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# Sandstone landscapes of the Bohemian Cretaceous Basin – prehistory, history and present (Czech Republic)

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## Introduction

The landscape of the Bohemian Cretaceous Basin, situated in the northern and northeastern part of Bohemia, consists of several geographically important units which were settled from early prehistory through to the historical period. The most important among them are the Elbe Sandstones, including the national parks České Švýcarsko (Bohemian Switzerland) and Sächsische Schweiz (Saxon Switzerland), the region of Česká Lípa, and the protected landscape areas Kokořínsko, Český ráj (Bohemian Paradise), and Broumovsko. The following overview is devoted to these areas.

## Sandstone landscape in prehistory

The earliest traces of human presence in the sandstone caves of this region can be archaeologically dated back to the later phase of the Middle Palaeolithic (approximately 120 000–40 000 B.C.); up to now, we know of only one site dating from this period, Jislova jeskyně cave (Jisl's Cave) near Turnov with assemblages of lithic industry, which can be classified as belonging to the Mousterien (Filip 1947). In the following period, hunters inhabited an open landscape, and they perhaps avoided the diverse rocky terrain. The situation changed with the beginning of the Holocene period. Remarkable is the rock shelter site Nízká Lešnice in the Polomené hory Hills, which yielded a fragment of a human skull dated to 10 190 B.P. During the Mesolithic (approximately 9500–5500 B.C.), many rock shelter sites came into existence in the area of Česká Lípa and in the Czech part of the Elbe Sandstones. They existed

simultaneously with open-air sites, mostly situated on banks of rivers or swamps. Preserved in the rock shelters are cultural debris corresponding to the various stages of the Mesolithic, and including chipped lithic industry, bone artifacts and rarely also human teeth (for instance the sites Pod zubem, Šídelník 1, Vysoká and Nízká Lešnice, Černá louže and Stará skála). Settlement features at the Heřmánky and Pod zubem sites suggest that some of the rock shelters were originally protected by a wooden construction possibly covered with animal skins. Many radiocarbon dates were obtained from the hearths (Svoboda et al. 1998, 2000, Svoboda (ed.) 2003) (Figure 1).

The earliest farmers of the Early Neolithic were interested in some of the rock shelters in the area of Česká Lípa (Heřmánky, for instance). The number of sites increased during the Late Neolithic (5000–4300 B.C.). The plateaus, below which the rock shelters are situated, were originally covered with calcium-rich loess, and the rock shelters and caves could thus have originally belonged to farming settlements. The cave-sites Oko and Kurandovská have yielded evidence of a local industry that produced chipped and polished stones (Jenč 2006; Jenč and Peša 2000) (Figure 2).

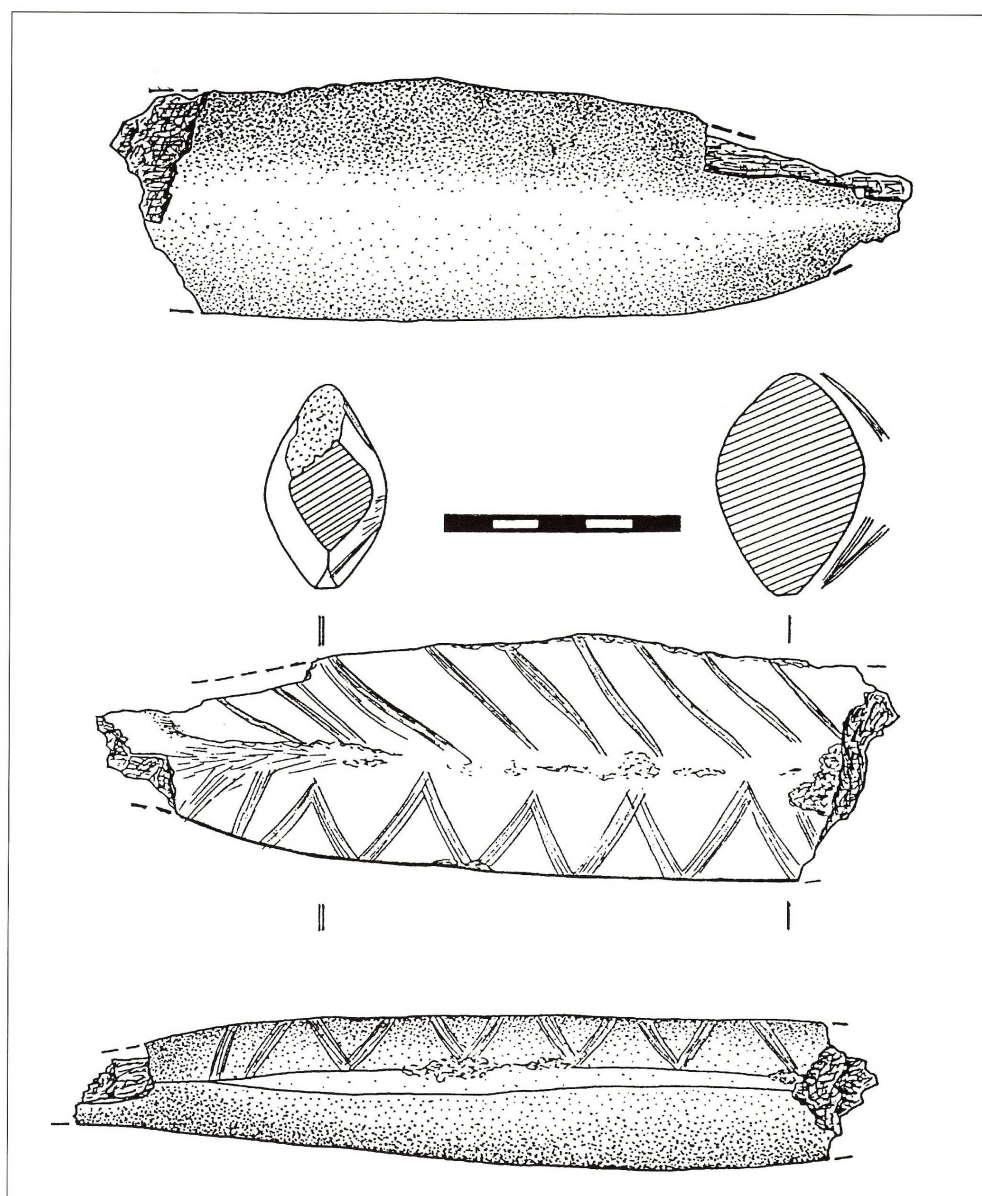
Interest in rock shelters and smaller caves continued, with some breaks, in the following period of the Late Stone Age (Eneolithic, approximately 4300–2100 B.C.). During this period, people penetrated the Elbe Sandstones region for the first time, and used some of the rock shelters situated along the edge of the rocky landscape that had been previously exploited by Mesolithic hunters (for example the sites at Arba near Srbská Kamenice and Sojčí near Jetřichovice). Recent excavations have attested that there were Early and Middle Eneolithic settlements in the Česká Lípa area (for example the rock shelter sites at Heřmánky, Stará skála and Nízká Lešnice in the Polomené hory Hills, and those in the surroundings of Ralsko-Hradčany). There

