Klíma 100

100th anniversary
of Bohuslav Klíma's birth

Abstract book

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March 26–28th 2025

Ondřej Herčík & Martina Kudlíková (eds.)

Czech Academy of Sciences, Institute of Archaeology, Brno
Brno 2025

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The conference is held as the 11th GEPAARD meeting.

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Organisational board

Editors

Ondřej Herčík & Martina Kudlíková (eds.)

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Petr Škrdla, Jaroslav Bartík, Ladislav Nejman, Antonín Přichystal, Ondřej Mlejnek, Miroslav Králík & Matěj Kmošek

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EXCURSION

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Departure	08.30
Arrival	16.00

March 26th

1

CAVE SESSION

120th anniversary of the discovery of the Neanderthal mandible in Švédův stůl Cave in the Moravian Karst (Czech Republic)

Ondřej Mlejnek

At the beginning of 1905, student Karl Kubasek discovered the so-called 'Ochoz mandible' of a Neanderthal in Švédův stůl Cave in the southern part of the Moravian Karst; the find was published the following year by Anton Rzehak, a professor at the German Technical University in Brno (Rzehak 1906; Mlejnek et al. 2024). Švédův stůl Cave is also associated with Bohuslav Klíma, who conducted an archaeological excavation at the site in 1953–1955 (Klíma 1962).

The paper is devoted to the circumstances of the discovery of the 'Ochoz mandible' and its fate, from the time of its discovery to the present day (Oliva 2017). In addition, we also focus on Karl Kubasek, the discoverer, and the entire Kubasek family, whose members (especially Karl and his brother Viktor) made a significant contribution to the history of research in the Moravian Karst.

New information concerning Karl Kubasek and especially the circumstances of his most significant find of a Neanderthal mandible in Švédův stůl Cave comes from his correspondence with Karel Jaroslav Maška, a prominent archaeologist and discoverer of a fragment of a Neanderthal child's mandible in Šipka Cave near Štramberk in northern Moravia (Maška 1882).

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Re-excavation of cultural deposits at Švédův stůl Cave in the Moravian Karst

Ladislav Nejman, Amy Way, Philip Hughes, Lenka Lisá, Duncan Wright, Miriam Nývltová-Fišáková, Marjorie Sullivan, Petr Škrdla, Ondřej Mlejnek, Nicholas Skopal, Petr Neruda, Zdeňka Nerudová, Antonín Přichystal & Miroslav Králík

Over the last c. 150 years, archaeologists in Europe have targeted limestone caves and rock shelters, significantly reducing the number of sites with unexcavated cultural deposits dating to the Mid-Upper Paleolithic transition available for study today. In this paper we report the discovery of *in situ* sediments preserving artefacts dating to the Neanderthal-Homo sapiens transition period at a site previously assumed to have been excavated in its entirety. Our results demonstrate the utility of re-investigating previously excavated sites and provide further support for a hominid presence in the Moravian Karst during the M-UP transition.

Acknowledgements:

P. Škrdla was supported by the Institutional support for the long-term conceptual development of a research organisation RVO: 68081758 – Czech Academy of Sciences, Institute of Archaeology, Brno.

Is everything lost? Re-excavation of the Švédův stůl spoil heap

Petr Škrdla, Jaroslav Bartík, Ladislav Nejman, Antonín Přichystal,
Ondřej Mlejnek, Miroslav Králík & Matěj Kmošek

Many caves worldwide, including the most important ones, had attracted excavators since the end of 19th century, which led to finds being mostly or even completely removed during subsequent investigations. However, the 'coarse' methodology used during the earlier excavations resulted in a significant number of finds being overlooked and dumped within sediments removed from caves into spoil heaps located nearby. This is also the case with Švédův stůl Cave in the southern part of the Moravian Karst, one of the three caves that yielded Neanderthal skeletal remains in Moravia.

In order to evaluate the archaeological potential still hidden within the Švédův stůl spoil heap, we collected and subsequently wet sieved 16 m3 (corresponding to ~3.5% of the spoil heap volume) of sediments from the aforementioned spoil heap in several campaigns in 2019–2024. Although the collection of recently obtained lithic artefacts more than doubles Klíma's original assemblage from the 1950s (229 versus 193 items), the artefacts differ in terms of metric parameters – the new collection contains smaller items compared to Klíma's collection. The predominant part of knapped artefacts can be classified as Magdalenian. Only several flakes from coarse raw materials (sun boulder, Kulmian-Devonian schist, quartz) also allow a Middle Paleolithic classification; however, their Magdalenian classification cannot be ruled out entirely. Only single artefacts (including a rectangle made from Olomučany-type chert) can be linked to post-Paleolithic knapped industry. In addition, several specific artefacts not yet known from Švédův stůl Cave were also discovered, including carved stone, perforated teeth, and glass beads.

The re-excavation indicated the high archaeological potential still hidden within sediments dumped in the Švédův stůl spoil heap for further research.

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P. Škrdla, J. Bartík and M. Kmošek were supported by the Institutional support for the long-term conceptual development of a research organisation RVO: 68081758 – Czech Academy of Sciences, Institute of Archaeology, Brno.

