EN EL CENTENARIO DE
LA CUEVA DE EL CASTILLO:
EL OCASO DE LOS NEANDERTALES

Centro Asociado a la Universidad Nacional de
Educación a Distancia en Cantabria

2006
THE MIDDLE-UPPER PALAEOLITHIC TRANSITION IN HUNGARY:
AN ANTHROPOLOGICAL PERSPECTIVE
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INTRODUCTION

Discussions about the fate of Neanderthals and the origin of anatomically modern humans focused attention on the fossil record from Western Europe, a key region with regard to the density of sites. Considering the Early Upper Palaeolithic industries in Western Europe, it is currently assumed that the equation Neanderthal -“transitional industry” (i.e. Chatelperronian, Uluzzian) and anatomically modern humans- Early Aurignacian, is the dominant model. Few scholars have questioned the fossil evidence in favour of associating Early Aurignacian industries with modern humans (Tillier 1990; Churchill & Smith 2000; Henry-Gambier 2002; Henry-Gambier et al. 2004). The goal of this paper is to present the archaeological record from Hungary and to analyse the pattern of evolution of Upper Pleistocene fossil hominids in this region separately from that of Western Europe.

It should be stressed that the Hungarian archaeological record is derived from sites that were excavated approximately between 1909 and 1970 and that they were mainly concentrated in Northern Hungary (fig. 1). Four sites in the Bükk Mountains have yielded fossil hominids that were fragmentary human remains (the Balla child being an exception to this rule). Interestingly, only one site is known from the Buda Mountains. An examination of the record leads us to express some uncertainties about the application of the predominant model employed in the interpretation of the cultural changes that have occurred at the beginning of Upper Palaeolithic to Hungary.

2. THE FOSSIL RECORD FROM THE BÜKK MOUNTAINS

1. The Suba-lyuk Mousterian hominids

The Suba-lyuk cave is located in the Hőr valley, nearby the Cserépfalu village, in the Borsod-Abaúj-Zemplén county. The stratigraphical sequence of Suba-lyuk consists of 18 layers (fig. 2) and 17 of them belong to the Upper Pleistocene
Fig. 1: Palaeoanthropological sites in Hungary. 1: Suba-lyuk; 2: Istállós-kő; 3: Balla; 4: Görömböly-Tapolca; 5: Remete-Felső.

Fig. 2: Suba-lyuk cave: Longitudinal section (after Bartucz et al. 1940). + : Human remains. 1: red plastic clay, 2: red bone breccia, 3: yellowish red clay, 4: greenish yellow clay, 5: dark brown clay, 6: reddish brown clay, 7: greenish grey clay with limestone debris, 8: yellowish brown clay with limestone debris, 9: greenish yellow clay with limestone debris, 10: dark grey clay with limestone debris, 11: light brown clay with limestone debris, 12:
The Suba-lyuk hominids were uncovered in 1932 in layer 11 (fig. 3) during excavations lead by J. Dancza and O. Kadiç. To the present the Suba-lyuk specimens, consisting of immature and adult remains, represent the unique hominids dated to Late Middle Palaeolithic and so they are critical to the discussion of Upper Pleistocene evolution in Hungary.

dark grey clay with limestone debris, 13: greenish grey clay with limestone debris, 14: light brown clay with limestone debris, 15: loose light brown clay with limestone debris, 16: loose dark grey clay with limestone debris, 17: calcareous clay with limestone debris, 18: humus.

**Fig. 3:** Suba-lyuk cave: position of the human remains in level 11 (after J. Dancza in Bartucz et al. 1940). 1A: Horizontal view (square 2 m x 2 m), ------: Cave entrance, 2A: Vertical view, Adult - 1: metatarsus, 2: sacrum, 3: mandible, 4: manubrium sterni, 5: metacarpus, 7: metatarsus, 8: incisive, 9: patella, 10: vertebra, Child - 6: vertebra, 11: other bones.
The hominid remains were associated with Mousterian lithic artefacts of La Quina type (Mester 1989, 1990, 2004 a; Ringer 1993). The faunal relics of layer II includes two dominant species *Ursus spelaeus* and *Lagurus lagurus*. Therefore a correlation with oxygen isotopic stage 4 was suggested (Ringer 1993), but such an age estimation needs to be substantiated by absolute dating methods.