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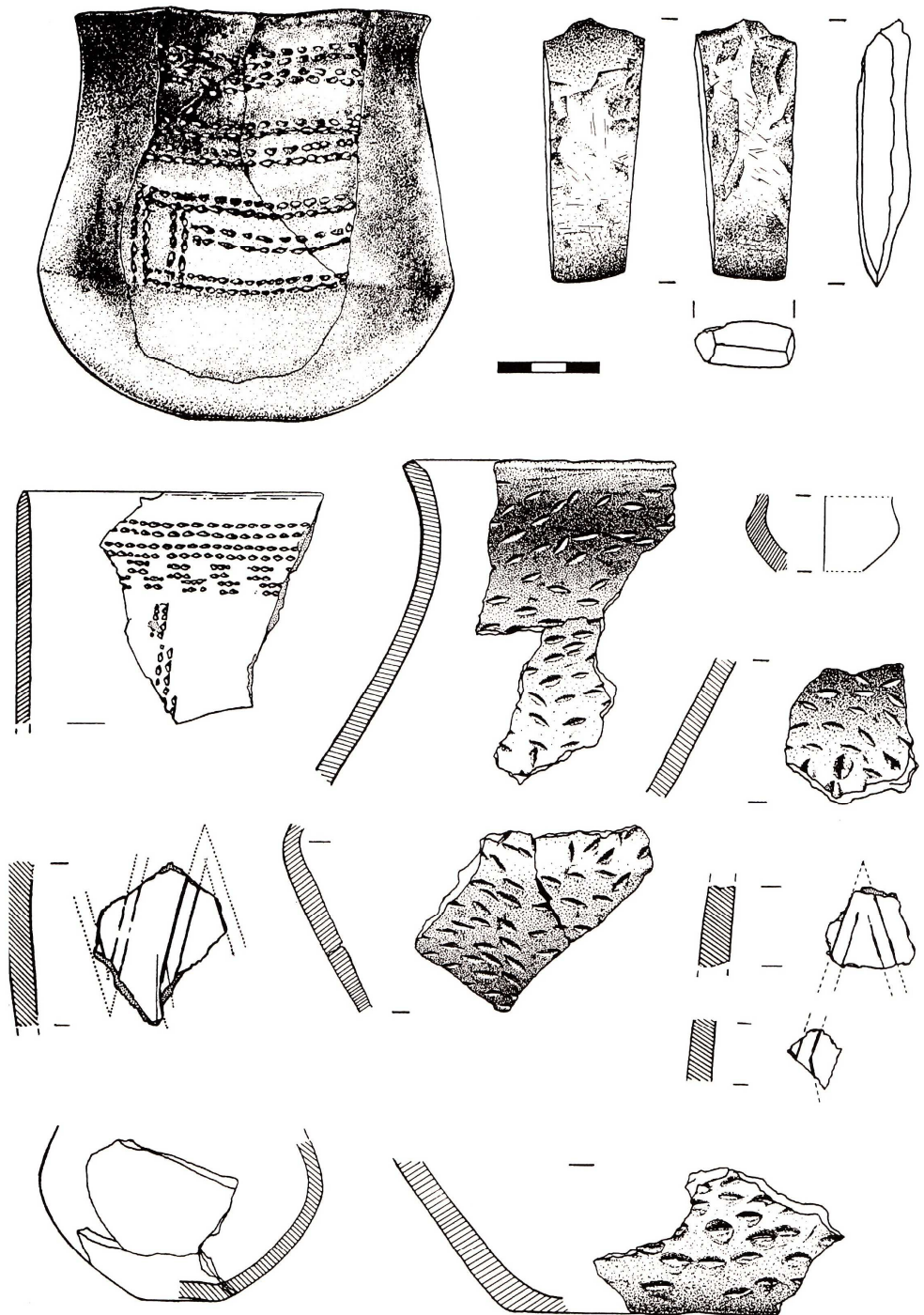


**Figure 1.** From early prehistory (not dated more precisely) – the so-called “Jeskyně ryby” (Fish cave) in the rocky area of Zábortčí-Drábovna near Malá Skála in the Bohemian Paradise. A unique polished stone artifact bearing an incised decoration, perhaps a sculpture in a shape of a fish. Found at a depth of about 1 metre during an illegal construction of a tramps’ camp. Photo by Jan Rendek, drawn by Vladimír Peša.