MIS3 faunal remains in Pod Hradem Cave

Lenka Lisá, Miriam Fišáková Nývltová, Martina Roblíčková,
Viviane Slon & Ladislav Nejman

Cave entrance sediment deposits are sediment traps that preserve evidence for environmental changes. In the Moravian Karst, these sediments are frequently dated to the MIS3 period. A multidisciplinary analytical approach to Pod hradem Cave deposits excavated in the 2010s has combined geoarchaeological techniques including micromorphology, geochemistry, pollen and anthracological analyses as well as radiometric and OSL dating. Faunal analyses and the detection of archaeological signatures has also been part of this research. In this paper, several approaches to faunal analyses are presented, including macroscopic analyses, histomorphometry, stable isotope analyses of teeth (paleo diets and paleoenvironments) and sedimentary aDNA. Faunal analyses of finds from excavations in the 1950s in Pod hradem Cave have provided valuable information about taxonomic diversity, the role of cave bears and MNIs. Detailed methodological approaches available today greatly enrich previous analyses. Recent analyses of faunal deposits excavated in the 2010s have confirmed previous results, for example, Pod hradem Cave was primarily a cave bear den and a birthing site. In addition to previous findings from the excavations in the 1950s, the recent results of histomorphometric analyses emphasise the presence of wolves and bovids in the cave entrance deposits. Sediment aDNA results are consistent with the macroscopic analyses, but they also highlight hyena as an important taxon in the formation of the faunal assemblage, which was not as visible in the osteological analysis. The analysis of C and N stable isotopes from cave bear teeth has shown that the environment of Pod hradem Cave and its role as a bear hibernation den is similar to other investigated European cave bear hibernation dens.

Deep cave ritual compound at Upper Paleolithic Manot Cave and the origins of collective practices in southwest Asia

Omry Barzilai, Ofer Marder & Israel Hershkovitz

It is not yet clear when communal rituals first appeared in human history. Their presence, however, is of significant importance because they reflect an early form of religion and mark the beginning of social complexity. Here we report on a unique compound in the deepest part of Manot Cave in Israel that bears evidence of ritual activities dating back to the Early Upper Paleolithic period. The compound, separated from the living space of the cave by a cluster of speleothems, is composed of a large acoustic gallery and a 'hidden' chamber. The gallery contains an engraved boulder bearing geometric patterns. Microscopic groove shape and 3D digital analyses suggest that sharp flint tools made these grooves. The isotopic composition of the calcite crusts on the grooves of the boulder matches the values of speleothems from the cave dated to ~ 37–35 ka BP. Environmental scanning electron microscopic (ESEM) analysis of a stalactite located close to the engraved boulder showed a significant amount of wood ash particles within the flowstone, attesting to the use of fire in the gallery at c. 36 ka. A complete antler of a Mesopotamian fallow deer with utilisation signs was recovered from the 'hidden' chamber next to the gallery.

The magnitude of the engraved boulder and its contextual setting at the back of a large, inspiring gallery suggests that it probably served as an animated public object for ceremonial purposes. The wood ash remains on the nearby speleothems indicate the use of fire for lighting this dark, deep part of the cave, while the presence of an antler in the 'hidden room' attests to its use for a non-utilitarian purpose. An acoustic test carried out at different places in the cave showed that the gallery was ideal for public meetings and most suitable for conversations, speeches, and hearings.

This evidence suggests that the deep part of Manot Cave served for communal rituals or a public room. Currently, it is the oldest known ritual compound from southwest Asia, suggesting that an early form of religious activity already existed in the Levantine Upper Paleolithic.

The archaeology of the Szeleta Cave

György Lengyel, Dalma Kerekes & Jaroslaw Wilczynski

Szeleta Cave gained fame after the recovery of a collection of bifacial leaf points in the early 20th century. The cave became inevitable when it was chosen as the eponymous site of the Szeletian culture in the 1950s. Since the discovery, its archaeological interpretation has been constantly changing based upon the stratigraphic division of the early 20th century. This situation is due to the fact that the sediments of Szeleta were massively removed and no one today can revise the complete stratigraphy of the cave. This largely affects the understanding of the Szeletian culture and its chronological phases, as currently Szeleta is the only site in Central Europe that preserved the Early and the Upper/Developed Szeletian phases. Revisions have pointed out that the Upper/Developed Szeletian is most likely the archaeological record of the Gravettian. Osseous artefacts also suggest the Aurignacian occupation of the cave. Therefore, the Upper Paleolithic sequence contained a set of Early Upper Paleolithic and Middle Upper Paleolithic cultures of Central Europe, which makes its interpretation more difficult in the framework of the stratigraphy created in the early 20th century. Also, revisions claimed several post-depositional events that might have affected the preservation of the archaeological layers and concluded that studying the lithics could easily face difficulties. In 2024, a new field project was launched to refine the chronology and better understand the ecology of what is known today as the Szeletian (formerly Early Szeletian). The fieldwork found that the stratigraphy of Szeleta contained distinct occupation layers and the stratigraphy can be divided into discrete layers of different cultures. Thus, our paper presents the field observations made in 2024.

Revision research of Čertova pec Cave – preliminary results from sector 8

Richard Hupka & Martin Sabol

The Čertova pec Cave is situated in the Považský Inovec Mts. (48°33′ N, 17°54′ E) near the village of Radošina in Slovakia. Today, this archaeological site is a 27-metre-long tunnel-like cave with two entrances and a window-opening on its northern wall. However, at the time of the Neanderthals, the site had the character of a cave at least 35 m long, with an entrance 4.5 m wide and 5.3 m high (Musil 1996).

