THE HUMAN FOSSIL RECORD IN THE POSSESSION OF THE NATURAL HISTORY MUSEUM VIENNA

Maria Teschler-Nicola
Naturhistorisches Museum Wien

The Upper Paleolithic (Aurignacian) finds from the Mladeč caves in Moravia

- Historical aspects (persons involved, circumstances of excavation)
- Taphonomical and morphological aspects, evolutionary importance (central for the debate of the evolution and spread of early modern humans and the fate of Neandertals) and dating

The Upper Paleolithic (Gravettian) finds from Austria

- Willendorf, Spitz, Aggsbach, Grub/Kranawetberg
- Krems/Wachtberg

Ferdinand v. Hochstetter (1829-1884)

Geologist, very successful in a variety of positions and acting for a number of institutions:

President of the Geological Society, First director of the newly created Imperial-royal Court Museum, he founded the Anthropological-Ethnographical Department and became its Director (1876)

Founder and first chairman of the „*Prehistorical Commission of the imperial Academy of Sciences*“ (1878): this commission was entrusted the task of initiating and promoting speleological investigations and paleo-ethnographical studies and excavations on Austrian territory and of preventing “*unscientific exploitation of major sites for private purposes*”

Josef Szombathy (1853-1943)

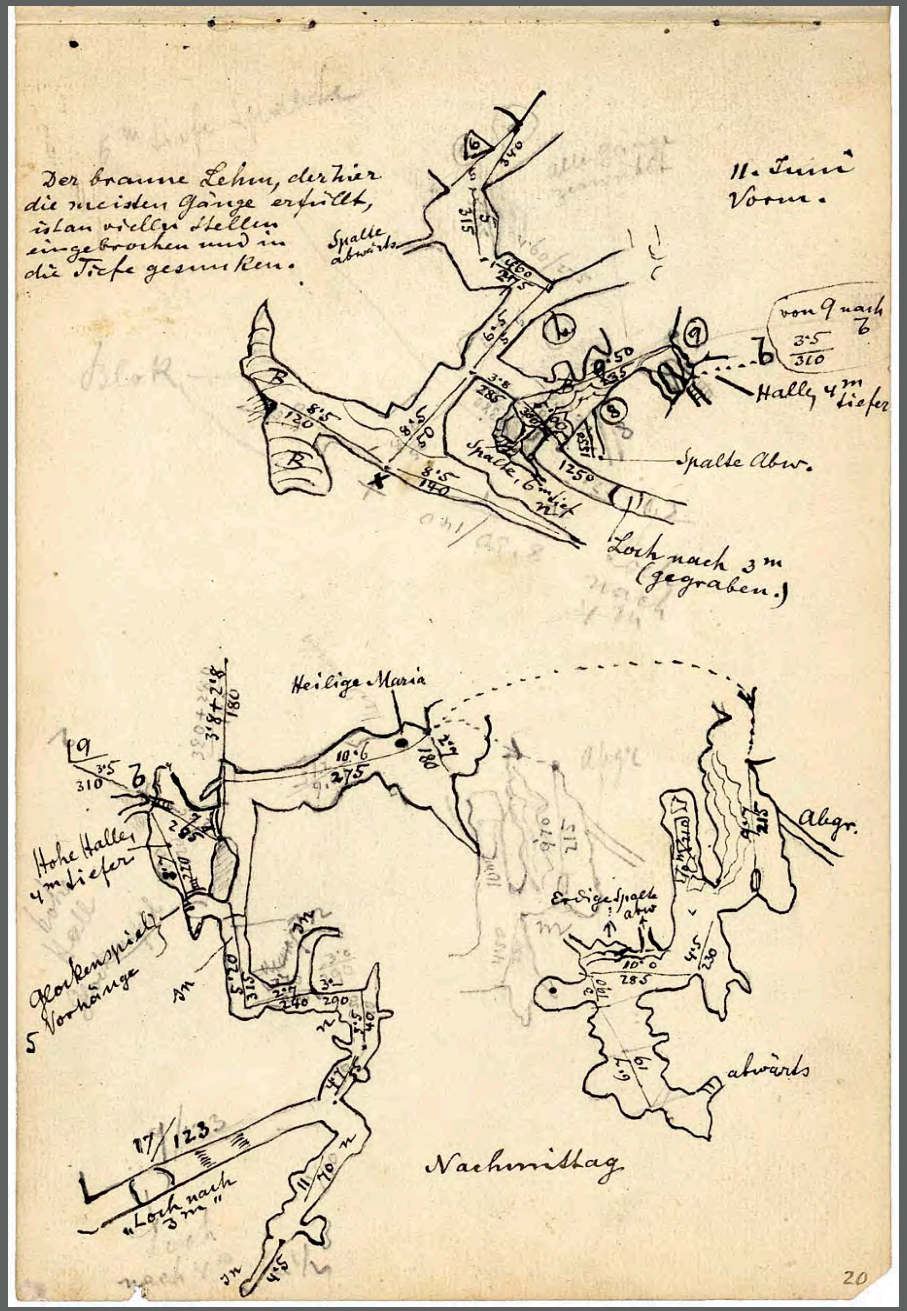
Geologist, Assistant of Ferdinand v. Hochstetter, curator at the Department of Anthropology, entrusted with the internal construction of the new Museum and many excavations on the Austrian territory

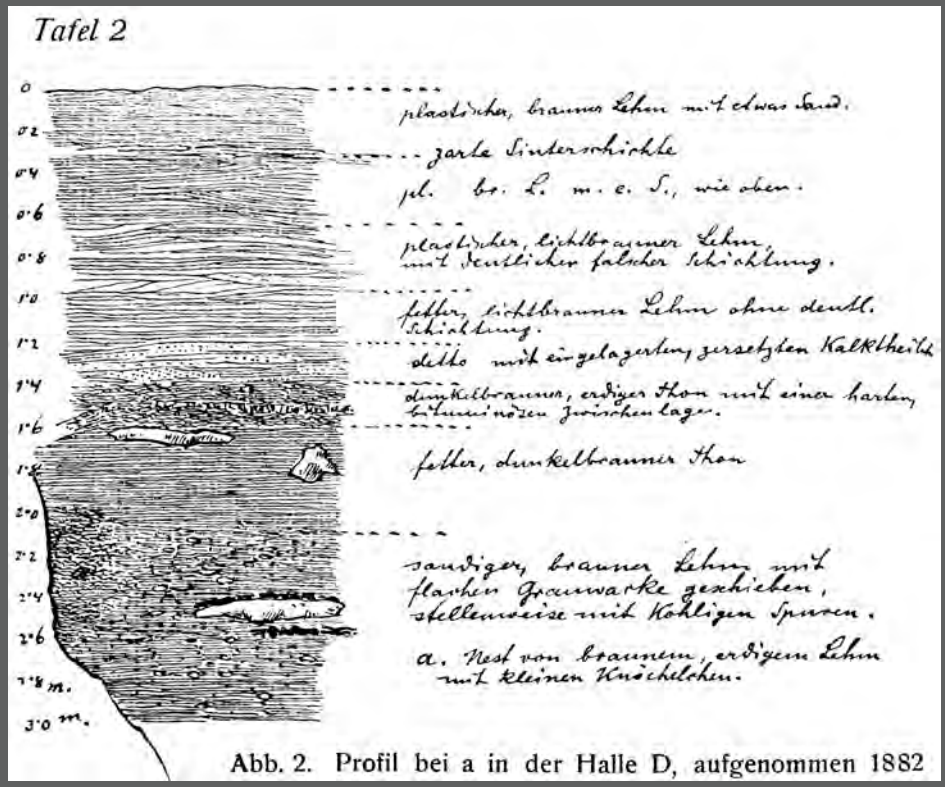
1881 und 1882 commissioned to prospect and excavate at the Mladeč cave, visits in 1904 and 1925

1900 *Congrès Internat. d´Anthropologie et d´Archéologie préhistorique*, Paris

1908 discovery of the Venus statuette at Willendorf (together with Josef Bayer und Hugo Obermaier)

1925 presentation of the results „*Die diluvialen Menschenreste aus der Fürst-Johanns-Höhle bei Lautsch in Mähren*“ *Die Eiszeit* (1925)

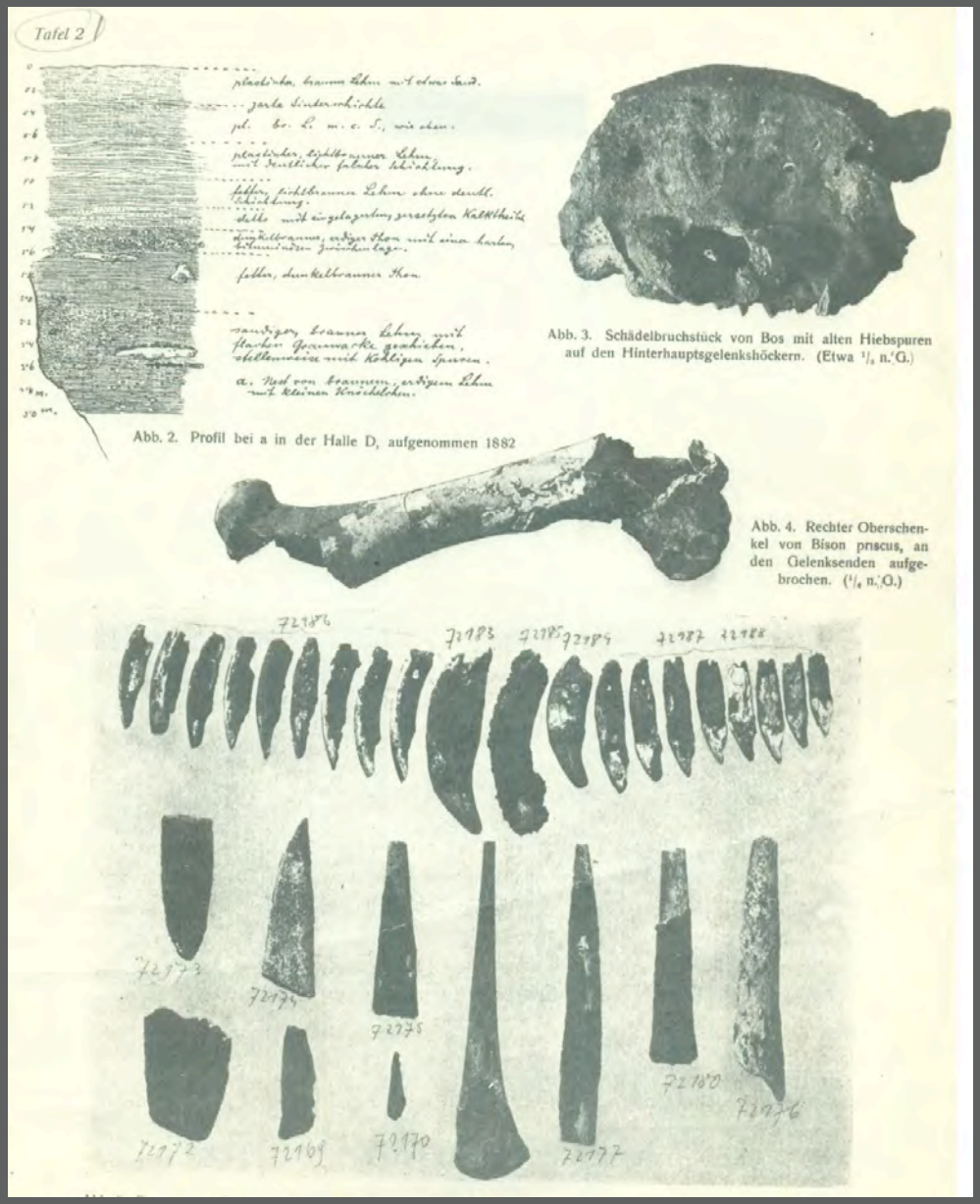




Profile taken in hall D of the Mladeč caves, from **Josef Szombathy´s diary**, 1882

Ground plan of the Mladeč caves, from **Josef Szombathy´s diary**, 11th June 1881, p. 20. (Archiv Prähistorische Abteilung / NHM Wien)

The Upper Palaeolithic finds from the Mladeč caves: Historical aspects



Szombathy, 1925, Die diluvialen Menschenreste aus der Fürst-Johanns-Höhle bei Lautsch in Mähren

Szombathy´s excavations at Mladeč cave, 7th-11th June 1881 and 13th-18th July 1882

….., remains of reindeer, cave bear, wolf and humans were buried simultaneously….but the finds are not complete enough to draw further conclusions…. As the fracture lines are covered by sinter, human activity must be taken into account.