**Figure 2.** The Neolithic (the Stroked Pottery Culture and Samborzec group) – selected finds from the Oko Cave in the Bohemian Paradise: pottery and a polished basalt adze, dated to 6 500 years B. P. Drawn by Adéla Dandová, Petr Jenč and Pavel Vašíček.



was a rare find of Late Eneolithic pottery, corresponding to the period of the Bell Beaker Culture, at the Nízká Lešnice rock shelter site (Svoboda (ed.) 2005). Among the more important sites in the Bohemian Paradise are: the Průlezná jeskyně Cave near Zásadka which contained a rare find of a whole ceramic vessel dating from the Early

Eneolithic; the Portál Cave, situated near the well-known hilltop-sites at Dneboh-Hrada and Klamorna on the Mužský Hill massif (Jenč and Peša 2000); cave workshops, processing mainly local sources of jasper and chalcedony, situated on the slope of the melaphyre Kozákov Hill; and the microarea of Čertova ruka near Hrubá Skála (Filip 1947).

Up to now, there are almost no finds dating from the Early and Middle Bronze Ages (approximately 2100–1400 B.C.), an exception is the pottery fragment belonging to the Late Únětice Culture found in the rock shelter site at Východní Vránovy under the Mužský Hill massif (Jenč 2006). Conversely, towards the end of the Bronze Age, the number of sites drastically increased and the sandstone landscape experienced the largest human impact of the whole prehistoric period. This demographic boom reached its peak in the 11<sup>th</sup>–10<sup>th</sup> centuries B.C., during the Subboreal climatic period, which was characterized by an arid and fluctuating climate of the continental type. Later, there is a considerable decline in site density, which is mainly attested to in the areas with a diverse terrain and lower rainfall such as the Příhrázská vrchovina Upland near Mnichovo Hradiště. This was perhaps due to the extensive human exploitation of the landscape exceeding the potential of the environment. Deforested sandstone plateaus in the Bohemian Paradise and Česká Lípa areas were exposed to extensive erosion leading to a far-reaching deprivation of whole ecosystems. In the Bohemian Paradise, the settlement gradually shifted to the humid areas of the mountain slopes and also concentrated along the main course of the Jizera River, generally, a slight demographic decline can be observed. This dramatic Late Bronze Age development was followed by a revival of settlement in the sandstone areas in the beginning of the Hallstatt (Early Iron Age) period (7<sup>th</sup>–5<sup>th</sup> century B.C.), when it almost reached the same extent as the Late Bronze Age (Jenč and Peša 2000). The region was exposed to the influence of the Billendorf Culture from the north, which even reached the Česká Lípa area, the most important local site of this culture being the rock shelter at Donbas near Ralsko-Hradčany (Svoboda (ed.) 2003).

During the Late and Final Bronze Age there was a noticeable increase in human activity on the Saxon side of the Elbe Sandstones and in the Lusatian Mountains (Zittau Mountains). People established settlements on the table mountains Lilienstein and Pfaffenstein which dominated the Elbe River valley; a hillfort existed on the Pfaffenstein in the Late Bronze Age (Neugebauer 1986). In the area of Zittau, in the Zittau Mountains, located on an inaccessible rock butte is the hillfort site of Oybin of exceptional regional importance. The site was settled in the Late Bronze Age (the Lusatian Culture), and moulds found there suggest the local production of bronze artifacts.

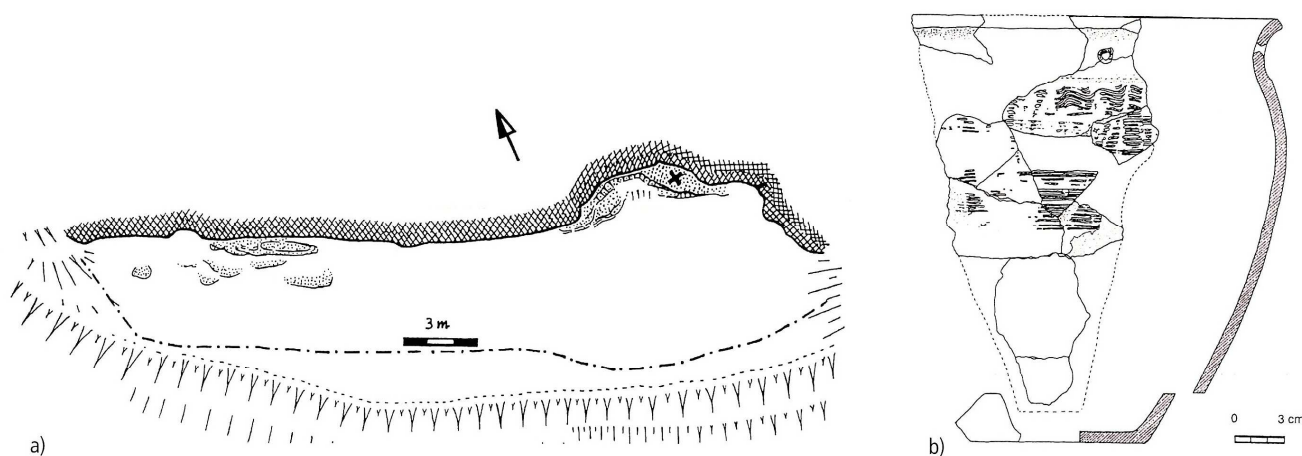
In the following Late Iron Age (5<sup>th</sup>/4<sup>th</sup> centuries B.C. – 1<sup>st</sup> century B.C.), archaeological finds almost disappeared from the rocky areas. There are only a few exceptions. In the sandstone rock shelters and caves the presence of the

Celtic material culture has only been found in the Bohemian Paradise (no more than 10 sites in total; for instance the Portál Cave on the Mužský Hill massif, Srbsko and Čertova ruka). There are many unanswered questions concerning Kristova jeskyně Cave (Christ's Cave) in the Klokočské skály Cliffs near Turnov, where, in 2001, a golden Celtic coin was found, a shell stater weighing 7.517 g and dated to the 2<sup>nd</sup> century B.C. Other exceptional items include pottery dating from the Roman Iron Age (approximately 40 B.C. – the end of the 4<sup>th</sup> century A.D.) which were found in several caves and rock shelters in the Bohemian Paradise (Okó, Berča and Čertova ruka), and in the Česká Lípa area (rock shelters in the surroundings of Dřevčice). From the Migration Period (375/400 A.D. – the first half of the 6<sup>th</sup> century A.D.) are two dated sites with extraordinary finds of complete metal artifacts – Nováková pec on Čertova ruka in the Bohemian Paradise, and a nameless small cave in the Elbe River canyon near Hřensko (Jenč and Peša 2000, Jenč 2006, Svoboda (ed.) 2003).

