

## DOLNÍ VĚSTONICE – PAVLOV



Spolufinancováno Evropskou unií z Evropského fondu pro regionální rozvoj

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## **DOLNÍ VĚSTONICE – PAVLOV**

Place: South Moravia

Time: 30 thousand years ago









## The first modern humans and the last Neanderthals

Only one human population inhabits our planet's surface today – *Homo sapiens*. Thanks to the ground-breaking discoveries made over the last two decades in Africa, Asia, Australia, and Europe, thanks to the contributions of a whole set of scientific disciplines working together in an atmosphere of constant discussion at international symposia on this “hot” topic, a new theory of our origins has gradually crystallized. According to this scenario we are all descendents of the small, anatomically modern group of the family *Homo*, which dwelt in Africa over 200 thousand years ago. It was a successful population, which expanded first to the tropical belts of southern Asia and Australia, and later, 50-30 thousand years ago, moved several waves into what was then the cool and dry belt of Europe and northern Asia. There they encountered not only the harsh Ice Age climate, but the distinctive and strong aboriginals – the Neanderthals (*Homo neanderthalensis*).

Whoever sets out over the rolling countryside north of the Danube towards the Moravian Gate will find their eyes drawn by the striking ridge of the Pálava Hills. The archaeological and anthropological sites on the slopes of this limestone ridge constitute one of Europe's most important areas of early settlement by modern *Homo sapiens* – a kind of window into human lifestyles 30 thousand years ago. The Czech popular literature speaks of “the mammoth hunters”, European archaeological literature of the Paleolithic Gravettian culture (after the French rockshelter of La Vache), and the Moravian more specifically of



Early cultures with backed blade technology, possible predecessors of the Gravettian in the eastern Mediterranean (small ovals); the early south European “Fumian” (grey oval); and the subsequent Gravettian (large oval). Dolní Věstonice lies at center of the Gravettian oval, between the provinces of western and eastern Europe.



*Homo neanderthalensis*



*Homo sapiens*

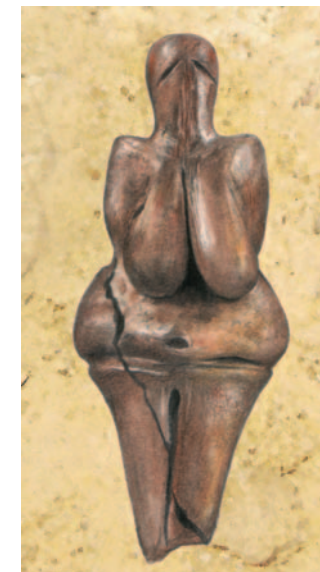
the Pavlovian culture (after the village of Pavlov). Below the deposits of calcareous loess blown here by the glacial winds, there lay the outlines of settlements, domestic hearths, the remnants of workshops, evidence of production, and bone refuse from animals killed for meat. Among the most valuable finds are the skeletons of the people themselves, evidence of the new technologies used for the first time right here, and artistic objects that are evidence of their aesthetic sensibility.

But the cultures, first the Aurignacian and later the Gravettian, of the anatomically modern humans who followed in several waves along the Danube deeper into the European continent, were not imported from tropical Africa, nor from the temperate Mediterranean climate. Instead, the way of life is evidence of the excellent human ability to adapt to the new, cooler environment in which they now dwelt. And the local culture may have been influenced by that of the Neanderthals, who were still there when modern humans arrived.

## Discovering Dolní Věstonice, Pavlov, and Milovice

In public mind, Dolní Věstonice is predominantly associated with what is referred to as site I, made famous by Karel Absolon. It yielded the area's most treasured artifact, the Venus of Věstonice. In the Absolon concept the slopes of the Pálava Hills were in fact one giant mega-settlement, a "Diluvial Pompei". Today, in the areas of Dolní Věstonice, Pavlov, and Milovice, we differentiate between a structure of Gravettian settlements, roughly of the same age, and connected internally according to some kind of functional key.

Up to 1659 we find periodic references to enormous "Ante-diluvial" bones somewhere around Mikulov, and as late as a century ago, sites below the fields and vineyards on the slopes of the Pálava Hills was still giving up only small bones and stone "knives" or "flints". This was at a time when there were already major excavation projects underway in Moravia at the site of Předmostí and in several Moravian caves. So the planned research at Dolní Věstonice provided a good chance to make use of experience gathered elsewhere and avoid the mistakes that came with too-rapid excavation, inexact documentation, and the dispersal of finds among private collections. Brno's amateur archaeologists first contacted renowned Vienna researcher Joseph Bayer, who warned them against an amateur approach to such a promising and then practically intact site. Beginning in 1924 excavations in Dolní Věstonice were led by Karel Absolon, who conducted systematic research each year on behalf of the official Czechoslovak institution, the Moravian Provincial Museum. Absolon amazed the whole world with a series of unique finds up until 1938, when Dolní Věstonice was occupied by the German army. It was not only the figurine of the Věstonice Venus itself (found already in 1925), but the technology of its production, the knowledge of firing clay, so



Dolní Věstonice I : the Venus of Věstonice, prehistoric figurine found by Karel Absolon on 13 July 1925.



M. Bégouen, E. Pittard, and L. Capitan; behind them J. Kostrzewski, L. Kozłowski, V. Čapek, and J. Knies study the deposits at Karel Absolon's excavation in September 1924.

deep in human history. Associated were numerous other ceramic plastics representing humans and animals, as well as other symbolic miniatures carved from mammoth tusks. Absolon published his discoveries in the Czechoslovak and foreign press, and presented them fully to the public at the Brno fairgrounds, as part of a special exhibition called "*Anthropos*" – today the modern exhibition pavilion in the Pisárky park. Absolon's entire conception was innovative: not just a collection of flints or figurines, but a reconstruction of life within the prehistoric settlement and of its inhabitants. Thus Karel Absolon laid the foundations for Moravian paleoethnology.

The world importance of Dolní Věstonice was known to the German occupiers and to Dutch archeologist Assien Bohmers, whom they named to lead their research team during the wartime. Bohmers continued the research even as the German Army stood as far as the Caucasus and Stalingrad. However the war had tragic consequences for the research: many unique finds, especially human skeletal remains that were taken to the Mikulov castle for storage, were destroyed when the castle was burned at the end of the war. But the Venus and a number of other artistic objects remained in Brno and thus survive today.

After the end of the war, leading Czechoslovak archaeologists began to plan an optimal strategy for future research in Dolní Věstonice. The lead was gradually taken by the Institute of Archaeology, which became part of the structure of the Academy of Sciences in 1953, and this institution still continues in this task today. In addition, more systematic cooperation was established between various institutions and individual disciplines, especially in the natural sciences, which could contribute to the research in Dolní Věstonice. Absolon's role as lead researcher was taken up for several decades by Bohuslav Klíma. The research was expanded from Dolní Věstonice I to the new sites Pavlov I and II. A new collection was assembled of smaller artistic plastics, carvings, and ornaments, and the first ritual burials of women and men were discovered as well.

Up until that time the excavation below the Pálava Hills had been systematic and scientifically planned, but in the 1980's the situation changed. When the

E. Vlček, B. Klíma, and V. Gebauer investigating the Věstonice triple burial in August 1986.



artificial lakes were being constructed on Dyje river at the foot of the slopes, loess to build the dams was taken from two new, previously only guessed-at sites, which were given the names Dolní Věstonice II and Milovice I. As the terrain work forwarded rapidly, the excavation was over a large area under serious time pressure, which required archaeologists to join forces. At that time I joined the Bohuslav Klíma's research at Dolní Věstonice, while research in Milovice was led by Martin Oliva from the Moravian Provincial Museum. The archaeologists' efforts were crowned in 1986 with the discovery at Dolní Věstonice of a triple burial, and a year later the burial of a man.

In 1995 a newly-conceived Center for the Paleolithic and Paleontology was founded within the Archaeological Institute of the Academy of Sciences Czech Republic near the site of the original terrain work in Dolní Věstonice. Besides a complete processing and publication of the findings assembled to date, the Center has undertaken further field research on previously-known and newly-discovered sites in the region (Dolní Věstonice II, IIa, III, Pavlov II, VI, and the latest Milovice IV). The layers of the Gravettian culture continue to be uncovered, and threatened by new development, the building of sewers, terrain work, and chance situations such as when a road collapsed into some forgotten cellars beneath the settlement of Milovice in 2009. The development of science and the application of new natural science methods require that the sites be reopened, their significance reconfirmed, and samples be taken for new analysis. The Center for the Paleolithic and Paleontology carries out research on similar open-air sites, and in caves and rockshelters in the Czech Republic and abroad.

Research findings since 1994 have been published as part of the interdisciplinary series *The Dolní Věstonice Studies*, which thus far consists of 17 volumes. In 1979 the Regional Museum in Mikulov set up an exposition to present these findings to the public. It was extensively reorganized in 1997, but in the future a more modern conception will be required corresponding to the importance of this site. Intensive work on this is already underway.