Fünfter Bericht d. Prähistor. Commission, Bd. 85, 1882

The Upper Palaeolithic finds from the Mladeč caves: Historical aspects

CONGRÈS INTERNATIONAL

D'ANTHROPOLOGIE ET D'ARCHÉOLOGIE

PRÉHISTORIQUES

COMPTE RENDU

DE LA DOUZIÈME SESSION

PARIS 1900

PARIS

DIE EISZEIT

ZEITSCHRIFT FÜR ALLGEMEINE EISZEITFORSCHUNG
ORGAN DES INSTITUTS FÜR EISZEITFORSCHUNG
IN WIEN

BEGRÜNDET UND HERAUSGEGEBEN VON

JOSEF BAYER

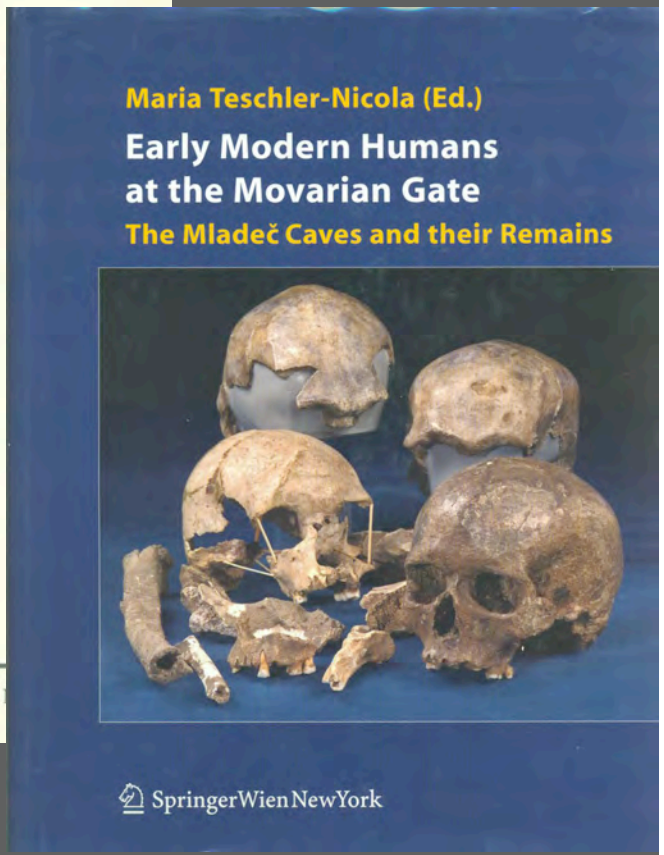
DIREKTOR AM NATURHISTORISCHEN MUSEUM IN WIEN

ZWEITER BAND

II. HEFT

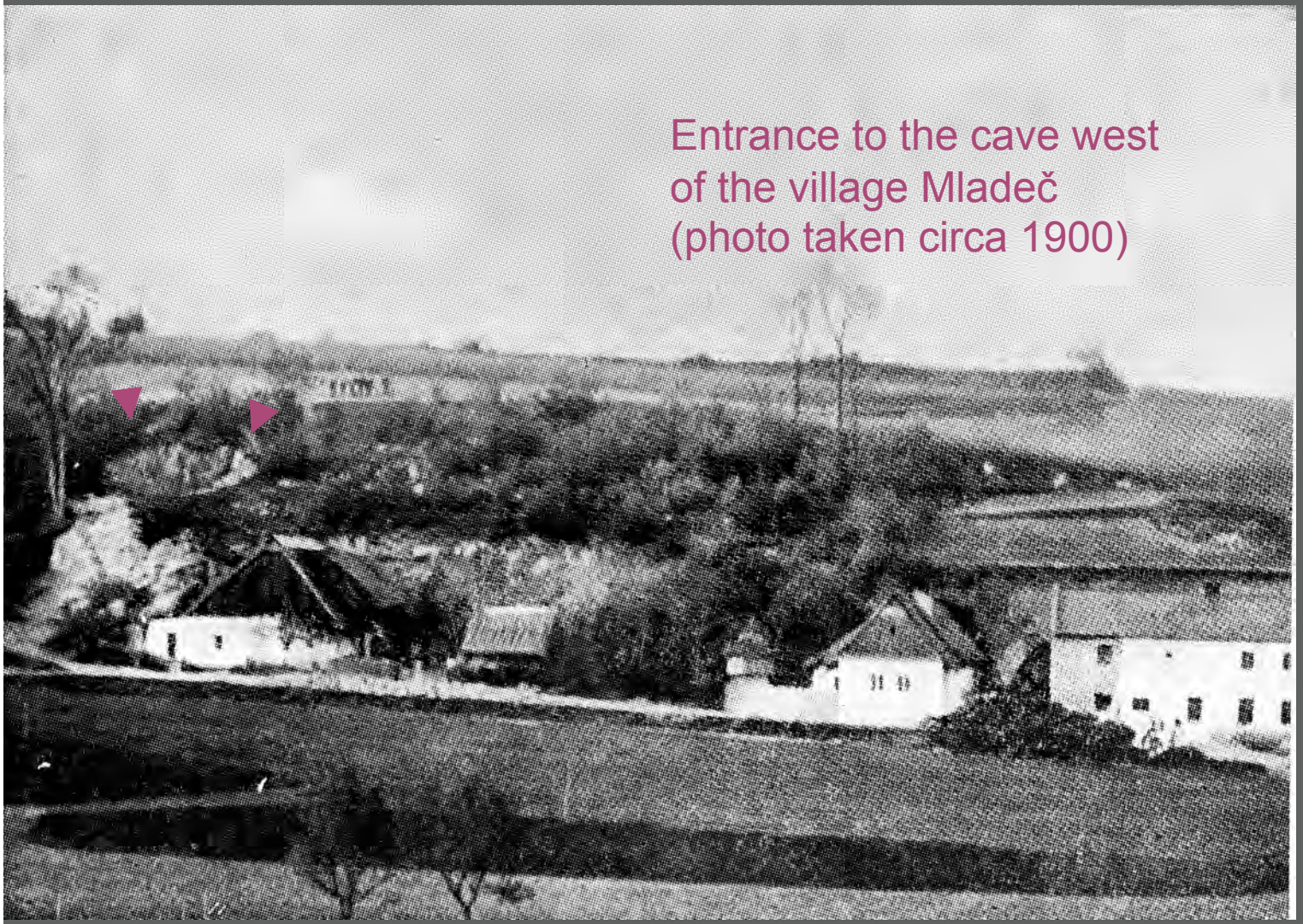
1925

LEIPZIG / VERLAG KARL W. HIERSEMA



nhm

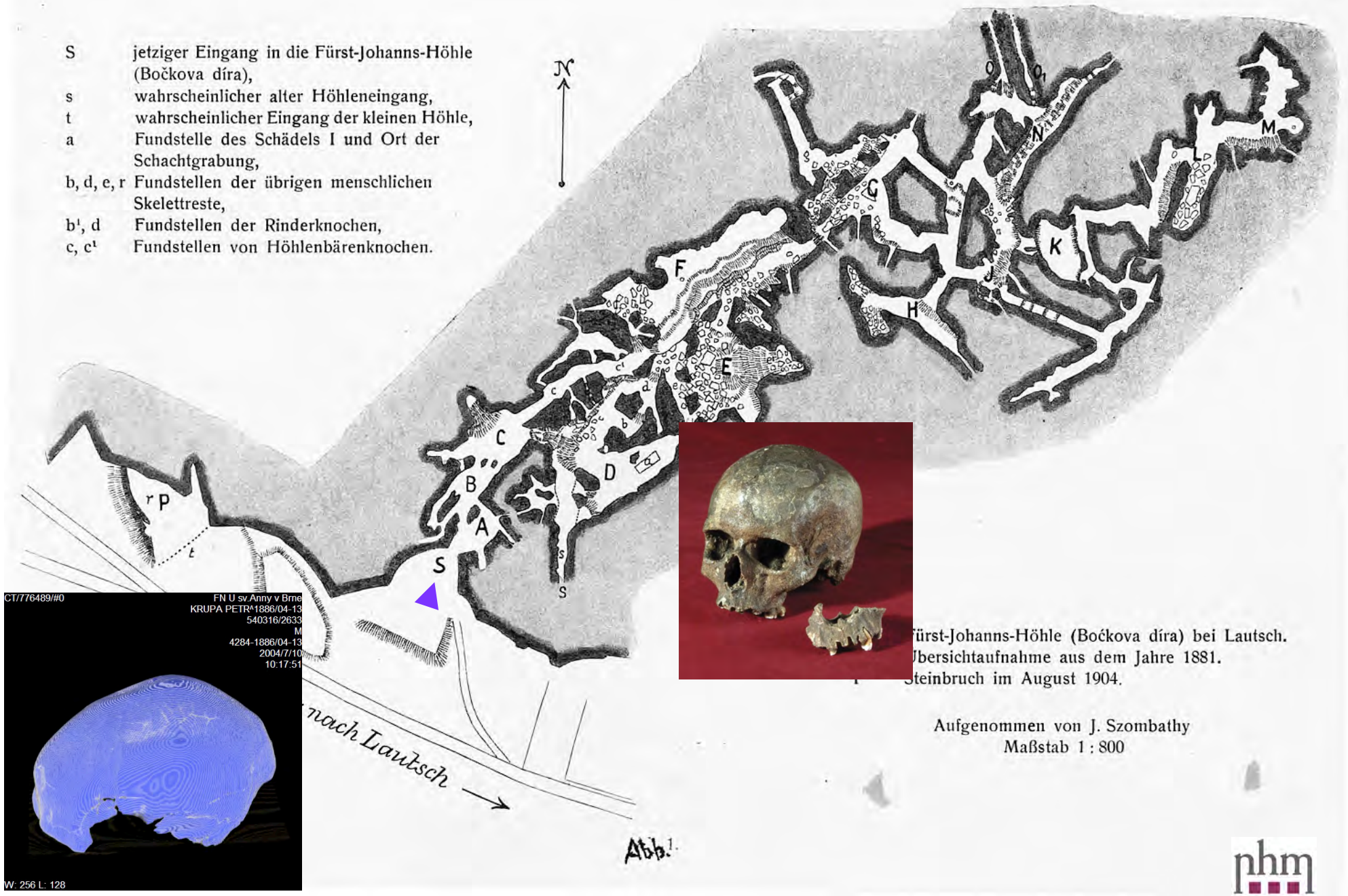
The Upper Palaeolithic finds from the Mladeč caves: the site



The Mladeč cave, localized at the Tresin hill, Moravian carst, territory of prince Liechtenstein

Discovered in 1826 during mining of limestone, original entrance is not known

The Upper Palaeolithic finds from the Mladeč caves: the site



aus Szombathy, 1925, Die diluvialen Menschenreste aus der Fürst-Johanns-Höhle bei Lautsch in Mähren

The Upper Palaeolithic finds from the Mladeč caves: the site

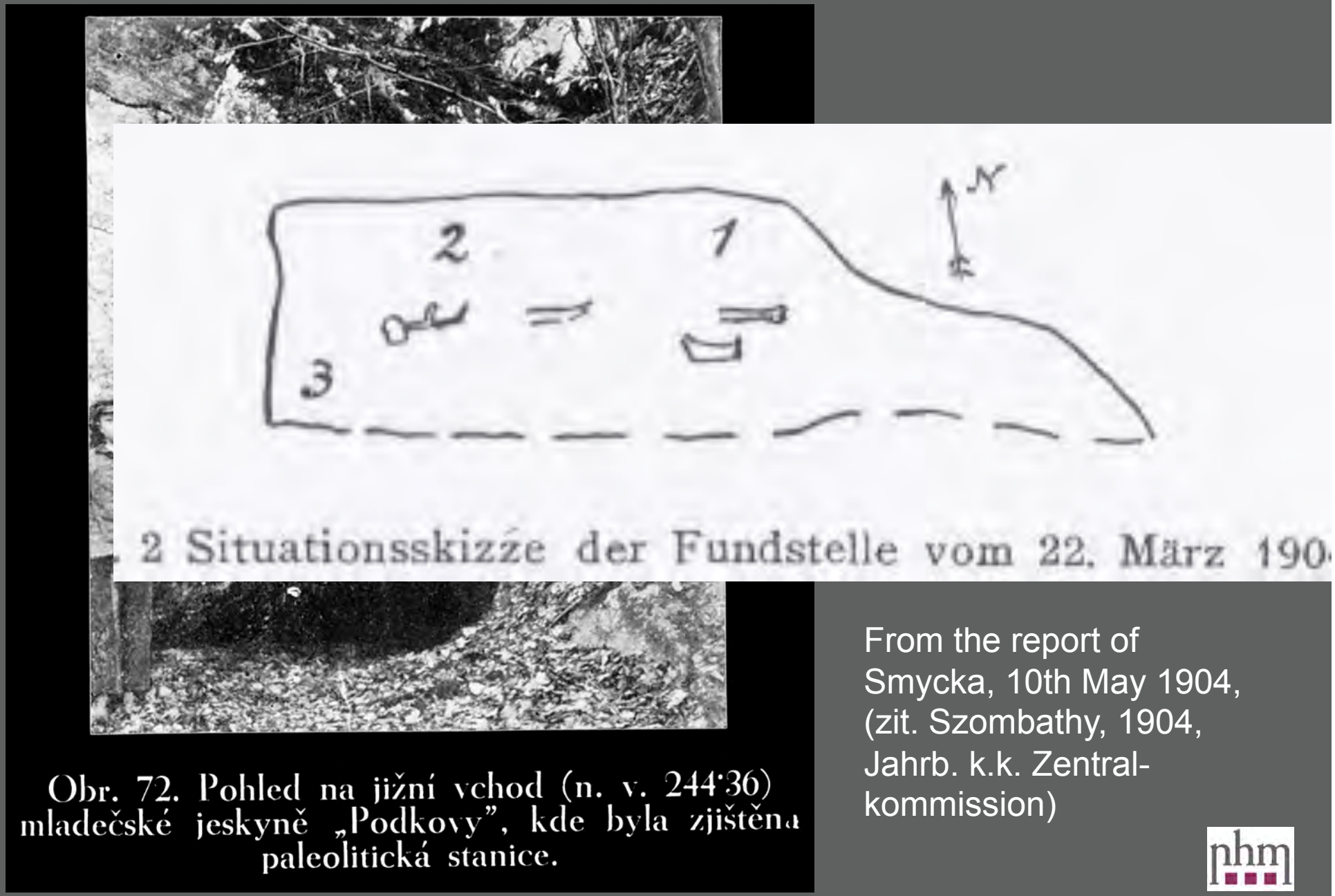
Hall „D“ (after preparation for paths for the general public, actual situation)

Human remains of a minimum of 5 individuals (32 isolated specimens representing adult and immature cranio-dental and postcranial elements of both sexes), faunal remains and artifacts

….Shortly after we had hit the spade into the loamy soil, we found 20cm below the surface a human calvarium, which was covered by a thin layer of sinter, completely fossilized and gray; the specimen shows all features of a high age“.