Some archaeological finds, dating from various stages of prehistory, are similar in character and distinctions between them are only quantitative. The most common features attested in the rock shelters are hearths, sometimes only partly preserved, but usually dispersed within the cultural debris and recognizable only on the basis of burnt sand and charcoal concentrations. Postholes, when attested, do not create contours or any other features and they have perhaps something to do with the internal furnishings of the sites. A burnt wooden screen was excavated in the rock shelter site Dolný mlýn in Bohemian Switzerland. The screen has been preliminarily dated to between the Eneolithic and Hallstatt periods. Potsherds and fragments of animal bones prevail among finds. From the Neolithic and Eneolithic periods smaller assemblages of chipped lithic industry are known; silicite flakes are rarer in the layers dating from the Bronze Age. Among the more extraordinary finds are those from the polished stone industry or metal artifacts.

An interesting group of finds consists of whole vessels found in the caves along the Elbe River canyon, on the both sides of the state border. The caves are small, not prominent, and difficult to access, and are lacking any other finds or clearly formed “cultural layers” in them (the sites are near Dolní Žleb, Schmilka, Schöna, and Bad Schandau). The vessels date from various periods of prehistory (the Eneolithic, Middle and Late Bronze Ages and the La Tène period), and perhaps originally contained food or drink which has not been preserved. The finds have some connection with the so-called Elbe-route, and probably represent sacrifices for a successful passage through this dangerous segment of the Elbe River.





**Figure 3 (a, b).** Sokolka near Srbsko in the Bohemian Paradise – the rock shelter site 2 (a beetle-shaped rock with a natural niche-like cavern); Excavations by Petr Jenč in 1997. A fragment of a polished Slavic pot bearing an incised comb decoration. The vessel or its fragment perhaps put on the bench-like sandstone ground at the back of a shallow cave (the place is marked with a small cross in the plan) in the 9<sup>th</sup> century. We suggest that it was probably a sacrifice to some pagan deity. Drawn by Petr Jenč and Pavel Vašíček.

### Sandstone landscape in the Middle Ages

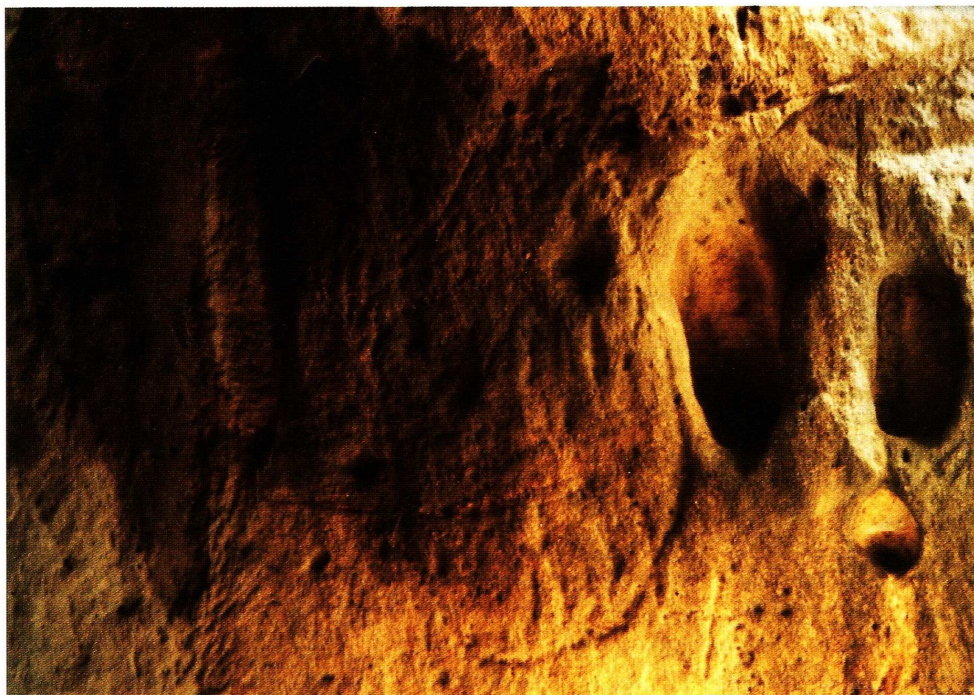
During the 6<sup>th</sup> century A.D. (after 530), the first Slavic settlers started to penetrate the northern and northeastern parts of Bohemia. From the end of the 8<sup>th</sup> century to the 10<sup>th</sup> century, hilltop sites that were usually fortified were developed in addition to the typical lowland settlements. In the sandstone terrain these have been found at Dneboh-Hrada and Klamorna, Poráň near Kost, in the Prachovské skály Cliffs, and the hillfort site near Brtníky in the Elbe Sandstones. Also, in the neighbourhood of these sites, activities in the rock shelters and caves have been attested (Figure 3). For example at Sokolka near Srbsko a ceramic vessel (or its fragment) was found which was perhaps sacrificed to some pagan deity in the 9<sup>th</sup> century and in the Prachovské skály Cliffs – a small so-called “Dwelling of a wall guard” Cave was discovered (Turek 1946; Jenč and Peša 2000).

