



# Ummendorf Castle



## Geological development of the region

The oldest rocks of the Landmark area are completely covered by younger rocks, but reach the surface in the Flechtingen Ridge ("Flechtinger Höhenzug") within the area of Landmark 28 "Hundisburg Castle". In terms of the regional geologic situation the ridge is part of the Flechtingen-Roßlau-Block which extends from the Drömling in the NW to Magdeburg and Roßlau in the SE. This area represents one of the most northern hardrock occurrences within North Germany which is otherwise mainly covered by unconsolidated Quaternary sediments. The Flechtingen Ridge itself is composed of sediments and volcanic rocks of Carboniferous and Permian age. The Carboniferous rocks were deposited in the so-called Rhenish Ocean and folded by the Variscan orogeny. The Variscan mountains were eroded quickly and soon covered by the sea again. Starting with the Upper Permian Zechstein Sea the area was covered by diverse marine and terrestrial sediments of considerable thickness until Upper Cretaceous times. With increasing thickness (and weight) of the sedimentary cover the Upper Permian Zechstein salt started becoming plastic and accumulated in salt-structures, such as, e.g., the Allertal-Structure, the Helmstedt-Staßfurt salt wall and the Hakele-Structure. The proto-North-Sea reached the area in Paleogene times and left marine sediments again; lignites of considerable thickness formed in an estuary opening towards the sea. The Quaternary glaciations left thick layers of gravel and formed the "Großes Bruch". Ongoing karstification started and led to the development of caves and sinkholes.



Sandsteinausstellung in der Burg Ummendorf

## 9 Claypit and gypsum The "Kalkberg" at Westeregeln

Just across the boundary of the Landmark there is an outcrop of some importance for understanding the geological context. We follow the "Hadmersleberener Straße" northwest from Westeregeln towards the "Alte Ziegelei" ("Old Brickyard"). Here, we find the "Kalkberg" (=literally translated "lime mountain") which is in fact built up by gypsum which was formerly known as sulfuric lime. A claypit in the northwestern slope shows a steeply dipping alternation of reddish brown claystones, siltstones and sandstone below a cover of loess and dark-earth soil. Due to the absence of oolitic beds (so-called "Rogensteine") and the direct neighborhood to gypsum of Upper Permian Zechstein age they have been assigned to the lowermost Triassic Calvörde-Formation of the Upper Bunter (=Unterer Buntsandstein) by Karl Wächter in 2002 (Geotope #4034 as listed for Sachsen-Anhalt).



Alte Ziegelei Westeregeln      Höhlenbildung im Gips von Westeregeln

Gypsum has been quarried here south of the buildings most probably since medieval times. The Kalkberg is a speciality for the Helmstedt-Staßfurt salt wall with respect to the fact that the anticline has not been fully eroded on top and reaches the surface with its "hat of gypsum" ("Gipshut"). Little caves remain as evidence of karstification, some of them filled by fossiliferous Quaternary sediments. A hand-axe originating from Neanderthals' has been discovered and clear crystals of gypsum ("Marienglas" = "St. Mary's glass") can be found (Geotope #4034 as listed for Sachsen-Anhalt). By appointment, ice-age frost polygons may be visited at the western edge of the brickyard. They were mainly caused by thermal contraction in combination with the formation of wedges of ice. The soil may split open in a polygonal pattern filling with ice in winter and thawing in summer. These contrasting effects of a cold climate cause a characteristic differentiation of the soil structure.

## 8 Tiefreichende Verkarstung ??? Kloster Gröningen und Erdfälle ???

Gröningen is situated at the southernmost edge of the Landmark. The monastery of Kloster Gröningen with its church, St Vitus, is well known not only in the region and thus became part of the touristic route "Romanesque Road" ("Straße der Romanik"). The church dates back to the 10th century and is characterized by its octagonal central tower which was constructed in the 12th century. The interior shows Romanesque sculptures and wall paintings of high quality such as the one showing Christ as judge of the world with his 12 apostles. There are many sinkholes in the surroundings of Gröningen at the northwestern edge of the Hakele-structure. They have been noted as early as 1703 by Georg Henning Behrens in his "Hercynia Curiosa". The large water-filled sinkhole "Grundlos" (= "Bottomless") is situated immediately southwest of the little settlement of Heynburg between Gröningen and Kroppenstedt.



