. The association's goals are the promotion of art and culture, the care and protection of historical monuments and environmental conservation and landscape management. It further aims to build tolerance in all areas of culture and foster international understanding among peoples and also to preserve local history and traditions. One way, among many, in which these goals are achieved is trusteeship of nature parks in the Harz region. The Regionalverband Harz, with the help of its 130 supporting members, is also responsible for the southern section of the UNESCO-Geopark, which covers an area of 6,202 km<sup>2</sup>.

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