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# New excavations at Krems-Wachtberg – approaching a well-preserved Gravettian settlement site in the middle Danube region

*Neue Ausgrabungen am Kremser Wachtberg – Annäherung an einen gut erhaltenen Siedlungsplatz des Gravettien im mittleren Donauraum*

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**ABSTRACT** - Recent archaeological excavations at the Upper Palaeolithic open-air site of Krems-Wachtberg in eastern Austria exposed a well-preserved Gravettian living floor with a number of distinct features. This paper gives a review of the first four years of investigations addressing the research history, methodology, stratigraphy as well as features and finds. First results are presented and implications for the camp site's function are discussed.

**ZUSAMMENFASSUNG** - Neue archäologische Untersuchungen an der jungpaläolithischen Freilandfundstelle Krems-Wachtberg im Osten Österreichs haben zur Freilegung eines gut erhaltenen gravettienzeitlichen Begehungshorizonts mit einer Anzahl evidenter Befunde geführt. Dieser Aufsatz vermittelt einen Überblick über die ersten vier Jahre der Untersuchungen. Dabei werden die Forschungsgeschichte, Vorgehensweise, Stratigraphie sowie Befunde und Funde vorgestellt. Erste Ergebnisse werden präsentiert und Schlussfolgerungen zur Funktion des Lagerplatzes diskutiert.

**KEYWORDS** - Gravettian, loess stratigraphy, Middle Danube region, living floor, infant burials, multi-phased hearth

*Gravettien, Lössstratigraphie, mittlerer Donauraum, Begehungshorizont, Säuglingsbestattungen, mehrphasige Feuerstelle*

## Introduction

The site cluster at the so-called Wachtberg of Krems in Lower Austria, which includes the Krems-Hundssteig and the Krems-Wachtberg sites, is located above the right bank of the Krems river on the loess-covered southern slope of a promontory overlooking the Danube. Here, the Danube has passed the narrow Wachau valley, where it transects the Bohemian Massif, and flows into the Tullnerfeld basin, forming a wide alluvial fan, which presumably was an open gravel-plain in the Late Pleistocene. Today, being part of the city of Krems, the site is largely occupied by a residential area.

Tens of thousands of stone artefacts as well as the remains of a Late Pleistocene fauna had already been recovered during the exploitation of loess at the classic site of Krems-Hundssteig between 1893 and

1904. The lithic inventory was classified as Early Upper Palaeolithic/Aurignacian (Strobl & Obermaier 1909; Laplace 1970; Hahn 1977). A small collection of the same area was identified as younger, belonging to the Gravettian (Hahn 1972). In 1930, Josef Bayer undertook an archaeological excavation further uphill (*Krems-Wachtberg 1930*) and exposed part of a Gravettian living floor (Einwögerer 2000).

Focusing on the re-investigation of Palaeolithic sites in eastern Austria, the Prehistoric Commission of the Austrian Academy of Sciences concentrated lately on the loess sequences of Krems. Surveys, test trenches and drilling-cores provided an overview of Gravettian settlement patterns in this topographic area. Excavations at Krems-Hundssteig 2000-2002 supported this evidence and provided detailed information about spatial organizations of camp sites and the repeated presence of modern man in the Middle Upper Palaeolithic (Neugebauer-Maresch 2008).

Parallel to the excavations at Krems-Hundssteig, test drillings were executed on the last vacant plots in

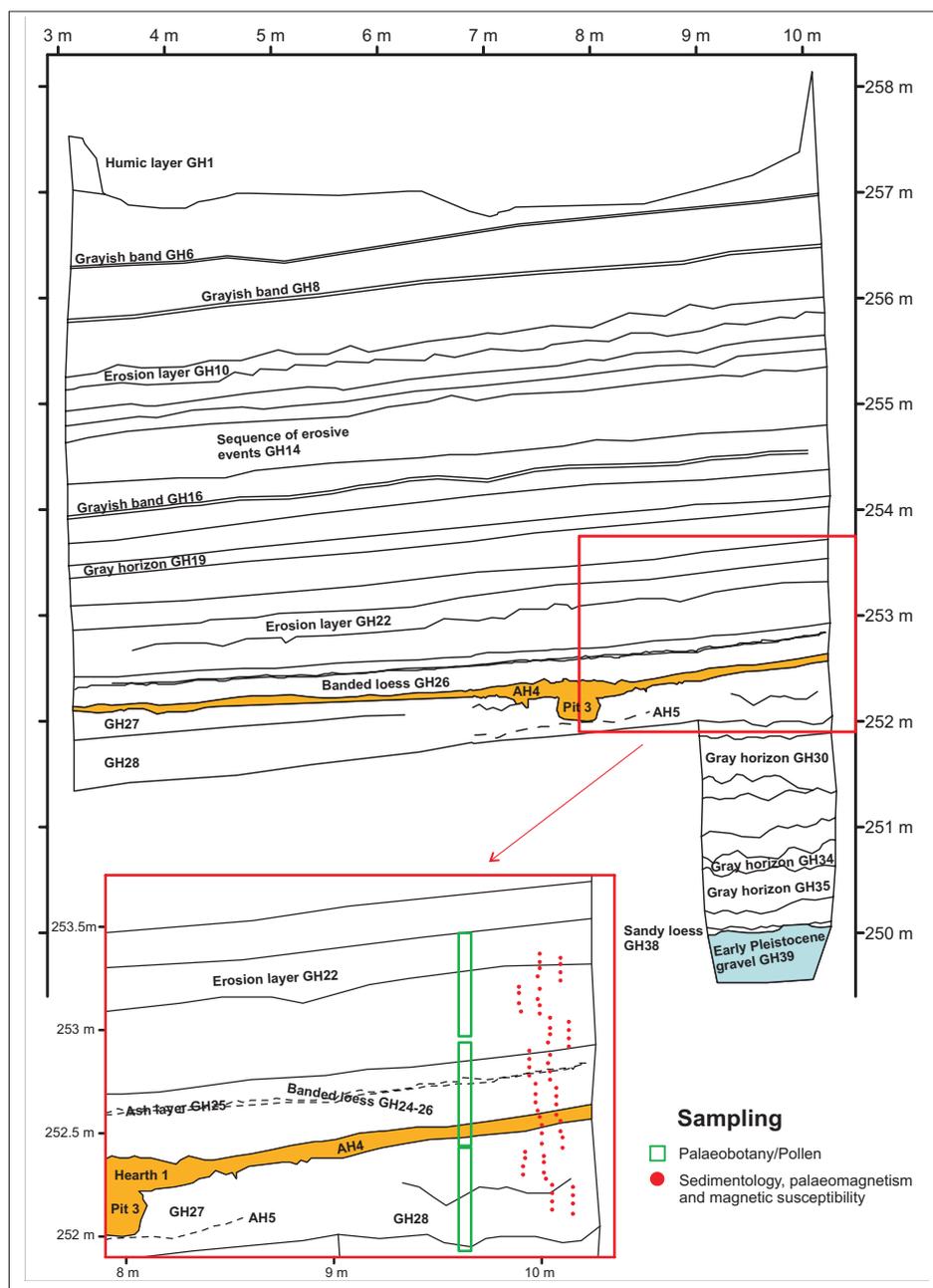
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the Wachtberg area. Not far south from the place Josef Bayer had examined in 1930, a clearly defined Palaeolithic archaeological horizon with a high density of finds and very well preserved faunal remains was recorded in a depth of ca 5 m extending in an area of about 250 m<sup>2</sup>. A detailed examination of these deposits seemed promising. So far, investigations were conducted by the Austrian Academy of Sciences in the course of two funded interdisciplinary research projects (2005-2006: Austrian Science Fund FWF P-17258: *Gravettian Settlement Patterns in Krems*,