The first excavations were conducted at the site by L. Zotz in 1937 and later by F. Prošek in 1950 (Hokr 1951; Musil 1996). These were probably focused only on the Gravettian layer. Further research of the cave in 1958–1961, headed by J. Bárta, detected the presence of three Paleolithic layers with Gravettian, Szeletian, and Mousterian stone industry (Bárta 1972). The discovery of a fireplace at a depth of 170 to 180 cm (layer 4) with Szeletian (?) stone tools with surface retouch yielded an uncalibrated age of 38,320 ± 2,480 BP (GrN 2438) (Bárta 1965, 305; Jöris et al. 2006). The AMS dating of animal bones (OxA-24106, OxA-24107, OxA-24108) at approximately the same depth in sectors close to the fireplace yielded datum range >45 to 40.1 kyr uncal BP (Kaminská, Škrdla 2011; Kaminská 2014). Additional data obtained from the ^{14}C dating of cave hyena remains (sector 9, depth 230–290 cm) indicates an age older than 50,000 uncal BP (Engelbrecht 2012).

Bárta (1972) determined nine cave layers in his 1958–1961 excavations which Musil (1996) later dated to the Eemian (with *Ursus* cf. *taubachensis* and *Equus taubachensis*) through the Last Glacial (with *Panthera spelaea*, *Crocuta crocuta spelaea*, *Ursus* ex gr. *spelaeus*, *Mammuthus primigenius*, *Coelodonta antiquitatis*, *Rangifer tarandus*) to the Holocene. These layers were distinguished in a trench divided into 28 sectors (1 to 22, 25 to 27, IX to XII), with a depth of approximately 2.7 to 2.9 m (in some parts up to 360 cm). Based on Bárta's data and the discovered osteological remains, Musil (1996) identified 39 bird and mammal species at the site. He also reconstructed the cave's sedimentary history and animal occupation, seasonal bear and hyena dens and ancient non-permanent human settlements from the Middle to Late Paleolithic.

Since Musil has not analysed every find unearthed by Bárta during his research, a complete revisory research of the zooarchaeological material has now begun. It is focused on a fully detailed morphometric analysis of fossil and subfossil finds sector by sector. Currently, the data on material from sector 8 is available. This sector represents an area approximately in the central part of the cave, somewhere on the margins of the two mentioned settlement areas. Zooarchaeological material from sector 8 comes predominantly from depths of 124 to 170 cm in approximately 10 cm (124–135, 130–140, 145–155, 160–170) intervals and is correlated with the Last Glacial to Holocene periods. At a depth 124–135 cm, remains of *Vulpes* sp., *Ursus* sp., *Martes* sp., ?*Rangifer tarandus*, and *Homo* sp. have been identified, accompanied by finds of birds and micromammals of probable Holocene age. The underlaying layers (135 to 170 cm) contained finds of wolf (*Canis lupus*),

arctic fox (*Vulpes lagopus*), bear (*Ursus* ex gr. *spelaeus*), bovid (*Bos* sp. – *Bison* sp.), horse (*Equus* sp.), and a tooth fragment of a mammoth (*Mammuthus primigenius*). Curiously, a hyena coprolite was found at a depth of 340–360 cm (Eemian?).

Acknowledgements

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INTERCAVE project 2024–2028: Excavation of caves in Slovakia in the context of interactions between the natural environment and prehistoric man

Adrián Nemergut, Marián Soják, Martin Sabol, Mária Hajnalová, Lenka Lisá, Monika Orvošová, Ladislav Nejman, Amy Way, Martina Moravcová & Lucia Popovičová

Due to its geological structure and geomorphology, Slovakia possesses a significant number of caves, the sedimentary fill of which represents a crucial source of information about the development of the climate, the natural environment, and human interaction with the landscape in the past. Early archaeological excavations primarily focused on uncovering traces of human occupation inside the caves. Despite the available research opportunities, little attention has been paid to understanding human interaction with the natural environment. Contemporary research, however, has made substantial progress compared to earlier field investigations, thanks to a modern multidisciplinary approach that includes not only the analysis of archaeological finds but also a detailed examination of the stratigraphic context, incorporating paleobotanical, paleozoological, geological, sedimentological, and paleopedological analyses. The potential of utilising various scientific methods is evident in the initial results from Hučivá diera near Tatranská Lomnica, Veľká ružínska Cave, and rock shelter sites in Ružín. The INTERCAVE project builds upon research conducted at these sites and also includes Deravá skala near Plavecký Mikuláš and Čertova pec near Radošina. The project aims for multi- and interdisciplinary analysis, including the evaluation of proxy data, with the goal of validating existing hypotheses regarding the evolution of climate and environment and their impact on prehistoric societies in the studied regions.

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This work was supported by the Slovak Research and Development Agency under Contract No. APVV-23-0282 and the project VEGA 2/0033/23.

Archaeological finds from Kačák and Koněprusy caves. Early modern humans in Bohemia

Petr Šída, Jan Eigner, Karel Žák & Petr Velemínský

During the 1940s and early 1950s, two collections of cave finds were explored in the Bohemian Karst, which, with the distance of time, change our view of the beginnings of the presence of modern humans in Central Europe. At Zlatý kůň Caves in Koněprusy, the bones of an archaic modern human were found in the early 1950s, along with several artefacts (Stárka et al. 1952). Modern genetic research has placed them at the very beginning of the existence of modern humans in Europe (45,000 cal BP, Prüfer et al. 2021). Together with the bones, several artefacts of a more archaic appearance than we know from the Moravian Bohunicien were found. Their analogy is then represented by a rather large assemblage from nearby Nad Kačákem Cave, investigated in the 1940s by J. Petrbok and L. Zotz (Petrbok 1944, Zotz 1942). The first dating places this assemblage around 45,000 to 42,000 cal BP (Verpoorte, Šída 2009, and new dating is available). The find of a Jerzmanowice point (Fridrich, Sklenář 1976) suggests a connection with the Lincombian-Ranisian-Jerzmanowician (LRJ) complex, which is consistent with the close genetic relationship of the individual from Zlatý kůň Caves with individual R10873 from the Ranis site (Mylopotamitaki et al. 2024). In this paper we attempt to present the current status and direction of future research.

