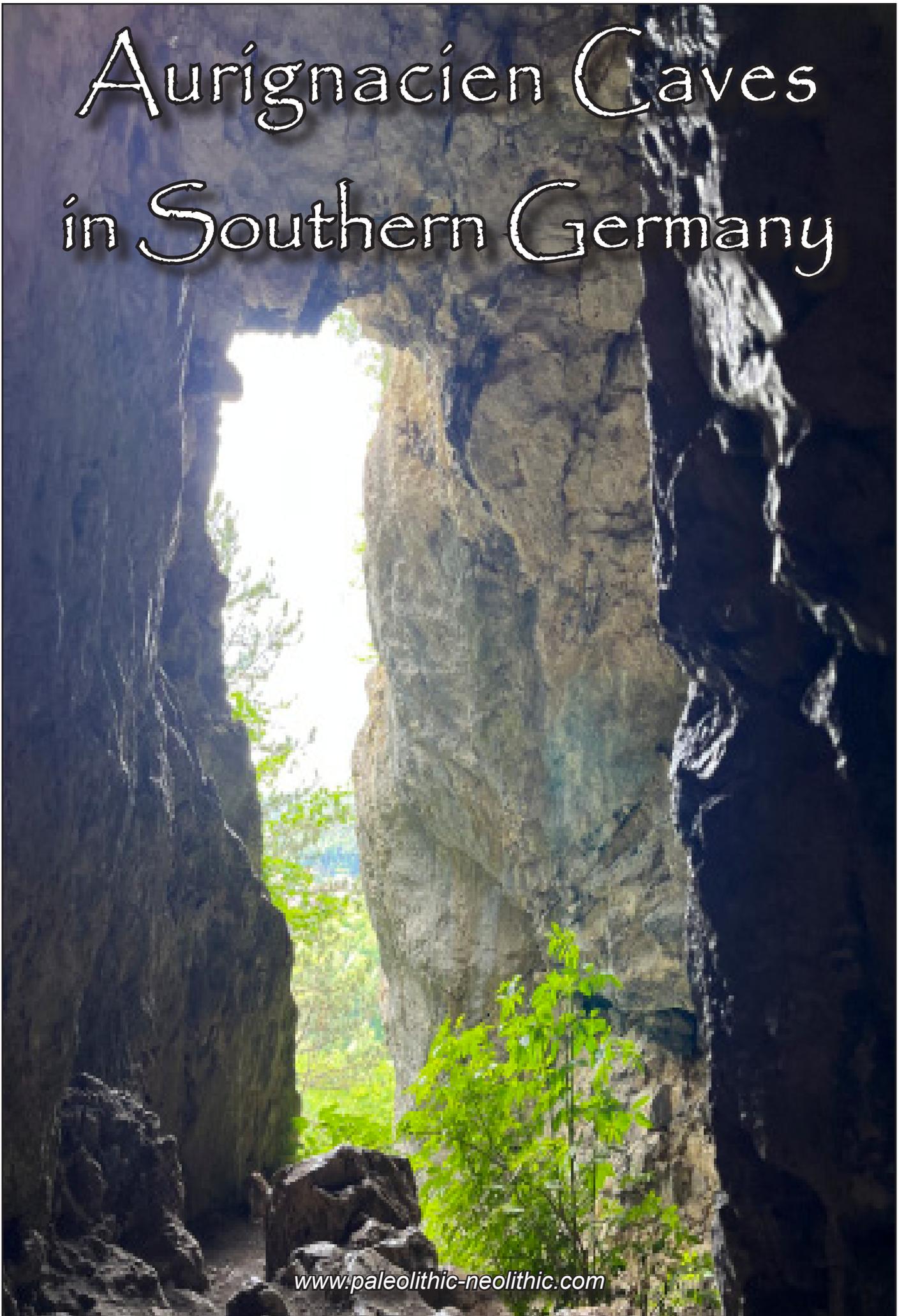


Aurignacien Caves in Southern Germany





Why are there so many pre-historic caves in Germany on the Swabian Alb? It is a hilly limestone landscape along the arch valley of the Danube. Today the Danube has found a new river bed and there are only small rivers left. In the west of Ulm they are the Ach and Blau. The Blau source is famous and called Blautopf. It upwells in the town of Blaubeuren and is Germany's largest and most impressive spring. Many visitors are coming here to see the extreme turquoise color of the water forming a mystical looking lake.

