The Bohunician and the Aurignacian

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ABSTRACT Whereas the local developmental trends across the Middle-to-Upper Paleolithic transition in the Middle Danube region result in the formation of the Szeletian, two other Early Upper Paleolithic entities, the Emiro-Bohunician and the Aurignacian, are considered as technologically innovative. The Bohunician is based on a specific, late Levallois technology producing Levallois blades, flakes and points from crested pre-cores. Two sites in Moravia are dated by radiocarbon: Bohunice, 43-36 kyr, Stránská skála, 41-34.5 kyr. Isolated sites of the early Aurignacian appear around 39-38 kyr, as at Willendorf II, Austria, or Geissenklösterle, South Germany. Finally, between 35-29 kyr, a denser network of Middle Aurignacian settlements is being established over the Middle Danube region. By the same time, we observe the disappearance of Bohunician and Szeletian sites, and around 29-28 kyr also the disappearance of the late Neandertals (Vindija). Even if we lack a Szeletian found together with unequivocally Neandertal human fossils, several arguments make such an association possible, whereas the producers of the Bohunician remain anatomically anonymous. The radiocarbon dating of anatomically modern human sites confirms an Aurignacian age in the cases of Mladeč (35-34 kyr) and Vogelherd (32-30 kyr). We know, therefore, that the producers of the Aurignacian were anatomically modern humans, but before we also learn who were the Emiro-Bohunicians, or the producers of the other "transitional" technologies, we cannot conclude that Aurignacians were also the first representatives of modern humanity in Europe.

The Middle Danube region and its Szeletian background

From the geographic viewpoint, the Middle Danube region occupies a potentially important position for research on the emergence of early modern humans in Europe and the origins of the Upper Paleolithic. The location of this region is intermediary between the two traditionally investigated and discussed centers, the Near East and southwest Europe. In addition, the Danube River and the network of its confluents present an important axis of east-west communication, penetrating deep into the continent.

Of specific interest in the Danubian part of Europe, as recognized by current research and new datings, are 1) the variability of the so-called "transitional" cultural entities, such as the Szeletian and the Bohunician, around 40 kyr BP (Valoch, 2000; Ringer and Mester, 2000; Svoboda, 2001a, 2001b, in press) 2) a relatively early appearance of the Aurignacian around 38 kyr BP (Haesaerts et al., 1996; Richter et al., 2000) 3) two early modern human fossil finds, Mladeč and Vogelherd, found in an Aurignacian context and dated around 35-30 kyr BP (Svoboda et al., 2002; Bolus and Conard, 2000), and 4) a late persistence of the last Neandertals at Vindija, around 29-28 kyr BP (Smith et al., 1999).

However, the Middle Danube region provided only a few well preserved and well excavated sites. A number of important caves, bearing classical names today, were excavated too early, using unreliable methodologies for the collection of field data, whereas others were post-depositionally disturbed by frost processes (cryoturbation, etc.) and bioturbation. Therefore, some of the late Neandertal and anatomically modern human fossil finds, as well as certain typologically diagnostic tool-types such as leaf points and bone and ivory points, come from unsecure archeological contexts. This shortcoming may be overcome, at least in part, only by dating projects that directly sample the significant objects (fossils, bone artifacts).

Compared to caves, open air sites have the advantage that their stratigraphy may be more precisely correlated with the geological loess and paleosol schemes of central Europe. However, organic preservation is poorer in the open air sites, especially in the paleosols, so that these sites are of lower value for considering human-anatomic associations, bone and antler industry, and the related faunal evidence. In addition, open air sites suffered from frost processes as much as cave sites.

The excavated sites of the Middle Danube region are supplemented by a high number of sites detected only by surface surveys. With the limited contextual information these sites may offer, they are nevertheless important for understanding the strategies of settlement, lithic raw material exploitation and use.

Traditionally, studies and reviews of the early Upper Paleolithic developmental trends in this region start by defining the Szeletian as an autochthonous, Middle Danubian way of Middle-to-Upper Paleolithic transition (most recently Oliva, 1991; Valoch, 2000; Allsworth Jones, in press; Svoboda, 2001b, in press). The local Middle Paleolithic tradition of bifacial flat retouch was brought to perfection during the Szeletian by producing the formally precise leaf-points supplemented by applications of flat retouch to a variety of other tools types such as sidescrapers or endscrapers. Geographically, the Szeletian creates compact settlement networks over parts of the Middle Danubian landscapes (eastern Hungary, western Slovakia, and Moravia).

Recently, the excavation by K. Valoch (1993) of the open air site of Vedrovice V, Moravia, and the chronostratigraphic revision of the classical Szeleta cave, Hungary, by A. Ringer and Z. Mester (2000) brought to light crucial evidence on the Szeletian, whereas, for the future, we propose reopening the excavation in the cave of Dzeravá skála, Slovakia (joint project by L. Kaminská, J. K. Kozłowski, and J. Svoboda). Vedrovice V provided the hitherto largest set of ^{14}C dates, with the first series between 39.5-35 kyr BP, and the second, broader series between 47-30 kyr BP. Several arguments, all of indirect value, and human fossils, fragmentary or culturally unsecure (Remete Felsö, Dzeravá skála, Vindija), were recently summarized and evaluated to propose a hypothesis identifying the Szeletians with late Neandertals (Svoboda, 2001b).