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New radiocarbon dates from the Bohemian Karst: stitching paleoecological and archaeological stories together

Katarína Kapustka & Ivan Horáček

The Bohemian Karst is a region with interesting archaeological finds and a good environmental record. However, information about the natural environment and its changes is not always linked to our knowledge of material culture and its transformation. We want to begin to service this debt. The Skalice Rock Shelter (near Měňany) situated close to the area of former Měňany Lake and related karst aquifers was chosen as a case study. Human occupancy of the site is evidenced at the end of the Paleolithic and during the Mesolithic period, which until now has only been exceptionally recorded in the Bohemian Karst. During the Pleistocene/Holocene transition, this location witnessed several important changes. Rich paleontological samples obtained from the site by a series of excavations from 2007 to 2016 provide a robust record of paleoenvironmental development, particularly for the period from 13,000 to 6,000 cal BP. The respective biostratigraphic sections also yielded some archaeological finds, namely lithics. We aim to present the first results of the study of archaeological material in the context of the environmental analyses of this site.

March 27th

2

GRAVETTIAN SESSION

First results from new fieldwork at Grub-Kranawetberg I and II (Austria): Exploring a Gravettian site after the Pavlovian

Philip R. Nigst, Stéphane Pirson, William Davies, Samuel Kasemann, William Chase Murphree, Bence T. Viola, Walpurga Antl-Weiser & Marjolein D. Bosch

The Middle Danube region is rich in Gravettian sites, including the sites of Willendorf II, Grub-Kranawetberg, and Krems-Wachtberg (all in Austria), Pavlov, Dolní Věstonice, and Předmostí (all in the Czech Republic) as well as the Moravany sites (Slovakia). While many of these sites date to the Early and/or Middle Gravettian, fewer are known from the Late Gravettian. The latter include the upper archaeological horizons of Willendorf II, Dolní Věstonice III, Petřkovice I, Trenčianske Bohuslavice-Pod Tureckom, and Grub-Kranawetberg I and II. In this presentation, we focus on two of these sites, Grub-Kranawetberg I and II. The sites are located about 30 km NE of Vienna on a ridge close to the Morava Valley and were excavated between 1993 and 2011 (e.g. Antl 2013; Antl-Weiser et al. 2010; Bosch et al. 2012). More recent fieldwork has been conducted since 2021. The archaeological sequence at Grub-Kranawetberg I covers at least five archaeological horizons (AH) and starts around 30-29 ka cal BP; at least one AH is dated to the early Last Glacial Maximum, while the uppermost AH remains undated due to lack of charcoal. Here, we report on our fieldwork at Grub-Kranawetberg I since 2021 as well as the first results of laboratory analyses. We present (i) an update on the stratigraphy and first insights into the climatic conditions recorded in the sequence, and (ii) new radiocarbon ages for three of the five AHs. Overall, our results suggest repeated human presence at Grub-Kranawetberg I under rather arid and cold conditions between 30 and 25 ka cal BP. Hence, some of the human presence at the site can be placed in Greenland Interstadial 3 and the Leszno phase of the Last Glacial Maximum. We also present the first insights from our fieldwork since 2022 at the new site of Grub-Kranawetberg II.

Acknowledgements

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Insight grant No. 435-2018-0943; funding from the Faculty of Arts and Sciences, University of Toronto, in 2022 and 2023 for the field school). Fieldwork equipment was funded by grants to PRN by the Rectorate of the University of Vienna and Dean's Office of the Faculty of Historical and Cultural Studies. MDB was funded by a Seal of Excellence Fellowship of the Austrian Academy of Sciences. The radiocarbon dates were funded by NERC (EFCHED; NER/T/S/2002/00469; PI: Prof. R. Hedges) to WD. We would like to thank the property owners for permission to conduct our fieldwork on their land and our fieldwork teams for their hard work.

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The Upper Paleolithic settlement of Čachtice, western Slovakia

Ondrej Žaár & Ľubica Žaárová

The paper deals with two Upper Paleolithic sites situated on Bokšiny Hill located southwest of the village. Vladimír Ammer, the local collector who worked in the museum in Nové Mesto nad Váhom, found the first lithic artefacts in 1964 after deep ploughing and kept revisiting the site during the 1970s and 1980s. In 1982, Juraj Bárta published a short note about one find – the shouldered point from erratic silicite. This find is lost at the moment. The site was registered as Gravettian (shouldered points horizon) belonging to the Moravany area. In 2010, we conducted a field walk in the area to identify and fix the site using GPS, but the conditions were not good. Although we found two fragments of lithic tools, they were obviously from deposits that had moved down the slope. In 2023 and 2024, we revisited the area and succeeded in locating the exact position of this site. The collection of another 117 artefacts confirmed the dating to the Upper Paleolithic and the Gravettian culture. At the same time, we contacted the museum in Nové

Mesto nad Váhom (under the administration of the museum in Trenčín) and found that there is a large collection of lithic artefacts in the depository from Vladimír Ammer's surveys. During this time, he collected almost 1,000 artefacts made mostly from radiolarites and erratic silicites. The aim of the paper is to present the results of the typological analysis of the assemblage. Although the dating of the site remains Gravettian, there are a few tools that place the site more in the Trenčianske Bohuslavice-type Gravettian than in the Moravany nad Váhom area. This is mainly because of two leaf point fragments.