## Brief overview of the sites: location and research leaders

**Dolní Věstonice I** (Absolon's site). Complex of Gravettian settlements and mammoth bone deposits is located on a long slope in a vineyard in the easternmost part of the village's cadastre, so the first reports on them speak of them being in the neighboring settlement of Pavlov. In the middle and upper parts independent settlement units were distinguished (huts). Elevation: 200–235 above sea level. Research: 1924–1938 Karel Absolon; 1939–1942 Assien Bohmers; 1945–1946 Karel Žebera with a collective; 1947–1952, 1966, 1971–1979 Bohuslav Klíma; 1990, 1993 Jiří Svoboda.

**Dolní Věstonice II** (Cihelna, Nad cihelnou, Pod lesem). Complex of Gravettian settlements on the eastern edge of the village, stretching from the "Calendar of the Ages" site over the terraced terrain of the crest and the western slope to the field below the forest (locality IIa). In this area individual dwelling units (huts) are scattered, in the gully to the side is a deposit of mammoth bones (one of the dwelling units evidently dates from the late Aurignacian). Elevation: 200–250 m. Research: 1959–1960, 1985–1988 Bohuslav Klíma; 1985–1991, 1999, 2005 Jiří Svoboda.

**Dolní Věstonice III** (Rajny). Individual settlement units from the Gravettian (and the underlying layer evidently Aurignacian) lying on a steep slope



The profile of the Pálava Hills seen from a distance resembles back of a recumbent animal. The limestone ridge reaches a height of 550 m above sea level.

with vineyard between localities I and II. Surface finds continue in the field all the way to the woods (these are evidently Aurignacian). Elevation: 215–290 m. Research: Bohuslav Klíma, 1993 Jiří Svoboda, 1994–1995 P. Škrdlá.

**Pavlov I.** Intensively inhabited Gravettian settlement with two large concentrations, in the field to the west adjacent to the village. The settlement units (huts) overlap mainly in the southeastern part, where their layouts form a difficult-to-read palimpsest. Elevation: 190–205 m. Research: 1952–1965, 1971–1972 Bohuslav Klíma.

**Pavlov II.** Smaller Gravettian settlement on the eastern edge of the village, now being gradually built over with family houses. Elevation: 205–215 m. Research: 1966–1967 Bohuslav Klíma; 2009 Jiří Svoboda.

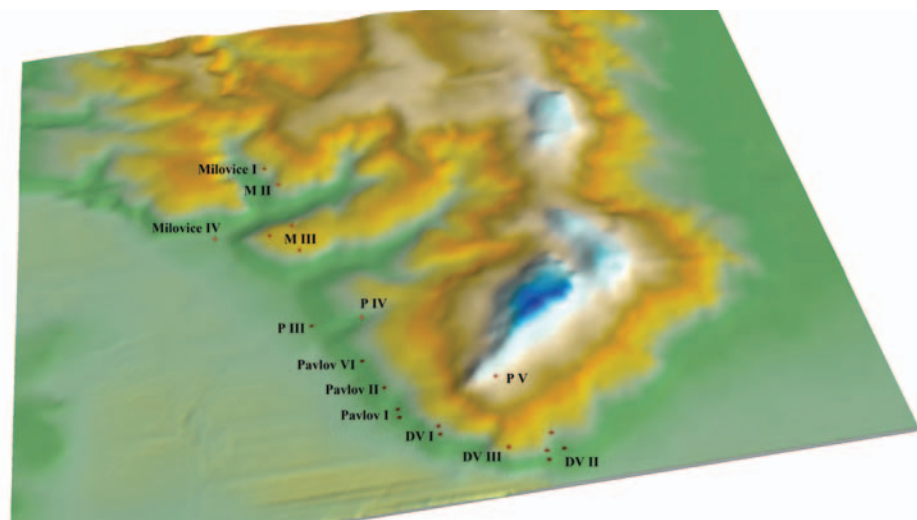
**Pavlov III.** Scattered Gravettian stone tools and bones from the wall of the former, now filled-in clay pit along the road from Pavlov to Milovice. Elevation: 180 m. Výzkum: 1966, 1977–1980 Bohuslav Klíma.

**Pavlov IV.** Surface finds of stone tools in the valley along the southeastern edge of the settlement. Elevation: 210–250 m. Ongoing surface research.

**Pavlov V** (Děvičky). Surface finds of stone tools below the castle. Elevation around 360 m. Ongoing surface research.

**Pavlov VI.** Isolated, completely preserved Gravettian settlement unit on the eastern edge of the village by the road to Milovice. Elevation: 215 m. Research: 2007 Jiří Svoboda.

**Milovice I** (Mikulovsko). Complex of settlement and mammoth bone deposits in the valley south of the settlement along the road to Mikulov. Below the



Graphic depiction of the Pálava Hills and the position of various sites at Dolní Věstonice, Pavlov and Milovice



Pavlov I: The geometric design on a mammoth tusk may be interpreted as a depiction of the landscape around.

Gravettian lies a discrete layer of Aurignacian. Elevation: 230–240 m. Research: Bohuslav Klíma, 1986–1991 Martin Oliva.

**Milovice II** (Waldfleck, Marktsteig). Surface finds of stone tools on the little ridge north of site I. Elevation: 220 m. Ongoing surface research.

**Milovice III** (Brněnský, Strážný Hill). Isolated finds. Elevation 220–265 m. Ongoing surface research.

**Milovice IV** (inside the settlement). Evidently a large Gravettian settlement beneath the present-day village. Elevation: 180 m. Research: 2009 Jiří Svoboda.

## Calendar of the Ages

On the eastern edge of Dolní Věstonice we turn behind Langer's wine restaurant into the former Věstonice brickyard. In section of the pit we can see the geological layers from the last Ice Age, which encompasses more than 110 thousand years of unstable development of nature and the climate, thus making it a "Calendar of the Ages". The most notable layer is due to extreme cold and dry period, when masses of fine, dusty material were blown in by cold winds to the Pálava Hills from the exposed surfaces of the barren, weathered highlands. At the foot of the Pálava Hills these layers sedimented as a homogeneous, fine-grained, light and calcaneous loess. There were two major periods of maximum cold, roughly 65 thousand and 22 thousand years ago. In the warmer and more humid periods in between, the deposits of loess stopped and soils began to form on each surface – darker layers with their development, micromorphology and color corresponding to each period of warmth. Samples taken from the deposits allow us to date the individual layers, investigate their structure, and seek traces of the organisms that lived here. Thus we can reconstruct the past landscapes and their changes.

One other issue about the Calendar of the Ages is worth mentioning here. Usually, favorable places in the landscape or well-located caves were inhabited repeatedly through the Paleolithic, because the hunters of various cultures found it



Dolní Věstonice II, *Calendar of the Ages* in the wall of the former brickworks. At the lowest point of the section we see a belt of brown forest soil from the last interglacial period (about 110 thousand years ago), followed by three black strata of steppic soils, corresponding to warmer oscillations during the early glacial period. A larger part of the section consists of light-colored loess of the glacial period. A less-pronounced, light brown soil, dividing the loess roughly in the middle, indicates a series of temporary warmings during the glacial. The Gravettian settlement (about 30 thousand years ago) lies where this soil meets the loess above it, at a depth of 6m.





Dolní Věstonice II, *Calendar of the Ages*, 2009 excavation. An international team of geologists reopened the classic section and sampled it for dating and paleoenvironmental reconstruction. The arrow points to a mammoth rib, which corresponds to the position of the Gravettian layer.

advantageous to return there. However the slopes of the Pálava Hills were attractive to humans only during a limited period lasting a few thousand years, some 30 thousand years ago, at a time when the temporary soil-formation processes were ending (traces of the Aurignacian) and the last thick layer of loess was beginning to be deposited (Gravettian). The soils underlying the inhabited layer show that people arrived here during a period yet relatively favorable, whereas the loess above demonstrates a cooling. But more than 10 m of deposits below and 6 m above this thin stratum show no other evidence of human presence.

## The Ice Age landscape

Paleobotanical analyses of wood charcoal and pollen grains show that during the era of flourishing in Dolní Věstonice the climatic conditions were not as drastically cold and dry as was formerly thought. It is even probable that the mild warmings that took place periodically during the Ice Age allowed the first waves of migration by anatomically modern *Homo sapiens* to penetrate into Europe and form their culture. The great sheets of glacial ice temporarily retreated north into Scandinavia and south up into the Alps, and open areas of cold steppe and tundra were broken by islands and even compact belts of forests. The broadly flood-ing, meandering Dyje River was lined by stands of alder and willow; the slopes of the Pálava Hills were colonized by spruce, larch, and pine, leaving bare only the Děvín ridge and the flat-top Stolová hora, high above the surrounding terrain. The protected and sunny slopes of the Pálava Hills became host to thermophile deciduous trees like oak, beech, and even the hydrophile yew trees. The shells of molluscs, however, demonstrate rather the cold aspects of this climate.



Herds of horses were part of the Ice Age landscape.





The forest steppe during a milder Ice Age oscillation. The pollen grains were preserved in the layers at Dolní Věstonice include hazel, juniper, alder, pine, milfoil, sage, grasses, and algae. The layers also yielded pollens and charcoal of additional trees – spruces, larches, as well as rare and climatically more sensitive oaks, beeches, and yews.