Bartucz (1940) mentioned that the spatial distribution of the human remains (fig. 3) was a question that he could not solve as no observations were collected by an anthropologist directly on the field. He also noticed that some bones were probably damaged at the time of the discovery or later during their preparation. Therefore it was hard for him to recognize any cutmarks or strong traces of animal activities that could explained the spatial dispersal. According to the author, all the adult human bones had the same relatively dark color (recalling burnt bones at the first glance) and must have probably lied in the same soil layer. Unlike the adult bones, the child remains were light-coloured and this observation led Bartucz to assume that they might either come from a distinct layer, or fossilized in a different way than the adult bones. Apparently questions raised about the nature of the human deposits and occurrence of a intentional burial was recently suggested in the case of Suba-lyuk 2 (Mester 2004 b).

While the spatial distribution of the adult bones leads to the question of the recognition of more than one individual among the remains, no argument can be brought from the anthropological study to support such an assertion. The adult Suba-lyuk 1 is represented by the mandible, a few vertebral parts (atlas in three parts, three bodies, one spine process of a thoracic vertebra), the manubrium sterni, the sacrum, the left patella, two hand bones (fragments of a left second metacarpal and left proximal phalanx), and three foot bones (complete right second and left fourth metatarsals, a fragment of right third metatarsal).

The age at death of Suba-lyuk 1 seems to be younger (Pap *et al.* 1996) than the one previously proposed by Bartucz (1940). The Suba-lyuk 1 mandible (fig. 4) is certainly the most complete of the Central European specimens (Krapina and Vindija in Croatia; Svédův Stůl or Ochoz in the Czech republic) together with Krapina 55 and 58 (Radovcic *et al.* 1988; Smith 1976). The Suba-lyuk 1 tooth dimensions are below the mean Krapina averages, with the exception of the I2 - P1 breadths. However the faint interproximal wear could partially explain the relatively small dimensions of premolars and molars (M1 and M2). Compared to the Krapina-Vindija sample and to Neanderthals from Western Europe, the Suba-lyuk 1 mandible appears less robust; it manifests a mixture of plesiomorphic features (e.g. lack of a chin eminence, retreating symphysis), traits usually employed to assert neanderthal affinities as they seem to be constant in the group
Fig. 4: The Suba-lyuk 1 adult mandible (superior view): while there is no planum alveolare on the posterior surface, the anterior profile of the symphysis is slightly retreating and the chin eminence is lacking.

Fig. 5: The Suba-lyuk 2 child skull (lateral view): the sagittal curvature of the frontal bone is closer to that of Upper Paleolithic children than to that of young Neanderthals, while the convexity of the occipital squama recalls the morphology of the latter. The post-bregmatic flattening extends antero-posteriorly and laterally.

(i.e. large retromolar space and backwards positioning of the mental foramen below M1) and one modern-like feature, the presence of an *incurvatio mandibulae anterior* (Pap et al. 1996). Metric and morphological study of other bones demonstrate that the remains from Suba-lyuk 1 are in the same range of variation found among modern populations (Pap et al. 1996).

From the child Suba-lyuk 2, ca. 3yrs old at death, a cranium missing the basilar part of the occipital, two maxilla and the left nasal bone are preserved. Like Palaeolithic children of the same developmental age, the specimen (fig. 5) exhibits juvenile traits (e.g. lack of bone superstructures, high sagittal frontal curvature) that illustrate similarities with other populations including modern humans. However Suba-lyuk 2 is closer to Neanderthals in some aspects (e.g. rounded shape of the skull in posterior view, occipital morphology). Compared to other young Neanderthals, the Hungarian child is distinguishable by his smaller teeth and some unique characteristics such as an extreme post-bregmatic flattening (*ante mortem compression?*) and a geminate deciduous canine, a dental abnormalities previously described by Bruszt (1953).

In conclusion the morphology of the adult and immature Suba-lyuk hominids, although generally close to that of Neanderthals, provide evidence of the mosaic morphology and large variation of the Middle Palaeolithic European sample (Pap et al. 1996). They can be considered as belonging to a variant of the Neanderthal group.
2. The Istállós-kő tooth

The Istállós-kő Cave (fig. 1 and 6) located in the Szalajka valley was first explored in 1911 and 15 seasons were later conducted by different scholars. Such a situation can explain the fact that the stratigraphic scheme is not so clear. Following I. Vörös (1984, in press) the Istállós-kő deposits consists of 6 layers (fig. 7) and the faunal remains contains predominantly Ursus spelaeus. This assemblage is considered as the type locality of the Istállós-kő substage of the vertebrate stratigraphy (Jánossy 1986). At the bottom the archaeological assemblage of layer I contains split-based bone points described as Aurignacian I of the Bükk Mountains. At the top, layer III brings bone points of Mladeč type called Aurignacian II. Such typological inferences are supported by radiocarbon determinations (Adams 2002; Ringer 2002) that would place the Aurignacian I between 44.000 and 33.000 yrs BP, the Aurignacian II between 32.000 and 28.000 yrs BP.
Fig. 6: Istállós-kő Cave: trenches of L. Vértes' excavations in 1950–1951 in the anterior part of the cave (after Vérentes 1955a: Abb. 2).