The second site is represented by several finds scattered over a larger area eastward and down the hill, which supposes another Upper Paleolithic site(s) on Bokšiny Hill.

Gravettian/Epi-Gravettian in Transcarpathia, Ukraine: New data from recent investigations

Vitalii I. Usyk, Roman Garba, Natalia Gerasimenko, Larissa Kulakovska, Freddy Damblon & Philip R. Nigst

Active Paleolithic research in Transcarpathian Ukraine began at the end of the 1960s and identified numerous sites attributed to the Lower, Middle, and Upper Paleolithic (including the Initial and Early Upper Paleolithic). There was only one Late Gravettian/Epigravettian assemblage found at the Shayan I site. However, no trace of the presence of the Gravettian technocomplex in this region was known until recently. Here, we present new data on the Gravettian of Transcarpathia. Our excavations between 2015 and 2018 at Korolevo II revealed a stratigraphic sequence with five cultural layers (CL E, D, C, B, and A, from bottom to top). CL B is assigned to the Gravettian and dated 31,889–31,510 cal BP (charcoal). The overlying CL A does not contain Gravettian features but is dated to the chronological range of the Gravettian (30,094–29,914 cal BP; charcoal). Our new data allows us to open a discussion on the cultural variability of the Upper Paleolithic of the region between 30,000 and 20,000 BP.

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Bifacial leaf-shaped points in the Gravettian technocomplex of the Middle Dniester Valley

Larissa Kulakovska & Vitalii I. Usyk

In the territory of Ukraine, Gravettian industries have been recorded in the Dniester Valley, the Bug-Dniester Interfluve, Volyn, Transcarpathia, and Crimea. The largest number of sites are concentrated in the Middle Dniester (Molodovo I and V, Korman IV and 9, Mezhyhirtsi I, Babyn I, Voronovytsia I, etc.). The Gravettian techno-complex of the Middle Dniester is characterised by the exploitation of volumetric blade cores (cylindrical/sub-cylindrical, etc.) with crest removal at the beginning of reduction. Blades with lipped platforms are wide (3–5 cm in width) and long (up to 15 cm). The number of end scrapers is usually less than burins. Among burins, dihedral and truncated types are usually dominant. Backed tools are represented by Gravettian/micro-Gravettian points, backed bladelets/microblades, and, in some cases, shouldered points. At the same time, bifacial points occurred in the typological sets as well. G. Grigorieva (1972) drew attention to this fact and expressed the opinion about the relationship of the bifacial points found at UP with the local Middle Paleolithic. Bifacial points found at the sites (Mezhyhirtsi, Molodovo V, Voronovytsa, etc.) in situ and on the surface always have a Gravettian context. Most of these points have a convex base and a biconvex cross-section made from local flint. The stratigraphic position and available dates indicate, most likely, that they belong to the earliest stage of the Dniester Gravettian. We currently have no arguments in favour of the fact that bifacial points in the local Gravettian have any culturally defining influence or relationship with MP or 'transitional' techno-complexes. Regarding their appearance, one of J. Kozlowski's hypotheses about the independent origin of these instruments is most likely correct (Kozlowski, 1995).

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Transfers of radiolarites and other exotic materials in the Moravian Gravettian

Martin Moník, Zdeňka Nerudová, Martin Novák, Antonín Přichystal, Filip Gregar, Petr Hamrozi & Tomáš Pluháček

A raw material analysis of six Gravettian lithic assemblages from Moravia was carried out to trace the mobility of Upper Paleolithic hunter-gatherers. These assemblages come from both old and new excavations and include sites from under the Pavlovské vrchy Hills (Milovice I and IV, Pavlov I and Dolní Věstonice I), the Moravian Gate (Předmostí I) and the Ostrava Basin (Petřkovice I). In addition to stereomicroscopy, X-ray Fluorescence and laser ablation inductively coupled plasma mass spectrometry analyses (LA-ICP-MS) were used to determine the provenance of radiolarite artefacts. The predominance of erratic flints at most Moravian Gravettian sites has long been known, while raw material transfers are indicated even longer by artefacts made of Krakow chert, Ożarów chert, limnic chert/limnosilicite, Hungarian radiolarite and obsidian. The origin of three fine-grained flints from the Předmostí I site is uncertain and will have to be clarified by further provenance analysis. It seems that long distance transport was only carried out if the transported material met specific quality standards, but local material was also used, possibly acquired as gravel. Most of the radiolarite artefacts analysed by LA-ICP-MS were made from West Carpathian radiolarites. However, some pieces from sites under the Pavlovské vrchy Hills show a chemical fingerprint similar to Austrian sources. The question remains whether these were indeed imported from the St. Veit Klippen Belt of present-day Vienna or acquired from local Miocene gravels.

Compared to the Moravian Aurignacian, the NE–SW material transfer of erratic flints is intensified and often reaches the Gravettian sites along the Danube. This may have been at the expense of some other lithologies, such as the metarhyolite of the Bükk Mts, which are no longer found in the Moravian Gravettian assemblages. This may have been due to the emerging exclusivity of the Moravian and Slovak Gravettian (hunting) territories. Nevertheless, the abundance of radiolarite artefacts in both the Moravian and Slovak Gravettian suggests that the White Carpathians may have represented the line of contact between the two raw material provinces and the groups exploiting them.