## The animals as the hunters' prey and competitors

It was probably the great herds of animals in the Danube lowlands that have attracted modern humans into these parts of Europe. Mammoths gathered in the alluvial plains along the river, while reindeer and horses roamed the rolling countryside above. Judging by the behavior of present-day elephants, and assuming a sufficient supply of food and water, a ten-member family of mammoths could inhabit a territory of 10–70 km<sup>2</sup>. During its migrations below the Pálava Hills, however, the mammoth herds might increase to as many as one hundred. The mammoths, reindeer, and horses represented a basic source of meat – proteins and fats – for the nourishment of humans; the bones, teeth, and hides; while other organic materials served to make everyday items and human dwellings. These main sources of nourishment and sustenance were supplemented by meat of bison, rhinoceros, and other inhabitants of the steppe. The first analyses of isotopes from human bones show that the nourishment was quite diverse. Bones found at the settlements also show that the hunters of enormous mammoths did not disdain smaller animals such as hares, the bones of which are also strongly represented; less so small birds and sometimes fish (where their fragile remains were preserved at all). No less common are the bones of foxes and wolves, which provided valuable furs for making clothes and shelters. Meanwhile, just outside the settlements dangerous predators hovered, the hunter's competitors – lions, hyenas, and bears – which had to be driven away or killed.

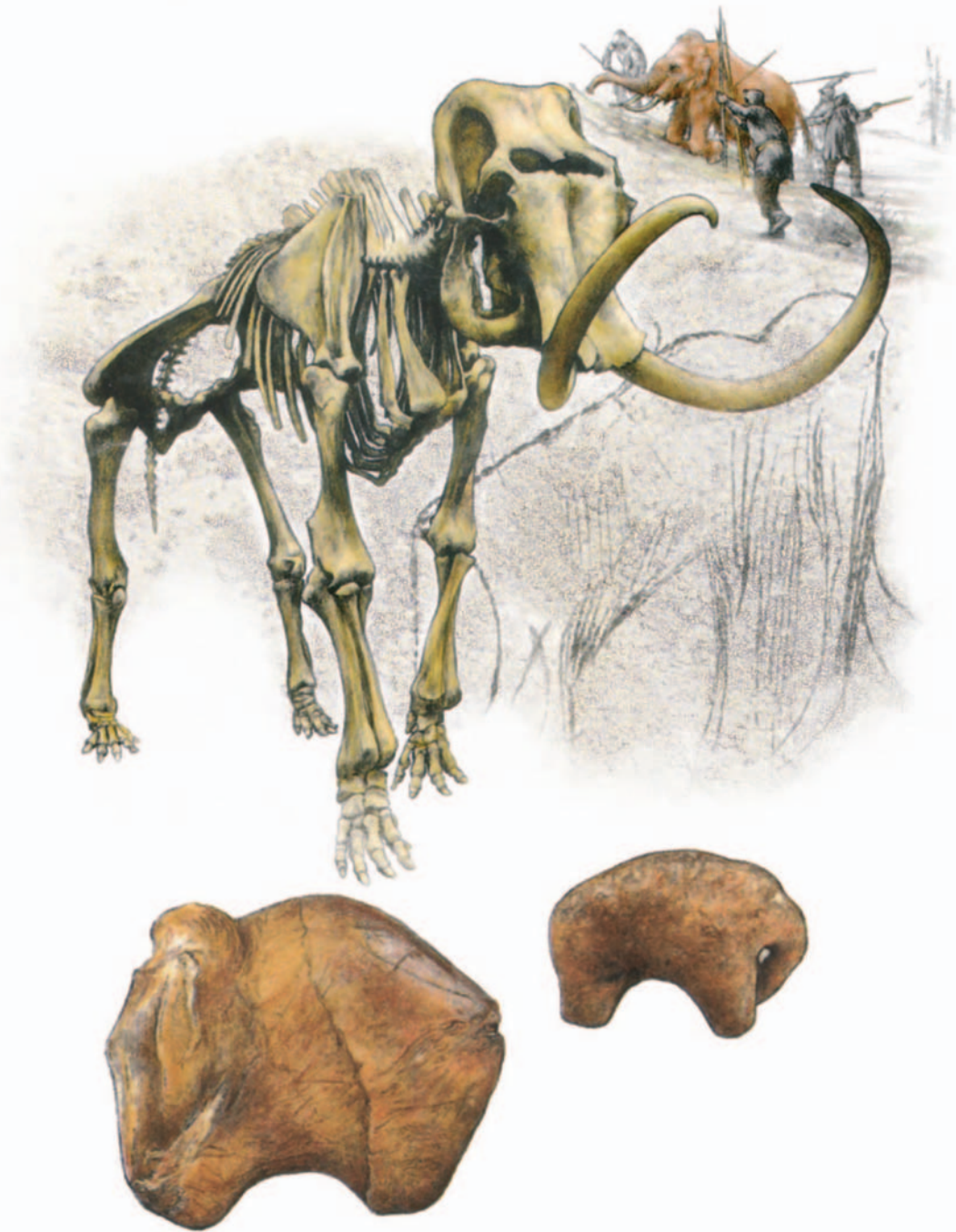
Among this variety of animals, the mammoth has a special place. The bones of these giant beasts were accumulated in special deposits next to the settlements.



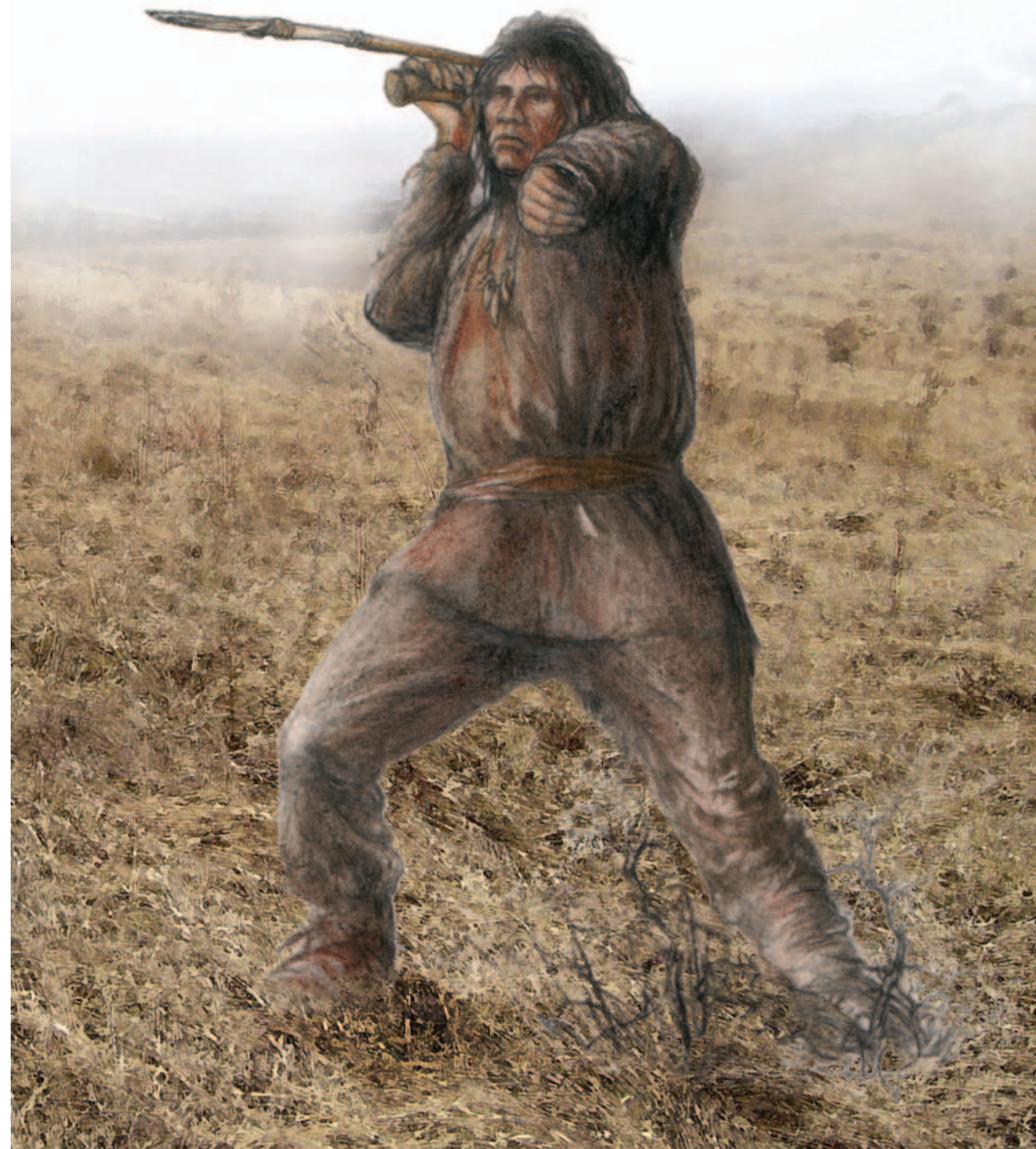
Bears were not sought as prey by prehistoric hunters, and an encounter with a bear signals a danger. Bear was a respected and worshipped animal of transcultural significance. For Siberian peoples the bear makes object of rituals until today.







While hunting the mammoth, the prey was separated from the herd and driven into one of the gullies in the slope of the Pálava Hills, to be killed there. The motif of this majestic animal was repeatedly depicted on cave walls (Pech Merle – a cave near Cahors, France), carved into mammoth ivory (Předmostí), and modelled of clay (Dolní Věstonice).