Fig. 7: Istállós-kő Cave: transversal section (after Vérentes 1955a: Abb. 3b). Layers from I. Vörös (1984, in press): 1: black and brown humus, 2: yellow loessy clay (layer V), upper part (layer VI) more bright contains microfauna, 3: yellowish brown clay (layer IV); 4: dark brown clay (layer III), 5: red clay with microfauna (layer II), 6: light brown clay (layer I), 7: calcareous debris.

Fig. 8: The Istállós-kő right lower permanent molar is a four cusped tooth and its occlusal morphology is similar to that of both Neanderthals and early Modern Humans.

Fig. 9: The Görömböly-Tapolca occipital bone in lateral view is characterized by a modern sagittal profile.

Fig. 10: Exocranial view of Görömböly-Tapolca occipital bone showing the lack of Neanderthal features (e.g. suprainiac fossa and occipital torus).
A non-adult clavicle was recovered from a sounding by J. Hillebrand in 1911 nearby the upper limit of the Pleistocene sequence. Following I. Vörös (in press), this immature bone belongs to layer V. During the excavations conducted by L. Vértes in 1950, the resultant hominid discovery was an isolated tooth found at 60 cm depth in the upper sequence. With regard to its location, this tooth originated from the lower part of layer IV (Vörös in press). The Istállós-kő tooth was described in detail by M. Malán (1955) who took 34 crown measurements and concluded on its attribution to Homo sapiens. Furthermore F. Smith (1984: 178) noted that the Istállós-kő molar lacked an anterior fovea and had a bucco-lingual diameter closer to that of Upper Palaeolithic teeth.

The Istállós-kő tooth (fig. 8) is a germ of a second lower permanent molar with a complete crown which can probably be attributed to a child ca. 8-10 years old at death. It is a four-cusped tooth with a slight anterior fovea located between the two mesial cusps. A comparative study with other Palaeolithic teeth allows to put the Istállós-kő tooth close to the lower limit of variation of the overall sample. No specific metric or morphological features differentiate this tooth from both Neanderthal and Modern teeth.

3. The Görömböly-Tapolca occipital bone

The region located nearby the city of Miskolc (fig. 1) contains 5 rock-shelters and only one of them (denominated III) has yielded archaeological artefacts. The excavations were conducted there by G. Megay (from the Miskolc Museum) in 1931 and the resultant discoveries were unpublished. J. Hillebrand (1935: 24) described this site as Görömböly-Tapolca shelter and mentioned the presence of one human occipital bone, flints, and two perforated red deer teeth. All the material was attributed by this author to Late Aurignacian.

However such a cultural attribution was later discussed by L. Vértes (1955b: 265) and A. Thoma (1957): both authors thought that the hominid remain originated from layer II, a yellow-brown clay. An analysis of the deposits originally collected by Megay was done in 1962 (Vértes et al. 1965) and two levels were identified, the upper one dated to the Late Wurm and the lower one to Wurm I. Following Vértes, the archaeological assemblage gathered by Hillebrand could be referred to “the
Cave Gravettian”\textsuperscript{4}, while the unretouched flakes from the lower level could be attributed to a Mousterian assemblage \textit{sensu lato.}

The Görömböl-Tapolca specimen was first described by Thoma (1957). The specimen is a nearly complete occipital bone of an adult with a large portion of the squamous part and the nuchal plane, lacking its basilar part (fig. 9 and 10). Relevant Neanderthal traits such as the occipital bunning, the suprainiac fossa, occipital torus and the lambdoid flattening are completely lacking on the Hungarian specimen. On the inner surface of the bone, the left cerebellar fossa appears larger that the right one. The Görömböl-Tapolca occipital bone is relatively thick but manifests a total morphological pattern that clearly assigns it with modern \textit{Homo sapiens}. Therefore it would be important to obtain an age estimation of the specimen by absolute dating methods.