*Lower Austria and 2007-2008: FWF P-19347: Social Structures of Gravettian Hunter-Gatherer Societies*).

### Field work

Excavations at Krems-Wachtberg commenced in 2005 and four extensive field campaigns have since been carried out. Modern excavation, documentation, and data processing techniques had been adapted and were developed to meet the expected findings. Already during the first campaign in 2005, an



**Fig. 1.** Krems-Wachtberg: Plot generated from the field database depicting stratigraphy and sampling of the *West Profile 2005-2006*. The geological horizons (GH) 2 to 4 do not occur here (graph: Prehistoric Commission, Austrian Academy of Sciences).

**Abb. 1.** Krems-Wachtberg: Aus den Grabungsdaten generierter Plot zur Stratigraphie und Beprobung des Westprofils 2005-2006. Die geologischen Horizonte (GH) 2 bis 4 kommen hier nicht vor (Grafik: Prähistorische Kommission, Österreichische Akademie der Wissenschaften).

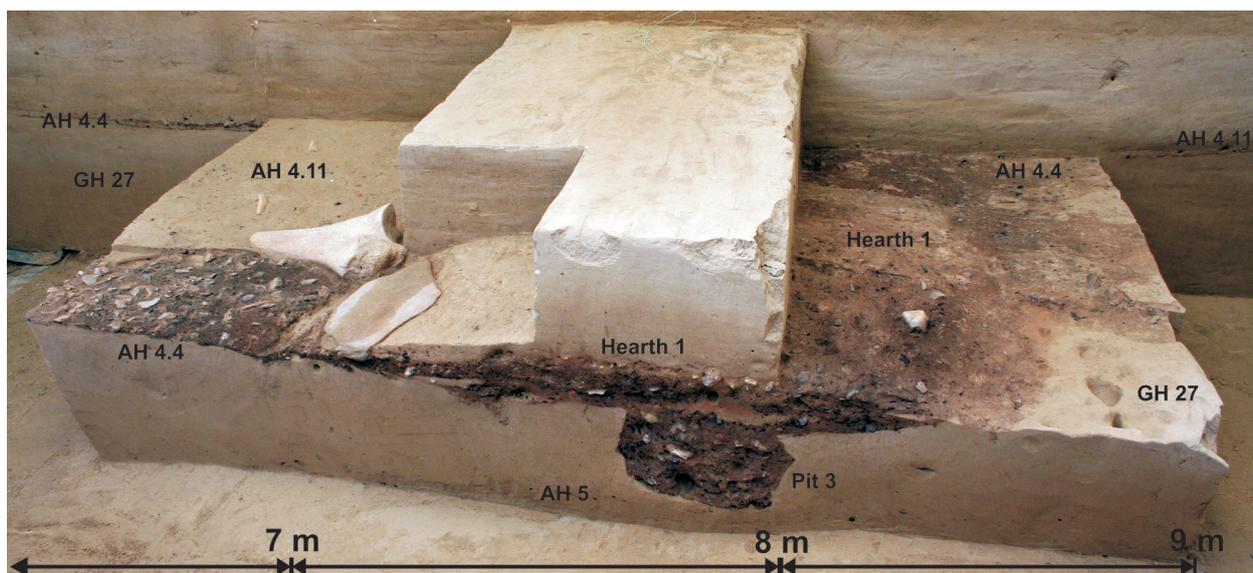
extraordinarily well-developed Gravettian layer (archaeological horizon AH 4) – at its base to a great extent a living floor with distinct features (*structures évidentes*) – was recorded. In the meantime more than 30 m<sup>2</sup> have been investigated, and a rich assemblage of more than 36 500 single finds and samples was recovered. Among these are ca. 17 000 burned and unburned faunal remains as well as about 13 000 lithic artefacts of over 1 cm in size. Besides, many large and exceptionally well-preserved pieces of charcoal as well as several types of colour material were retrieved. Processing and analysis of the finds is carried out parallel to the field work.