In the east it is a shallow stream along which many caves are situated. The karst hills offered our ancestors many natural caves as perfect hide out in winter. The region is also home of many large caves with impressive stalactite formations, which can be visited. For whatever reason these caves were not used as seasonal camp sites or permanent living quarters. Possibly they were too wet and prone to rising water levels in the rainy season.

Our renewed visit to the Ach and Blau valleys in summer 2022 was focused on interesting new research results. In a third attempt we finally could visit the famous Hohle Fels cave, which normally is closed because of ongoing excavations. But also archaeologists need holidays. So we were very lucky.

Extraordinary Cave

Hohle Fels lies in the Schelklingen community and is one of the caves inhabited by homo sapiens during the Aurignacian period starting

in this region about 43,000 years ago. Six of the caves in this area were nominated in 2017 UNESCO world heritage sites. The huge number and variety of discoveries here and from the nearby Geissenkloesterle were used by archaeologists as reference caves for sequence dating of all other paleolithic artefacts found in Europe.

Hohle Fels Surprising Size

This cave is one of the larger caverns our ancestors used as winter camp. It consists of a smaller entrance area about thirty meters long, which opens up into a huge hall and a side gallery on each side both twenty meters long. It is a true surprise when one enters the enormous hall with a height of thirty meters after the low entrance passage. Because from the security gate you can't see it. The hall measures about five hundred square meters and its vast size falls out of comparison with other typical Aurignacian caves.

Cave Bears

Traces and bones of cave bears have been found which hibernated in this cave. Interesting is the discovery of a bone in which a silex lance point still was stuck. This find is so far unique for the whole of Europe. Has a hibernating bear been killed here because of scarce food resources during winter? Or was it an older injury from an unsuccessful hunt? Teeth from young bears have also been found, which is not surprising, as young bears get borne towards the end of the winter still within the caves.

Prey and Menu

Further animal bones found in the cave were from reindeer, wild horse and even mammoth. As bears are herbivore these bones were left behind as human prey. We know that reindeer was the main item on homo sapiens menu at the time together with wild fruits such as berries, nuts, corn and roots. Our ancestors already consumed a very rich and varied list of foodstuffs which we could so far not imagine.

Three Landscape Zones

The hunter gatherer clans were lucky to have three diverse floral zones to choose from for their daily needs. And these had very different food supply items on offer. They could not have only lived of large hunted animals roaming through the valleys in front of their caves. Small prey such as hare, hedgehog and birds were part of their menu too. Those they found with wild fruits on the bush covered slopes. And other edible items they gathered on the flat grassy hill top areas.

Human Development

With the publication of new research results we have to adjust regularly our knowledge about the development of our ancestors. Today we know homo sapiens was far more developed as we so far have assumed. He already possessed many highly advanced skills and talents because of this well-developed prefrontal cortex. Homo sapiens could well think and plan in a structured way, argue and consider distinctively, take well thought decisions and therefore was able to hunt very successfully.

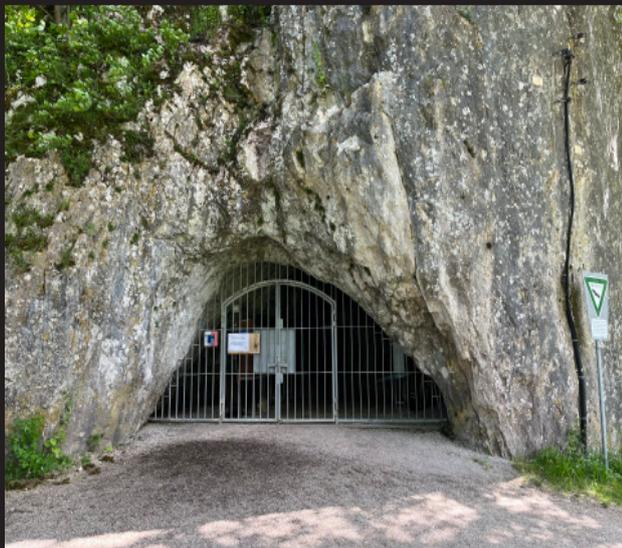
He could already communicate perfectly in words, paint very realistic pictures of animals and play multi tone music melodies on flutes about 50,000 years ago when he arrived in Europe. With his high level of creativity, he composed animal paintings with imagination, abstraction, perspective and dimension. He also produced most versatile tools from silex, bone, antler and ivory made for specific work steps and for the creation of first fine pieces of art.