\textbf{4. The Balla child skeleton}

The Balla Cave is located (fig. 1) at the back of the Balla mountain near Répashuta in a limestone area. During a sounding planed by J. Hillebrand in 1909 (fig. 11), workers discovered, within a yellow layer rich of artif microfauna, few skull elements and long bones of a child. Hillebrand excavated the rest of the child skeleton and made preliminary observations on the field: the child was lying on its left side and most of the bones were found in anatomical connection without any marks of rodents or carnivores. Hillebrand (1911: 521-522) could not exclude the presence of an intentional burial, although there were no traces of archaeological (or ritual) findings associated to the body deposit. In 1911 a few untypical blades were found in the same layer but they were not directly associated to the body deposit. Later from a deepest layer in the back of the cave was recovered a lithic assemblage with foliate tools and this discovery led Hillebrand (1935: 13) to date the body deposit to the Magdalenian.

A few decades later, an age determination was attempted for the “Szeletian assemblage” found in the centre of the Balla cave: the results were between 22.300 ± 180 and 20.000 ± 190 yrs BP (Vogel & Waterbolk 1972: 63). Vértes suggested that such results could rather indicate an age for the human remains than for the Szeletian context (Geyh \textit{et al.} 1969: 9-10). If there is apparently a general agreement in the literature about the attribution of the Balla specimen to the Upper

\textsuperscript{4}In the 1950s, M. Gábori has demonstrated that the so-called “Magdalenian” assemblages of Hungary have genetical links with the Eastern Gravettian of Central and Eastern Europe. He has proposed the denomination of “Cave Gravettien” for the Pilisszántó type industries (Gábori & Gábori 1957: 68-71). L. Vértes (1965: 202-203) assigned these industries to an independent civilization of the Late Palaeolithic of Hungary named “Pilisszántó Culture”.

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Fig. 11: Balla Cave: Longitudinal section (after Kadić1934: Fig. 30). + = Human remains. 1: red and yellow plastic clay, 2: greenish grey clay with limestone debris, 3: light yellow clay with limestone debris, 4: yellowish grey calcareous clay, 5: light brown humus, 6: dark brown humus, 7: Holocene grave, 8: Prehistoric grave.

Fig. 12: The state of preservation of the Balla child skeleton.

Fig. 13: The Balla skull (frontal view) is fully modern in its morphology.

Fig. 14: Remete-Felső Cave: (after Gábori-Csánk 1983: Fig. 8).

Fig. 15: Remete-Felső Cave: transversal section (after Gábori-Csánk 1983: Fig. 11). 1: black forest soil, 2: brown humus, 3: grey layer with limestone debris, 4: yellowish loessy layer with limestone debris, 5: brownish yellow layer with limestone blocks.
The child skeleton virtually complete (fig.12) was never fully described since the first report made by Hillebrand: this author assigned the specimen to “*Homo primigenius*” representative of *Homo sapiens* from the “Upper Diluvium” (1911: 520). A re-examination of the skeleton, together with a process of direct dating, were recently decided in order to clarify the chronological and phylogenetic assignment of the specimen (Tillier *et al.* in prep.).

The cranium (fig.12) lacks its midfacial area and basal part while the mandible and several long bones are well preserved. The age estimation matching the dental development and various indicators of skeletal age with modern standard charts indicate that the Balla child died approximately at 1 year old. The overall cranial shape (fig. 13) is similar to that of modern children (vault relatively high and narrow, shape “en maison” of the skull in posterior view) and differs strongly from that of the Suba-lyuk 2 child. In addition the Balla mandible exhibits a fully modern chin.

The post-cranial skeleton on the whole appears rather gracile and its overall morphology supports a modern affiliation. Indeed the long bones of the Balla infant appear similar to those of recent individuals of the same developmental age. However the immature Neanderthal post-cranial skeletons from Western Europe (*e.g.* Roc de Marsal, La Ferrassie 6, Teshik-Tash) document an increase of the robusticity pattern (i.e. development of muscular attachments, increase of cortical thickness in long bones) as an age-related change (Tillier 1999). Furthermore individual variation in terms of long bone robusticity between two young
individuals of close age development within a single site cannot be neglected, as recently shown by the two children originated from the Grotte des Enfants, an Epigravettian Italian site (Henry-Gambier 2001).

In sum the Balla immature skeleton does not provide evidence of traits with taxonomic significance supporting a clear distinction from recent infants. The question to resolve concerns its reliable datation5.