Various sampling strategies were applied both for sections and accompanying the excavation progress in the square metres. The *North Profile* of the excavation trench was chosen for a sampling of the complete loess sequence of 8 m. Samples were recovered for sedimentological, palaeobotanical, and malacological analysis, as well as for palaeomagnetism and magnetic susceptibility. The strategy also included samples for different methods of OSL dating and for micromorphological investigations. Part of the sampling was repeated in the former west section of the excavation trench (*West Profile 2005-2006*, set back in 2007) for a higher resolution within the 1.5 m sequence around AH 4 (geological horizons GH 22-28) (Fig. 1). Samples for radiocarbon and TL dating as well as for sedimentology and palaeobotany were recovered from all archaeological layers as well as from relevant stratigraphical subunits like the filling layers of features such as pits. Further samples for micromorphology were taken from sensitive contexts for a detailed examination of the embedment and microstratigraphy of AH 4.

## Stratigraphy

In general the loess stratigraphy of the site confirms a continuous sedimentation. This is already suggested by the excellent state of preservation of the base of archaeological horizon AH 4 – namely living floor AH 4.4 with its well-preserved features – and of sensitive finds like faunal and human remains as well as large charcoals. However, the presence of sandier horizons points at erosive events which occurred after the Upper Palaeolithic occupation. No signs of a developed pedogenesis were observed, but more humid conditions did prevail at times as indicated by grey coloured loess layers. The Gravettian horizon AH 4 is situated at the base of finely banded loess in geological horizon GH 26 (Händel et al. 2008a). In the upper third of this stratigraphical complex (GH 23-26) two thin layers of organic ash spaced ca. 2 cm apart (GH 25), without any associated archaeological material, suggest natural steppe fires with relatively little biomass involved. Even though the ash could also have been transported by wind or water, the regularity of its occurrence does rather point at an event that took place in situ. At Krems-Hundssteig 2000-2002 the same phenomenon was documented just above the Gravettian horizons (Neugebauer-Maresch 2008, p. 72, 125). The close proximity of the sites makes it highly probable that it marks the same event.

Different subunits can be distinguished within the Gravettian horizon AH 4 (Fig. 2). Its upper part – namely AH 4.1 and AH 4.11 – consists of loess with dislocated archaeological material. Macroscopic observations in the field suggest that a combination of horizontal and vertical movements is most likely, i.e.



**Fig. 2.** Krems-Wachtberg: Excavation 2007 with the most important horizons and features. With the exception of the area around *Hearth 1* the *West Profile 2005-2006* (see Fig. 1) had already been set back by 1.5 m (photo: Prehistoric Commission, Austrian Academy of Sciences).

**Abb. 2.** Krems-Wachtberg: Grabungssituation 2007 mit den wichtigsten Horizonten und Befunden. Bis auf den Bereich der Feuerstelle 1 wurde das Westprofil 2005-2006 (vgl. Abb. 1) schon um 1,5 m zurückversetzt (Foto: Prähistorische Kommission, Österreichische Akademie der Wissenschaften).

sediment with finds from a different archaeological context that had moved down the natural slope by solifluction picked up material originally belonging to the underlying living floor AH 4.4 and transported it into a superior stratigraphic position resulting in a mixed inventory for AH 4.11 (the number of finds in AH 4.1 is too small to provide reliable data). Notably, in the northernmost part of the excavated area, AH 4.4 does not anymore occur, while AH 4.11 shows a similar composition than further south. Preliminary results of an analysis of the recorded field data on the orientation and inclination of finds support this explanation. We therefore assume that the uppermost part of AH 4.4 is eroded (Fig. 3). In contrast, its base is excellently preserved, forming an in situ layer bearing a high density of stone artefacts, charcoals and faunal remains, often mammoth bone chips. The objects are embedded in a dark ash-coloured sediment matrix (Händel et al. 2008a). AH 4.4 includes a wide range of *structures évidentes* with well-preserved fillings and bases.

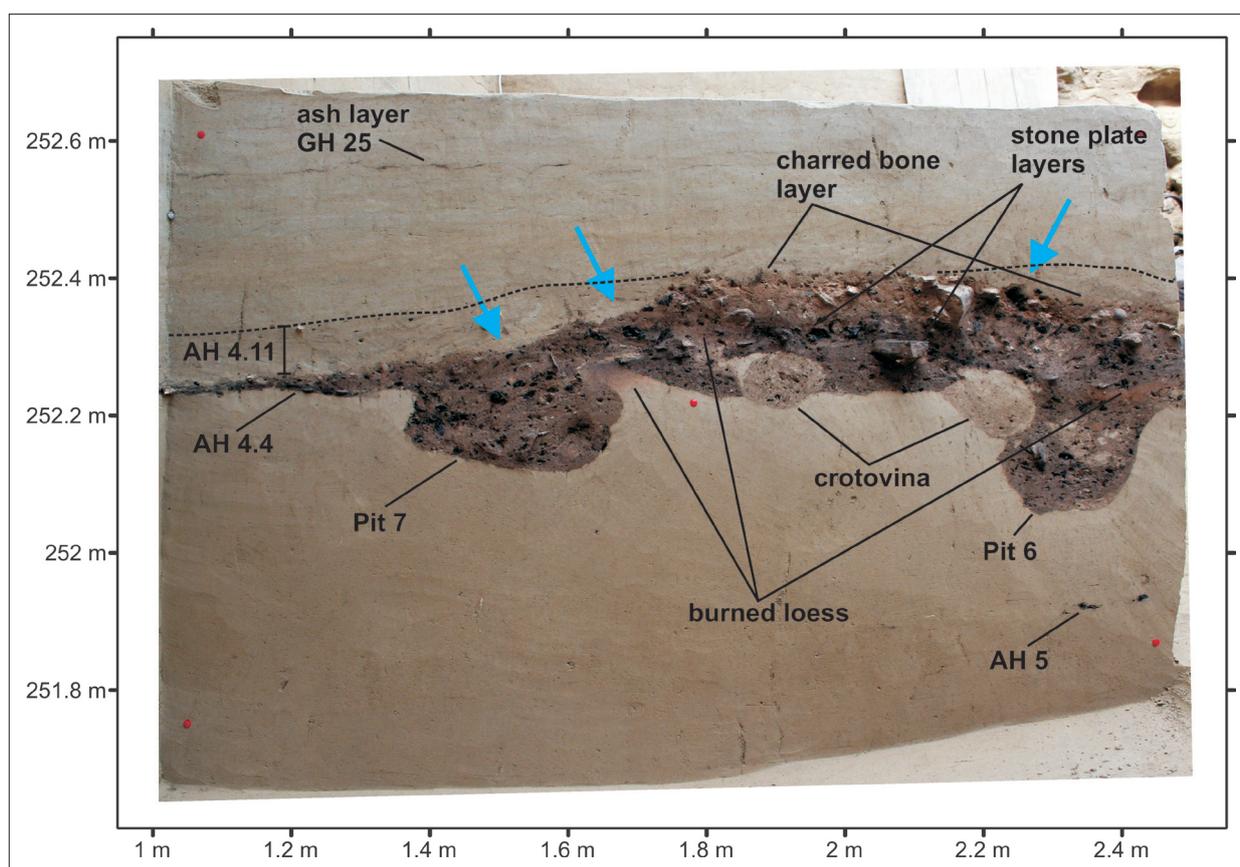
Located 30-40 cm beneath AH 4 is an extensive