From Szombathy´s diary, 1881

The Upper Palaeolithic finds from the Mladeč caves: the remains



From the report of Smycka, 10th May 1904, (zit. Szombathy, 1904, Jahrb. k.k. Zentral-kommission)

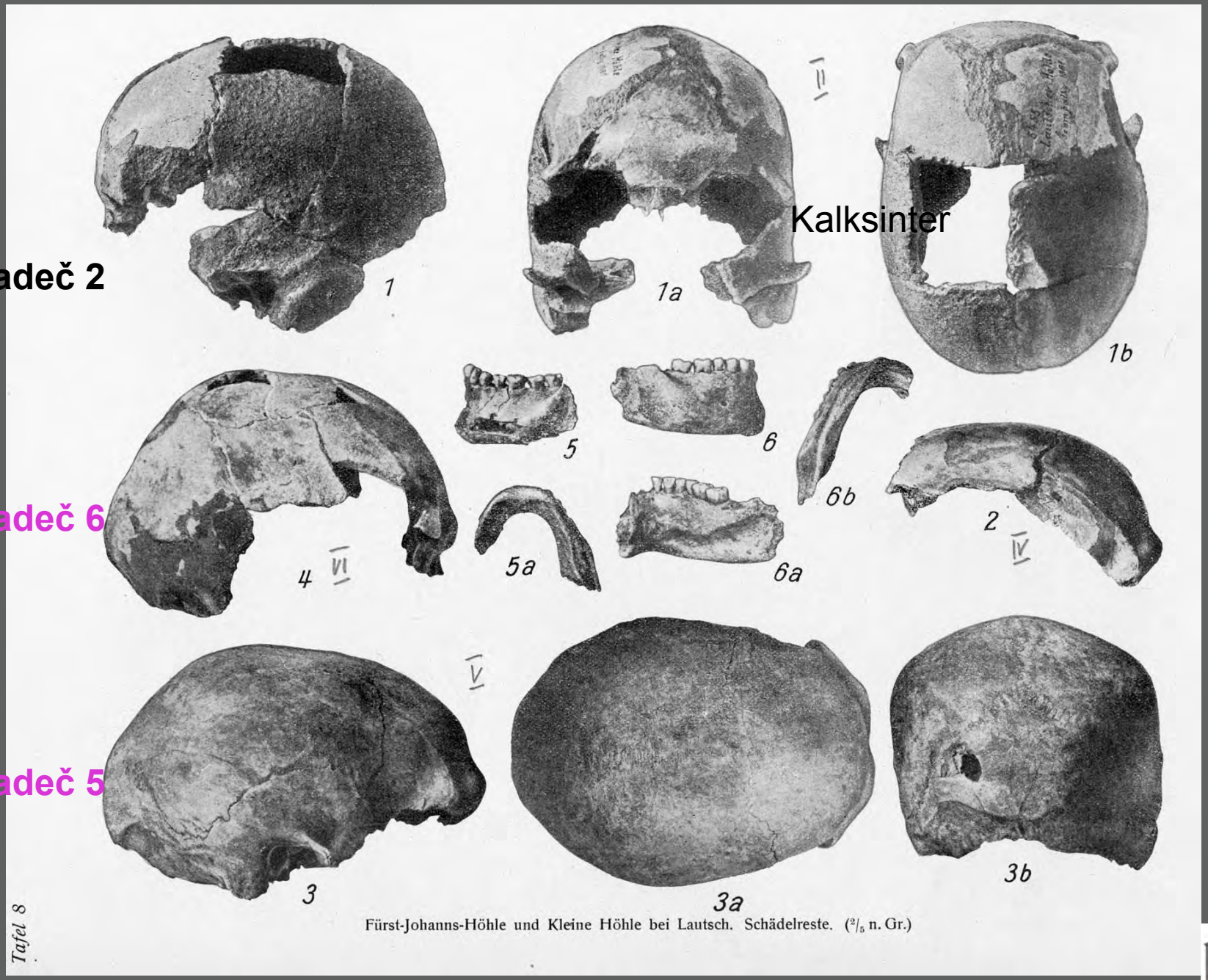
The Upper Palaeolithic finds from the Mladeč caves: the remains

Mladeč 2

Kalksinter

Mladeč 6

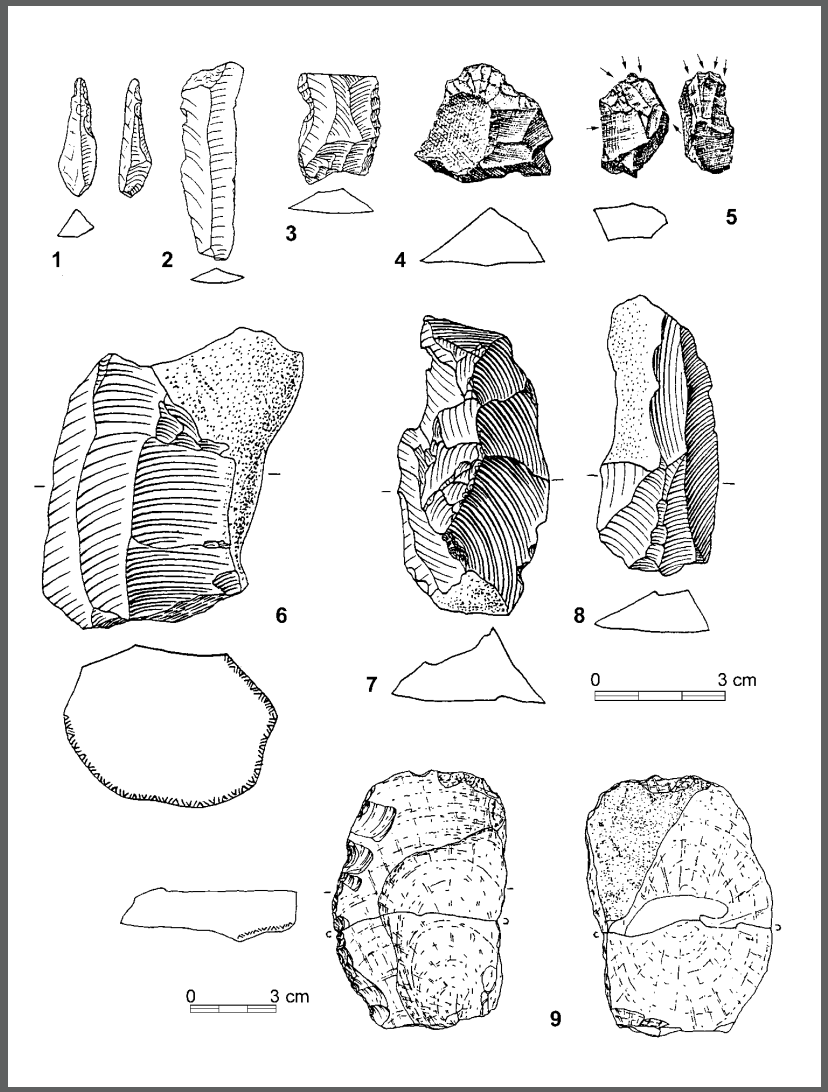
Mladeč 5

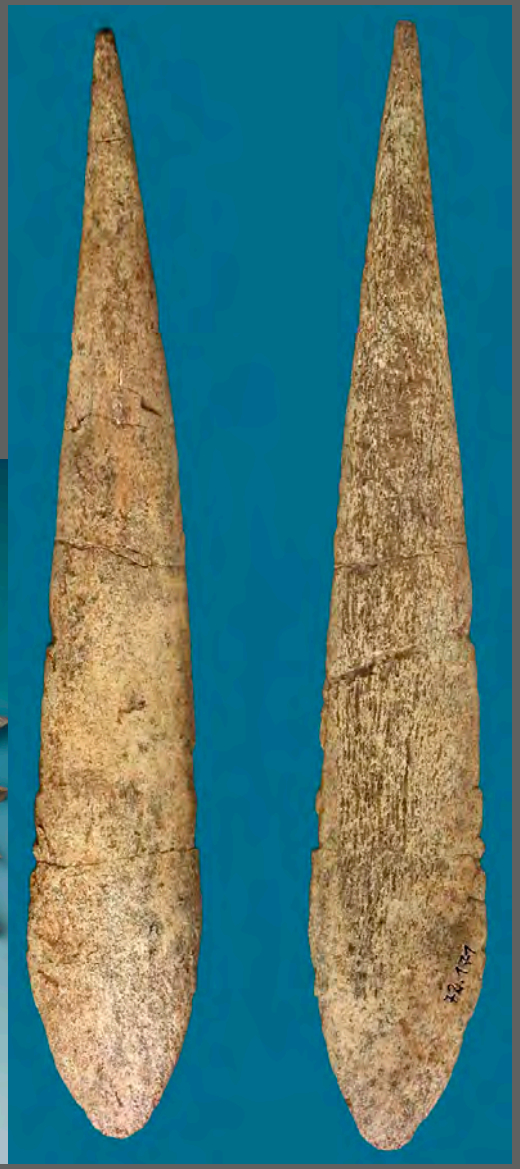


aus Szombathy, 1925, Die diluvialen Menschenreste aus der Fürst-Johanns-Höhle bei Lautsch in Mähren

The Upper Palaeolithic finds from the Mladeč caves: the archaeological associations

Artefacts – „younger Aurigancian“





Bayer, J. (1922) Das Aurignac-Alter der Artefakte und menschlichen Skelettreste aus der Fürst Johanns Höhle bei Lautsch in Mähren. MAG 52,173-185.

The Upper Palaeolithic finds from the Mladeč caves: the archaeological associations

Mladeč 27

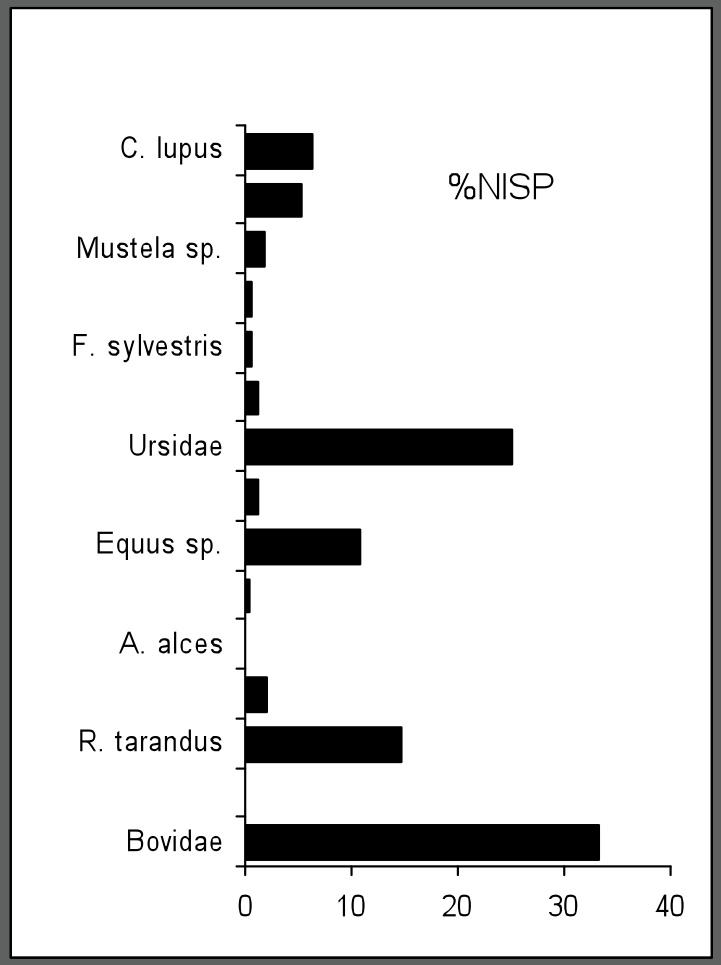
animal gnaw marks

Mladeč 25c

animal gnaw marks

The Upper Palaeolithic finds from the Mladeč caves: the archaeological associations

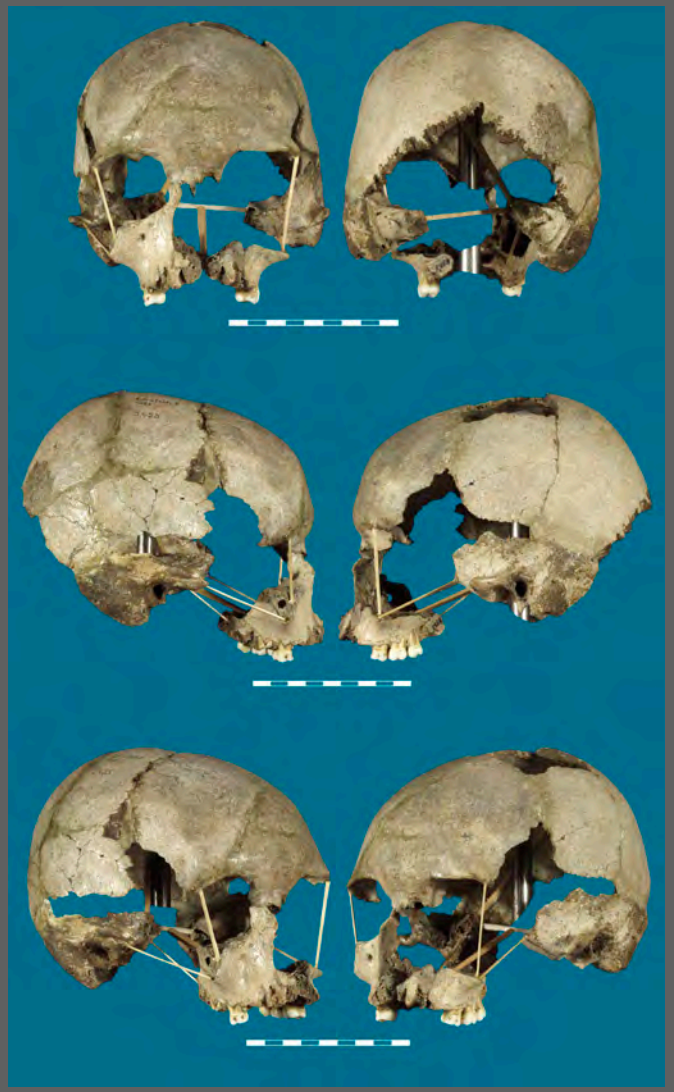
„Diluviale Fauna“ (Szombathy, 1882)

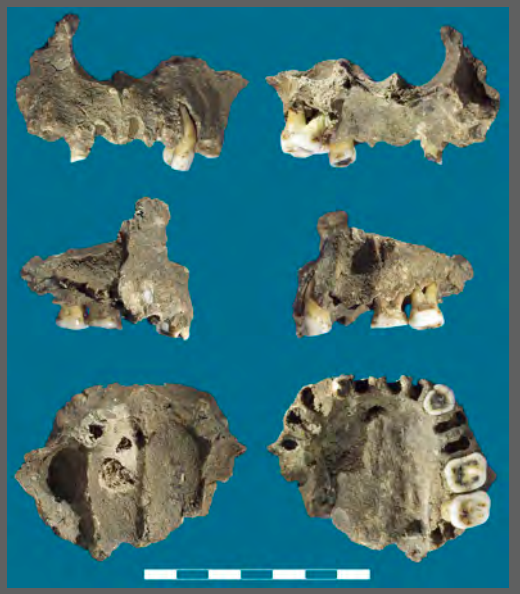


Percentage of total NISP for Large mammals from Mladeč (n. M. Pacher, 2005, in print)

The Upper Palaeolithic finds from the Mladeč caves: the human skull remains, NHM Vienna

Cranial remains, jaws and teeth of in minimum 5 individuals





Mladeč 1, female

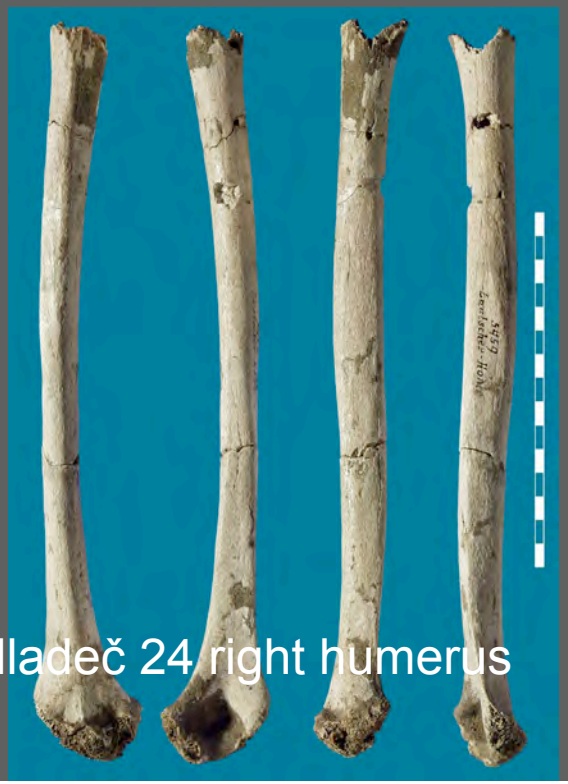
Mladeč 2, female

The Upper Palaeolithic finds from the Mladeč caves: the human postcranial remains, NHM Vienna

Mladeč 22 Mladeč 21

Mladeč 28, left Femur

Mladeč 30, left talus



Mladeč 24 right humerus

Mladeč 23, right humerus

Mladeč 25a, rechter Radius

Mladeč 25c, right ulna

The Upper Palaeolithic finds from the Mladeč caves: the human cranial remains, Moravske Muzeum

Mladeč 5, male



Mladeč 6, male (cast, original destroyed)



sagital contour, occiptal bun….