Erdfall Grundlos bei Heynburg      Kloster Gröningen - St. Vitus

There are more sinkholes around here, many of them also filled by water, such as the "Faule See" (= "Foul Lake") at the northwestern edge of the town of Gröningen, the 200 X 300m large and 5m deep "Luttersee" (Lake Lutter) at the northern edge of Kloster Gröningen and the impressive depression of the Leth 2 km southwest of Gröningen (Geotopes #4033/1 to 5 as listed for Sachsen-Anhalt). Gerald Patzelt described these sinkholes in his 2003 geological guidebook "Nördliches Harzvorland (Subherzyn), östlicher Teil". He stated that they are found along faults and have traditionally been attributed to subsolution of anhydrite within the middle part of the Middle Triassic Muschelkalk. But, as Patzelt did, this may be questioned. More probably these large sinkholes are related to subsolution of Upper Permian Zechstein salt flowing to the surface.

## 7 Hidden Anticline Oschersleben and Hadmersleben

Having visited the municipal museum of Oschersleben we are driving to Hadmersleben which is now part of Oschersleben. The village of Hadmersleben is situated at a ford crossing the river Bode on an old military road from Halberstadt to Magdeburg and goes back to a prehistoric settlement from the 4th century. The buildings of the castle from the 16th century can be found south of the village. Today they house the teaching and experimental facilities of the "Saatzucht Hadmersleben GmbH", a company producing seeds for agricultural purposes. A Benedictine convent west of the castle was founded by a donation at 1161. St Peter and Paul, the church of the former convent, is now one of the most important church buildings of the region. Church and an impressive wall were constructed from sandstone of local origin; the respective quarries are no longer accessible.



Kirche Hadmersleben      Heimatmuseum Oschersleben

Geologically, the area is situated in the southeastern prolongation of the Helmstedt-Staßfurt salt wall which has been mentioned before. The anticline of Oschersleben, which is hidden beneath the depression of the Bode valley, forms its continuation towards the anticline of Staßfurt where mining of potassium salt was initiated in the 19th century. The river Bode is largely following the rim synclines of the salt wall. The so-called Kalkberg which is described below in more detail is surface expression of the anticlinal structure on top of the salt wall. It has been levelled here by erosion and subsolution. The potassium salt in the core of the structure was the reason for sinking potassium shafts I and II just outside of the town. In 1944 the mine became an outpost of the concentration camp Buchenwald for the underground production of airplane parts which is today remembered by a memorial site.

## 6 Collegiate church at the "Großer Graben" Hadmersleben and the "Großes Bruch"

We are driving first towards the collegiate church St. Pankratius of the former monastery of Hadmersleben, originally a collegiate foundation under the rules of St. Augustine which belonged to the diocese of Halberstadt. Today it belongs to the diocese of Magdeburg and is part of the touristic route "Straße der Romanik" ("Romanesque Road"). Continuing south shortly before the village you will reach the gravel pit "Kretzschmar" where meltwater sediments of Saalian age are exposed. They are few meters in thickness and characterized by abrupt changes in grainsize due to rapidly changing velocity of currents. The main direction of transport has been from east to west, but detailed measurements show additional inflow from the northnortheast. The sand frequently contains pieces of lignite which are due to erosion of Paleogene lignites from the southwestern rim syncline of the Helmstedt-Staßfurt salt wall.