Milovice I, 1987 excavation. A deposit of mammoth bones on the slope below the settlement.



Dolní Věstonice II, 1987 excavation. A wolf skull found at the site.

Some lie in adjacent swampy glens, and at Dolní Věstonice II right on the bed of a then-existing lake. At some deposits there were dozens of individuals, in others up to hundreds. The possibility has even been considered that these were natural burialyards where the animals went to die, and where the hunters would have gone after, to collect bone and ivory. Although this possibility has not been definitively excluded and the argument returns from time to time, it is clear that the deposits originated during the life of the human settlements. It is therefore more likely that the mammoth bones are in fact the remains of hunted prey which - for reasons of space and hygiene - were accumulated outside the core settlement area. The storage of parts of the animals' bodies under water may have been done in order to preserve the remains, especially in the winter when the water froze over.

The placement of the bones in outlying gullies would also suggest an optimal hunting strategy, making use of the terrain of the Pálava Hill's slopes. It would have been necessary to separate individuals, primarily younger mammoths, from the large herds along the river lowlands, and drive them into a cul-de-sac upslope. The large animal would be slowed by the slippery wet mud, while men standing along the rising sides of the gully would have the advantage of height to take aim and strike. Thus it was unnecessary to dig pits to trap the mammoths, as is supposed in the popular literature (and in a land of frozen ground it would not have been physically possible).



Dolní Věstonice II, 1987 excavation. The deposit of mammoth bones lay in a side gully, in the sediments of a small lake, formed here during the Paleolithic. Archaeologist Petr Dvořák cleans a set of mammoth vertebrae.



## Hunting weapons

Beginning with the early Paleolithic, the basic hunting weapon was the spear, originally of wood with a pointed end, and sometimes hardened in the fire. In Dolní Věstonice (site II) there are a few fragments of elongated wooden objects, probably spears or shafts. However the main raw material for the production of sharp and hard projectiles now became the mammoth tusk. Perhaps this was according to the old hunters's maxim that to kill an animal you need to use material from its own body. We also find shorter, leaf-like projectiles with stem and a dull point of bone and ivory, suitable for hunting small animals so as not to damage the fur.

Small, light geometrically-shaped microliths suggest that the principle of bow and arrow was already known, as these tips are just of the right size and weight. Traces of impact and breakage from blows would tend to confirm this supposition. It is equally likely, however, that these small points may have been set in rows into the heads of spears or harpoons. We find innumerable such stone tips at the sites, but no shaft of an arrow or combined spear has been preserved, so we remain on the level of hypothesis.

In the fired clay there are imprints of knots; therefore it is likely that in Dolní Věstonice nets, too, were used for hunting fur-bearing animals, hares, and fish.



For the mammoth hunters, small rabbits too were among the favorite game. Large predators, on the other hand, were driven away from the settlements.



Small animals, rabbits and foxes, were evidently hunted with nets. Spearheads were found – sharp and blunt, in order not to harm the pelts of the animals – and imprints of little knots, possibly left by such nets.



## Did they eat plants, too?

Man is an omnivore, and although the ancient hunters on the cold steppe mainly hunted animals as a source of meat, we assume that their nourishment was not limited to it. The feeding of small children would have been a problem, nor would adults be able to get by on meat alone. As far back as the early Paleolithic we find stones used for crushing nuts, and plants were certainly used as a supplement later as well, but there is generally lack of a direct evidence for plant consumption.

The landscape of steppe and tundra provides a number of edible seeds and berries. In Dolní Věstonice II, British paleobotanists have found traces of crushed plant fiber in one of the hearths, and interpreted it as the remnant of some kind of porridge, possibly from children's excrement. At Pavlov VI Italian colleagues have recently documented the remnants of crushed plant tissue on one of the larger grindstones. Our settlements have also yielded a large number of flat stones serving mainly to grind mineral dyes (with traces of the dye still evident on some of them). The jury is still out on whether vegetable food was also ground on these or other surfaces.

## Raw materials

Tools were fashioned mainly of stone (this was the Stone Age after all) and from mammoth tusks (and these people are popularly known today to Czech culture as the Mammoth Hunters). Common stones, animal bones, or wood were available in the immediate area. However, good-quality lithics which could be fashioned into long thin blades, scrapers, burins, arrowheads, and miniature tools of geometric shapes, were brought from afar, from a hundred or more kilometers away. A part were brought from the veins of red and green radiolarite in the Carpathian highlands on the Moravia-Slovakia border. The narrow pass of the Moravian Gate to the north leads to sources of the famous "flints" in the glacial sediments and primary veins in southern Poland. It is interesting how variable the proportions of the two materials are at the individual sites of the Dolní Věstonice-Pavlov area. This is perhaps a reflection of the rhythm and direction of the individual expeditions in search of these materials. In any case, the quantity of imported stone provides good evidence that the Moravian corridor was regularly, probably seasonally frequented by groups of people. Their movements in turn certainly corresponded with the movements of the animal herds. But there is a certain paradox here, because cherts, albeit of poorer



Pavlov I. Pieces of mineral dye, ground on flat stone surfaces.



quality and less attractive in color, could also be gotten in southern Moravia. The closest source of chert in the massif of the Krumlov forest was close at hand, and other Paleolithic cultures (for example the Aurignacian) as well as the late Neolithic and then the Bronze Age were perfectly satisfied with this stone.

The land below the Pálava Hills offers yet other sources of raw materials. In the gravel deposited here by the Dyje River, pebbles were utilized for coarse tools, and for the construction of hearths and dwellings. The Tertiary sediments in the area contain fossilized molluscs that once lived in the shallow Tertiary sea, and were now prized as ornaments, or used as small bowls to mix dyes. These sediments also provided the basic red, brown, and yellow mineral dyes, which hunters supplemented with other dyes brought in from greater distances.



Milovice IV. Stone tools were made of imported materials, predominantly flint and radiolarite.

## The settlements' location

Now let us climb to the top of the Pálava Hills and overview the surrounding countryside. On the vineyard-covered slopes and fields far below us once stretched a continuous chain of Gravettian hunting settlements, situated according to the optimal strategy for herd hunting. From the highest point where castle Děvičky stands today, we can overview all of the settlements – and they can see Děvičky as well. It was well possible from here to coordinate the hunt by visual signals. Most of the settlements lie atop mild folds in the terrain at the same elevation, above 200 m above sea level, which allowed them a good overview of the animal movements in the valley 30-40 m lower. They commanded the side gullies and valleys running upslope, into which the animals could be driven and slaughtered. On the other hand, the remnants of the older, Aurignacian settlements are concentrated at the higher elevations in this area (which corresponds to the settlement strategy in the parts of Moravia where the Aurignacian is more strongly represented).

Our newest Gravettian locality, Milovice IV, diverges from this pattern. It lies in the center of a present-day village, almost at the level of the river floodplain, and is positioned to block the entrance to the Milovice side-valley. Further research on this rich, but difficult-to-access site should shed light on its function.

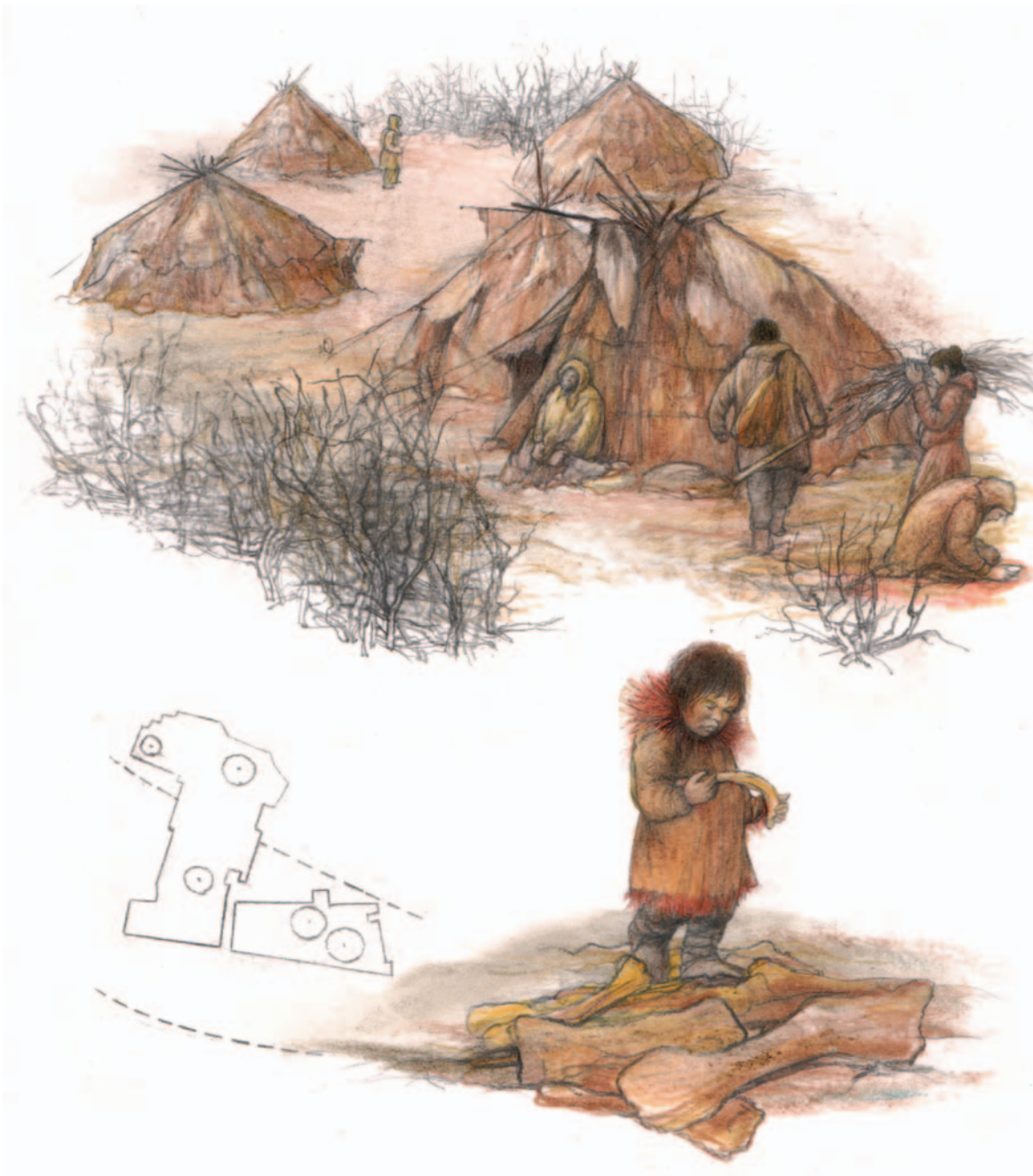
Carved on a mammoth tusk that was found at Pavlov we see a geometric pattern that evokes a picture of the landscape. Of course this is no aesthetic "landscape", but the practical record left by a hunter, with etchings representing perhaps the characteristics and passability of the terrain. Similar drawings on mammoth tusks have been found at hunting settlements in Moravia, Ukraine, and Russia. Even today nomadic hunting populations, which have a well-developed sense of space, create simple but practical maps of their territory.