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Mammoth bone accumulations in Central Europe – what do we already know, and what would we like to find out?

Jarosław Wilczyński, Martin Novák & Marc Händel

The discovery of large accumulations of woolly mammoth remains together with Upper Paleolithic artefacts has fascinated both researchers and the general public since the 19th century, with the best example being discoveries made at the site in Dolní Věstonice in Moravia, which was excavated for many years by B. Klíma. Despite the extensive scientific research and debate, our knowledge of these sites and the relationship between mammoths and contemporaneous Upper Paleolithic hunter-gatherers remains incomplete. This project focuses on the mammoth bone accumulations found in the West Carpathian forelands and seeks to establish why they formed and their function for hunter-gatherer groups 35,000–25,000 years ago – a period of major techno-cultural and environmental change before the Last Glacial Maximum. According to various studies carried out over the course of more than 100 years, interpretations for the formation of these assemblages range from human transport of body parts and/or skeletal elements from other locations, to the use by hunter-gatherers of bones and ivory from carcasses of naturally deceased mammoths, to interpreting the remains as a direct consequence of a hunting strategy focussed on mammoths. Therefore, at the present stage of research, both natural and/or anthropogenic agents may account for the creation of the archaeological record, which may also have seen recurrent human occupations that eventually produced stratified deposits and/or palimpsests of mixed assemblages reflecting many different episodes of activities. Studying these sites thus involves unravelling the complex local formation histories from the first deposited bone to the last post-depositional event.

During our talk, we would like to present the history of research, the results of the latest studies, and what we can reconstruct on their basis.

Acknowledgements

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Mammoth hunting in north Bohemia: New Upper Paleolithic site in Ústí nad Labem

Petr Lissek, Dominik Chlachula, Denis Hübsh & Soňa Boriová

This work presents a preliminary overview of a new Upper Paleolithic site discovered during a rescue excavation in Ústí nad Labem in northern Bohemia. The site, whose known extent covers about 1,000 m^2, is located in the valley of the Klíšský Potok Stream.

The excavations have uncovered a large concentration of mammoth bones, only sporadically accompanied by remains of other species, such as the woolly rhinoceros, and possibly also cervids and horses. The lithic assemblage exhibits notable raw material variability, and the presence of backed bladelets and bitruncated elements allows for a tentative attribution of the site to the Middle to Late Gravettian. As Upper Paleolithic sites are very rare in northern Bohemia, this discovery has great potential for more detailed insight into the human occupation and environmental conditions during the Upper Paleolithic in this region. As the excavation is currently still ongoing, the data and the interpretations provided here are still regarded as preliminary.

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Session 2c

Sleds and harnesses in the Upper Paleolithic: Contemplating undiscovered types of artefacts

Zdeňka Nerudová

On a theoretical level, the presented contribution analyses the possible existence and possibilities of the method of cargo transportation in the Upper Paleolithic (Gravettian, Magdalenian). Using ethnological observations and further studies concerning Late Pleistocene and Early Holocene finds originating from Arctic regions, the author describes the character of possible finds and prospects for their differentiation. In this context, she draws attention to three specific finds of unclear function from the Moravian Gravettian, which theoretically could be parts of a sleigh harness, and compares them with similar objects held in some foreign ethnological collections. The aspect of harnessing used in the Upper Paleolithic could also be interesting in discussions regarding the first domesticated wolves (dogs) in the Gravettian, or the question of the existence of tamed reindeer. From an archaeological perspective, depictions of horse heads with some type of halter are interesting finds in this context.

Use-wear analysis of personal gear from Milovice IV

Anna-Marie Marko, Dominik Chlachula & Martin Novák

This work presents a use-wear analysis of a small cluster of blades/bladelets discovered during a rescue excavation at the Middle/Late Gravettian site of Milovice IV in the Czech Republic. The cluster is comprised of 29 artefacts, both retouched and unretouched. The specific context suggests that the items were originally bundled together in a container made of a perishable material. The artefacts were made from raw materials of diverse origins. The use-wear analyses and the technotypological analysis reveal a variety of tool types and activities, indicating that the cluster underwent a complex history of use and recycling. A substantial share of the assemblage exhibited fractures typically associated with projectiles, while other tools showed evidence of cutting, scraping, and drilling. The cluster can be interpreted as personal gear used during hunting expeditions, regularly maintained and occasionally modified until its eventual discard or loss in a residential camp.

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Spatial and functional diversity at the Gravettian site of Doroshivtsi III on the Middle Dniester River (Ukraine): First results of use-wear analyses

Marta Połtowicz-Bobak, Larissa Kulakovska, Katarzyna Pyżewicz, Dariusz Bobak, Olesia Kononenko & Vitalii I. Usyk

The Doroshivtsi III site is located in the canyon valley of the middle Dniester. The site was discovered in 1968, and investigations were conducted in 2006–2010 and then in 2019 and 2021.

Between 2006 and 2010, seven cultural layers were distinguished, from which several to more than 23,000 artefacts were recovered. The richest layer yielded 491 tools including numerous backed tools. Few artefacts were discovered during the 2019 and 2021 excavations (103 artefacts from all layers, six and five tools were recovered from the two richest layers). Not a single microlith was found. The tool assemblage comprising mainly burins, scrapers, retouched blades and flakes, is similar in both sectors, the exception being the richest, original layer 6, for which no direct equivalents were found in 2019 and 2021.