Tools and Weapons

The many sharp tools made from hard silex naturally survived well. We have tested them ourselves and experienced how easy it is to cut meat and leather. But did they also used bow and arrow? Unfortunately, organic material did not survive over such long time and the proof is still missing. But we assume that they used spears and lance catapults as hunting weapons. Early discoveries from Schönningen and France give proof thereof. Further we believe they used a variety of traps and nets for small prey.

Very Fruitful Excavations

First excavations at Hohle Fels started again after 1958. But only from 1977 digs were done systematically by the University of Tuebingen. So far only the small entrance area is being excavated as so many sensational discoveries were made here. We know that our ancestors preferred to camp in the entrance areas of caves. So far, many time horizons have been uncovered and identified. In a depth of six meters for the first-time traces of homo neanderthalensis were found which were dated to 65,000 years old. Experts believed that the





caves in the Danube arch valley today's Ach and Blau valleys were only used by homo sapiens. Excavations in the huge hall have not taken place so far.

Oldest Venus Figure

It could be argued which of the many discoveries from Hohle Fels make the cave archaeological so important. In our opinion it is the oldest venus figure world-wide. The tiny figurine made from mammoth ivory measures only six centimeters and was possibly carried as a fertility amulet around the neck about 42,000 years ago. It did not have a head but instead an eyelet for a leather string. The voluminous breasts and hips indicate that it certainly is a fertility symbol, despite not having any signs of pregnancy.

In addition, a broken piece of a second venus was unearthed in this cave.

First Musical Instruments

Another discovery is as important to early human history. In the same time horizon excavators discovered a beautiful flute about twenty centimeters long with several play holes. The flute was made out of the hollow wing bone of a goose vulture. Experts rebuilt it from a new bone and on the website of the URMU museum an example of a possible ancient melody with eight tones can be heard. Further flutes were found in the caves of Geissenkloesterle and Vogelherd. In total eight flutes were discovered so far. They all fall into the same Aurignacian period about 40,000 years ago.





Further Discoveries

To the many figures excavated also belong an elegant flying water bird and a horse head, of which the lower body was not found yet. These like all other animal figures found were skillfully carved out of mammoth ivory. The beautiful lion man figurine discovered in the cave needs special mention despite measuring only three centimeters. On average the animal figures from the Aurignacian period measure about ten centimeters. Only the extraordinary large lion man figure from the Hohenstein Stadel cave measures over thirty centimeters and is therefore unique for its time. Please see the specific lion man article on this webpage.

Other Artefacts

Archaeologists found as well over forty jewelry pearls, hand axe made from antlers and a stone retouch tool to resharpen silex cutting edges. This was done by applying pressure from the side to chip away tiny flakes. This tool was given by purpose the form of a phallus symbol. The telling surrounding grooves at the top end enforce this impression. In the cave so far over 80,000 stone tools and three hundred jewelry pieces were found. These make Hohle Fels an important archaeological reference site for the Aurignacian period.

Colors and Paintings

Archaeologists were intrigued by some painted round pebbles. The rows of dots could not be interpreted so far. Do they represent a first calendar like counting tool? The red color was produced from hematite and ochre pieces found in the cave as well. In the Geissenkloosterle cave nearby even three colors black, red and yellow were painted on similar pebbles. Cave painting like in the famous Chauvet and Lascaux caves in France are rather rare here and more primitive and in no way can be compared.