High Medieval colonization started in northeastern Bohemia in the second half of the 13<sup>th</sup> century, and within one hundred years (1250–1350) gradually created the settlement structure which is mostly preserved today. Some of the villages were founded on the rocky plateaus with difficult access – for instance Dražejov in the Česká Lípa region (which is for the first time mentioned in texts from 1402). Castles and other fortified structures became important elements of the landscape; they were built in strategic locations on rocky spurs of land or even sandstone buttes. The soft sandstone also enabled people to sink parts of their structures into the rock and to create cellars,

living rooms, storage structures, wells, underground foundations, etc., which have been preserved until today. A specific group among the Bohemian castles is represented by the so-called rock castles, which have particular ways of solving the problems of their defense and access. Among typical rock castles are Drábské světničky in the Bohemian Paradise, the castles of Jestřebí and Sloup in the Česká Lípa region, and the castles of Falkenštejn (Figure 4) and Šaunštejn in Bohemian Switzerland (Gabriel and Panáček 2000). Among other interesting castles, built on sandstone, are those at Frýdštejn, Rotštejn, Valečov, and Kost in the Bohemian Paradise, Houska in the Kokořínsko region, and Königstein, Hohnstein, Neurathen and Neu-Wildenstein in Saxon Switzerland (Sächsische Schweiz). In the fortress of Königstein a 152.2 m deep well was dug during its redevelopment from 1563–69, from which water was raised, at a later date, with a steam pump (Weber 1985).

During the Late Middle Ages a network of communications was also formed, many of which are preserved until today as hollow ways. Their original medieval form was usually destroyed in later periods. Between the 14<sup>th</sup> and 16<sup>th</sup> centuries, many ponds were founded such as the Máchovo jezero Pond, Novozámecký rybník Pond and Holanské rybníky Ponds in the Česká Lípa region. Sandstone ridges were usually used for their dams through which flashes were broken. The earliest known sandstone quarries also date from the Middle Ages (14<sup>th</sup> century). To this period we can date with certainty the millstone quarry in the surroundings of the Milštejn Castle in the Lusatian





**Figure 4.** The castle of Falkenštejn in Bohemian Switzerland – a badly eroded engraving dating from the Middle Ages, depicting a coat-of-arms. The engraving is located in the original castle portal. Photo by Vladimír Peša (2000).

Mountains, which gave its name to the castle (Mühlstein). The earliest ashlar quarry dated by an inscription containing the year (1591) is known in the valley of the Kostecký Plakánek in the Bohemian Paradise.

In contrast to the Early Middle Ages, there is a noticeable rise in interest in the rock caverns during the Later Middle Age. The earliest known reference to a cave in the sandstone areas refers to an unknown “spelunca” called Rosochatec, located in the Adršpašsko-teplické skály Cliffs; the cave is mentioned in a document dated to 1215 in connection with the state of the boundary of the Police domain (Honl 1973). Interesting are the traces of tar production in rock shelters (for instance at Dehtařský převis near Jetřichovice, Západní vyhlídka below Malý Bezděz Hill and Donbas near Hradčany in the Česká Lípa region (Peša and Jenč 2003a, 2004, Svoboda (ed.) 2003), and the supposed use of caves and rock shelters for refuge in the 15<sup>th</sup> century – for example in the Příhrazská vrchovina Upland in 1468, when the area of Mnichovo Hradiště was plundered for several days by the Lusatian siege. An exceptional site is the niche-like cave Babí pec on the Kozákov Hill, where a coiner’s forge was located in the 15<sup>th</sup> century (Filip 1947, Jenč 2006).

### Sandstone landscape in the modern period

The beginning of the modern period (1500 – present day) was marked by an intensive development of aristocratic

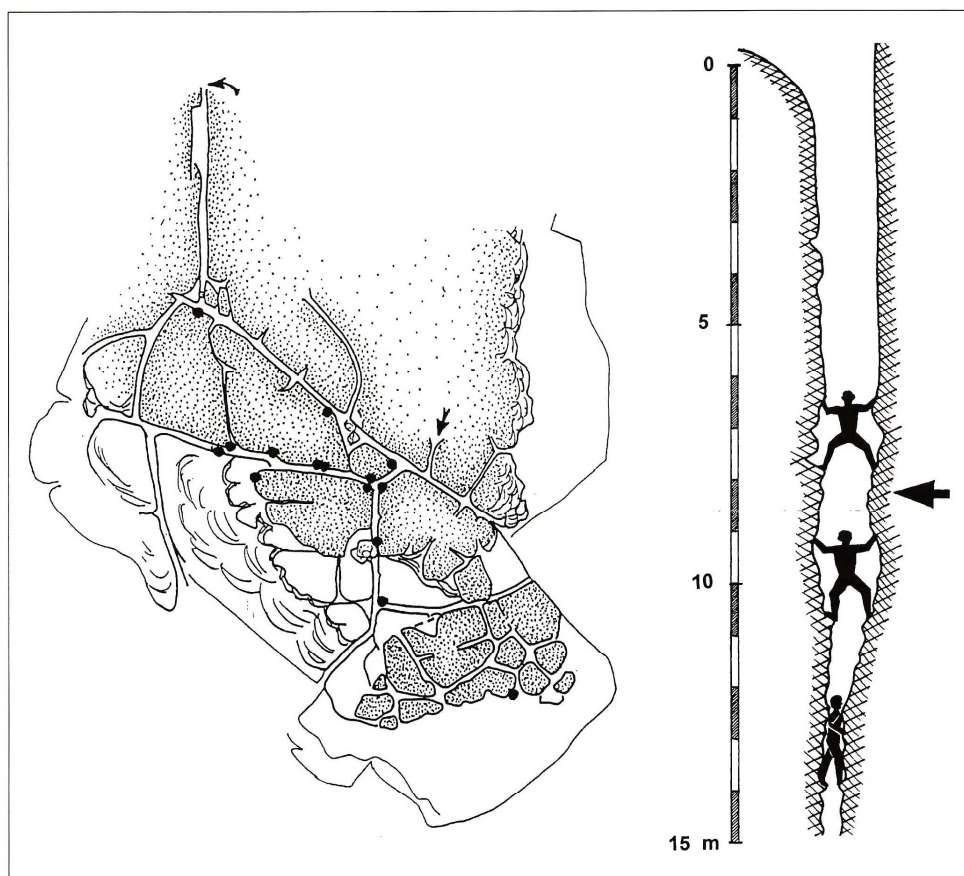
enterprises and – increasingly with the passage of time – also the enterprises of wealthy towns. A greater interest in the landscape led to its gradual deforestation, to a rise in the density of settlements and communications, to the construction of economic buildings, to the development of quarries, and to many other activities.