3. HOMINID REMAINS FROM THE BUDA MOUNTAINS

The Remete-Felső cave, situated nearby the small city of Máriaremete in the Northwestern part of the Buda Mountains (fig. 1) was excavated in 1969-1970 by V. Gábori-Csánk. The archaeological deposits consisted of 5 levels and 3 of them were attributed to the Pleistocene (fig. 14). Layer 4 contains charcoals, a few lithic and faunal remains. The occurrence of *Ovibos pallantis* allowed V. Gábori-Csánk to consider this layer as transitional, i.e. “Altwürm”, before the maximum of Wurm 1 (Gábori-Csánk 1983: 265, 1993: 62). Recently Vörös (2000: 190) suggested that the attribution to *Ovibos pallantis* should be reconsidered in favor of a small bison and according to this author the fauna must be dated to the Middle Wurm (to the Szeleta substage of the vertebrate stratigraphy).

The anterior area of the cave that yielded the faunal assemblage brought also a few artefacts, 9 tools and 3 flakes. This archaeological assemblage was designed as Jankovichian (Gábori-Csánk 1983, 1993). During a study of the faunal remains M. Kretzoi identified three hominid isolated teeth assigned to “*Homo neandertalensis King*” in a report published by Gábori-Csánk (1983: 263)6. This author noticed (269): “La grande portée de ces dents réside (...) dans le fait qu’elles sont authentifiées par les données stratigraphiques et paléontologiques précises et qu’elles ont été mises au jour au milieu d’une industrie “Szeletien de Transdanubie” (!)”.

The Remete-Felső teeth are right lower incisors and canine (fig 16 and 17) belonging to an adult specimen and they are highly worn (fig. 18). No specific metric or morphological features differentiate the Remete-Felső lower teeth from both Neanderthal and Upper Palaeolithic modern teeth.

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5 The date expected originate from the skeleton itself.

6 An additional lower tooth was identified during our study at the Historical Museum of Budapest: it is an upper permanent left canine and from its overall morphology we can assume that it derived from a younger adult individual. Unfortunately its provenience is unknown.
Fig. 16: Remete-Felső - right lower permanent teeth: Buccal view - 1: I₂, 2: I₁, C.
Fig. 17: Remete-Felső - right lower permanent teeth: Lingual view - 1: I₂, 2: I₁, C.
Fig. 18: Remete-Felső - right lower C - the occlusal view illustrates the high degree of attrition.
4. CONCLUDING REMARKS

Human relics from the Hungarian Middle and Upper Palaeolithic are scarce and derived from old excavations. There are not many reliable radiometric dates and therefore the arguments brought to establish the chronology are based on traditional dating methods such as faunal data or identification of lithic industries.

In the literature the equation Neanderthal-“transitional industry” (i.e. Chatelperronian, Uluzzian, Szeletian) and anatomically modern humans- Early Aurignacian appears as dominant model. Serious questions can be raised about a close relationship between biological and cultural groups, in either Western or Central Europe (Tillier 1990, Churchill and Smith 2000, Henry-Gambier 2002, Henry-Gambier et al. 2004).

An examination of the Hungarian record indicates that from the available anthropological documentation there is no justification for identifying the bearers of the “transitional” Szeletian industry as Neanderthals. The correlation classically employed to explain the cultural changes in South-western Europe at the beginning of Upper Palaeolithic cannot be applied to the material available from Hungary. However, in our opinion, the Hungarian fossil record does not provide substantial support for some degree of local continuity between Neanderthals and early modern humans.

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ACKNOWLEDGEMENTS

Investigation on the original fossils was possible through the courtesy of the curators: A. Endrödi, Director of the Department of Prehistorical and Protohistorical Archaeology (Historical Museum of Budapest); I. Pap, Director of the Department of Anthropology (Hungarian Natural History Museum), and the Herman Ottó Museum in Miskolc.

This research was supported by the Hungarian program “Revision of the Szeletian and Aurignacian Cultures of the Hungarian Bükk Mountains. Development and Continuity in the Framework of Paleo-Human Ecology” (FKFP 0044/1999) directed by Á. Ringer; the Department of Anthropology of the Hungarian Natural History Museum; in France the CNRS (LAPP-UMR 5199/PACEA) and the OML program directed by F. D’Errico (IPGQ-UMR5199/PACEA). D. Henry-Gambier and A-m. Tillier are deeply grateful to all their Hungarian colleagues for their kind hospitality and sharing with them time for fruitful discussions. Finally we would like to thank Prof. V. Cabrera de Valdes who invited two of us (D.H-G. and A-m.T.) to participate to the Conference hold in Santonia en 2003.