scatter of mainly charcoal with some burned and unburned faunal remains and a few stone artefacts (AH 5). The loess sequence rests on Early Pleistocene gravels that are deposited on the bedrock of the Bohemian Massif, which was not reached in the excavation.

### Evident features (*structures évidentes*)

The living floor AH 4.4 is characterised by a high density of charcoal, faunal remains, colour material and lithic artefacts which are compactly packed in a dark brown and ashy sediment matrix. A wide range of clearly definable features are stratigraphically connected with this living floor, including a hearth, numerous pits and indentations as well as two infant burials.

Situated in the centre of the finds' distribution is a multi-phased hearth with a diameter of almost 1.5 m (Händel et al. 2008b). Alternating layers of burned loess, stone plates and different fillings suggest that *Hearth 1* was in use at least five times. Even though



**Fig. 3.** Krems-Wachtberg: Rectified photograph of the North profile of quarter square metres G1a+b-G2a transecting *Hearth 1* and two pits. Several phases can be distinguished by layers of burned loess and stone plates as well as by different fillings. The blue arrows mark erosion of AH 4.4. The dashed line marks the top of AH 4.11 (photo: Prehistoric Commission, Austrian Academy of Sciences).

**Abb. 3.** Krems-Wachtberg: Entzerrtes Foto des Nordprofils der Viertelquadratmeter G1a+b-G2a, das einen Schnitt durch Feuerstelle 1 und zwei Gruben darstellt. Mehrere Nutzungsphasen können durch Schichten gebrannten Löss und Steinplatten sowie durch verschiedene Füllschichten differenziert werden. Die blauen Pfeile markieren Erosion des AH 4,4. Die gestrichelte Linie markiert die Oberkante des AH 4,11 (Foto: Prähistorische Kommission, Österreichische Akademie der Wissenschaften).

originally constructed in a shallow pit, later fillings form a heap exceeding living floor AH 4.4 in elevation (Fig. 3). Whereas mainly wood had been fired during its earlier phases, which is proven by large amounts of charcoal, firing of animal bones dominated its final phase leaving behind a deposit consisting of thousands of fragments of charred bones. Some charcoal pieces of the earlier hearth deposits are so well-preserved that they exceed 15 cm in size. Besides a zoomorphic figurine made of fired loess (see below), the fillings of the earlier phases contain dozens of small fragments of "ceramics", presumably representing production debris. It can therefore be assumed that the function of *Hearth 1* may not have been limited to cooking and heating, but could also have been technical, e.g. in terms of "ceramic" production.

More than 20 small pits with diameters between 5 and 20 cm and depths between 10 and 25 cm are scattered around *Hearth 1*. The compositions of their fillings differ broadly. While some contain sediment which is very similar to the one of the surrounding living floor other deposits resemble the earlier phases of the hearth. One pit houses a large burned pebble at its base, another one contains a more than 10 cm long charcoal with a diameter of 2 cm, indicating a posthole. In one case a 20 cm long bone fragment was exposed in a vertical position, suggesting a similar function. In yet another case an ivory pin was recovered. Whereas only one example may in fact be a crotovina and another might have been formed or expanded by cryo-activity, the majority seems anthropogenic in origin. The function of most, however, is still unclear.

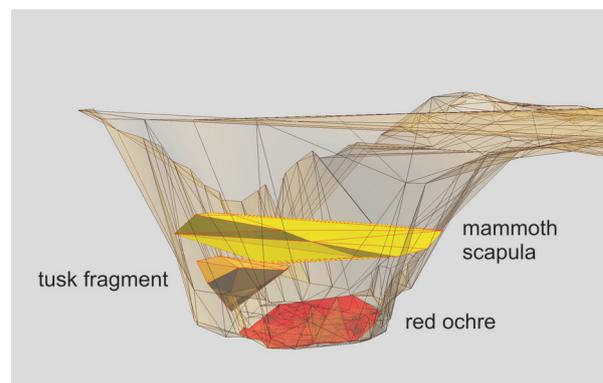
In addition, three vertically descending larger pits are situated underneath *Hearth 1*, ranging from *Pit 3* in the northeast to *Pit 7* in the east and *Pit 6* in the south. A similar arrangement of pits was documented by Josef Bayer in 1930 (Einwögerer 2000). The deposits contained mostly charcoal and burned faunal remains in a dark brown matrix, but included some unburned material such as stone artefacts and animal bones, as well. Whereas *Pit 6* is stratigraphically connected with the upper stone plate layer, the other two pits can be referred to the oldest phase of the hearth. Presumably the larger pits had been used for cooking and were re-filled by sediments of the respective phases of the hearth.