Mladeč 5

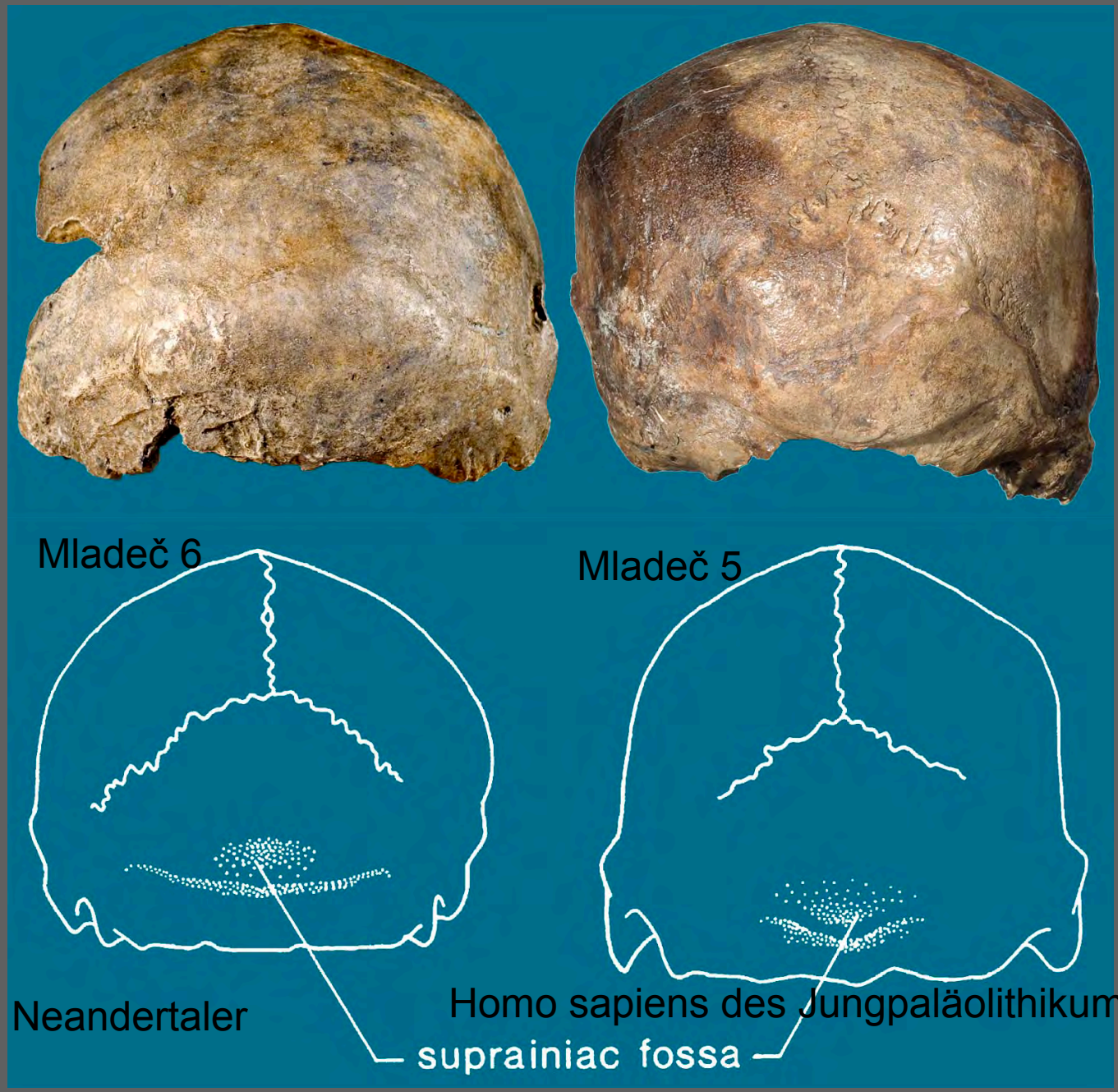
Mladeč 1

robust supraorbital region…

Mladeč 6

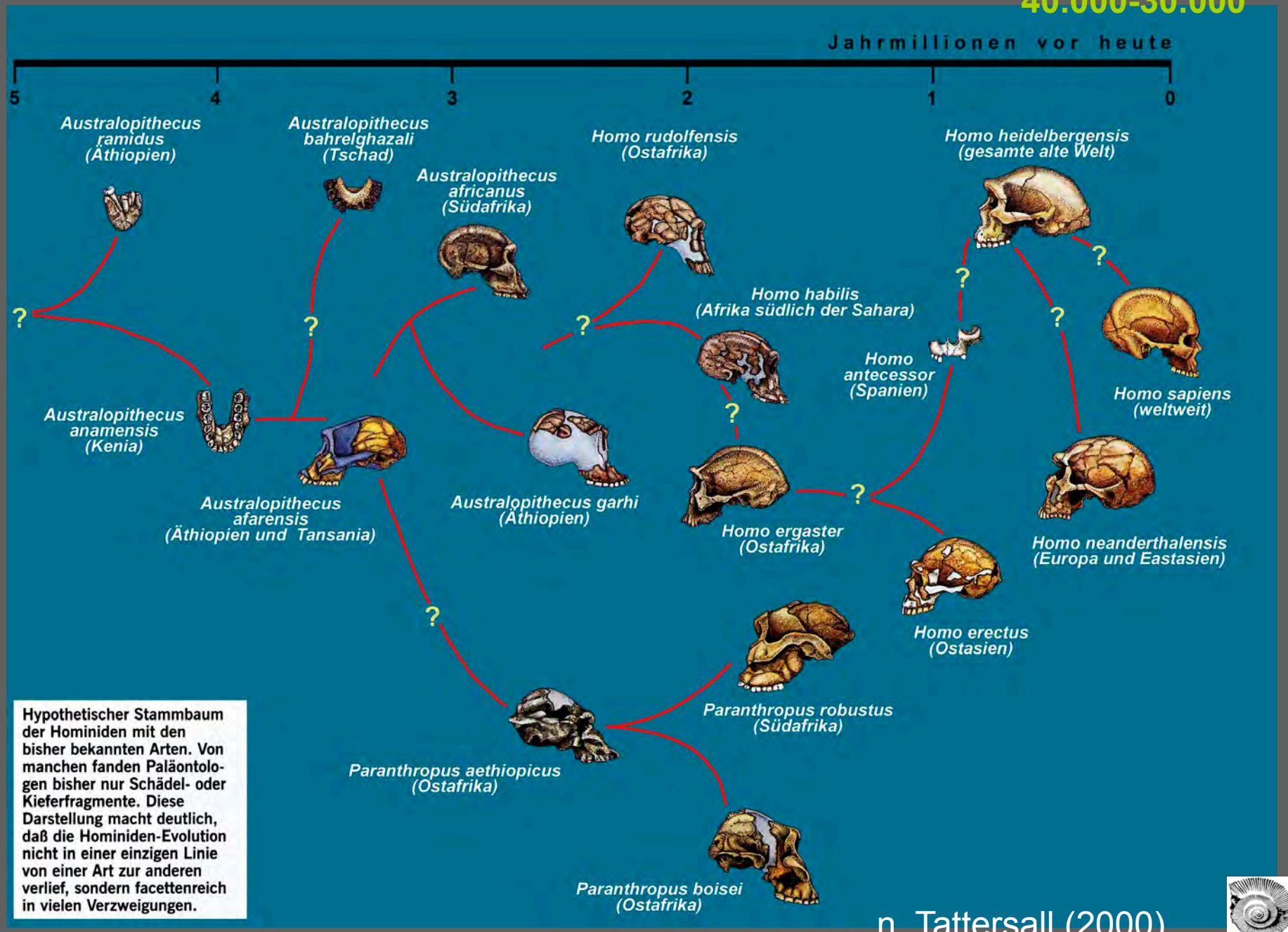
Mladeč 5

The Upper Palaeolithic finds from the Mladeč caves: indications of a Neandertal heritage?



Die jungpaläolithischen Funde von Lautsch (Mladeč)

40.000-30.000



Hypothetischer Stammbaum der Hominiden mit den bisher bekannten Arten. Von manchen fanden Paläontologen bisher nur Schädel- oder Kieferfragmente. Diese Darstellung macht deutlich, daß die Hominiden-Evolution nicht in einer einzigen Linie von einer Art zur anderen verlief, sondern facettenreich in vielen Verzweigungen.

n. Tattersall (2000)

Human remains from Mladeč are central to the ongoing debate about the evolution and spread of early European Upper Paleolithic humans

Multiregional Model (Wolpoff et al. 1984)

Out-of-Africa Model I (Afro-europäische Sapiens-Hypothese, Bräuer 1984)

Out-of-Africa Model II (Rezentes Afrika-Evolutionsmodell, Stringer/Andrews 1988)

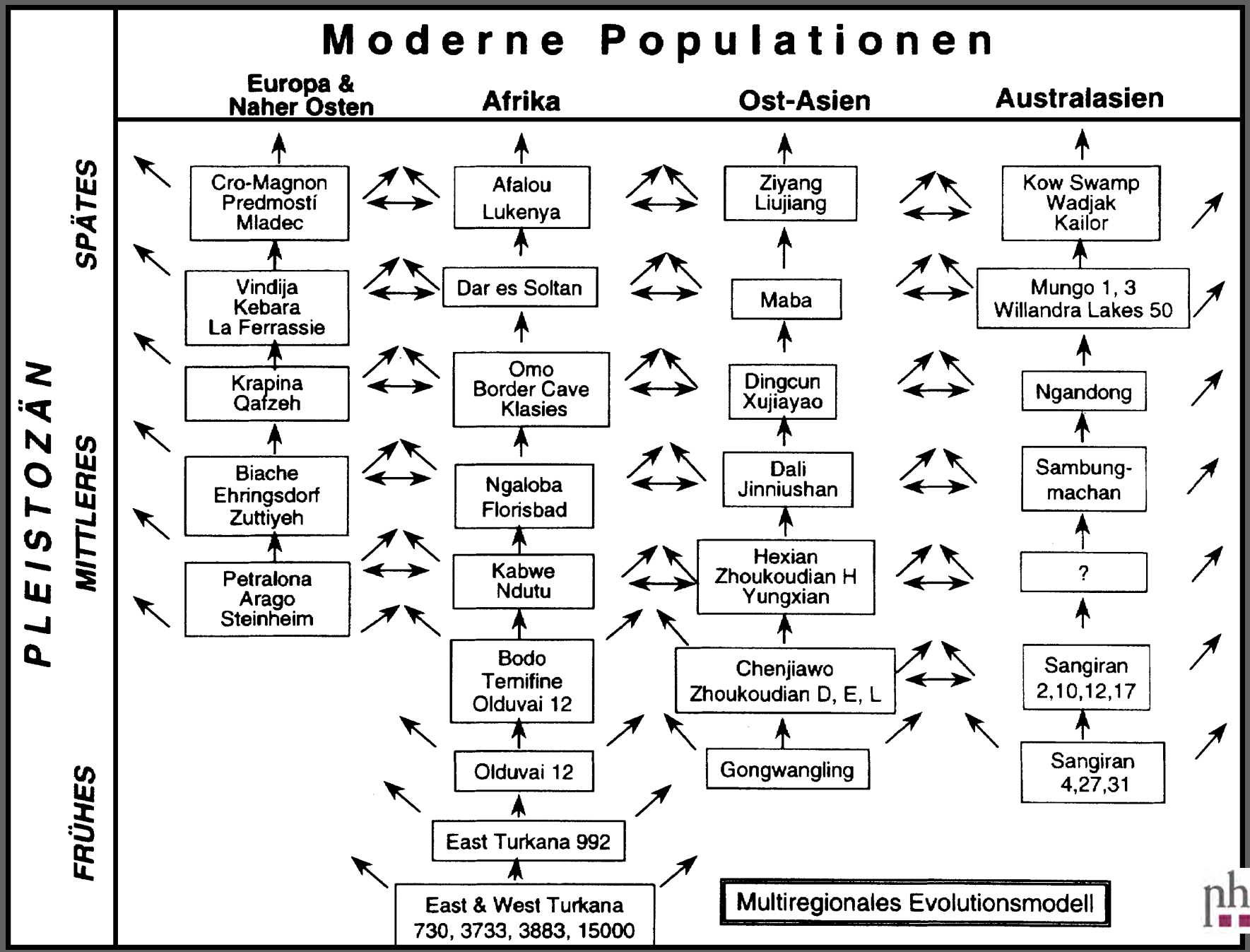
The multiregional model

•The Multiregional evolution model (Wolpoff und Thorne, 1984) originates in the gradualistic theory formulated by Weidenreich. It assumes that the traces of modern populations date back to the time, when humans left Africa for the first time (approx. 1 Mio years ago).

•It is based on gene flow. It rests on the contention that human populations have been systematically exchanging genes throughout their evolution and thereby incorporates the ethnogenic tenet that populations eventually either became extinct, split apart, or merge with other populations.

•The gradualistic evolution in Europe includes gene flow between Neandertals and early Upper Pleolithic humans. Permanent intermixture avoided speciation and caused a worldwide uniform trend.

•In actuality, the evidence for regional continuity is based on a decreased, but substantial frequency of Neandertal features in the later population.