Großes Bruch bei Neuwegersleben      Schrägschichtungen in der Kiesgrube

Driving farther south and passing through Neuwegersleben we reach the "Großer Graben" (literally translated "Big Ditch") within the "Großes Bruch" (literally translated "Big Swamp"). The "Großes Bruch" is an extended low-lying wetland which formed in a wide meltwater valley of Saalian age between Oschersleben in the east and Hornburg in the west. It is part of a stretch of meltwater valleys starting in the valley of the Elbe at Torgau running along Köthen and Oschersleben through the "Großes Bruch" and the valley of the river Oker towards the valley of the river Aller. The low-lying "Großes Bruch" is up to 4 km wide characterized by numerous ditches lined by willows and reed, the most important of which are the "Großer Graben" and the "Schiffgraben" ("Shipping Ditch") which are connecting the reaches of the rivers Bode and Oker. The wetland of the "Großes Bruch" was impenetrable and thus formed a natural barrier for people until dewatering and cultivation started in medieval times.

## Glossar

**Landmarks** ("Landmarken") are physically prominent spots and/or well-known places which have been selected as being representative for a certain area. They are name-giving for the area and may serve for a first orientation within the second-largest geopark of Europe. 21 of these landmarks and the areas around have been described in detail by a flyer, such as the present one.

**Geopoints** ("Geopunkte") are spots of special interest within the areas of the landmarks. As prominent examples they illustrate the geological and cultural history and heritage of the respective areas. Identified by consecutive numbers beginning with #1 for the landmark they may be individually combined to Georoutes ("Geo-Routen").

The accompanying map may help for planning your individual Georoute.





Overview of the Geopark Harz · Braunschweiger Land · Ostfalen



For Germany a National GeoPark is defined as a clearly delimited territory where the representative takes care of making public the earth and cultural history combined with the protection of its geological heritage.



The Geopark Harz · Braunschweiger Land · Ostfalen was founded in 2002. The accompanying map shows the areal extent of all existing landmarks from #1 – Hübichenstein- to #28 – Hundisburg Castle.

**1** Form a noble's home to a museum  
The Börde-Museum Ummendorf Castle

The first written record of Ummendorf Castle is from 1363 in a document of archbishop Dietrich from Magdeburg, however, the two basal floors of the tower are older and date back to the second half of the 12th century. Repeated renovations later served the different needs of the residents. The traces of defensive utilities from late medieval times such as a strong wall with towers at the edges are still visible. A 16th century renovation added elements of a Renaissance castle. The castle was owned by nobles until the last member of the family died without descendants. Afterwards the land was owned and administered by civil tenants until 1912. Leter (1919) the castle was taken over by the village of Ummendorf and transformed into a school occupying the southern part and a regional museum. The museum is devoted to the cultural history of the so-called Magdeburger Börde, a fertile stretch of



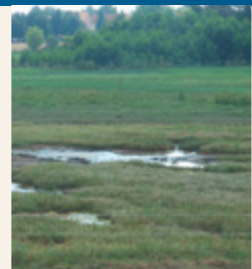
Burg Ummendorf



Landtechnikausstellung



Horstwiesen at Wormsdorf



Detail der Salzweiden



Salzhalde Wefensleben



Steinbruch Trenkmanns Busch Wefensleben



Quelle Marienborn



Badeleben - oolithische Eisenerze



Orangerie Schloßpark Harbke



Tagebau Wulfersdorf (Lappwaldsee)

land around Magdeburg which is characterized by dark-earth soil. The exhibition is therefore designed to illustrate agriculture and rural life. The interior shows the housing conditions of farmers 200 years ago, tools and machinery witness the importance of the area for supporting nearby Magdeburg with corn (so-called granary of Madeburg). An open air exhibition of large agricultural machinery and a herb garden with more than 400 different economically or medicinally used plants are special attractions for the public. A part of the cellar which is accessible from the backyard of the museum is used for showing conditions and tools of mining for potassium and rock salt which was common in the area until the beginning of the last century. Since quarrying of Upper Triassic ("Rhaetian") sandstone was of great importance in the area, samples of rock and worked pieces of stone are on display in the yard together with some information.