Associated with aristocratic enterprises was the establishment of breweries and the construction of beer cellars. Their large underground parts are for instance preserved in Mimoň (where they date from the middle of the 17<sup>th</sup> century (Tille 1905), and near the chateau of Lemberk near Jablonné v Podještědí (with an engraved date of 1694).

From the 18<sup>th</sup> century onwards, the landscape was pieces of small enriched with small buildings of sacral architecture, which, in the sandstone areas, were usually made from small cliffs located along the routes. Inside there were sunken niches for statues of saints or holy pictures, or occasionally even a whole chapel such as the one in the village of Všemily located at the margin of Bohemian Switzerland. Hermitages (Figure 6) dating from the 18<sup>th</sup> century were also sunken into the sandstone cliffs – for instance Samuelova jeskyně Cave in the cadastre of the village Sloup (Kühn 2005), and those at Zbynsko near Mimoň and Janovice, both situated in the area below the Ještěd Mountain. The most magnificent hermitage, including a church sunken into the rock, is situated in the former Medieval castle of Sloup in the Česká Lípa area; in total,



**Figure 5 (a, b, c).** The so-called Stříbrné stěny (Silver Walls) in Bohemian Switzerland – a labyrinth of vertical rifts, difficult to approach, in an upper part of the so-called Stříbrný roh (Silver Horn); the picture marks the points to the engravings by early modern prospectors. Engraved or cut symbols are found in several altitudinal levels, some are located 15 metres from the peak, two crosses 20–30 metres from the peak platform which can only be accessed with the use of mountain climbing skills. The approximate location of the engraving is shown in the photograph (a schematic human figure and the date 1579), in the profile of the rift marked with an arrow-head. In Stříbrný roh, the cliff is about 100 metres high; on the slope there is a shaft, as well as other historical assemblages. Measured and drawn by Vladimír Peša, photo by Petr Jenč (2003).







**Figure 6.** Bohemian Paradise – the Prolízavá rokle Gorge in the Příhrazské skály Nature Reserve. A wall of a small cave of a globular shape (the entrance is only 65 cm high and inside the cave, there is space only for one kneeling man) adorned with small engraved crosses of a Latin type. The cave, named “Kaplička pod Uněm”, served as a natural house of prayer in the 18<sup>th</sup> century. Photo by Petr Jenč.

six hermits lived there from the 1690's to 1782 (Gabriel and Panáček 2000).

In the villages and towns, most of the houses were furnished with cellars sunken into the rocks and slopes, which were used for various purposes such as cold-storage rooms, drying-rooms, haylofts, cellars for tools and wine cellars. A good example is the village Žďár with a smithy sunken into the rock. The town with the greatest number of cellars is perhaps Mimoň; after a great fire in 1806 the cellars even served as temporary dwellings for the inhabitants (Tille 1905). The cellars belonging to burgers and villagers were mostly of smaller sizes, and usually had one or two rooms. During the 19<sup>th</sup> century, rock dwellings were constructed, in which the number of rooms corresponded to that of a small village house, but which were completely sunken into the rocks – for instance Podkost-Barušky (Podroužek 1997). The dwellings were inhabited by people living on the margins of society; in some cases until the 1<sup>st</sup> half of the 20<sup>th</sup> century. Noteworthy is the rock village in the neighbourhood of the Valečov Castle (in the supposed place of a Hussite military camp), which existed until the end of the 19<sup>th</sup> century (Chotěbor 1986).

Underground sandstone quarries are specific to the landscape of Northern Bohemia. At least 15 sites are located,

for example, in the region of Česká Lípa; the so-called Pusté kostely site, situated in the Svitávka Stream valley between the villages of Velenice and Lindava, is the largest and probably also the oldest among them (Figure 8). The beginning of these local underground spaces was associated with the founding of a mirror factory by Count Kinsky in 1756. In order to obtain grinding sand, rock was mined there for more than one hundred years. Remains of this exploitation are large halls supported with columns (Peša 2004). Similar underground quarries can be also found in neighbouring areas, but in smaller numbers. From a typological point of view, the underground space in a park, in the town of Mnichovo Hradiště, can be added to this group, but it was constructed considerably later. Among the largest rank the Prosek sandstone quarries in the northern periphery of Prague with the underground labyrinth at Močálka which has tunnels reaching a length of about 800 m and Bílý kůň which has 350 m of tunnels. Sand mining in the Prosek quarries experienced its boom in the second half of the 19<sup>th</sup> century, and – in the period from 1800–1860 – was preceded by coal mining (Cílek 1995). Sand was also obtained from other underground sources in Prague and its neighbourhood – for example Prague-Vidoule and Tuchoměřice. In a similar way, Cretaceous marl was



obtained in the area of Mělník (between the villages of Vehlovice and Mlázice), and also in the eastern part of Bohemia (Peša 2004).