Moderne Populationen
Europa & Naher Osten
Afrika
Ost-Asien
Australasien
PLEISTOZÄN
SPÄTES
MITTLERES
FRÜHES
Cro-Magnon
Predmostí
Mladec
Vindija
Kebara
La Ferrassie
Krapina
Qafzeh
Biache
Ehringsdorf
Zuttiyeh
Petralona
Arago
Steinheim
Afalou
Lukenya
Dar es Soltan
Omo
Border Cave
Klasies
Ngaloba
Florisbad
Kabwe
Ndutu
Bodo
Ternifine
Olduvai 12
Olduvai 12
East Turkana 992
East & West Turkana
730, 3733, 3883, 15000
Ziyang
Liujiang
Maba
Dingcun
Xujiayao
Dali
Jinniushan
Hexian
Zhoukoudian H
Yungxian
Chenjiawo
Zhoukoudian D, E, L
Gongwangling
Kow Swamp
Wadjak
Kailor
Mungo 1, 3
Willandra Lakes 50
Ngandong
Sambung-
machan
?
Sangiran
2,10,12,17
Sangiran
4,27,31
Multiregionales Evolutionsmodell

Out-of-Africa models

Based on complete or partial replacement; in this case a gene flow between the late archaic and anatomically modern humans is more or less excluded

Arguments: anatomical modern human appeared first in Africa (fossil remains from Border Cave, Klasies River Mouth, Blombos Cave, Omo; Skhul)

Two sub-models are distinguished:

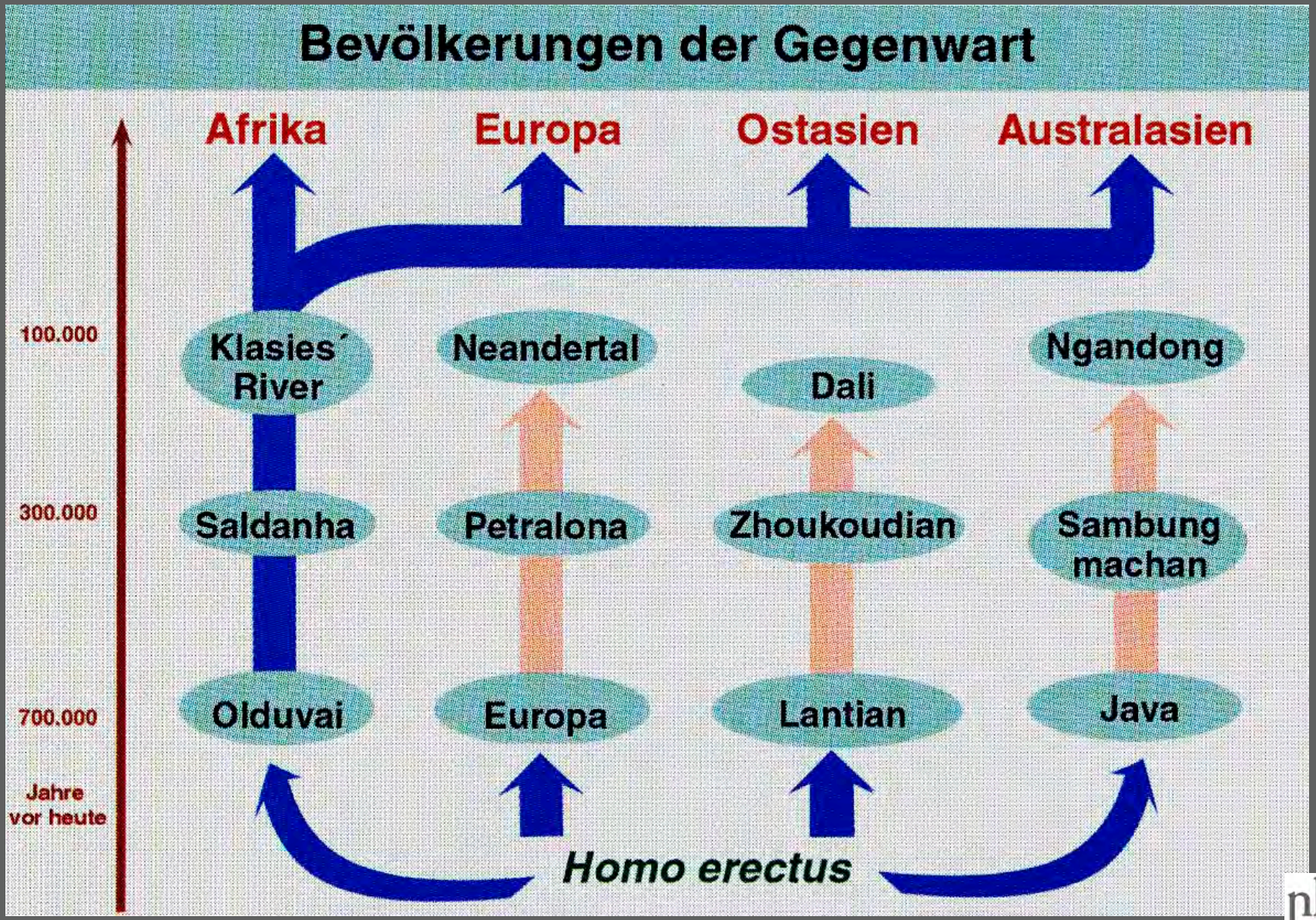
Out-of-Africa I (Afro-Europäische-Sapiens-Hypothese, Bräuer 1984) allows hybridisation of Neandertals and anatomically modern populations

Out-of-Africa II (Stringer und Andrews 1988) excludes hybridisation, the replacement was complete; for Neandertals it would mean that they died out without offsprings

Mladeč 5, 31.000 BP

Skhul V, Israel, ca. 80.000 BP

Out-of-Africa Modell I (+II), replacement model (Stringer 1992, mod.)

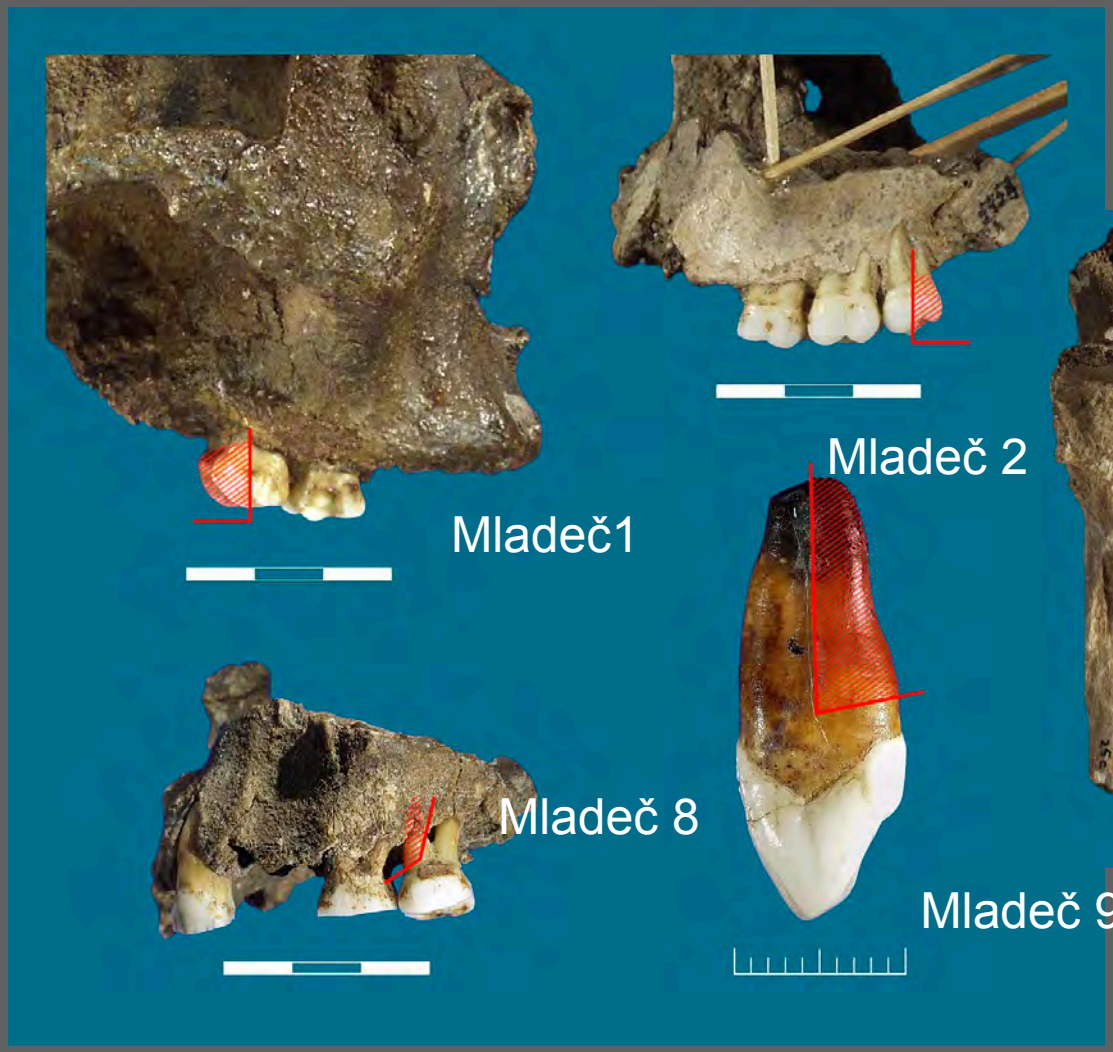


The Upper Palaeolithic finds from the Mladeč caves: indications of a Neandertal heritage?

Mladeč remains exhibit a conspicuous sexual dimorphism not only in their metrical dimensions or muscle insertions, but also in their morphological features concerning „Neandertal-similarity“.
Does this point to a phylogenetic relation or different evolutionary mechanisms, biological meaning or just sample size effect?

The Upper Palaeolithic finds from the Mladeč caves: dating

The absolute age of the Mladeč fossils is of central meaning for the further development of the evolutionary models



Radiocarbon ages determined for the human remains from the Mladeč site

Laboratory number	Sample name	Sample material	^{14}C-age[1] [BP]
VERA-2736	Mladeč 25c	ulna	26,330 ± 170
VERA-3073	Mladeč 1	right M2 distal half of the crown	31,190 +400/-390
VERA-3074	Mladeč 2	left M3 distal half of the crown	31,320 +410/-390
VERA-3075	Mladeč 8	left M2 mesial-buccal root	30,680 +380/-360
VERA-3076A	Mladeč 9a right maxillary canine	lingual half of the root (white coloured collagen)	31,500 +420/-400
VERA-3076B	Mladeč 9a right maxillary canine	lingual half of the root (brown coloured collagen)	27,370 ± 230

Excluded from the Aurignacian sample by AMS dating:

Velika Pećina (Smith et al. 1999), Hahnöfersand (Terberger et al. 2001), Vogelherd (Conard et al. 2004) wurden in das Holozän datiert !!!!

Koněprusy (Svoboda et al. 2003) in das Magdalenien

Cro Magnon (Henry-Gambier 2002)) und La Rochette (Orschiedt 2002) in das Gravettien

Successfully placed to the Aurignacian (but no archeological association) :

Peştera cu Oase (Rumänien, Trinkaus et al. 2003): 35 ka BP

Kent´s Cavern 4 (U.K., Stringer 1990): 31 ka BP

Peştera Muierii (Rumänien, Păunescu 2001): 30 ka BP

Peştera Cioclovina (Rumänien, Păunescu 2001): 29 ka BP

Pestera overlaps with younger Neandertals

Vindija (Kroatien) (Smith et al 1999);

Arcy-sur-Cure (Frankreich) (Hublin et al. 1996);

Zafarraya (Spanien) (Hubin et al. 1995);

Saint-Cesaire (Frankreich) (Mercier et al. 1991)

The Upper Palaeolithic human skeletal remains from Austria

Willendorf 1 und 2

Willendorf 1 (Station Willendorf I, Ziegelei Brunner), rechtes Femurschaftstück, zwischen 1883-1887 von F. Brun aufgesammelt, kein stratigraphischer Zusammenhang, Radiocarbondatierung ca. 24.000 B.P.

Woldřich, J. (1893). Reste diluvialer Faunen und des Menschen aus dem Waldviertel Niederösterreichs in den Sammlungen des k.k. Naturhistorischen Hofmuseums in Wien. Denkschr. d. math.-nat.Classe der kaiserl. Akad. d. Wiss. 60, 565-634.

Willendorf 2 (Station II), Manibulabruchstück, von J. Szombathy, J. Bayer und H. Obermaier, 1908/1909 aus der Schicht 9 geborgen. Zeitpunkt der Auffindung nicht dokumentiert, lt. Szombathy (1910): menschliche Skelettfunde wären nur *„in ganz verschwindendem Maße gefunden worden. Kein Grab, kein zusammenhängendes Skelett. Nur unter den in der Schicht 9 (II) gesammelten Knochen ein dem Menschen zugehöriges Bruchstück: Ein Unterkieferfragment“.*

Teschler-Nicola, M. & Trinkaus, E. (2001). Human remains from the Austrian Gravettian: the Willendorf femoral diaphysis and mandibular symphysis. J. Hum. Evol. 40, 451-465.

nhm

Spitz-Mießlingtal

Erster Fund 1896 am nordöstlichen Ortsende von Spitz bei Bauarbeiten: 1 fast vollständiges menschliches Skelett (zerstört), Artefakte

1914 durch Josef Bayer Nachgrabungen, 3 Bruchstücke eines Unterkiefers und einige lose Zähne eines subadulten Individuums

Szombathy, J. †(1950). Der menschliche Unterkiefer aus dem Mießlingtal bei Spitz, N.-Ö. Arch. Austriaca 5, 1950.