Limited Cave Paintings

In the caves on the Swabian Alb no extraordinary wall paintings were discovered. Our ancestors here have passed their free time and the winter months by carving animal figurines out of mammoth ivory. In southern France and northern Spain homo sapiens did not paint the walls of their living quarters but used the deeper ends of caves as ritual places.

We believe to have recognized during our visit some possible painted motives. But these are difficult to identify and specify what animal image or symbol it might represent. We have heard that mammoth depictions were discovered. We could not see them as certain parts



of the cave were closed off. This is not surprising as mammoth lived here and the creators of mammoth figurines proved to have the necessary imagination to portrait them on cave wall as well. The annual excavation finds in the entrance area are so numerous that archaeologists did not start to investigate the huge hall in detail. Possibly we will be surprised in future about interesting discoveries there.

Today and the Past

Visiting the Hohle Fels cave today one recognizes a huge raised platform in front of the entrance. If you enter the entrance area via the security gate you become aware of the slight incline upwards to a second natural but low entrance arch. This upwards slope gradient goes right up across the huge hall to the ending wall. We estimate the heights difference to be around fifteen meters if not more.

The excavation horizons indicate that the entrance during Aurignacian times was level to the valley. But the valley level could also have been lower at the time and a heights difference between cave entry and valley bottom still existed. So, the initial entrance level was certainly much lower which explains the excavation depth of six meters. The ancient wash out material plus excavated earth from first digs might have led to the raised forecourt.

Helga Abri

This natural rock overhang is part of the Hohle Fels formation. It is situated on the right side of the steep cliff about thirty meters above the cave entrance level. You have to find your way through the dense bush to reach it. This naturally protected place was used as working place to take apart larger prey. Possibly our ancestors used this site to keep predators away from the cave entrance which were attracted by the smell.

UNESCO Cultural Heritage

Six caves in the Ach and Lone valley received this status. In the Ach valley between Schelklingen and Blaubeuren lying six kilometers apart they are Hohle Fels, Geissenkloesterle and Sirgenstein. In the Lone valley they are Hohlenstein Stadel, Vogelherd and Bockstein. For further information please read our first article hereon on this website.



Worthwhile Museums

There are three museums with original pieces on exposition. At the URMU in Blaubeuren you will see the oldest venus figurine from Hohle Fels and other important pieces like the adorant figure, the oldest musical instruments on earth as well as the oldest bird figure of mankind. At the Vogelherd museum a further venus and many animal figures all made from mammoth ivory are exposed. The new museum is right next to the Vogelherd cave.

The important museum in Ulm is home to the famous and impressive lion man figure. For Aurignacian time a figure measuring over thirty centimeters was huge and again it was carefully and skillfully caved out of an entire mammoth tusk. Please read the separate archaeological report about its amazing history. Like in a real crime story it tells you how over six hundred broken pieces were found in various digs, pieced together and taken apart again. Finally, after four times they were pieced together in a hair-raising computer puzzle.

Flora and Fauna

During the Aurignacian period lasting from about 43,000 to 33,000 years ago an open landscape with few deciduous trees but without forests existed. Thereafter in the Gravettian period until 23,000 years ago next to the deciduous also wild fruit trees coexisted. Later during the Magdalenian more conifers rose because it was colder and wetter. The landscape resembled more like a heath and tundra. But during all three periods the summers were slightly warmer than today.

Early Dog Domestication

New research revealed that dogs were already domesticated in this region much earlier around 33,000 years ago and helped our ancestors to hunt. This is about 20,000 years earlier than previously thought. This new time horizon matches wolf traces found next to foot prints from a young boy in the Chauvet cave. For more interesting details on this, please read the Chauvet article on this website.

New Neanderthal Findings

So far experts assumed that homo neanderthalensis roamed in small groups between the different ice ages through the ice-free areas in Europe. But did the Swabian Alb belong



to his hunting area? Consider this, experts have established that only 4,000 individuals lived at the same time in Europe. In some of the caves here their presence could now be proven. At Hohle Fels his presence is proven for a time horizon 65,000 years ago and this might not be the end of it, because excavations are still ongoing.