[www.boerde-museum-burg-ummendorf.de](http://www.boerde-museum-burg-ummendorf.de)

**2** Horstwiesen at Wormsdorf  
Salt-meadow on fen-peat

Driving south from Ummendorf to Wormsdorf we are passing by famous outcrops between the Zilkenberg and the Ummendorfer Berg which are mostly no longer accessible. It is recorded that the sandstone which was used for the construction of the famous Sansoucci castle by the Prussian King Friedrich II at Potsdam was quarried here. These quarries are structurally situated on the Lappwald Unit, a regional uplift bringing Upper Triassic to Lower Jurassic sandstones, claystones and limestones to the surface. More interesting to visit are the salt-meadows of the so-called Horstwiesen (Geotope #3833/4 of the respective list for the State of Sachsen-Anhalt) which can be reached by turning towards Eilsleben shortly before reaching Wormsdorf. They are protected by the State as a Nature Heritage Site (Naturdenkmal, ND) and European Fauna Flora Habitat-area (FFH).

Following the road to Eilsleben for 500 m the red colour of Queller, a typical salt plant, can be noted in the wet meadows next to the road. These salt meadows are developed on top of a graben with Middle and Upper Triassic rocks beneath a Holocene cover of mud and peat. There is rock salt known in the area from the Zechstein (Upper Permian), Upper Bunter (Lower Triassic), Middle Muschelkalk (Middle Triassic) and Keuper (Upper Triassic). However, the saltwater which is percolating to the surface here by following faults and joints in the subsurface is most probably derived from the Zechstein. Widespread subsolution in the Allertal-Graben is due to the fact that rock salt reaches groundwater level due to ongoing pressure between the Oschersleben-Bernburg-Fallstein Unit and the Wefersleben-Schönebeck-Unit. Here, pressurized groundwater with its load of rock salt rises to the surface in several places, one of which is the Horstwiesen.

[www.lau.sachsen-anhalt.de](http://www.lau.sachsen-anhalt.de)

**3** Wefensleben and Allertal-Struktur  
Mining of potassium salt and overlying strata

Back in Ummendorf, we drive north to Wefensleben. When entering the village, an old dump of residue from potassium mining signals the mining history of the so-called Allertal-Graben. The upper reaches of the river Aller (a tribute of the Weser) are dominated by a salt-wall in the subsurface. The salt minerals were deposited in Upper Permian times in the so-called Zechstein-Sea and later covered by Lower and Middle Triassic sediments. Starting in the Upper Triassic (Keuper) salt began rising until Upper Cretaceous times. Following succeeding erosion of about 1.5 km of Mesozoic rocks the salt-wall reached groundwater level. Subsolution started and a considerable accumulation of remaining gypsum ("Gipshut" or literally translated, "head of gypsum") formed. Due to karstification of the gypsum and subsolution of the salt-wall the valley of the Aller

today passes through a comparatively wide valley. The main spring of the Aller is at the "Hohes Holz" in Gehringsdorf, a tributary spring can be found at Eggenstedt (listed as Geotopes #3833/5 and 6 of the State of Sachsen-Anhalt). Another witness of the mining history at Wefensleben is the historical "Zechenhaus", one of the main buildings at the site of the old mine. Mining at Wefensleben started in 1741 for hard coal of Upper Triassic age. Mining of potassium salt by an 820 m-deep shaft and its local processing started in 1913, but came quickly to an end in the global economic crisis following the 1st World War. Upper Triassic ("Rhaetian") Sandstone was quarried at Wefensleben between 1750 and 1900, and Lower Jurassic claystone is still used for producing bricks. The pit showing dark claystones with regular intercalations of fine sandstone or siltstone is reached ca. 500 m uphill from the brick factory where permission for access must be obtained. Driving back to Wefensleben we turn on the road to Sommerschenburg. Behind the railway crossing there is a minor road to the left which is covered by sheets of concrete and leads directly towards the old quarry "Trenkmanns Busch". The quarry is the site of the

[www.gemeinde-wefensleben.de](http://www.gemeinde-wefensleben.de)