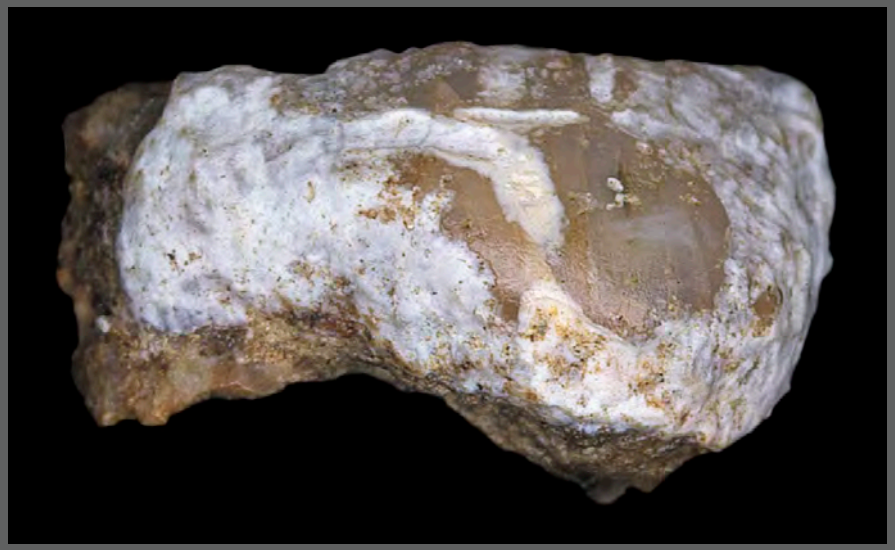
Aggsbach, Lower Austria - Gravettian

Fragment of a deciduous molar

The Upper Palaeolithic human skeletal remains from Austria

Grub/Kranawetberg (Stillfried)

Linker maxillarer zweiter Milchschneidezahn
GK 96/634, Hauptkulturstreuung aus Q E
10, über dem eigentlichen Herdbereich



Rechter unterer erster Milchmolar GK 98/4028, nördlich der Feuerstelle und außerhalb der dokumentierten Standspuren

Beide Objekte aus dem Schlämmrückstand

Antl-Weiser, W. & Teschler-Nicola, M. (2000/2001). Die menschlichen Zahnfunde von der Gravettienfundstelle Grub/Kranawetberg bei Stillfried an der March, Niederösterreich

Important Upper Paleolithic open air sites of Lower Austria

Aim of the „Palaeolith Research Program“ of the Prehistoric Commission of the Austrian Academy of Sciences

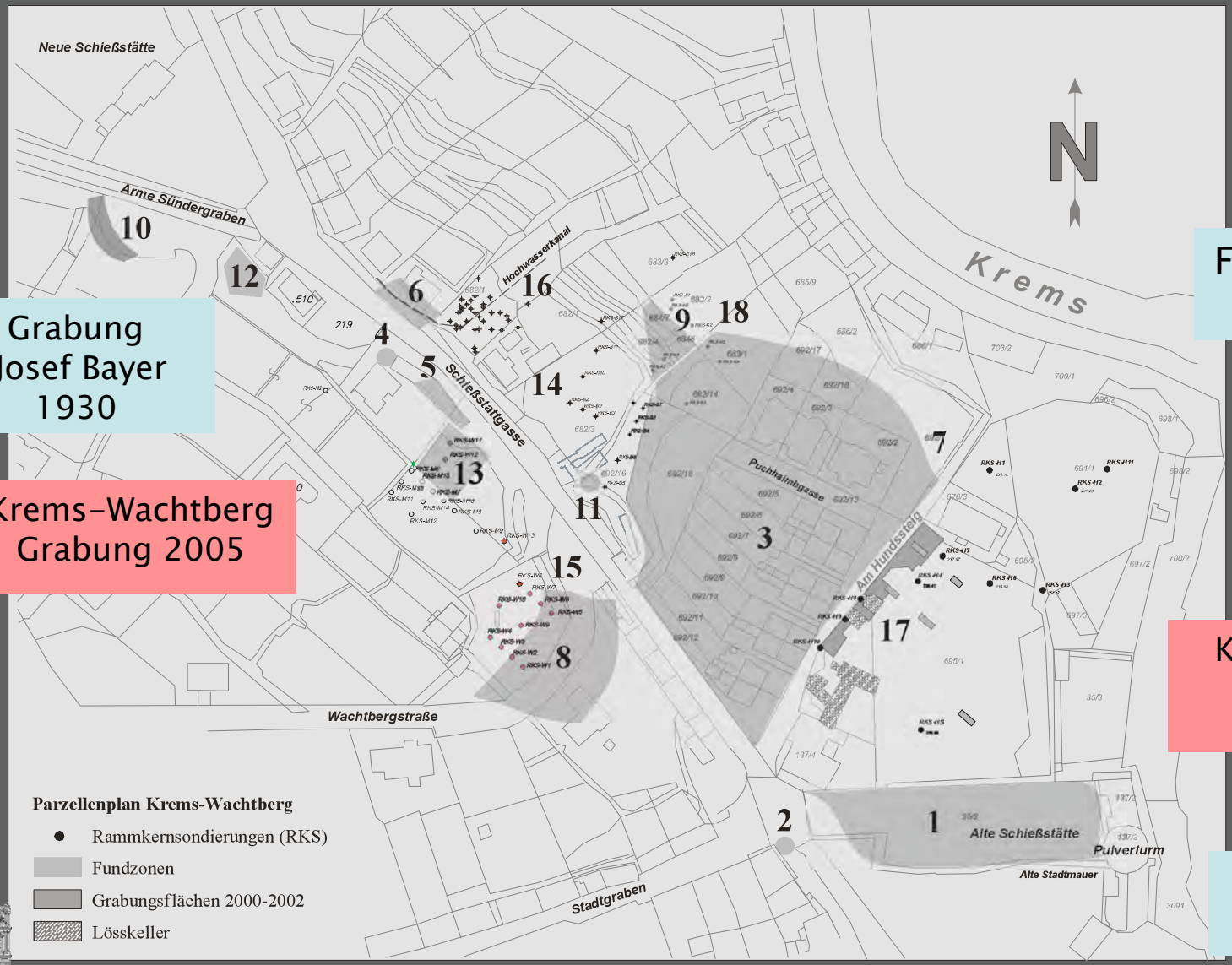
- **Prospection of the known sites (“Update”) and systematic screening of potential areas in Lower Austria**
- **Verification of stratigraphic relations**
- **Obtaining samples for scientific analysis (e.g. 14C, Sedimentology, Malacology)**
- **Reconstruction of settlement patterns and to provide information about spatial organisation of specific camp sites**

2000-2004: **“Paleolithic industries before the last glacial maximum, between 32.000 and 20.000 BP – archeological and paleoecological aspects”**
FWF P-13.780 SPR
Director: H. Friesinger, project manager: Christine Neugebauer-Maresch

2005-2006: **“Gravettian Settlement Patterns in Krems, Lower Austria”**
FWF P-17258 G02
Project Manager: Christine Neugebauer-Maresch, Field Director: Thomas Einwögerer

Paleolithic sites at Krems

Krems-Hundssteig und Krems-Wachtberg



Grabung
Josef Bayer
1930

Krems-Wachtberg
Grabung 2005

Fundareal von
1893-1904

Krems-Hundssteig
Grabung
2000-2004

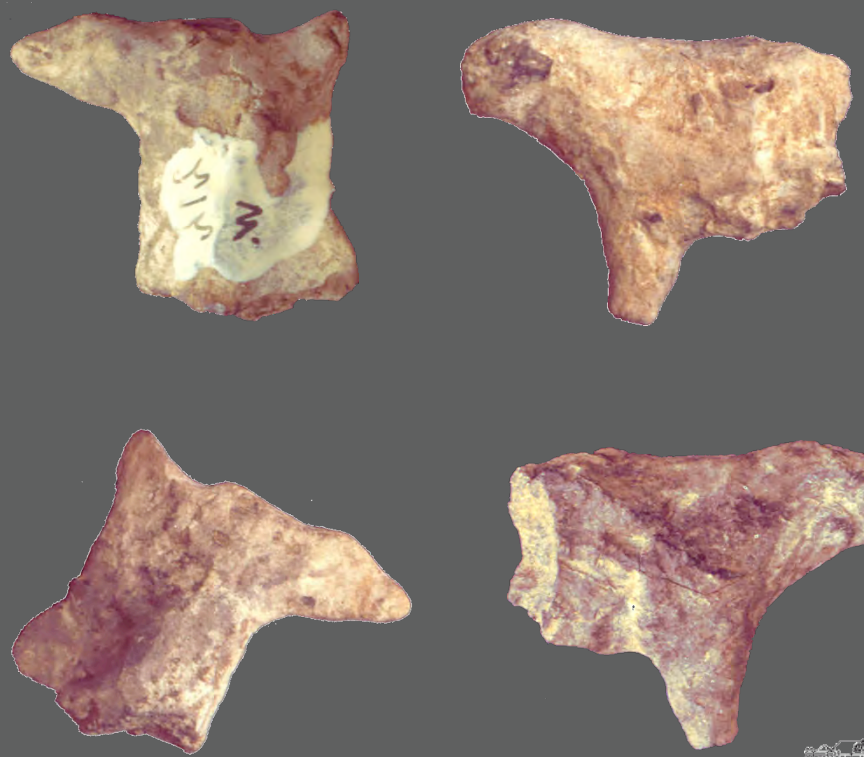
Mammut
1645

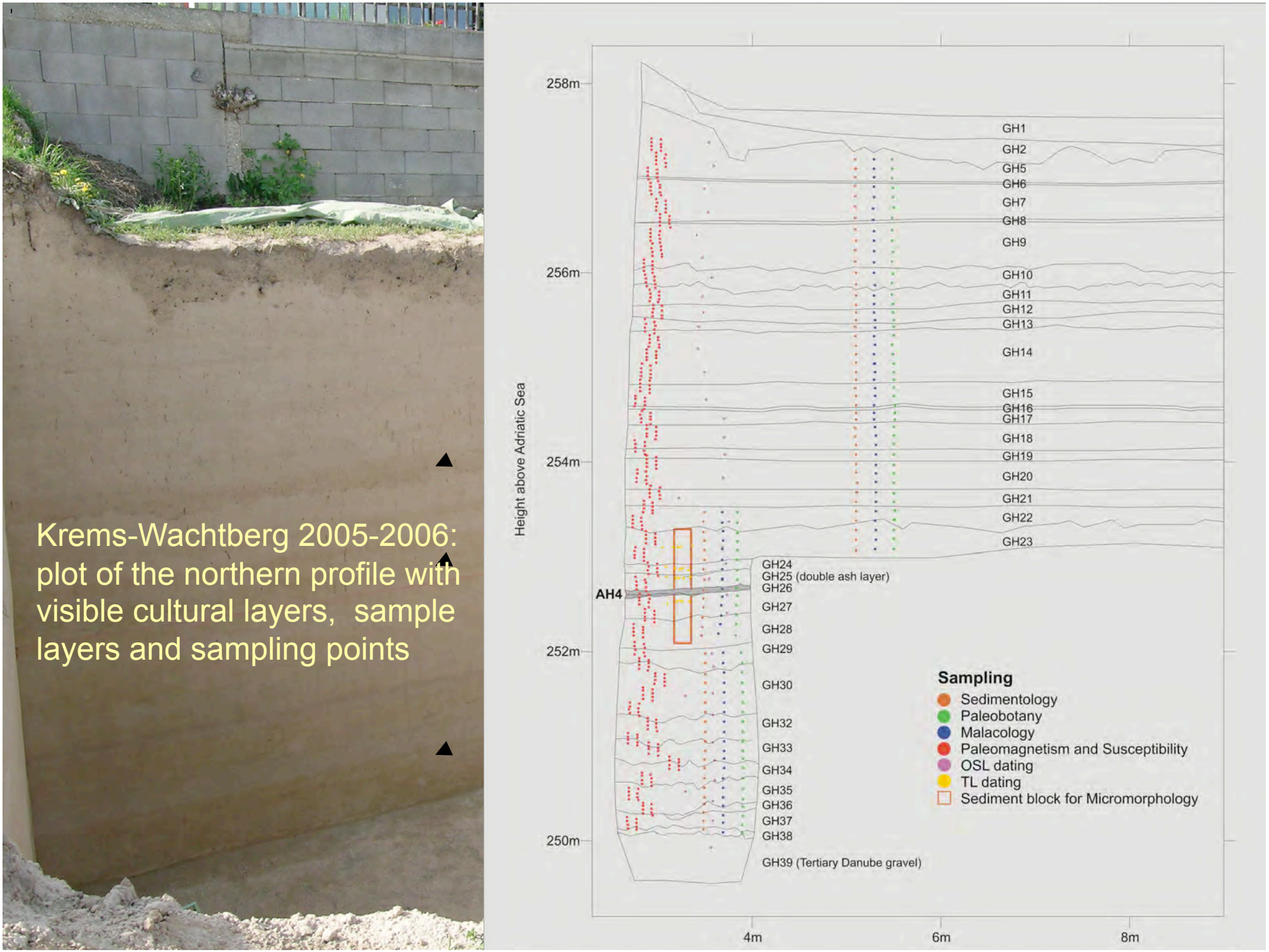
Test-drilling in 2000 and 2002

Krems-Wachtberg

Recovering of a mammut at the Gravettian open air site Wachtberg in Krems by Josef Bayer (1930)

Clay figurines similar to the objects found at Pavlov und Dolni Věstonice (unrecognised till 1995)




Krems-Wachtberg 2005-2006: plot of the northern profile with visible cultural layers, sample layers and sampling points
Height above Adriatic Sea
258m
256m
254m
252m
250m
GH1
GH2
GH5
GH6
GH7
GH8
GH9
GH10
GH11
GH12
GH13
GH14
GH15
GH16
GH17
GH18
GH19
GH20
GH21
GH22
GH23
GH24
GH25 (double ash layer)
GH26
AH4
GH27
GH28
GH29
GH30
GH32
GH33
GH34
GH35
GH36
GH37
GH38
GH39 (Tertiary Danube gravel)
4m
6m
8m
Sampling
Sedimentology
Paleobotany
Malacology
Paleomagnetism and Susceptibility
OSL dating
TL dating
Sediment block for Micromorphology