Surface sandstone quarries, on the other hand, are known from the neighbourhood of almost every village, where ashlar for building were obtained from them. The development of quarries was tightly associated with an increasing number of stone constructions in towns and later – during the course of the 19<sup>th</sup> century – also in the countryside. For this reason, surface quarries can be found in the neighbourhood of every town (for instance Česká Lípa, Nový Bor and Mimoň) or village; in them, dates referring to the end of the mining are sometimes preserved. Only exceptionally were ashlar obtained from underground mines, the reason for this is perhaps a shortage of surface rock exposures (Skalice near Česká Lípa) or the character of the landscape (the Pláánek valley in the Bohemian Paradise).

Interesting traces were left by prospectors in the early Modern Age (the 16<sup>th</sup>–17<sup>th</sup> centuries) in the *Quadersandstein* landscape, mainly in places where ferruginous layers are well visible in the rock, or where the rock surface is covered with a limonite crust (the so-called sandstone ironstone). Amongst the recently documented sites the following should be mentioned: Stříbrné stěny (Silver Walls) near Hřensko (Figure 5), where a gallery some 32 m long was searched (Veselý 1999, 2003), and the gallery (dated by an inscription to 1567) below the rock shelter Za Kolištěm near Jetřichovice. The rock composition differs from that of the Šluknov region (Brzák and Fabiánek 1995), Lusatian, Jizerské hory, and Krušné hory Mountains and it is likely that the region of Bohemian Switzerland was not very productive for the prospectors searching for iron ores as well as precious or non-ferrous metals. The prospector activities can be explained by assuming a low level of geological knowledge, which was still based on only the field experiences of miners, and on alchemical experiments.

From the middle of the 19<sup>th</sup> century to the 1920's, there were some endeavours to find and mine coal, but deposits were at best small and of a low quality, e.g. in the region of Česká Lípa and in the Bohemian Paradise (Kozákov Hill, or the area between Kněžmost and Branžež).

The contemporary form of the most of the mill races and flashes are from the early Modern Age but some of them are of medieval origin. One of the oldest, dated by the engraved date (1528), is located in Rozprechtice near Dubá. One of the most interesting mill races, consisting of a deep cut ravine and two tunnels ("Průrva Ploučnice" – the Ploučnice River ravine), was constructed in the village of

Noviny pod Ralskem (in the region of Česká Lípa) in the middle of the 17<sup>th</sup> century; a substantially larger system can be found in the Lusatian Mountains (Naděje – Mařeničky, dated between the 18<sup>th</sup> century and 1945). The only fishing flash in the Bohemian Paradise is found in the Kněžmostka stream valley near Branžež-Nová Ves; it was cut into the rock no later than in the 1<sup>st</sup> third of the 19<sup>th</sup> century. Associated with the races were mills, located in rocky valleys often partly (seldom completely) sunken into the sandstone, or at least having its foundations sunken into the rock. Examples include: Krvomlejn in the Kokořínský důl Valley, the Palác mill near Tubož (Zimerman et al. 1996), Suchý mlýn (Dry mill) near Nosálov in the area of Kokořínsko, Zourov in the Zábrdka Stream valley near Hlavice, the mill in the upper part of the Vesecký Pláánek Valley in the Bohemian Paradise, Dolský mlýn in Bohemian Switzerland, and many others. Many of these came out of use only after the World War II due to the transfer of the German population.