Developed Neanderthals

The cave ensemble of the Great and Small Grotto near Blaubeuren were used as camp site by homo neanderthalensis already 100,000 years ago. In the last decade we had to revise our knowledge various times about this 600,000 years old human species. He was far more developed as we previously thought. His brain for example was volume wise larger than that of homo sapiens and he could speak already articulated.

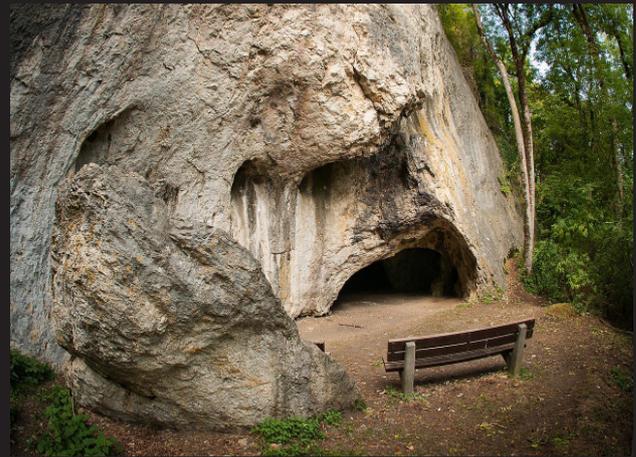
His body was well adapted to the climate in colder regions. And he produced offspring with homo sapiens. Therefore, in Europe we have still today two percent neanderthal genes in our DNA. In Asia it is even four percent. Besides the various stone tools, he produced jewelry like artefacts from feathers and bird claws. Neanderthals consumed meat from reindeer, wild horse, red deer and bison. But their favorite meal was ibex and this species was present on the Swabian Alb in abundance.

Highly Developed Ancestors

How developed our ancestors already were show the hunting spears found at Schoeningen which were dated to be an astonishing 300,000 years old. At this time another human species homo heidelbergensis hunted very successfully wild horses. With their spears they could kill large animals from a distance of over fifty meters. What surprised archaeologists was the fact, that these spears were nearly identical in length, weight, point of gravity and flight distance to modern high tech Olympic sport spears. Was the perfect spear already developed 300,000 years ago? The throwing tests with both spears proved this. For further details, please see the specific article on this website.

Brillen Cave

The cave named after its spectacle form is situated above Blaubeuren Seissen. It was used over a long period of 30,000 years from



the Aurignacian to the Magdalenian period as winter and spring camp site. Large fireplaces and an erected protection wall against the elements and possibly carnivores at the cave entrance prove this. The cave is secured for future excavations by a gate.

It was used contemporary to the nearby Geissenkloesterle and Hohle Fels caves. Did the clans live in peaceful close coexistence in the same hunting area? This can be assumed as sufficient supply of their favorite prey reindeer existed at the time. It is also possible that they were members of one and the same large clan just using all available caves in the vicinity. Archaeologists found in the cave a not so common secondary burial of human bones dating from the Magdalenian about 14,000 years ago. Their dig also unearthed numerous silex tools and jewelry pieces such as ivory pendants in mussel form.

Sirgenstein Cave

This cave near Blaubeuren Weiler also has been in contemporary use with the Brillen, Geissenkloesterle and Hohle Fels caves. It is about forty meters deep and ten meters high. Over 5,000 silex tools and artefacts have been excavated here. This proves a regular seasonal use as camp site. Brillen, Sirgenstein, Geissenkloesterle and Hohle Fels caves have been described in our earlier article on this website as well.

Geissenkloesterle Cave

This cave is situated on the opposite slope from Sirgenstein above Blaubeuren Weiler. This extraordinary camp site lies protected between two cliffs. For us it is a beautiful kind of mystical and cursed site. This was our second visit to this unique site. Again, we have been alone here and passed some time exploring. We closed our eyes and let us carry in thoughts away on a mental journey into the past by the site's charisma and sound of the wind in the trees. In our imagination our ancestors sat cheerfully chatting around a fire, some carved animal figurines and others played harmonic sounding melodies on flutes. It was magic what captivation this site has.