Another almost round and shallow depression ("*Mulde 5*") with a diameter of approximately 1 m is located in a peripheral position about 5 m east of the hearth. The regular morphology indicates an anthropogenic origin. Here, the living floor AH 4.4 is not anymore well-developed and only a few millimetres thick. We therefore named the horizon AH 4.3, even though it represents a continuation of and is therefore stratigraphically equivalent to AH 4.4. Several nodules and cores as well as larger faunal remains were uncovered among other finds at the base of this feature. No traces of burning were observed on the

loess underneath.

In September 2005 and in July 2006 two infant burials, (*Double-*) *Burial 1* and *Burial 2*, were discovered in peripheral positions east of the area with the highest concentration of finds. The grave pits descend vertically from the base of the living floor and belong to the oldest features within the archaeological horizon AH 4.

At the base of a flat recess, which had been re-filled in two phases with AH 4.11 sediment, the horizontally placed scapula of an adult mammoth was uncovered. The bone element was nearly complete, but clearly showed artificially induced traces, as the joint (*Cavitas glenoidalis*) had been exposed to fire and the *Spina scapulae*, pointing to the bottom of the pit, intentionally removed by regular flaking. The mammoth scapula sealed the grave pit of *Burial 1* and was supported by a piece of mammoth tusk lying inside the pit. Underneath, a 3-5 cm deep hollow space was preserved, below which a very thin alluvial layer of loess covered the skeletons of two babies which had been deposited at the base of the pit and were embedded in red ochre (Fig. 4). The newborns had been buried in a strongly crouched position with their heads to the north and their faces towards east. A string of at least 35 drop shaped ivory beads, which was uncovered around the pelvis of the baby to the west (*Individual 1*), can be considered as personal adornment or offering. The crania of both individuals were preserved three-dimensionally and showed considerable empty spaces even after 27 000 years. The same observation was made in the case of the thorax of *Individual 1*, where hollow spaces between spine and ribs were documented (Einwögerer et al. 2008b). The developmental stage of a deciduous



**Fig. 4.** Krems-Wachtberg: CAD-model of *Burial 1* generated from the field database. The corpses of two newborns had been deposited at the base of the burial pit embedded in red ochre. The pit was sealed with a mammoth scapula (graph: Prehistoric Commission, Austrian Academy of Sciences).

**Abb. 4.** Krems-Wachtberg: Aus den Geländedaten generiertes CAD-Modell der Bestattung 1. Die beiden Neugeborenen wurden an der Basis der Grabgrube in Rötel gebettet. Anschließend wurde die Grube mit einem Mammutschulterblatt verschlossen (Grafik: Prähistorische Kommission, Österreichische Akademie der Wissenschaften).

incisor of *Individual 2* allowed a determination of the age at death as perinatal (9th-10th lunar month). The equal lengths of both right femora indicate the same age at death of both newborns. Contemporaneous burial may suggest that they were twins (Einwögerer et al. 2006). *Burial 1* was recovered as a block and brought to the General Hospital of Vienna, where a computer tomography was taken. In the Natural History Museum Vienna, Dept. of Anthropology, the recovered block was first stored in a climate chamber until 3D-laserscanning had been carried out to document the superficial features and bone contours and to obtain a virtual mould for the production of scaled copies for exhibition purposes. The consoli-

dated of the fragile bones and a careful excavation, documentation and anthropological examination then proceeded in the laboratory.

Approximately 1.5 m north of the double burial a second burial was uncovered in 2006 in the same stratigraphic position. This grave pit lacked an elaborate grave architecture comparable to *Burial 1*, as it had not been covered. *Burial 2* contained a single individual lying in a different orientation, with the head to the south. Just like the newborns of the double burial, *Individual 3* had also been buried in a flexed position facing east, and was found embedded in red ochre. The sharp boundaries of the red pigment suggest that at least this individual had been