The use-wear analysis included all of the material from the 2019 and 2021 excavations, as well as a selection (backed tools and shoulders points) from 2007–2010.

As a result of the analyses, two types of marks were distinguished: those created during production and those created during the use of the tools. Traces related to production provide information mainly on the types of hammers and the method of reduction. Few traces of use were observed on both formal tools and debitage. Macrolithic tools belonging to the group of domestic-type tools have traces indicating the processing of animal and, possibly, vegetable material; microliths are components of hunting weapons. A few traces also suggest hafting.

The traces of use observed, together with the analysis of the composition of the lithic inventory and the species composition of animal bones, allow a closer recognition of the structure of the campsite.

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3

MISCELLANEOUS SESSION

Modified fossil mollusc shells, mainly in the Upper Paleolithic

Šárka Hladilová

Modified recent and fossil mollusc shells (gastropods, bivalves, scaphopods) belong to the earliest objects used mostly as personal ornaments in the Paleolithic. They represent an important element of the material culture of early humans, and, generally, indicate the emergence of their modern social behaviour (aesthetic perception, shared symbolic language, etc.). Although the use of modified shells for symbolic expression is not confined to modern humans, its occurrence in Neanderthal contexts is generally sporadic.

The present-day archaeological literature related to Middle to Upper Paleolithic sites, above all in Africa, Europe and the Levant, offers ample evidence of mollusc shells, including their fossils, both naturally and artificially perforated, and used as ornaments. Detailed analyses of this material can help explain the evolving role of shell ornaments, the changes in their qualitative and quantitative compositions through time (for example, a dramatic increase in their numbers and diversity in the Upper Paleolithic), as well as in their geographical dispersal.

The oldest known example of sophisticated symbolic behaviour in the Czech Republic and one of the oldest known in Europe comes from the Líšeň-Podolí site near Brno in southern Moravia (36 well-preserved fossil mollusc shells with artificial perforations and red and black pigments, minimum age of 40–44 ka BP – Škrdla 2017, 95–110).

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Bohuňovice. New findings at a Late Paleolithic site in eastern Bohemia

Vít Záhorák & Pavel Moš

In 2023, a rescue archaeological excavation took place at the well-known Late Paleolithic site of Bohuňovice (Svitavy District, now the Řídký Cadastre), triggered by the ongoing construction of the D35 motorway. Surface collection, test trenching, and subsequent topsoil removal were carried out at the site. A total of 190 pieces of chipped stone industry were recovered, mostly from the topsoil. The majority of the collection was formed by artefacts made of erratic flints, although other imported raw materials such as silicites of the Krakow-Czestochowa Jurassic from Poland and radiolarites of an unspecified source were also present. Part of the collection was made of local Ústí nad Orlicí-type chert common at nearby Mesolithic sites.

The Late Paleolithic archaeological layer was not found. However, a new finding was the presence of a previously unknown Linear Pottery culture settlement, where around 17 features were excavated. The excavation thus contributed to new possibilities for addressing the question of a potential Mesolithic admixture, which was sought in older assemblages.

4

POSTER SESSION

A substantial shift in lithic raw material use during the Gravettian at Grub-Kranawetberg I and II, Austria

Samuel Kasemann, Walpurga Antl-Weiser, Michael Brandl, Stephane Pirson, Bence T. Viola, Marjolein D. Bosch & Philip R. Nigst

Lithic raw materials and their sources are a good indicator of past hunter-gatherer mobility and landscape use, regardless of whether we assume direct, embedded or indirect procurement strategies. In a case study at the Mid-Upper Paleolithic sites Grub-Kranawetberg I and II, Lower Austria, we examine a change in the lithic raw material economy between the main human occupations in the time window of roughly 30,000 to 28,000 cal. BP.

The two sites, Grub-Kranawetberg I and II, are open-air locations close to the Morava River at the border between Slovakia and Austria. Through excavations from 1993 to 2011 (Grub-Kranawetberg I) and ongoing since 2021 (Grub-Kranawetberg I and II), extensive lithic collections have been recovered at both sites in several archaeological horizons (AH) (e.g. Antl-Weiser et al. 2010, 2024; Nigst et al. 2024). At Grub-Kranawetberg I, at least five AHs have been documented and at Grub-Kranawetberg II at least seven AHs have been identified in the new fieldwork since 2022. While there are no chronometric ages available for Grub-Kranawetberg II at the moment, the two main AHs, AH 3 and AH 4, at Grub-Kranawetberg I are dated to the period between 30,000 and 28,000 cal. BP.

Here we show that at Grub-Kranawetberg I the two richer archaeological horizons, AH 3 and 4, differ in the use of the main lithic raw material. We show that AH 4 is dominated by patinated flint, while in AH 3 radiolarites are the main lithic raw material, as already recognised in earlier studies (e.g. Antl-Weiser et al. 2010). Comparing them to comparative samples using reflecting-light microscopy, we can identify raw material source areas or regions. Patinated flint occurs in secondary source outcrops in southern Poland, northern Bohemia and northern Moravia, at a minimum distance of 150 km (Moravian Gate) from the sites. Radiolarite variants as identified at Grub-Kranawetberg I AH 3 occur in the Danube River gravel (30 km), the St. Veit Klippen Belt (50 km), the Carpathians (130 km) and potentially in the Bakony Mountains (150 km).

Interestingly, at Grub-Kranawetberg II the two heretofore richest AHs, AH Michi and AH Luc, show a similar pattern. In the lower AH Luc, patinated flint is common, while in the overlying AH Michi radiolarites are the most common lithic raw material.