Oldest Artefacts

The oldest homo sapiens linked discoveries in this cave have an age of over 40,000



years and fall into the Aurignacian period. The list of found artefacts includes a so-called adorant figure showing a human in adoring position with raised arms, various animal figurines such as mammoth, cave bear and musk ox, as well as three extraordinary flutes. The cave is secured by a gate because of planned future excavations.

Extraordinary Ivory Flute

The only flute made of ivory was found here. It has skillfully been fitted together from various precisely carved long ivory pieces and is a unique masterpiece of early Aurignacian artisan work. A precise drill hole twenty centimeters long was not yet possible at the time experts assume. To produce a flute from four precisely cut straight pieces and glue them together to form a tube needs lots of time and real talent. Experts assume it needed four hundred hours to produce this exceptional flute.





Rare Flute Rawling

During further excavations a raw unfinished ivory flute was unearthed. It measured an astonishing thirty centimeters and was already skillfully split into two pieces for further treatment. The ivory pieces were part of an upper mammoth tusk. These pieces consist partly of tooth cement and dentin. This shows that the artisan knew exactly what quality material he needed. Ivory is softer than one assumes and therefore easy to carve.

Further Flutes

The clan members of Geissenkloesterle seemed to have been experts in flute production. They also created flutes from the hollow wing bones of swans and goose vultures. Experts found out that with these flutes up to eight different tones could be blown. Bone flutes sounded lighter, only the ivory flutes produced nicer and deeper tones, like f2, g2, h2, h3, dis3 and fis3.

Great & Small Grotto

This extraordinary cave complex lies above Blaubeuren along the Blau valley. This ideal camp site was only used by homo neanderthalensis. A discovered stone hand axe and a lance point made from antlers are proof of his presence. So far, no traces of homo sapiens were found here. When this cave was frequented about 100,000 years ago the landscape was heath like with bushes and no trees.

Despite neanderthal clans with a dozen members were smaller than homo sapiens families, this large cave complex could have housed several clans and possibly did. Next to Geissenkloesterle this cave complex with its far-reaching views over the Danube arch valley has a special attraction for us.



Hohlenstein Complex

Now let us look at the caves along today's lone valley east of Ulm. The first three are also UNESCO world heritage sites. Near Asselfingen are situated the Hohlenstein Stadel caves where the amazing lion man figure was discovered. At the time this figure with over thirty centimeter was oversized and therefore unique. All other figures from this early Aurignacian period were only ten centimeters in size.

The cave entrance is rather large with eight meters width and four meters heights. Its depth is about fifty meters and the important place of most discoveries is secured by a gate. Archaeologists still hope to find here some of the missing ivory pieces of the lion man.

The small gallery near the cave entrance is called Kleine Scheuer. A few meters to its right is situated the entrance to the so-called bear cave, possibly used by cave bears to hibernate in winter. In the main cave painted stones were also found, similar to those discovered in the Geissenkloesterle and Hohle Fels caves. Their purpose is still unclear. Some experts suggest they might have been first counting tools or calendars.

Vogelherd Cave

This special cave has three entrances and two chambers. Its depth reaches forty meters. Archaeologists found many carved animal figures here made from ivory. The list includes skillfully carved wild horses, bison, mammoth, cave bears, cave lions, snow leopards, wild boar but also hedgehog, fish and a tiny venus figurine. It is part of the archaeological most productive caves. Com-

pared to all other caves this site is special with regards to its position in the landscape. It is situated only a few meters under a flat round hill top. With three entrances it certainly was difficult to protect against wild animals and blowing wind.

Archaeo Park and Museum

The new modern museum was well integrated into the landscape and surprises visitors with its architecture and setup right next to the Vogelherd cave near Niederstotzingen Stetten. The small museum shows many of the interesting original animal figures found here. In addition, the archaeo park offers workshops and demonstrations of stone age life for children and adults.

Bockstein Cave

Near Rammingen this cave lies on a small slope with good views over the valley. The cave hall measures fifteen by twenty meters across. The old entrance was covered by a rock fall in antiquity and was situated left of the new artificially created entrance. To the artefacts found here belongs a beautifully made silex knife. At a later stage during neolithic times about 8,200 years ago a burial of a mother and child was found in the cave. Of interest is also the so-called Bockstein Schmiede a trough on the right of the new entrance where stone tools of homo neanderthalensis were discovered.