The Upper Palaeolithic human skeletal remains from Austria

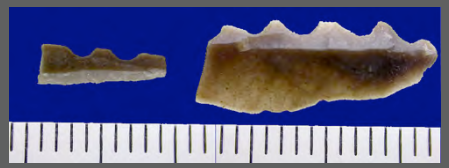
Archaeological horizon 4

C14-Data Poz-12920: 26580 +/- 160 BP

The Upper Palaeolithic human skeletal remains from Austria

Gebranntes Tonstück

Durchlochte Zähne von Polarfuchs

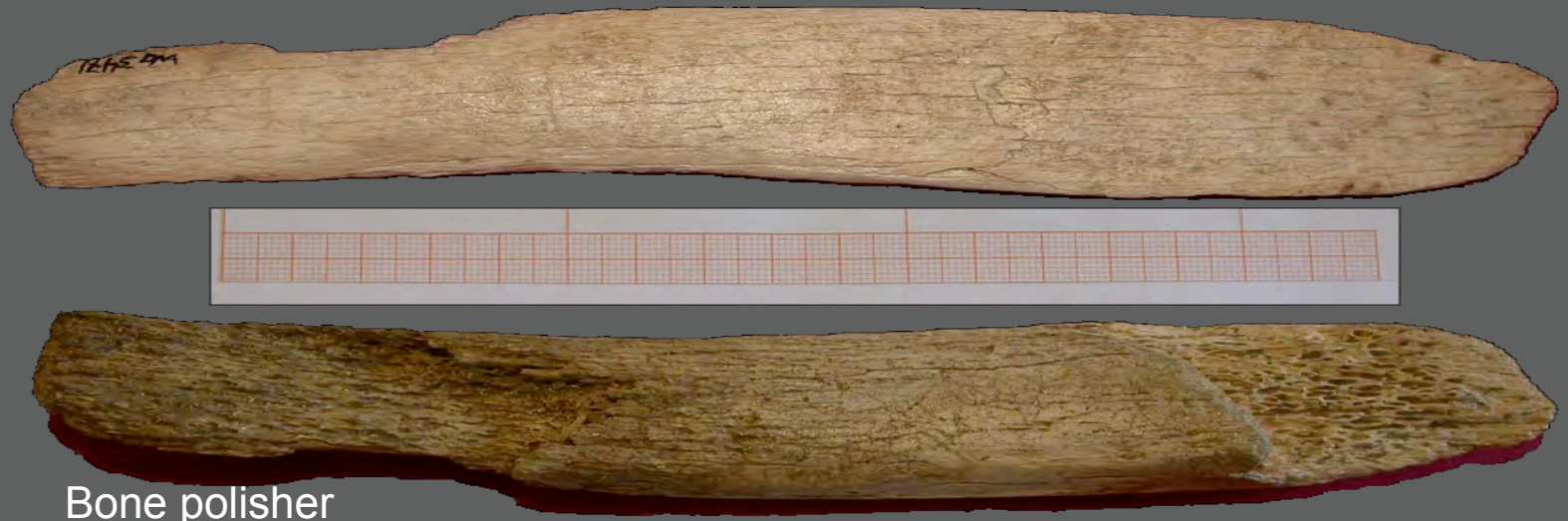


Mikrosägen

Gravette Spitzen

Schaber

Elfenbeinnadeln

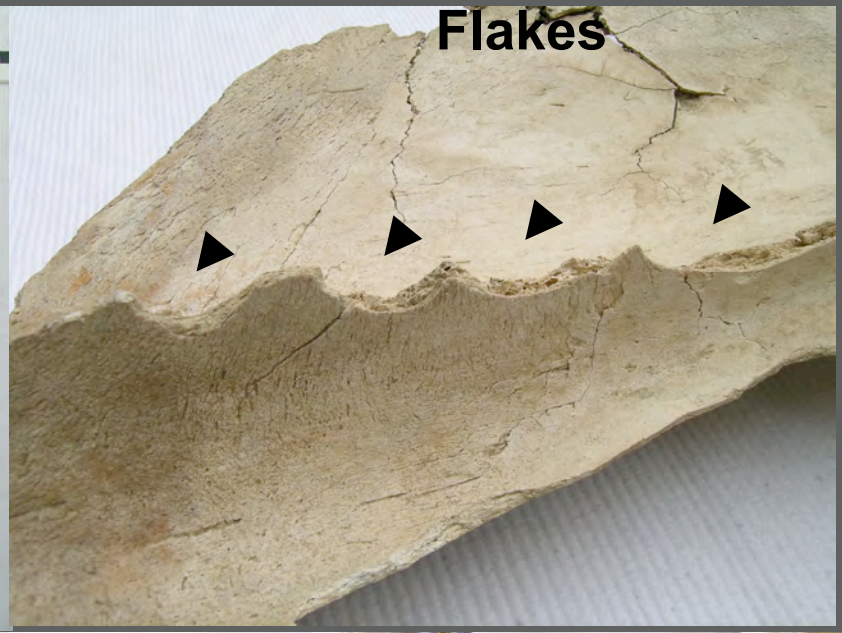


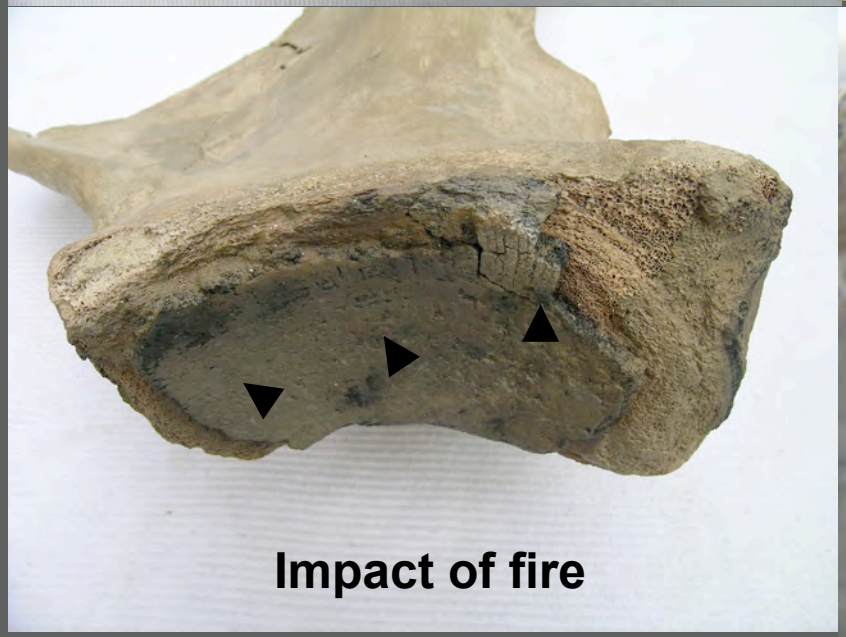
Bone polisher

The Upper Palaeolithic human skeletal remains from Austria

Discovery of the mammoth shoulder blade

The Upper Palaeolithic human skeletal remains from Austria





The Upper Palaeolithic human skeletal remains from Austria

Krems-Wachtberg burial 1:
double burial

The Upper Palaeolithic human skeletal remains from Austria

The Upper Palaeolithic human skeletal remains from Austria

The Upper Palaeolithic human skeletal remains from Austria

A

nhm

B

The Upper Palaeolithic human skeletal remains from Austria

K-WA Individuum A: rechtes Os ilium (FNo. 18148) (ventral und dorsal)

K-WA Individuum A: rechtes Femur (FNo. 18142) (von posterior und anterior)

K-WA Individuum B: linke Clavicula (FNo. 18202 (von caudal und cranial)

The Upper Palaeolithic human skeletal remains from Austria

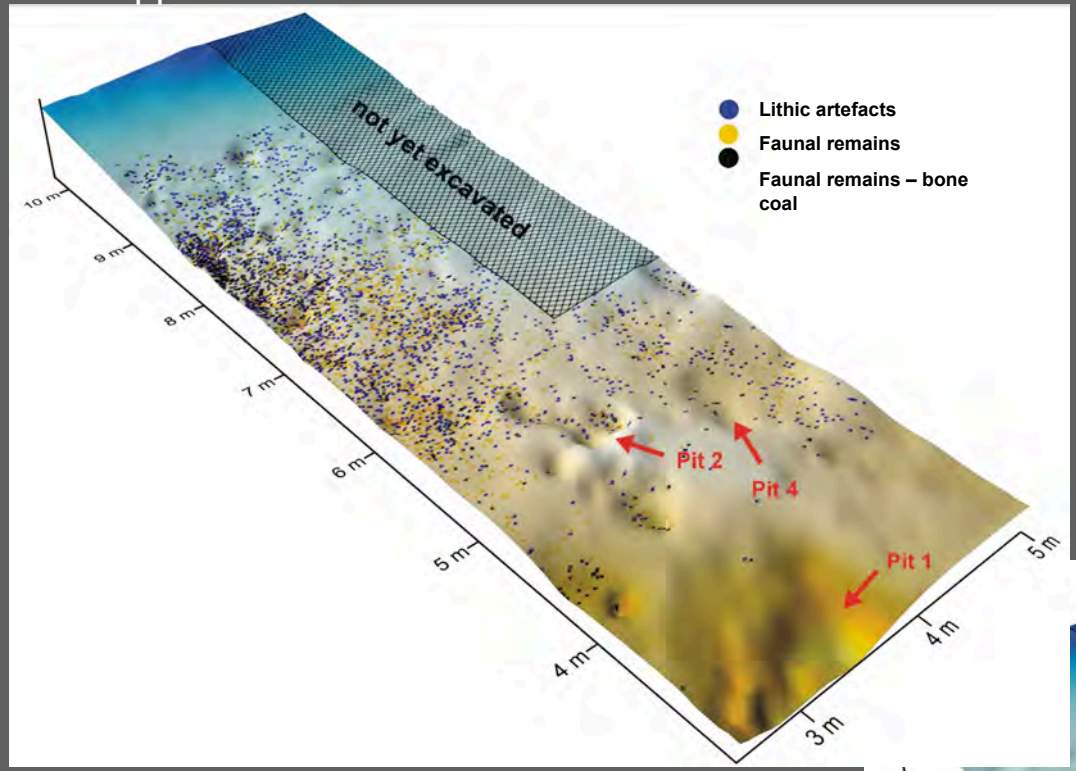
K-WA Individuum A: linke Gehörknöchlchen (Amboß und Hammer; FNo. 18140)

The Upper Palaeolithic human skeletal remains from Austria

K-WA Individuum B: max. rechter zweiter Milchschneidezahn (K-WA FNo.18139)

K-WA FNo.18158

K-WA FNo.18159



Krems-Wachtberg 2005-2006:

Surface models showing two subsequent phases of the main find layer.

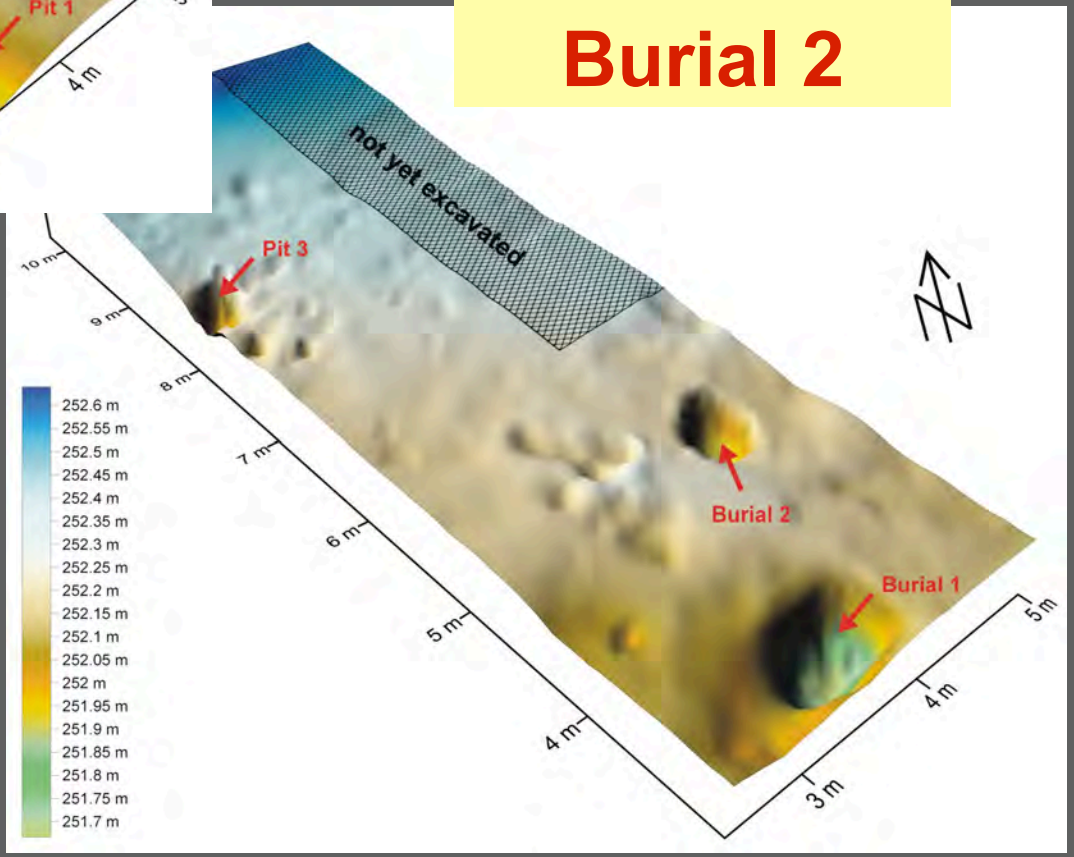
New discovery of sommer 2006:

Burial 2

Living floor with the distribution of silex and faunal remains as well as the documented pits.

Begehungshorizont, Silexverteilung, Tierknochen, Gruben

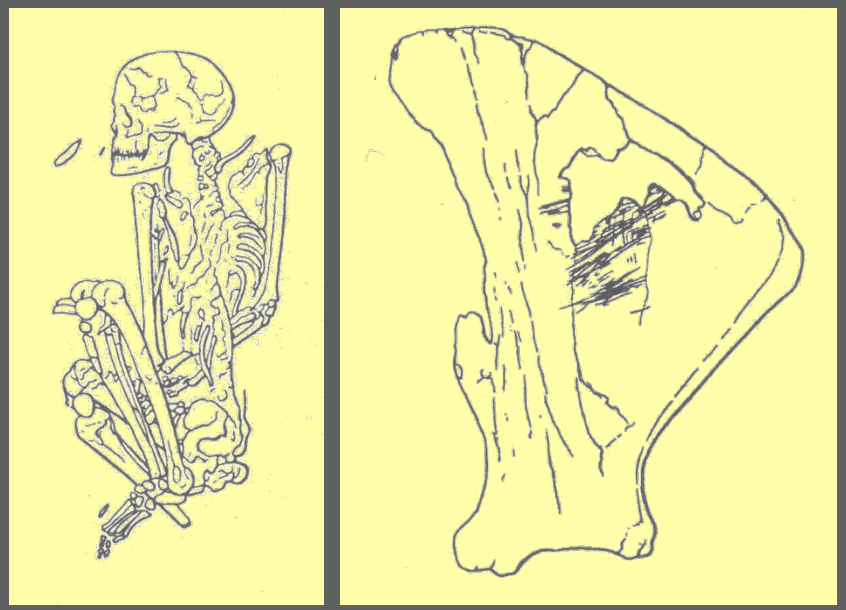
Stratigraphically older features: Pit 3, (Double-) Burial 1 and Burial 2.