**4** Jurassic calcareous sandstones in the "Green Belt"  
Marienborn and surroundings

Marienborn owes its name to a spring which is one of the oldest places of pilgrimage in Germany. It is said that this is the place where the Virgin Mary appeared to a herdsman around the turn of the first millennium, and a spring with healing capacities ("Marienborn") formed at the end of the 12th century. In the surroundings of Marienborn there are more superstitious places, such as springs (e.g., the Bullerspring; Getope # 3832/3 of the State of Sachsen-Anhalt), prehistorical tumuli, stones of sacrifice, pretended places of worship such as the "Teufelsgrund" ("devils ground"), and the "Räuberhauptmanns-Höhle" ("captain of robbers cave"). However, Marienborn became world famous as the eye of a needle between East and West due to a highway control station (and a railway control station) at the former inner-German iron curtain between the A2-exits of Helmstedt and Alleringersleben. The allied control station was set

up in 1945 and became the most important passageway between West and East Germany for millions of people during the Cold War. Control of traffic came to an end on July, 1st, 1990, and the highway control point became a place for commemoration for the temporary division of Germany ("Gedenkstätte Deutsche Teilung") since 1996 where a visitor centre illustrates the historical context. Much of the area forming the inner-German borderline and its installations has been left for natural development and was transformed into the so-called "Grünes Band" (literally translated "Green Belt"). The highest elevation at Marienborn (Rodenberg, 207 m above sea level) is formed by ferruginous calcareous sandstones of Lower Jurassic age (Arietites-sandstone). They include oolithic ironstones which have been economically mined between Sommerschenburg and Badeleben. Outcrops resulting from mining still exist north of Badeleben. When following a forest road at the edge of the forest along the former trail of the ore railway, the rusty brown oolithic ironstone is exposed and frequently shows fossils. The road ends in a quarry at Sommerschenburg which was closed in 1968 and is today used as a public swimming pool and for fishing (Geotope #3832/2 as listed for the State of Sachsen-Anhalt).

[www.obere-aller.de](http://www.obere-aller.de)

**5** Borderline village Harbke with castle at the "Green Belt"  
Lignite and Lake Lappwald

The village Harbke with its well-known castle is situated few km southwest of Marienborn at the former borderline between West and East Germany, now the borderline between the Federal States of Niedersachsen and Sachsen-Anhalt. The renaissance castle was built on the foundations of a medieval castle, but became an impressive ruin after the 2nd World War. The castle was built by the noble family Veltheim (see Landmark #28, Veltheimsburg) in the 14th century. A park including baroque elements (and one of the first and still living Ginkgo-trees of Germany) was added by Friedrich August von Veltheim in the 18th century and is today part of the project "Gartenträume" ("garden dreams") of the State of Sachsen-Anhalt. During the Paleogene climatic optimum peat swamps existed in both of the rim synclines of the Helmstedt-Staßfurt salt wall. With time they transformed to lignites

of economic importance which have been mined in several places of the mining district of Helmstedt, the last remaining of which is the opencast mine at Schöningen which will be closed in 2017. One of the former opencast mines was mine "Wulfersdorf" at Harbke. It was opened in 1909 and taken over by the company "Braunschweigische Kohlen-Bergwerke AG" in 1933; the villages of Wulfersdorf and Runstedt had to be mined away. Following the 2nd World War the mining district of Helmstedt was separated in a western part and an eastern part, the latter including mine "Wulfersdorf" which was finally closed in 1986. The former "eastern" mine "Wulfersdorf" and the immediately adjacent "western" mine "Helmstedt" which was closed in 2002 will now be flooded by rising groundwater until 2030 and become an interstate lake, "Lake Lappwald". In the meantime 16 km of trails for hiking and biking will be constructed, including viewpoints around the slowly growing lake. Lake Lappwald belongs to the "Naturpark Elm-Lappwald" and will be the largest artificial lake within the "Green Belt".

[www.obere-aller.de](http://www.obere-aller.de)



Rathaus Oschersleben

Der Geopark Harz . Braunschweiger Land . Ostfalen ist Teil der drei Bundesländer Niedersachsen, Sachsen-Anhalt und Thüringen. Er umfasst die Städte Wolfsburg, Salzgitter und Braunschweig sowie die Landkreise Peine, Wolfenbüttel, Goslar, Göttingen, Harz, Südharz-Mansfeld, Nordhausen, dazu einzelne Gemeinden und Städte der Landkreise Northeim, Börde und Salzland.

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