Dolní Věstonice II, western slope, 1987 exavation, settled area with location of a male burial.



Dolní Věstonice II. Archaeologists returned to the site in 2005.



Reconstruction of Dolní Věstonice II (western slope) settlement. Earlier stage of occupation (according to fieldplan of the 1987 excavation).

## The hierarchy of the settlements

Individual sites in the Dolní Věstonice–Pavlov–Milovice area have their hierarchy, given by their size and by the complexity of the activities.

The large and complex sites at Dolní Věstonice I and Pavlov I cover oval-shaped areas exceeding hundreds of meters, containing layers of the remnants of repeated hearths and the building of huts, refuse from the consumption of food and production activities, traces of rituals, symbolic art, and the individual burials of the hunters themselves. We assume that the both sites fulfilled their function year-round. The Dolní Věstonice II locality, too, is a large settlement, even larger than the two previously named, but evidence of occupation is not as intensive; the traces are more spread out and cover a longer segment of time, with repeated interruptions. There are few artistic or ornamental items here, though there is evidence of mammoth hunting (the bones of which are found in the adjacent gully) and the working of skins (a large number of fox and wolf bones, and traces of working skins on their tools). Dolní Věstonice II is most famous, however, for its anthropological finds, including a triple burial, the single burial of a man, and a quantity of scattered fragments of human bones in the area. Milovice I also takes up a significant area, but it is dominated by a big deposit of mammoth bones, and occupation evidently was repeated at certain intervals. The other sites (Dolní Věstonice III, Pavlov II) are smaller, measuring a few dozen square meters at most, and were evidently inhabited seasonally. The newly-discovered site Pavlov VI represents a single settlement unit with "kitchen" facilities for processing meat, containing remnants of animal bones. Some of the larger localities grew out of the merger of such smaller units.

This hierarchy of settlements is related to length and seasonality of occupation. We see that it is not only size of the area that matters, but stability of inhabitation. At the permanently-inhabited sites a larger spectrum of activities were realized, including production of artistic objects, and the carrying out of rituals.



Foxes and wolves, the bones of which are found in large quantities at some of the settlements, were predominantly considered as a source of furs, but sometimes of meat as well.



## Population size

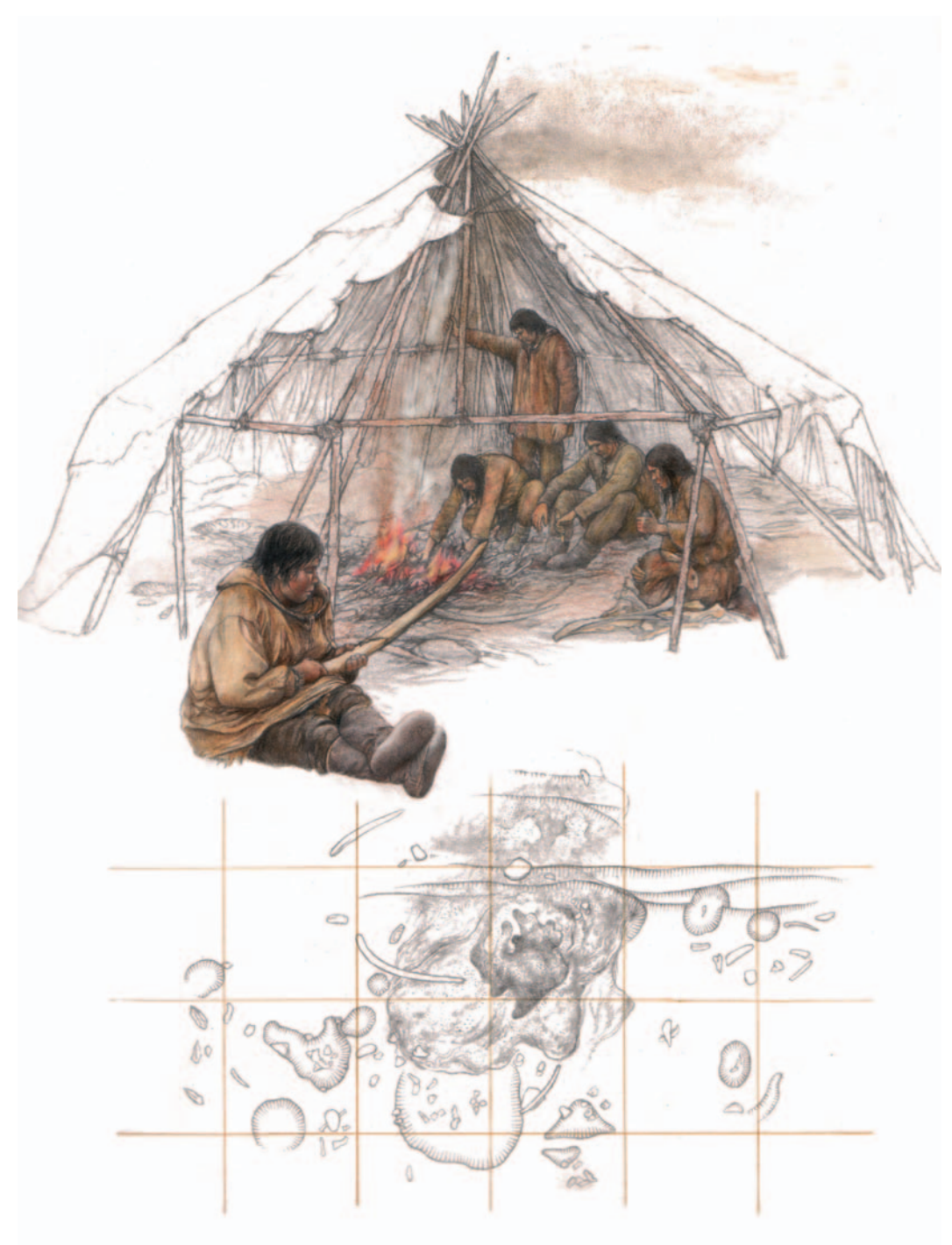
In view of the sustenance potential of the surrounding landscape, a great population density is not assumed – about 2–10 individuals per 100 km<sup>2</sup>. Annual growth was usually low, and was dependent on a number of variables such as nourishment, fertility, and length of the reproductive season, and degree of sedentism or mobility. If we assume in the lowlands and hills of the middle Danube basin an area of 250 000 km<sup>2</sup>, then the hunting population might have reached the level of 5 000–25 000 inhabitants. This number is roughly comparable with estimates of the original Indian settlement in the large regions of today's Canada, based on the historic records.

As for the inhabitants of the individual huts, the ethnological analogy and the results of contemporary experiments agree on an average of up to ten inhabitants. With the long-term inhabited hunting settlements, the demographic estimates based on their size and structure are problematic because we are usually not sure how many of the huts that have been uncovered were part of the settlement at the same time. Given the existence of five to ten huts at the largest settlements, the total number of inhabitants may have reached 100 people – for example during the community hunt, the subsequent processing of the meat and materials, ceremonies and rituals. This would be a rather large number for hunters and gatherers, on general scale, but suitable for certain organized activities. For example the Indians formed groups of 50–100 when hunting the bison and processing the kill on the American prairie in the 19<sup>th</sup> century.