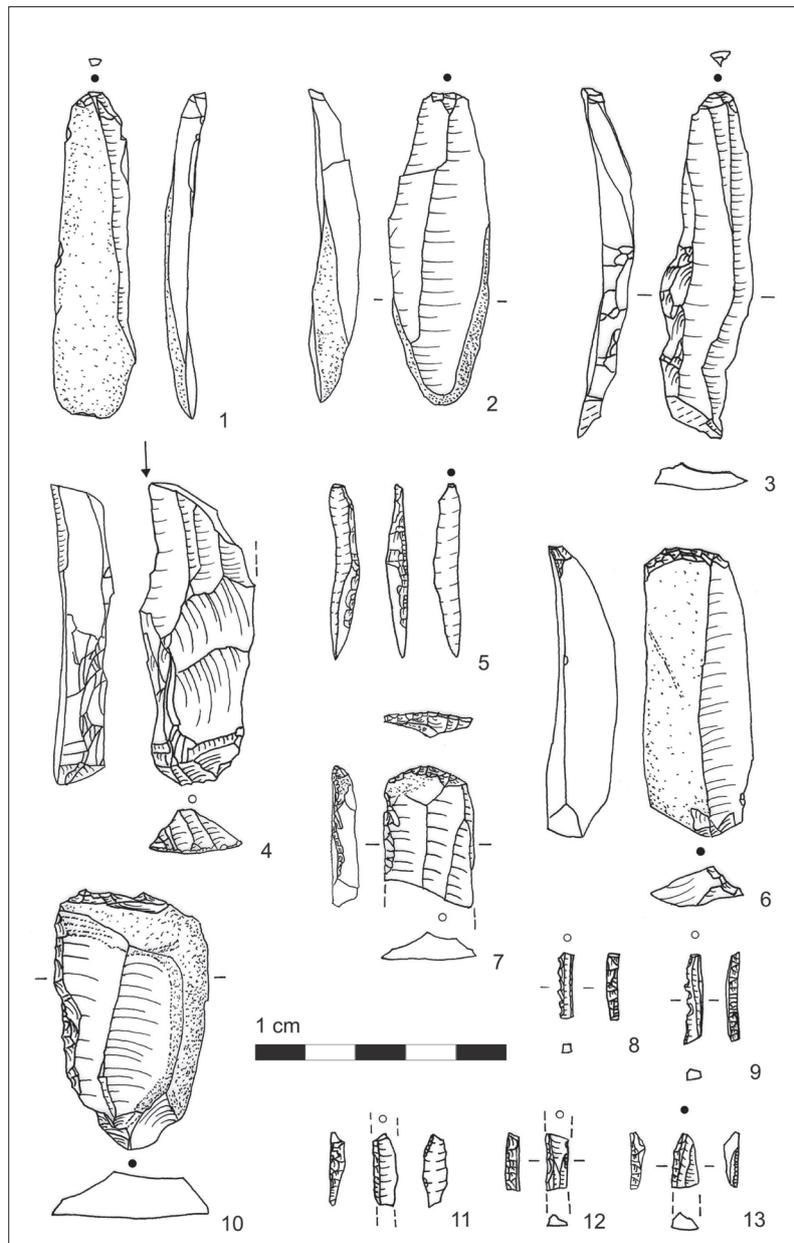


Fig. 5. Krems-Wachtberg: Lithic artefacts. 1-2 blades, 3 ridge blade, 4 combination tool, 5 retouched burin spall, 6-7 endscrapers, 8-9 backed microdenticulates, 10 truncation, 11-13 backed bladelets (graph: Prehistoric Commission, Austrian Academy of Sciences) (2/3 nat. size).

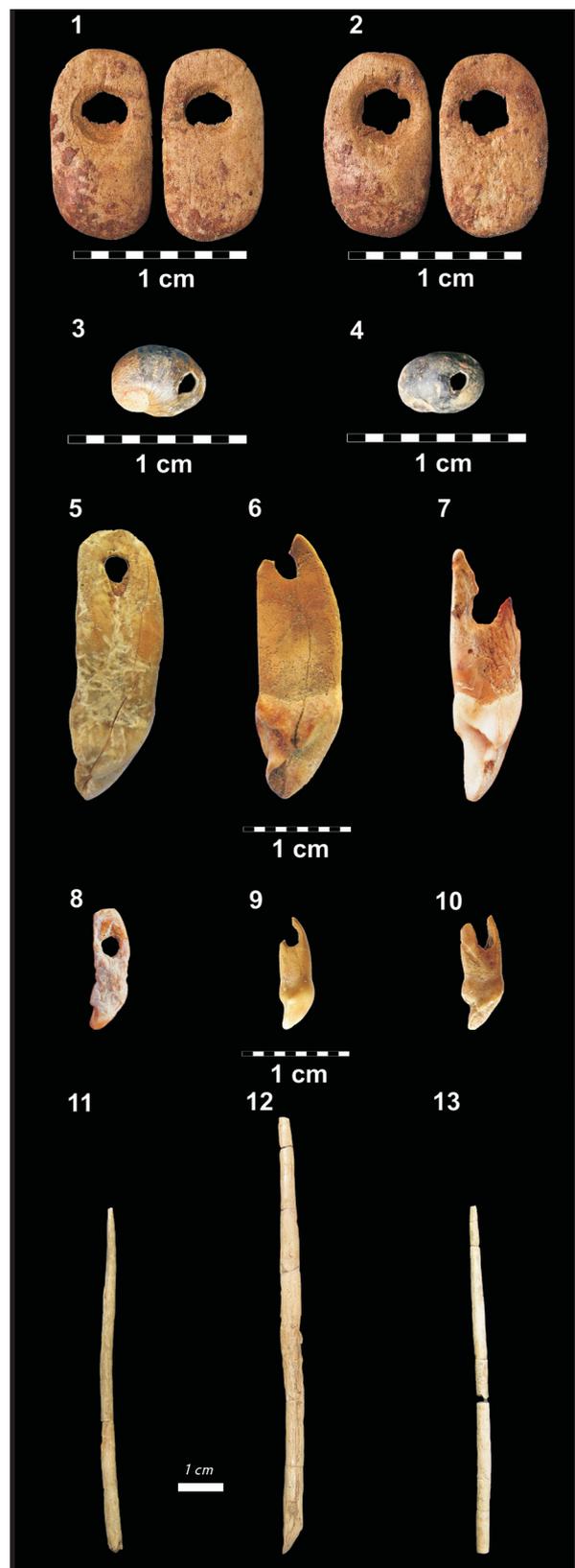
Abb. 5. Krems-Wachtberg: Silexartefakte. 1-2 Klingen, 3 Kernkanten Klinge, 4 Kombinationsgerät, 5 retuschierter Stichelabfall, 6-7 Kratzer, 8-9 Mikrosägen, 10 Endretusche, 11-13 Rückenmesser (Grafik: Prähistorische Kommission, Österreichische Akademie der Wissenschaften).

embraced by an organic material (possibly fur or leather). It may have been secured with the ivory pin, which was found only 2 cm above the skull pointing to the north. As *Burial 2* was missing the protection of an object like the mammoth scapula, the skeleton is less well preserved (Einwögerer et al. 2008b). This time 3D-laserscanning was carried out in situ. Like the double burial, *Burial 2* was also recovered as a block and brought to the General Hospital of Vienna for computer tomography. Afterwards it was transported to the laboratory of the Dept. of Anthropology at the Natural History Museum in Vienna for further excavation and analysis. Based on the mineralization degree of the upper incisors and the length of the left femur (ca. 85 mm), the age at death can be estimated as 0-3 months (Einwögerer et al. 2006).