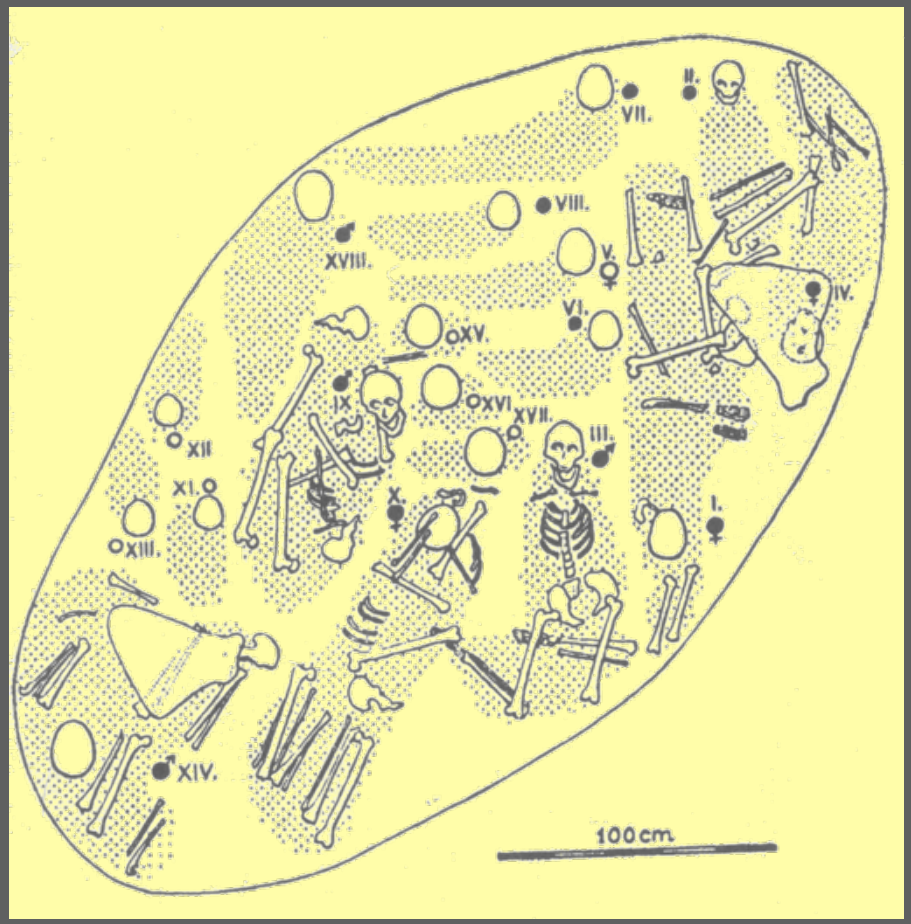
Burial 2, 2006


Burial 2, after the recovering
nhm

Mineralization of the tooth fragment points to an age-at-death between 0-3 month



Dolní Věstonice III
Burial of a female, covered by a mammut scaplula



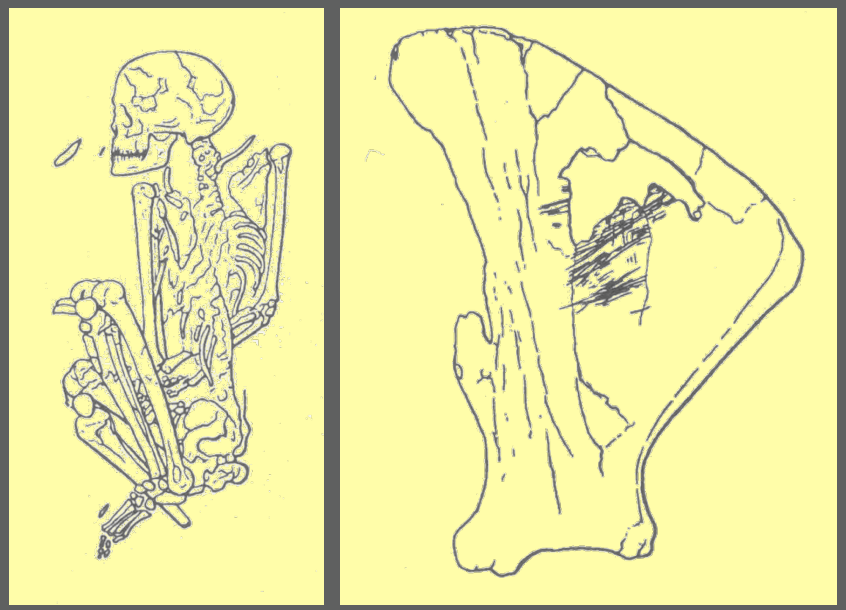
Předmostí, mass grave
(rekonstruction)

Summary

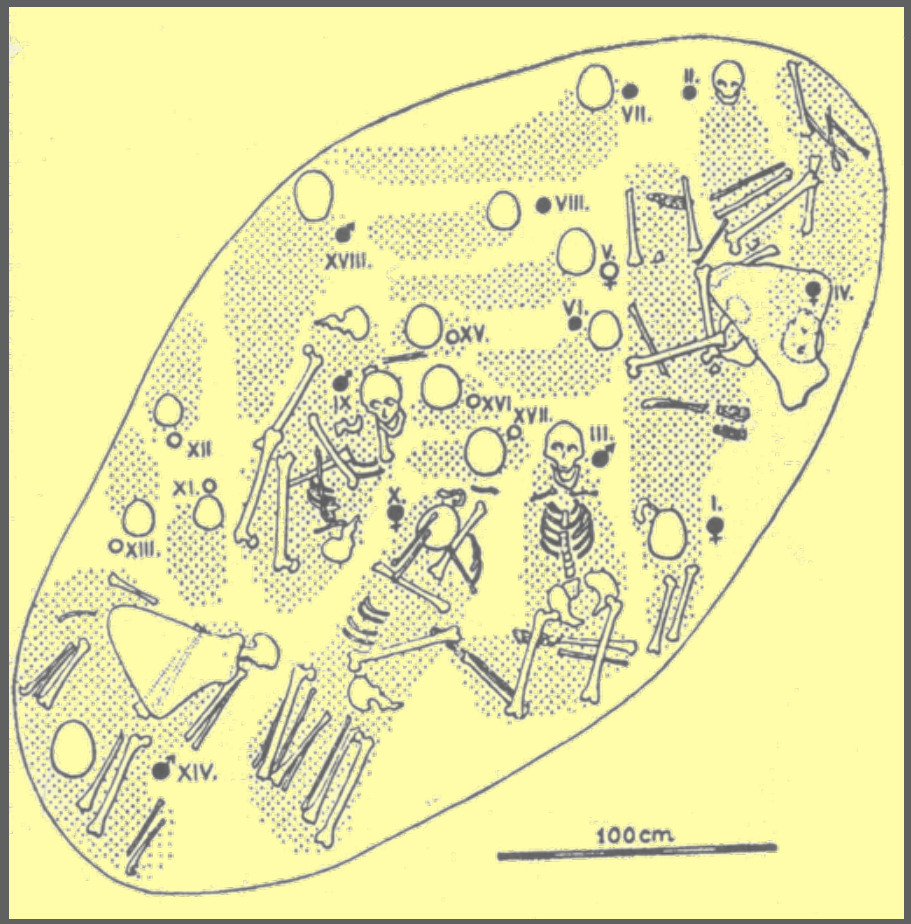
1. Krems-Wachtberg is an extraordinary rich and well preserved open air site of the Gravettian
2. The finds confirmed the close relation to the contemporaneous south Moravian sites (burial rituals, symbolic activities, use of red ochre, grave good as ivory beads, and the practice of covering the grave with a mammoth shoulder blade).
3. While Upper Paleolithic graves of adults are better documented, burial evidences of younger pre-adolescents are rare. The Krems finds demonstrate that newborns were already considered full members of the hunter-gatherer communities 27,000 years ago.
4. The finds of human remains enlarge our sparse sample of Upper Paleolithic human fossil remains in Austria and add to our knowledge on morphology and ontogeny of early modern humans in Europe.

Situation in 2008

It´s going on……



Dolní Věstonice III
Bestattung einer Frau,
Ebenfalls mit einem Mammut Schulterblatt bedeckt



Předmostí, Massengrab
(Rekonstruktion)

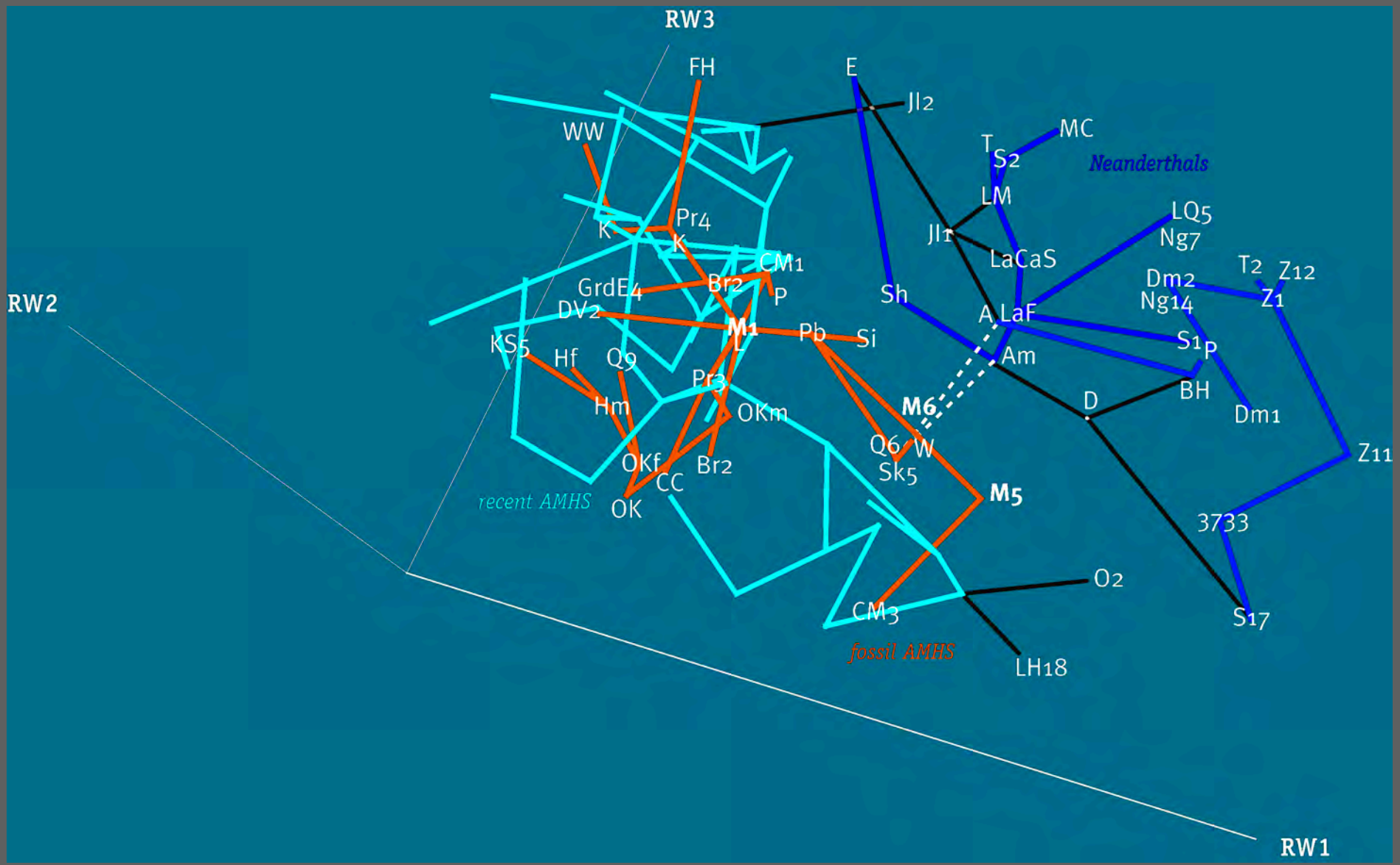
3D-Laserscanning: Department of Anthropology, University of Vienna

3D Modell nach Laser-scan

(Mag. Thomas Bence Viola, Andrea Stadlbauer, Department for Anthropology, University of Vienna)

The Upper Palaeolithic human skeletal remains from Austria

September/October 2008


RW3
RW2
RW1
FH
E
Jl2
WW
MC
T
S2
Neanderthals
LM
Pr4
K
K
Jl1
LQ5
Ng7
LaCaS
CM1
T2
Z12
Dm2
GrdE4
Br2
P
Sh
Z1
Ng14
DV2
A
LaF
M1
Pb
Si
S1
P
KS5
Hf
Q9
L
Am
Pr3
BH
D
Hm
M6
OKm
Dm1
Q6
W
Z11
OKf
Br2
Sk5
CC
M5
recent AMHS
OK
3733
O2
CM3
S17
fossil AMHS
LH18

Number-Identification-Estimated age-Location in cave-Discovered-Repository

1 Female cranium 17 Chamber D, Locus a 1881, NHM
2 Female cranium 18 Chamber D, Locus b 1881, NHM
3 Cranial remains 2–3 Chamber D, Locus b 1881, NHM
4 Frontoparietal fragment Adult Chamber E, Locus e 1922 Destroyed 1945
5 Male calotte Adult Quarry Cave 1904, MMB
6 Male calotte Adult Quarry Cave 1904, Destroyed 1945
7 Maxilla (joined to Mladeč 2)
8 Male maxilla: right I2, left C, M1–2 Adult Chamber D, Locus d 1882, NHM
9 Right maxillary C & P3 Adult Chamber D 1882, NHM
10 Right maxillary M3 Adult Chamber D, Middle 1882, NHM
11 Cervical vertebra (C3, C4 or C5) Adult Chamber D, Middle 1882, NHM
12 Left rib 1 Adult Chamber D, Locus b or d 1881 or 2, NHM
13 Right fragmentary clavicle? Adult/immature Chamber D, Locus b or d 1881 or 2, NHM
14 Left fragmentary rib 2 or 3 Adult Chamber D, Locus b or d 1881 or 2, NHM
15 Left fragmentary rib 4, 5 or 6 Adult Chamber D, Locus b or d 1881 or 2, NHM
16 Right fragmentary rib 6, 7, 8 or 9 Adult Chamber D, Locus b or d 1881 or 2, NHM
17 Right fragmentary rib 9 or 10 Adult Chamber D, Locus b or d 1881 or 2, NHM
18 Right fragmentary rib 11 Adult Chamber D, Locus b or d 1881 or 2, NHM
19 Right fragmentary rib 11 or 12 Adult Chamber D, Locus b or d 1881 or 2, NHM
20 5 Rib fragments Adult Chamber D, Locus b or d 1881 or 2, NHM

21 Left ilium & ischium fragment Adult Chamber D, Locus d 1882, NHM
22 Right ilium & ischium fragment 14–15 Chamber D, Locus d 1882, NHM
23 Right proximal humerus Adult Chamber D, ?Locus b 1882, NHM
24 Right humerus diaphysis Adult Chamber D, ?Locus b 1882, NHM
25a Right proximal radius 14–15? Chamber D, Locus d 1882, NHM
25b Right radius diaphysis 14–15? Chamber D, Locus d 1882, NHM
25c Right proximal ulna 14–15? Chamber D, Locus d 1882, NHM
26 Left radius diaphysis Adult? Chamber D, ?Locus b 1882, NHM
27 Right femur diaphysis Adult Chamber D, Locus a 1881, NHM
28 Left proximal femur Adult Chamber D, Locus b or d 1882, NHM
29 Right tibia distal epiphysis < 18 Chamber D, ?Locus b 1881 or 2, NHM
30 Left talus Adult Chamber D, Locus d 1882, NHM
31 Right metacarpal 3 14–21 Chamber D, ?Locus b 1881 or 2, NHM
32 Left metatarsal 3 14–21 Chamber D, ?Locus b 1881 or 2, NHM
33 Pelvis (animal bone, excluded) Chamber D, Locus d 1882, NHM
34 Cervical vertebra (human?) Chamber D, Locus d 1882, NHM
35 “Finger bone" 14–21 Chamber D, ?Locus b 1881 or 2, NHM
36 Metatarsal 5 14–21 Chamber D, ?Locus b 1881 or 2, NHM
37 “Cranial rear" Young Adult Chamber E, Locus e 1922 Destroyed, 1945
38 Frontal fragment Adult Chamber E, Locus e 1922 Destroyed, 1945
39 Right parietal fragment Adult Chamber E 1903–1911, MMB
40 Left occipital/parietal fragment Subadult or young adult Chamber E 1903–1911, MMB

Pathologie

Mladeč 5

Osteom

Perisinusitis

Verletzungen