Although the large settlements such as Dolní Věstonice I and Pavlov I were presumably occupied year-round (for example the first analyses of the annual growth of animal teeth correspond to the various seasons of the year), there was a seasonal variation, and groups of hunters departed periodically to hunt and obtain raw materials from elsewhere. The smaller sites in our area and the adjacent Morava River basin were occupied mostly in the spring, summer, and fall.

## The huts

The settlements consisted of huts, but all that remains of them are ground-plans, and they are not always archaeologically legible. The fundamental unit was a dwelling of roughly circular shape, containing a central hearth or multiple hearths, various types of adjacent pits, and a corresponding concentration of tools and bones. Only rarely we encounter an alignment of stone blocs or large



Dolní Věstonice II, western slope, 1987 excavation. Above the site of a fireplace, surrounded by traces of human activity (pits, bones, and tools), we can imagine a light, round dwelling made of wood and skins, stable and well-heated.



bones. The diameter of the units is standard – usually around 5 m. The hut that we reconstruct based on these foundations is made of wooden supports covered with skins, the shape and structure of which we deduce from the techniques that have proven themselves over thousands of years in the sub-Arctic areas of North America and Asia, where the native inhabitants still adapt today to similarly cold climates. Such structures must be simple and at the same time solid, and easily heated; they must stand up against the wind and bear the load of snow that falls upon them. We can refer to them variously as teepees, yurtas, or chums.



Dolní Věstonice II, western slope, 1987 excavation. A large hearth in unit 3, with an oval pit below; over the hearth lay a horse rib, and around it a semi-circle of small boiling pits (see reconstruction on previous page).



Dolní Věstonice I, excavation by B. Klíma uncovered a circular alignment and central hearth of a Paleolithic hut (unit 2).

## The Paleolithic household

The principle of the roasting pit is known to any hobo, and in ethnology it is perhaps best found in the Pacific, where pigs (and sometimes people) are cooked in great pits, wrapped in leaves and covered up with stones. At Dolní Věstonice II and Pavlov VI we uncovered two oval pits of identical dimensions 120–130 cm × 80 cm, roughly 20–30 cm deep. In the first instance the pit was later covered by a large bed of ashes, in the second the pit is filled with burnt stone blocks; but in both cases the large pits are surrounded by a circle of small, kettle-shaped holes. Nomadic populations to this day carry liquids in sacs made out of the skin or stomach of animals, or of plant materials. The sacs are easy to store and do not break, but of course you can't cook in them. For this they use a method of cooking in the small pits found among the sub-Arctic Indians and Eskimos: a skin with water and (for example) crushed bones is placed in the pit, and water is brought to a boil by throwing in stones from the nearby fire. In Pavlov and in Dolní Věstonice the kettle-shaped pits (roughly 15–20 cm across and equally deep) are frequently encountered, always next to a hearth. Because Pavlov I is an intensively and repeatedly occupied site, the pattern of pits here is dense and irregular, while at Dolní Věstonice II, mainly on the western slope which we researched in 1987, the settlement is inhabited sparsely and over a larger area; thus the outlines of the individual units are more legible. Also clear is the outline of one unit at Pavlov VI, studied in 2007. If we interpret the large hearth or pit as the center of one settlement unit, then the kettle-shaped pits around it form almost a regular circle or half-circles, spaced roughly 1 meter from one another. There are also burnt stones around as well.

At Dolní Věstonice II on the western slope there were, in three cases, a shallow dish-shaped pit up to 1 m in diameter, always on the lower side of the central hearth. These may have served as ashplaces, perhaps for baking purpose.

Stone blocks – below the Pálava Hills these were of limestone of course – were also used as heat accumulators to prolong the period during which the fireplace would give off heat. In Dolní Věstonice II the stone coverage was used inside the hut, where there lay the skeleton of a man labelled DV 16. This fireplace may have been set up so as to give warmth for the longest possible time to the dead or dying man.









Pavlov VI, excavation 2007. A single settlement unit, with an oval-shaped pit in center, filled with burned stones and charcoal. Around it is a circle of smaller, evidently boiling pits. In the background lie large mammoth bones – tusks, a pelvic bone, and others. We interpret the site as a place where two mammoths, a female and a young, were processed and eaten.



Dolní Věstonice II, excavation 1987. A circular hearth in unit 1 was filled with limestone blocks and across it lay a horse rib. Because the body of an older hunter was ritually laid next to the hearth, we assume that the stone blocks served as heat accumulators (see photo p. 59).



Pavlov I. Fired clay figurine of a mammoth, damaged by rapid change in temperature. Its trunk and a forelimb are missing; on the rest of the body we see cracks caused by heat.

Pavlov I. Head of a herbivore, perhaps an elk, fired clay.



Pavlov VI. Head of a lion, fired clay, new find from 2007. Deep incision by a sharp object damaged reverse side of the head, as the figure was still wet.



Pavlov I. Figurine of a bear, made of fired clay, found in two pieces close to one another. A punctuation pattern decorates the entire body.



Pavlov VI. Stylized figure of an owl, fired clay; a new find from 2007. Owl ranges among most frequently represented birds during the Paleolithic.



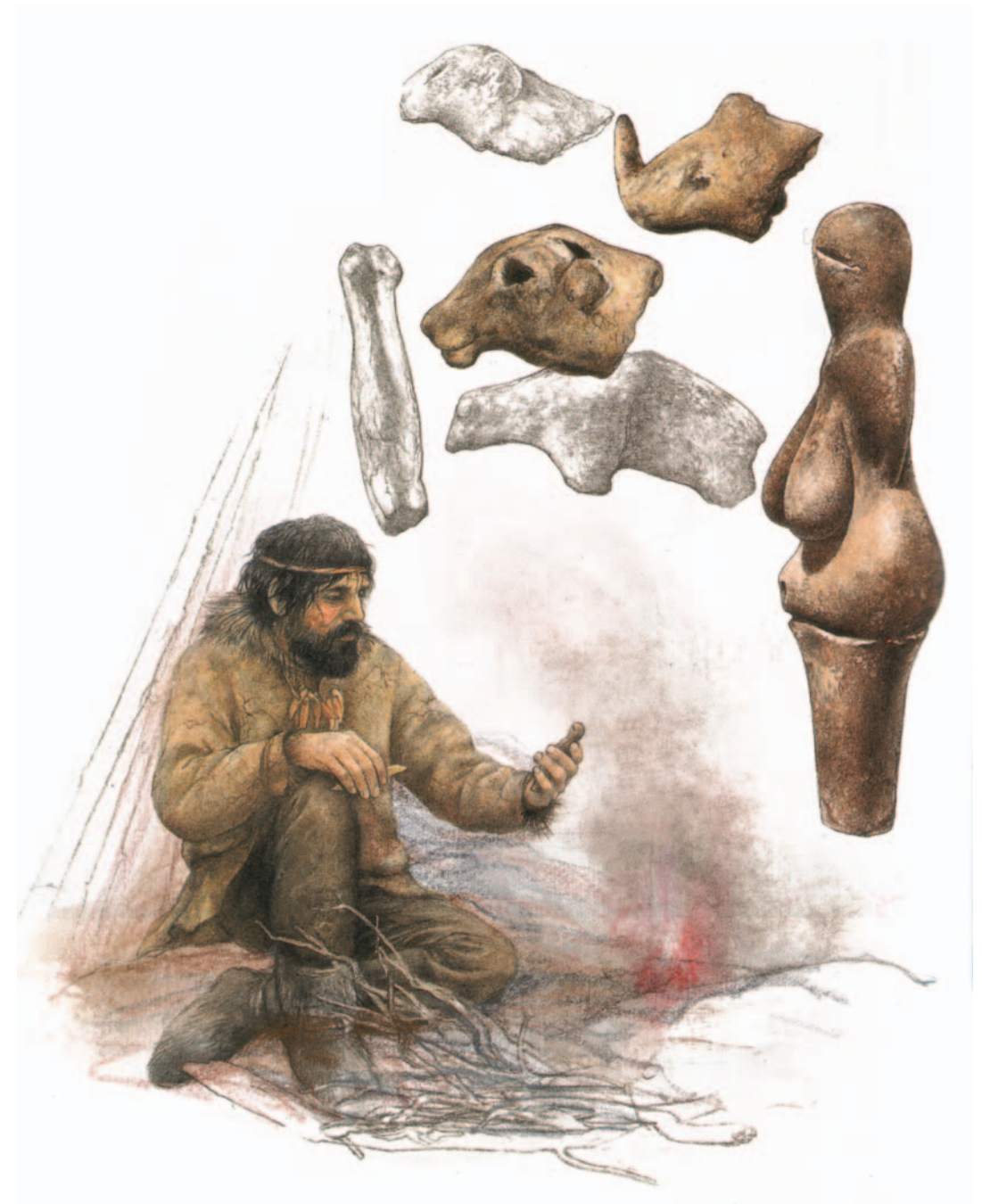
## The first ceramics

Traditionally, it was postulated that advanced technologies – firing ceramics, polishing stone, and weaving – appeared some 20 thousand years later at the onset of the “Neolithic revolution”. Findings from the Paleolithic and especially from Dolní Věstonice–Pavlov show that the principles of these techniques were known much earlier, but were as yet not used practically, either for the production of vessels, or for axes or for clothing.