## Finds

The majority of the lithic raw material, mostly chert and siliceous limestone, is locally available from the gravels of the Danube. There is no reason to assume that this had not been the case in the Late Pleistocene. There are however some raw materials which imply anthropogenic transport from the Bohemian Massif (*Waldviertel*) and southern Moravia. A flint with a white patina possibly originates from glacial deposits in southern Poland. The core technology aimed at the production of blades, and, in case of qualitatively better raw materials, also of bladelets. Modified artefacts include endscrapers, burins, backed points, backed bladelets and microdenticulates (Einwögerer & Simon 2008) (Fig. 5). The complete *chaîne opératoire* is represented in the lithic inventory. Round hammerstones and elongated pebbles used as retouchers supplement the assemblage of recovered stone tools.

The faunal assemblage includes typical herbivores of the prevalent cold steppe environment (so-called "mammoth steppe") such as mammoth, horse, reindeer, ibex and arctic hare. Carnivores are represented by remains of wolf, wolverine, fox, and brown bear. Furthermore, the bones of several yet unidentified bird species as well as the remains of smaller rodents were recovered. Analogous to the production of stone tools, the manufacturing process can also be reconstructed for modified faunal remains. Apart from a few almost complete long bones and larger tusk fragments, medium to small bone flakes of mostly less than 6 cm in size, are predominant among the mammoth remains. These most probably result from crushing bones to extract the marrow and from the manufacturing of bone artefacts. In the case of mammoth ivory, small chips resulting from carving the material with stone tools were recorded. Recovered bone and antler tools include a polisher made from the rib of a mammoth, several awls, a projectile point of mammoth ivory with a length of 15 cm and several fragments of smaller projectile points made of antler.



**Fig. 6.** Krems-Wachtberg: Personal ornaments. 1-2 ivory beads of *Burial 1*, 3-4 perforated gastropod shells, 5-7 perforated wolf teeth (all  $I_3$ ), 8-10 perforated polar fox teeth (all  $I_3$ ), 11-13 ivory pins (photos: Prehistoric Commission, Austrian Academy of Sciences).

**Abb. 6.** Krems-Wachtberg: Schmuck. 1-2 Elfenbeinperlen aus *Bestattung 1*, 3-4 durchlochte Schneckengehäuse, 5-7 durchlochte Wolfszähne (alle  $I_3$ ), 8-10 durchlochte Eisfuchszähne (alle  $I_3$ ), 11-13 Elfenbeinnadeln (Fotos: Prähistorische Kommission, Österreichische Akademie der Wissenschaften).

Among personal ornaments like drop-shaped ivory beads from *Burial 1* (see below) and perforated objects such as gastropod shells (Naticoidea) and teeth of wolf and polar fox, ivory pins are of particular interest (Fig. 6). A small burned fragment of a decorated mammoth ivory object shows seven engraved lines forming a herringbone pattern (Einwögerer et al. 2008a). Large amounts of charred bones especially in the hearth point at a secondary use of (still fresh) faunal remains as fuel (see above).

Several types of colour materials such as red and yellow ochre, haematite, graphite and weathered shell limestone (for white colour) were recovered. They occur in different production stages, ranging from raw material "nodules" to homogeneous and fine-grained accumulations as retrieved from the graves (see below). The production process is indicated by the occurrence of hammerstones with traces of red colour preserved in the impact scars.

An outstanding find category is represented by small objects made of fired loess ("ceramic" objects). While an amorphous object shows imprints of human papillary lines and the impression of a fingernail, the fragment of a zoomorphic figurine recovered from the lowermost layer of *Hearth 1* (see above) provided a fine example for the objective of the "ceramic" production (Fig. 7). Depending on its orientation, the figurine could either represent the frontal part of an animal's body, e.g. a horse or cervid, or the head of a

horned animal, in this case suggesting a saiga (Einwögerer & Simon 2008).