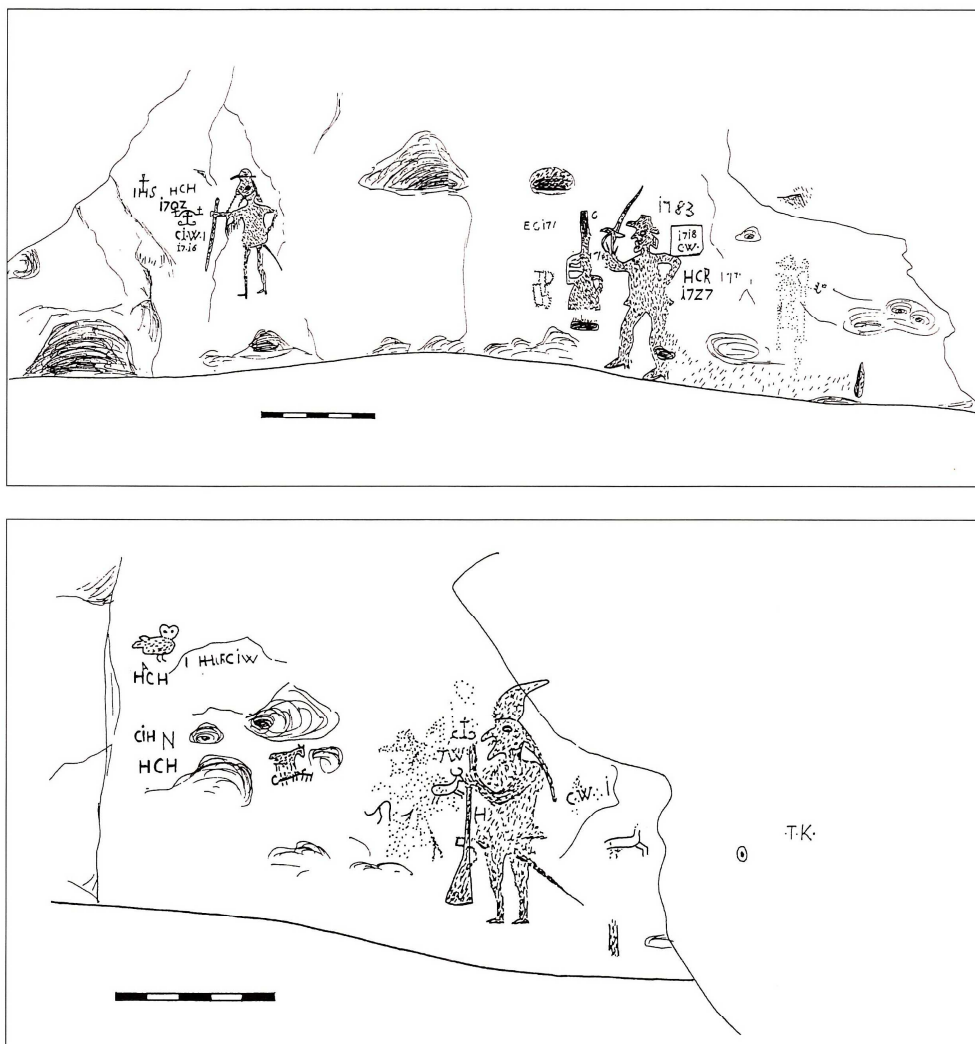
The occasional use of caves and rock shelters continued throughout the whole modern period. Rock caverns were used for refuge in troubled times, for instance during the Thirty Years War (perhaps the rock shelter Berča near Drhliny), in the age of Counter-Reformation (probably rooms of the Medieval castle of Drábské světničky), the Silesian Wars (in the 1740's and 1750's – for example Velký Pelíšek below the Mužský Hill massif, Stará forota near Žehrov, Braniborská jeskyně near Doksy), and the Austro-Prussian War in 1866 (Bohemian Switzerland, the region of Česká Lípa, Bohemian Paradise). According to tradition, documents belonging to local suzerain, were stored in the Stará kancelář Cave during the Silesian Wars (Peša 2002, Jenč 2006). Until recently, rock caverns were also used by people living on the margin of society; since the 1990's, there have been refuges for the homeless, who nonetheless prefer artificial underground spaces in the neighborhood of larger settlements. During the World War II, people mostly sought out the smaller and well hidden caves and rock shelters such as those in the Kokořínsko region and the Bohemian Paradise where at least 113 fugitive war captives hid in the area of the Mužský Hill massif at the end of the war (Peša 2002, Jenč 2006). Other interesting traces of rock shelters being associated with tar production is attested to at several sites in the Elbe Sandstones. One of them, the site of Jetřichovice – the so-called rock shelter of the Warriors (převís Válečníků) – is also remarkable for its valuable assemblage of engravings dating from the 18<sup>th</sup> century (Peša and Jenč 2003b, 2003a, 2004, 2006) (Figure 7). With the development of tourism, some of the caves and rock shelters became popular targets of travellers,

and pubs were built below some rock shelters, e.g. Balzerovo ležení (Balzer's Lager) and Kuhstall in Saxon-Bohemian Switzerland (Jenč, Pátková and Peša (eds.) 2001).

A sad chapter in recent human history is recalled by the underground constructions dating from the time of the World War II – the shelters (Cvikov), and underground factories. In 1944, at Rabštejn and Janská near Česká Kamenice, began the hasty construction of a huge underground complex (Brzák and Přibil 1999). Its main aim was to shift the manufacture of components for fighter-planes and helicopters produced by the “Weser” Flugzeugbau G.m.b.H. factory to the underground, and thus protect the armament factory from bombardment. In association with this production, a branch of the Flossenburg concentration camp was established in Rabštejn to provide labour. Another example is the site of Pusté kostely near Lindava, where the production of Bofors guns was located in the largest

of the underground quarries (the Nautilus factory belonging to the WFG company) (Figure 8).

The development of industry in cities and industrialization in general introduced a fundamental change in the style of living, which was also reflected in a changing attitude towards nature. During the first decades of the 20<sup>th</sup> century there emerged a new cultural phenomenon – camping in caves and rock shelters as a way of spending free time and as an expression of a return to nature. The Bohemian Paradise was one of the first areas penetrated by these admirers of nature. They were called scouts, shortly followed (in the 1920's) by unorganized “wild scouts” – the so-called tramps. The foundation of camps was characteristic for them, often including wooden constructions in caves and rock shelters. The custom of occasionally spending time in nature became very common particularly from the end of the 1960's and it has survived until today. Czech tramping



**Figure 7.** The so-called Rock shelter of the Warriors (Převis Válečníků) near Jetřichovice in Bohemian Switzerland. This historical rock engraving is one of the most important sites in Northern Bohemia. An assemblage of engravings dating from the 18<sup>th</sup> century is particularly remarkable for a depiction of five human figures holding a sabre, stick, or gun in their hands; among other depictions are small crosses, initials with dates, and animals. The scale drawn below the picture corresponds to 1 metre. Drawn by Petr Jenč and Vladimír Peša (2001).





**Figure 8.** The largest of the so-called Deserted Churches (Pusté kostely) near Lindava – the so-called Husovy kostely. Two hundred years ago this was a sandstone quarry; at the end of the World War II the site was used for the Bofors gun factory; in communist times it became a vegetable store; now it is used under the name “motorcyclists’ cave”. Photo by Vladimír Štěpánský about mid 1990’s (Regional museum in Česká Lípa).

represents a specific phenomenon on a European scale, however, as a consequence of damage caused by “tramps” to nature, it has been regulated by the authorities responsible for nature conservation.

### Conclusions

Many sandstone areas of the Czech Republic have been frequently visited since Mesolithic times by a number of individual prehistoric cultures. The sandstone rock shelters, caves and plateaus served as a winter refugia, cultic places,

occasional camps of pastoralists, hunters and gatherers or hideouts during local conflicts and religious wars. Some of the hideouts were used by resistance movement as late as during World War II. Any “friendly” rock shelter of “human dimensions”, especially if located close to the water source, may therefore provide a record of human activities during the last several thousand years. The excavations in the Bohemian Paradise proved that some 80 % of all sandstone rock shelters and caves that are used by contemporary visitors for outdoor activities do contain some traces of prehistoric cultures.