Miniature figurines of humans and animals of clay are found in the huts around the central hearths, right at the places where they were fired and where the people congregated. It originally seemed that their production was limited to certain selected huts, something like the “shaman’s hut”, but continuing research indicates that they could be shaped and fired practically anywhere where people lived for a longer time. So it is natural that the largest collection of ceramics was yielded by the large and complex settlements at Dolní Věstonice I and Pavlov I, while the newly-discovered set of ceramic sculptures and fragments from the small sites at Pavlov VI is rather an exception.

Temperatures of 500–700°C reached in the permanent hearths places were sufficient to bake the figurines. Archaeologists actually speculated whether vaulted ovens were built, but no clear evidence of them was found; moreover a kiln in the middle of a hut would not have been very useful either for cooking or for heating the interior, or for the social activities in the hut.

Figurines of animals and people were often incomplete or damaged – sometimes accidentally and sometimes even deliberately – by rapid changes in temperature, breakage, or by pricking into the head of the animal while it was still wet. Among the human figurines there are more females than males, while the dominant species among the animals are mammoths, rhinoceros, lions, bears, and some larger grazing animals. It is interesting that the figures that were damaged the most are the heads of the lions. All this is evidence that the figurines were part of some kind of event, magic, augury, rituals, or games, accompanied by stories, mimicry, or music.



In certain huts figurines of both animals and people were found – entire bodies or just parts. Immediately afterward the production, the images were destroyed or damaged by temperature shock, blows, or incisions. This may have been some kind of ritual, so-called sympathetic magic. The Venus of Věstonice is a sort of prototype, which survived nearly intact.



## Imprints in the ceramics: fingerprints, hair, textiles, and knots

Fragments of fired clay may also retain on their surfaces the imprints of organic materials and structures the evidence of which would otherwise not survive.

Under microscopic examination we observe the fingerprints of adults and children who handled the clay while wet, evidence of plant materials, animal hair, and also fibers that cross in a manner corresponding to textiles, as well as imprints of ropes and knots. The lumps of clay themselves are usually not larger than a fingernail, therefore we cannot precisely imagine what these textile structures looked like, how large they were, and what their exact function was. They could have been parts of clothing, fine mats, baskets, and the knots might have been part of a net, like those today's hunters use to catch smaller animals or fish.



Pavlov I. Detail of geometric designs carved in a headband of mammoth ivory.

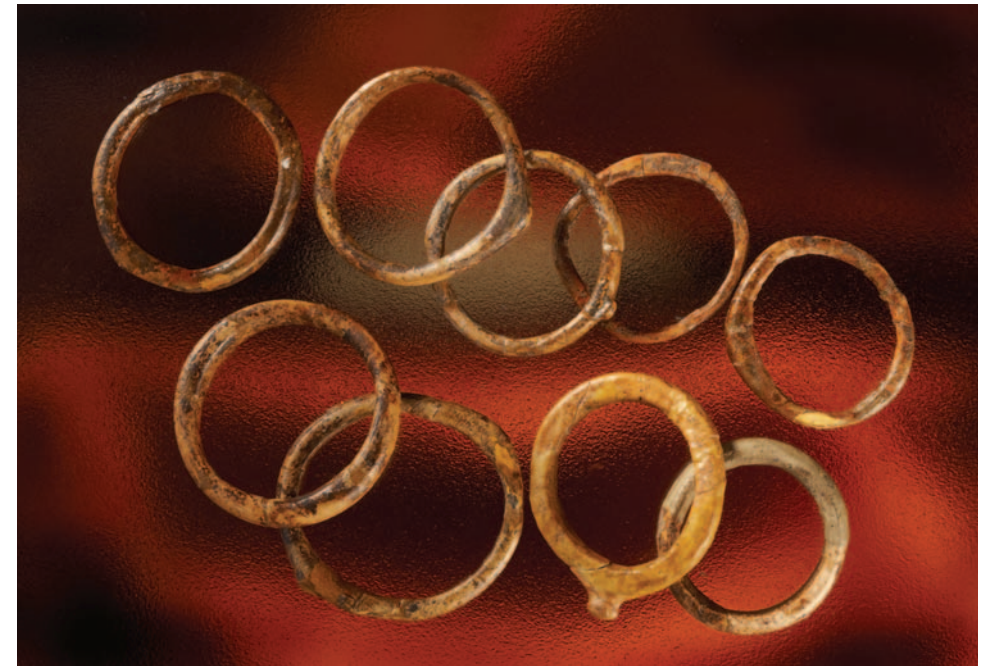


Pavlov VI. Three drilled pebbles, uncovered in 2007.

## Ornaments

The first modern people in southern Africa and the last of the Neanderthals in Western Europe drilled holes in objects and created simple ornaments, but by the time of the mammoth hunters in Dolní Věstonice and Pavlov they had an entire assortment of ornaments. They used the materials provided by nature, like the carnivore canines or Tertiary shells. But they also used rare and difficult-to-hone mammoth tusks, carefully carved into miniature beads, sew-on ornaments and curved headpieces, and covered them with geometric designs. Zoomorph and anthropomorph carvings were equipped with perforations, grooves or ridges to be hung on a string or attached to clothing.

Remember that in all human societies, ornamentation fulfills several functions at the same time. It not only enhances the appearance and prestige of the bearer, it also conveys information about origin, status, or accomplishments. And there is another important aspect: the clay plastics usually served their purpose only during the process of creation/destruction as so-called short-term art, while the bone-and-ivory carvings were intended to be worn and serve their purpose for a long time.



Pavlov I. Finely-carved rings of mammoth ivory.



## Animals and humans in Paleolithic art

The Pálava Hills, when seen from far off, resemble the back of a recumbant animal, perhaps a mammoth. The hunters repeatedly modelled them in clay and carved them on the flat surface of a mammoth tusk. The artists also attributed a similar significance to the lions. Other animal species – the inhabitants of the landscape at that time – follow down to figurines and carvings of owls, both on the level of short-term and long-term art. However, hares and foxes, with which hunters came into contact daily, and the bones of which are found in great numbers in our settlements (drilled fox teeth were commonly used as ornaments), were never depicted.

If among the zoomorphic themes the mammoth and lion were predominant, then among the female figurines the Venus of Věstonice is the most famous item. She holds a dignified place among the Gravettian venuses that are scattered over the Gravettian area from France to Italy, through Moravia to the Russian plains; another group of female figurines is also encountered in Europe's sister region - the Siberia. In this context, the Venus of Věstonice is extraordinary for the clay material she is made of (the others are carved out of mammoth tusk or soft, colored rock), and for the stylization and balance of the body. At Dolní Věstonice and Pavlov, her classic shape has been imitated by several other, less well-known female figurines.

It seems Paleolithic men had fun playing with the shape of a woman's body. Clay or mammoth tusk was shaped into an entire figure, or just an abstraction representation of the body parts, with an independent pair of breasts, head, or the triangle of a woman's crotch. But when we change our perspective we see that the principle of the male has been encoded here simultaneously, and the stick-like figure with breasts turns into a symbol of male phallus.

Play with shapes takes place mostly on the abstract level; it is not a particular woman or man. But Dolní Věstonice and Pavlov also yield depictions that out of the anonymity reveal individual characteristics or accessories of attire. Here we refer to a more detailed, prolonged face of a woman with slanted mouth, crowned with a large headdress or hairdo, or something like belts or strings winding around the torsos of some women's bodies.

The fame of Věstonice has had its downside. Over the years a number of rather inept fakes have appeared, their authors either hoping to make money, or make a joke. It is interesting, though, that the scandals around some of them for a time attracted more attention among the public than the actual Věstonice art.