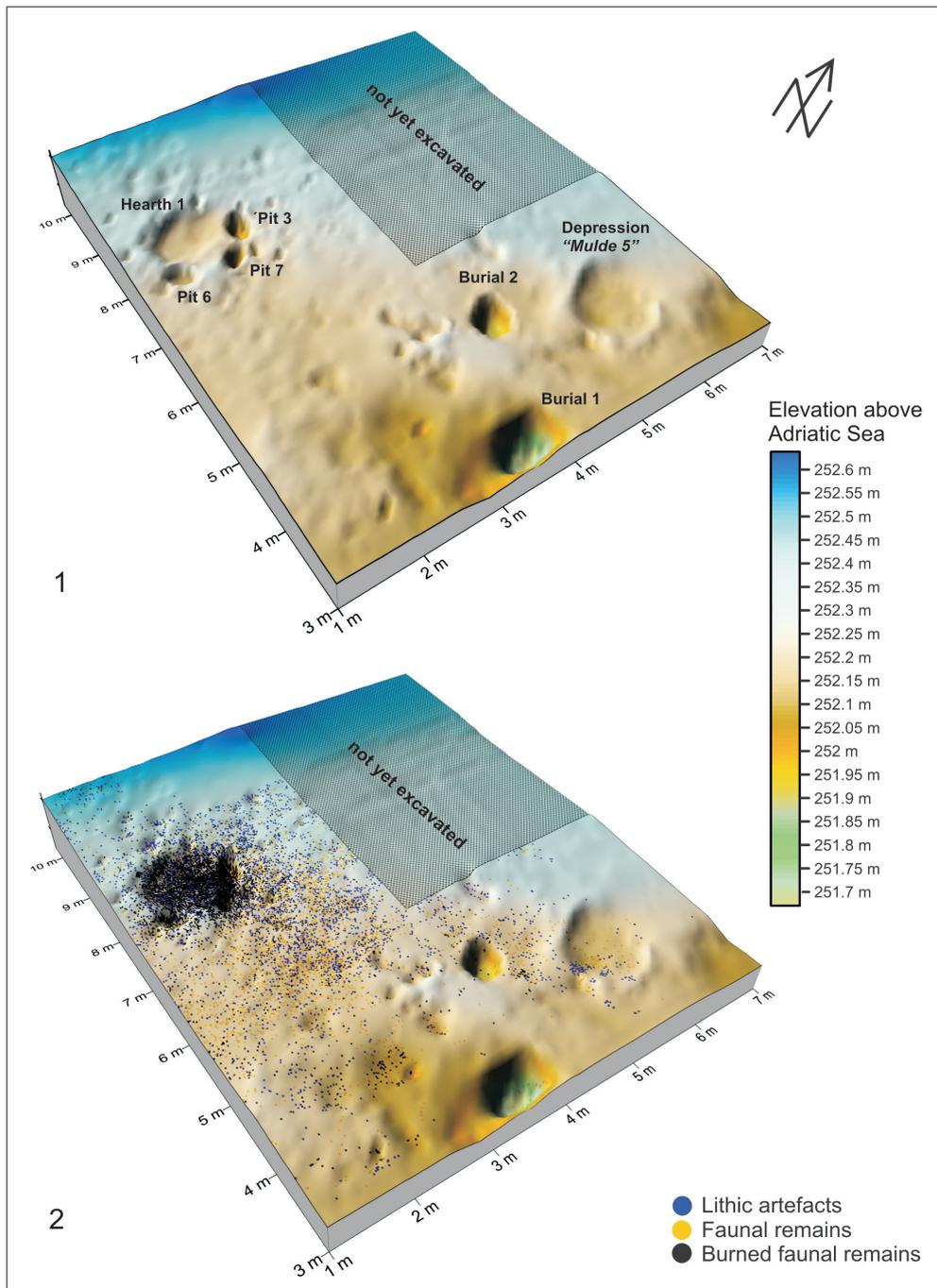
## Results

The occurrence of intentionally formed objects made of fired loess ("ceramic" objects) and of backed micro-denticulates in the lithic inventory correspond to the inventory of the nearby site, which Josef Bayer excavated in 1930 (Einwögerer 2000). Furthermore, these finds indicate relations to contemporaneous southern Moravian sites like Dolní Věstonice, Pavlov and Předmostí (Svoboda 2004a). Like at the *Krems-Wachtberg 1930* site (Fladerer 2001, Fladerer & Salcher 2004), the faunal assemblage is dominated by remains of mammoths. Most of the bones are artificially fragmented to chips, suggesting a similar subsistence as the Moravian sites, which are characterized by an intensive exploitation of mammoths (Svoboda 2004a). The rituals involved in the burials confirm the close relation to the southern Moravian sites, as indicated by the use of red ochre, grave goods such as ivory beads and the practice of covering the grave with a mammoth shoulder blade (Svoboda 2004b, Trinkaus & Svoboda 2006). These observations lead to a Pavlovian attribution of the site. This is in accordance with a radiocarbon date on charcoal of  $26\ 580 \pm 160$  BP (POZ-1290) for AH 4.4, which is in the range of Pavlovian dates from southern Moravia (Jöris &



Fig. 7. Krems-Wachtberg: Ceramic objects. 1 zoomorphic figurine, 2 formed object with imprint of fingernail (photos: Prehistoric Commission, Austrian Academy of Sciences).

Abb. 7. Krems-Wachtberg: Tonobjekte. 1 zoomorphe Figur, 2 geformtes Objekt mit Fingernagelabdruck (Fotos: Prähistorische Kommission, Österreichische Akademie der Wissenschaften).



**Fig. 8.** Krems-Wachtberg: Surface model of the base of living floor AH 4.4/AH 4.3 generated from the field database. 1 model with evident features, 2 model with evident features and finds of AH 4.4 and AH 4.3. (graph: Prehistoric Commission, Austrian Academy of Sciences).

**Abb. 8.** Krems-Wachtberg: Aus den Geländedaten generiertes Oberflächenmodell der Unterseite des Begehungshorizonts AH 4,4/AH 4,3. 1 Modell mit evidenten Strukturen, 2 Modell mit evidenten Strukturen und Funden des AH 4,4 und AH 4,3. (Grafik: Prähistorische Kommission, Österreichische Akademie der Wissenschaften).

Weninger 2004). Furthermore, first results of magnetic susceptibility show that the loess sequence accumulated in the Upper Würmian and can be related to NORTH-GRIP and ELSA time scales. This correlation supports the dating of the complete loess sequence to a maximum time interval between 20 and 40 ka BP (Hambach, in press).

The burials demonstrate that newborns and very young infants were treated no differently than adults,

adolescents and older children. This had previously been discussed due to an absence of samples (Zilhão & Trinkaus 2002). In 2007, the rib of an adolescent was recovered from the dislocated part of the main archaeological horizon in AH 4.11. The rib may originally have belonged to another burial located further uphill (Einwögerer et al. 2008a). Proof of four individuals of Early Modern Humans has therefore been established so far at Krems-Wachtberg. This

enlarges the sparse sample of Upper Palaeolithic human remains in Austria (Teschler-Nicola & Trinkaus 2001; Teschler-Nicola et al. 2004).

## Discussion

Living floor AH 4.4 and its continuation AH 4.3 with the connected *structures évidentes* show a pattern of different activity zones in the excavated area (Fig. 8). *Hearth 1* and the surrounding pits represent the centre of the main finds' distribution. The living floor is best developed east and southeast of the hearth, where the Gravettian palaeo-surface is more horizontal, whereas it slopes up towards the north. *Burial 2* is still located within a well-developed AH 4.4, whereas *Burial 1* and "Mulde 5" are located in peripheral positions at the fringes of the living floor, documented as AH 4.3.

There can be no doubt that the duration and intensity of the site's occupation goes beyond the function of a hunting camp. This is not only supported by the graves and the presence of mobile art, but also by the evidence indicating complete *chaînes opératoires* for different raw materials.

A conclusive spatial analysis and evaluation aimed at identifying possible *structures latentes*, e.g. the outline of a dwelling, be it a tent or a hut, which is likely to have existed, can not yet be presented, because excavation and processing of finds and data are still in progress. Future investigations will add more information and enlarge our knowledge on the spatial organisation and the site formation processes at Krems-Wachtberg.

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