Paleolithic Periods

In addition to the above important caves, we also want to mention others which have been used by pre-historic men. For homo neanderthalensis three periods are of interest: Acheulean from 400,000 to 120,000 years ago, Mousterian from 120,000 to 40,000 years. In Europe the neanderthals vanished about 30,000 years ago.

The history of homo sapiens in Europe began 50,000 years ago with the Aurignacian period from 43,000 to 33,000 followed by Gravettian until 23,000 and Solutrean until 16,000 and finally Magdalenian until 12,000 years ago. Thereafter followed the neolithic period until 8,000 passing over into the Bronze and Iron Age. Some regional time variances happened as the human development was spread through geographical human movements.

Further Caves

We start with a large rock overhang from the Magdalenian period called Felsstaele situated near Ehringen which is a half cave with a width of forty meters. Its users erected a protection wall against bad weather. But one of many discoveries surprised archaeologists nevertheless. A painted red female figure on a small stone is unusual. In addition, 400,000 stone artefacts and manyfold tools were found and made this site so important. Possibly this place was a workshop of our ancestors 15,000 years ago.

The so-called Schunters cave near Allmendingen is a relatively young camp site in the Ach valley from the Magdalenian. Unfortunately, it was used as living quarters in recent times and all paleolithic or neolithic traces were destroyed. On the slope above lies the Rappenstein cave from the same period which also presented no significant artefacts.

A small cave only five meters deep near Schelklingen is also called Hohle Fels. Here fire places with about two hundred stone tools from the Magdalenian were found. Later during the Bronze and Iron Age it was again used as camp site. The bear cave is located in the vicinity which surprised archaeologists with a depth of over four hundred meters including a narrow side gallery. It seems all caves in the area were only occupied during the Magdalenian period. The Schmiechen-



fels cave also called Hohler Stein is part of this group of Magdalenian caves in this area around Schelklingen. It is a small cave only six meters deep but it is regarded by experts special for its many bird bones found here. To this list belong various duck species, goose, grouse, partridge and ptarmigan which certainly all were on the menu of our ancestors.

The nearby Kogelstein cave has been destroyed as its rock formation was used as quarry for railroad works. This ideally situated cave at the junction of two valleys offered the hunter gatherer clans good views other the roaming herds of prey. The few traces left show that neanderthals used this cave. Another example of this group of caves from the Magdalenian is Ganserfels. The extensive use of the many caves around Schelklingen shows that the population in this area grew rapidly about 15,000 years ago. Experts were surprised about the woolly rhino bones found at this site. Further east past Blaubeuren the neolithic burial site Hoehlesbuckel was discovered during road works.

Next to the already described famous UNESCO caves in the Lone valley there are various others we want to mention. These are situated about fifty kilometers or a day's walk from the caves in the Ach and Blau valley previously site of the Danube arch valley. Here further homo sapiens clans lived in caves. On our first trip we have already visited and described the Fohlenhaus cave near Langenau. It is a double cave site. The lower measures seven by eight meters across and the upper is about ten meters deep. Nevertheless, both offered our ancestors sufficient protection during winter times. The found stone artefacts prove an active and regular use over longer periods. These caves are easy to visit as they lie along the Lone valley walking and bicycle trail.

As last we want to point out the Haldenstein cave near Lonsee. It is a narrowing gap cave about thirty meters deep and the few artefacts found could be dated to the Magdalenian period.

Summery

The paleolithic caves in the Swabian Alb region could best be explored by bicycle. Because most lie along the well-kept walking and bicycle trails west and east of Ulm. Short

foot paths lead up the slopes to the various caves other are situated right next to the trail. Recently new signs with explanations were installed as in the past visitors could easily got lost. Unfortunately, not all caves are done yet. We propose a one-week bicycle tour with visits to the caves, three museums and a few of the many beautiful stalactite caves and other natural attractions in the area.