While a direct correlation of AH 3 and AH 4 at Grub-Kranawetberg I with AH Michi and AH Luc at Grub-Kranawetberg II is premature at the present stage of research at Grub-Kranawetberg II, it is interesting that at both sites there is a quite substantial shift from flint to radiolarites as the dominant raw material. The majority of lithic raw materials in lower horizons was transported at least 150 km (long-distance transport/exchange), while in the upper horizons the majority was transported at least 30 km (regional transport), suggesting different territories and/or landscape use.

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Preliminary results on the origin of fossil mollusc shells from an Early Bronze Age burial site in Senica (Slovakia)

Pavol Jelínek & Barbara Zahradníková

During archaeological research at the Senica site, fossil shells of molluscs were found in the burial ground from the Early Bronze Age (2200–1500 BC) along with skeletal remains in the graves. A total of 48 graves were excavated at the burial ground (only the part of the burial ground endangered by construction work was examined). Fossil shells were found in 15 of them, including male, female and child graves.

Our assumption was that the fossils could come from localities around Borský Mikuláš, which is approximately 15 km southwest of the site and is the closest locality with fossils to the burial ground.

Fossils of the species *Fissidentalium badense*, *Dentalium* (*Antalis*) *mutabile* (Dentaliidae), *Cardites partschi* (Carditidae), *Oligodia bicarinata* (Turritellidae) and Paroxystele orientalis (?) were present at the burial ground.

The same species of Miocene malacofauna (*Fissidentalium badense*, *Cardites partschi*, *Oligodia bicarinata*, *Paroxystele orientalis*) are represented from Borský Mikuláš. However, the source areas of the burial shells can be found in the wider area of the Vienna Basin or the Carpathian Foredeep. Their origin from the territory of today's Hungary or Austria cannot be ruled out. Borský Mikuláš-Hliníky was only one of the localities that the population from Senica could have used.

New finds of chipped stone industry from the surroundings of the Zemplín Hills

Ľubomíra Kaminská

The area of the East Slovak Lowland around the Zemplín Hills is a source of obsidian, which was the basic raw material for the production of chipped stone artefacts from the Upper Paleolithic to the Bronze Age. It was supplemented by raw materials from the region of eastern Slovakia (radiolarite, silicified sandstone), from north-eastern Hungary (limnosilicites, quartz porphyry), but also imported flint from the territory of Poland and Ukraine.

In the case of the new sites from the cadastres of Luhyňa and Veľaty, opal/chalcedony is an abundant and sometimes even predominant raw material (Luhyňa I), one of the possible sources of which has been identified in the area of Luhyňa II. Opal/chalcedony is also abundant at Velaty III. The evaluated finds from the above sites generally represent stone industry from several prehistoric cultures (Luhyňa I and Veľaty III). A new and hitherto unrecognised culture in the region is the Aurignacian from the Upper Paleolithic, the raw material composition of which includes artefacts chipped predominantly from opal/chalcedony. On the basis of the typological and technological analysis at the sites of Luhyňa I and Veľaty III, evidence of their occupation in the Epigravettian or Mesolithic and in the Early Bronze Age (Koštianska culture) must also be taken into account. This applies especially to artefacts chipped from obsidian.

March 28th

Excursion day

Visit of the prehistoric exposition in the Museum of Moravian Slovakia in Uherské Hradiště

The exposition Prehistory of the Uherské Hradiště region was opened in 2022 as the very first permanent exhibition focused on presenting the development of prehistoric settlement in the Middle Morava River area. The exhibition's undulating shape is inspired by the meanders of the Morava River, which played a key role in shaping many aspects of local archaic societies. The authors aimed to create a modern multimedia exhibition while preserving the opportunity for visitors to view original archaeological finds.

The exhibition features artefacts covering a period from the Early Stone Age to the end of the Roman period. Upon entry, visitors can watch a short video and an animated sequence introducing them to the world of mammoth and other herd animals hunters. The most important research on Paleolithic sites in the region is presented here, including the discovery of a mammoth bone deposit from Jarošov near Uherské Hradiště. A horizontal display case allows visitors to examine the most interesting stone artefacts, ranging from the Aurignacian through the Gravettian and Epigravettian to sporadic finds from the Late Paleolithic and Mesolithic.

The exhibition's centrepiece is a relief model of theUherské Hradiště region, onto which various data layers about settlement development in different prehistoric periods can be projected, including detailed information about selected archaeological sites.

Other highlights include a reconstruction of the grave of a man and a woman from Kunovice, who were buried together in a storage pit at the end of the Early Bronze Age. The exhibition also showcases a diverse collection of Bronze Age hoards, including a hoard of women's jewellery from Bánov, containing nearly 2,000 amber beads, making it one of the wealthiest Hallstatt-era hoards in the Czech Republic.

The exhibition's final section is a multimedia presentation of a richly furnished grave of an Early Roman Period nobleman discovered in Uherský Brod. In addition to research plans, drawings, and photographs, visitors can view the complete grave inventory, including imports from the Roman Empire, such as several bronze vessels.

The exhibition also features a haptic trail, where visitors can explore ancient cultures through touch and sound using replicas and enlarged reconstructions of authentic archaeological finds.

The excursion is organised in cooperation with the Museum of Moravian Slovakia in Uherské Hradiště. Great Moravia Memorial – Cyril and Methodius Centre, Jezuitská 1885, Staré Město.

Slovácké muzeum v Uherském Hradišti

Place of departure

8.30	Departure from Brno
16.00	Arrival to Brno

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