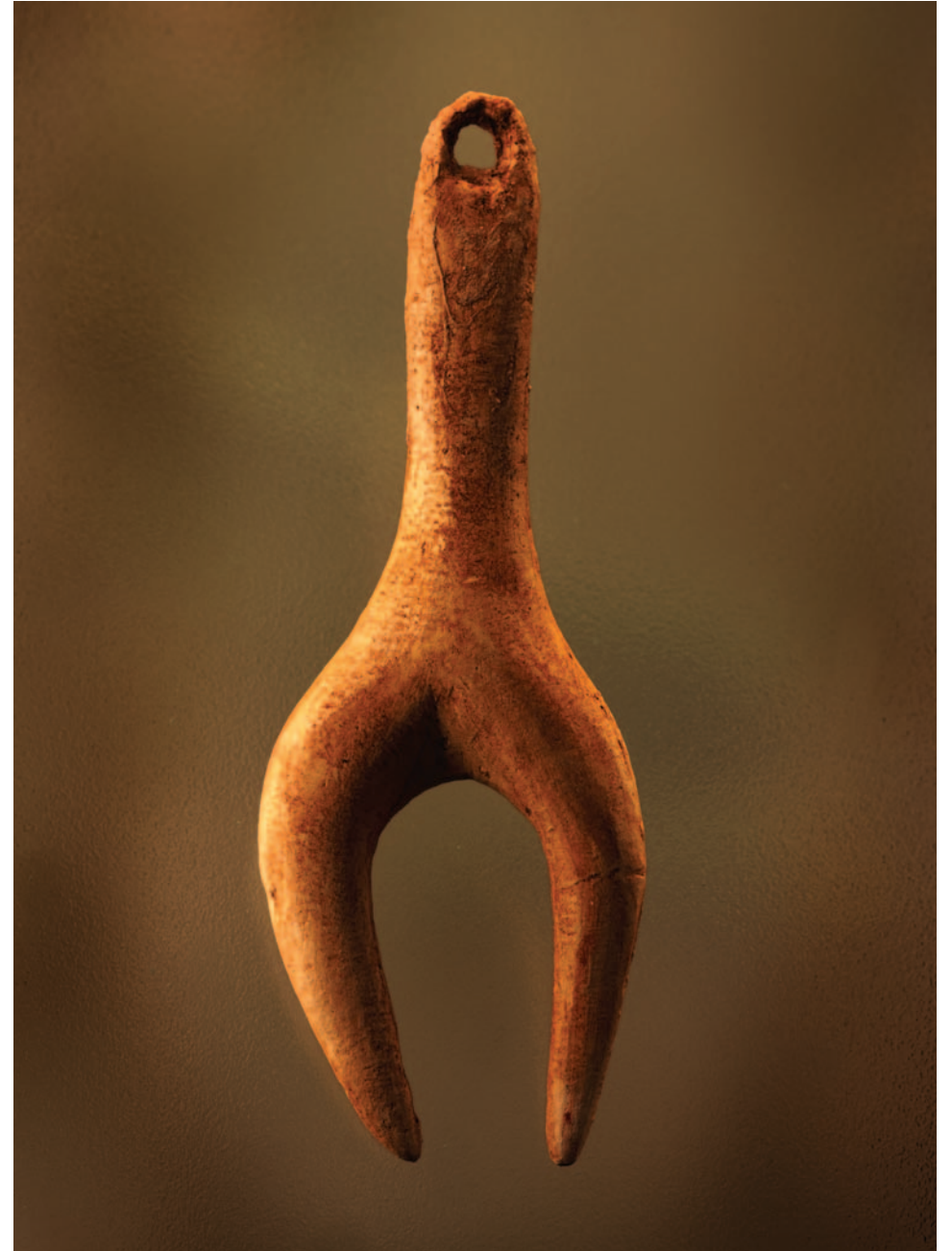


Dolní Věstonice I. Head of a woman carved of mammoth ivory.





Dolní Věstonice I. Venus carved of mammoth ivory – a stick shaped figurine also resembling a phallus.



Dolní Věstonice I. Stylization of woman's body in the shape of a fork, made of mammoth ivory.





Pavlov I. Figurine of woman, mammoth ivory.



Pavlov I. Carving of a mammoth, mammoth ivory.



Pavlov I. Carving of a lion, mammoth ivory.





Some Paleolithic female figurines, if not directly perforated, display grooves and ridges to be symmetrically hung and to move while hanging. By play with light and shadow in a hut we try to approach the past activities which in the Moravian open-air sites may have been concurrent with cave rituals of West Europe.



Contoured carvings of lions and mammoths intervene into the light-and-shadow plays.

## The burials

When the Mikulov castle burned down in 1945, a whole series of skeletons of men, women, and children of *Homo sapiens* discovered in 1894 at a mass burial grounds in Předmostí was destroyed. It was a tragic loss for European and world science. Luckily, Dolní Věstonice gave up no important anthropological finds before the Second World War. Absolon uncovered only two fragments of skullcaps, perhaps used as bowls, fragments of burnt children's bones, and scattered human teeth. The unearthing of the Věstonice skeletons was yet to come.

In 1949 a severely crouched skeleton of a woman was discovered, followed in 1957 by a male buried at Pavlov I, and in 1986 and 1987 another series of finds was uncovered: first a third fragment of a skullcap, possibly a bowl, then the famous triple burial of three young people, and finally the burial of an older man laid to rest beside the fireplace in the middle of a hut. Small fragments of human bones and individual teeth are still being found, mainly during the detailed sorting and description of animal bones. Among the latest discoveries is the skeleton of two separate human hands, which were laid in the same place at Pavlov I. Although the dead in Věstonice were laid down carefully, they were modestly equipped for the afterlife. Near the skeletons, mainly around the skulls, were found only drilled animal teeth and little beads of ivory, as decoration on headdresses and clothes. Meanwhile, judging according to the decorative objects found scattered over the settlements, living people adorned themselves more richly. The skull and sometimes the pelvis of the deceased were covered with red coating and the position in which the bodies were laid may have had some significance. Some of the dead are crouched in the crouched position, others lie on their backs or stomachs. The hands of one young man in the triple burial were deliberately placed on the pelvis of the central individual, whose gender we have so far been unable to determine by anthropological methods.

Therefore it is difficult to say whether any of the individuals in the burials played an important role in that society, such as chief or shaman. The role of female shaman is sometimes attributed to a woman found in Dolní Věstonice, but there seems to be more evidence that would assign this role to the middle individual in the mysterious triple burial in Dolní Věstonice. This is because of his or her central position between two men, as well as the illness the individual evidently suffered during life, and above all the individual's ambiguous sexual identity, which some cultures regard as not only a handicap, but also a special gift, a source of strength and power.

The anthropological finds from Dolní Věstonice and Pavlov are labeled in Arabic, whereas Roman numeration is reserved to the sites. The complete anthropological catalog of Dolní Věstonice finds now reaches up to file no. 64, and Pavlov to 33. Besides the many minor fragments of human bone, our sites yield six complete human skeletons:



Dolní Věstonice II. The burial of three young people, discovered in 1986. Their heads were covered with small beads and pendants. Particles of charred wooden posts found around the grave indicate that the bodies were protected by some kind of wooden structure.







Dolní Věstonice II, triple burial, excavation 1986. The situation evidently demonstrates a kind of scenography. The deceased all were young people. The two on the outside were males, while the gender of the middle one has not been determined. We must allow for the possibility that this was a sexually indeterminate or androgynous individual, which among today's aboriginal peoples often receive special attention and fulfills a religious or healing function. The hands of the male on the left reach toward the middle individual's pelvis; the male on the right is lying on his stomach. The skulls exhibit signs of healed injuries; all skulls and the pelvis of the middle individual are covered with red dye.



Dolní Věstonice II. Detail of skull of the left male (DV 13) and the right male (DV 14) from the triple burial, during excavation.



Dolní Věstonice II. Detail of the skull of the middle individual of indeterminate gender, from the triple burial (DV 15).



Dolní Věstonice II, 1987 excavation. Burial of an older male (DV 16). The body lay in a hut next to a central hearth, crouched on its flank, with knees located right next to the fire (see photo p. 42). The head and pelvis were covered with red dye. Right by the body were four drilled fox teeth.

**Dolní Věstonice 3**, site DV I – upper part. Woman, 36–45 years, height 158–159 cm, minimum weight 56 kg, lying on side in crouched position, facing northwest, with red coloration of the skull and upper part of body, accompanied by ten drilled fox teeth.

**Dolní Věstonice 13**, site DV II – hilltop. Man, 21–25 years, height 168–169 cm, weight around 65 kg, lying on the left in the triple burial, on his back, slightly turned towards DV 15, oriented south-southeast, with coloration of the skull, with twenty drilled teeth of large predators and pendants of mammoth ivory.

**Dolní Věstonice 14**, site DV II – hilltop. Man, 16–20 years, 179–180 cm, weight 68 kg, lying on the right in the triple burial, on his stomach, oriented towards the south, with coloration on the skull, with three drilled wolf canines, and pendants of mammoth ivory.

**Dolní Věstonice 15**, site DV II – hilltop. Individual of undetermined gender, 21–25 years, height 159 cm, weight 66–68 kg, the middle person in the triple burial, oriented towards the south, with coloring on the skull and pelvis, with four drilled fox teeth.

**Dolní Věstonice 16**, site DV II – western slope. Man, over 45 years, height 171 cm, weight 68–69 kg, lying in the fetal position on his side by a hearth, oriented towards the east, with coloration on the skull and pelvis, with four drilled fox teeth.

**Pavlov 1**, site Pavlov I – northwest. Man, 36–45 years, height 172–178 cm, weight 70 kg, evidently originally lying in a crouched position, but later disturbed due to the downslope movement.



## The end of the hunting settlements below the Pálava

As early as 27–26 thousand years ago, Gravettian hunters began leaving the slopes of the Pálava Hills and moved into the valleys of the Danube and Váh rivers and further on to the east. This later phase of the Gravettian is named after the main European settlements of Willendorf in Austria and Kostenki in Russia. Several thousand years later the Scandinavian glacier had moved down as far as today's central Poland, drastically changing the climate in the adjacent areas, including Moravia. Now the forests disappeared, giving way to open tundra and high polar desert; the large herds of animals no longer had sufficient food, and departed for more hospitable parts of Europe, away from the glaciers. The hunters naturally followed them. Over the abandoned remnants of the Věstonice camps, the wind deposited a body of pure loess – the top 6 m in the wall of the Calendar of the Ages. In the memory of descending generations no trace of the mammoth hunters or their culture remained. What we know of them today and what we can guess at is related today through the laconic jargon of contemporary archaeology and anthropology.





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Jiří A. Svoboda

## **Dolní Věstonice – Pavlov**

Místo – jižní Morava, čas – 30 000 let

Ilustrace

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