New evidence on the Bohunician: Stránská skála

Compared to the Szeletian, the Bohunician (or, Emiro-Bohunician) is represented only by isolated sites or smaller site clusters, the largest and most important one being in the Brno basin, Moravia. The technology conserves certain Levalloisian operational schemes which seem to be intrusive in the Middle Danube region, but with analogies across distant parts of Eurasia (hence, the term Emiro-Bohunician, Svoboda, in press). When this technology was described and defined for the first time by Karel Valoch at the site of Brno-Bohunice, Moravia, a strong resemblance to the Emirian industries of the Near East was recognized (Valoch, 1976). Later, following the first reconstructions of the Bohunician operational sequences (Svoboda, 1980) and especially the refittings (Svoboda and Škrdla, 1995; Škrdla, 1996), it appeared that this technology aims to produce Levallois blades, flakes and points from crested pre-cores of Upper Paleolithic type, much in the same way as at Boker Tachtit.

During the process of core reduction, some of these cores turn back to "archaic" or "Middle Paleolithic" forms. Given its intermediary or transitional nature, the technology of the Bohunician has been interpreted by various authors alternatively as a link between Middle and Upper Paleolithic cultural entities or as an evolutionary cul-de-sac.

In order to solve this dispute, a more precise chronology is needed, and Stránská skála, a site complex only 7 km east of Bohunice providing stratigraphic superposition of Aurignacian and Bohunician layers, was selected as the object of such an investigation. During the 1980s and 1990s, our research at this open air site was carried out with full recognition of both the advantages and shortcomings of its potential, and equal attention was paid to processes responsible for site formation and site disturbance (Valoch et al., 2000; Svoboda and Bar-Yosef, in preparation).

Stránská skála is a Jurassic limestone rock overlain by Tertiary and Pleistocene sediments. The base of the Pleistocene sedimentary sequence is formed by strongly weathered and redeposited clays, soil sediments, or limestone scree, archeologically sterile. It appears that the redeposition of the clay and soil sediments at the base of the sequence, characterized by typical laminar (bedded) gelifluction, took place under extremely low mean annual temperatures, several degrees below 0°C, and under arid conditions, during the cold periods preceding OIS 3. In places where the clays were substituted by limestone scree, we observe empty empty spaces among the boulders, due to the melted soil ice or sufosis. The surface of this scree forms circular features recalling the sorted circles known from the present-day Arctic (Table 3).

Two paleosol horizons of Würmian Interpleniglacial age (OIS 3) have been recognized in the overlying Upper Pleistocene loess. The lower one is a pararendzina or pellet sand in redeposited position, and the upper one is a slightly developed chernozem mostly in primary position. Bohunician artifacts were recovered from either the lower paleosol or from the lower portion of the upper paleosol, whereas Aurignacian artifacts are found only in the upper paleosol and, exceptionally, at the base of the loess above it.

The formation of the two OIS 3 paleosols with early Upper Paleolithic materials is indicative of a climatic amelioration with mean annual temperatures slightly above 0°C. Each paleosol was subsequently affected by different types of frost processes. The lower pararendzina was removed horizontally by amorphous (sheet-less) gelifluction, indicative of slightly ameliorated conditions compared to the laminar gelifluction of before. A short interval of loess deposition followed, on which the upper chernozem developed. The upper paleosol is preserved more or less *in situ*, but affected at certain places by cryoturbation, moving in material from below. The effects of this cryoturbation reach as high as the base of the uppermost loess. Sedimentation of the main part of the Upper Pleniglacial (OIS 2) loess cover followed, with no more traces of cryoturbation.

Additional evidence on climate and landscape was obtained by paleobotanical and archeozoological methods. However, the biostratigraphic record mostly illustrates the temperate climate episodes during the periods of paleosol formation and of human occupation more than the climatic sequence as a whole. At the Stránská skála rock, we may reconstruct a flowered steppe and an herb-rich steppe, with scarce representation of pine, birch and alder. Park landscapes with trees such as fir, spruce, larch and oak were probably located below the hill, and inhabited by herds of horses, bovids and mammoths. A trend towards increasing moisture in the upper soil may be indicated by the increase of willow and alder.

The repeating effects of frost processes, affecting the individual paleosols, show that this general process was not a straightforward one, but rather of the "staccato-model" type, as visible also from the corresponding deep-sea or glacier core record (for possibilities of correlation, see Musil, 1999). It is probable that the two pedogenetical processes documented at Stránská skála correspond in fact to several climatic oscillations of lower order. Therefore, the sedimentary and paleopedological record we are able to read today in the loess sections of south Moravia is probably too coarse-grained to indicate the real dynamics of climatic changes.

Radiocarbon samples were taken from both paleosols, i.e., from the Bohunician and Aurignacian archeological contexts (Tables 1-2). It should be recalled that we operate with uncalibrated ^{14}C dates, and that for the time-span of Upper Paleolithic origins the real values would be three to four millennia older (e.g., Jöris and Weninger, 1996). In central Europe, such an interval of difference is confirmed at several sites where radiocarbon dating was confronted with other methods, as at Kůlna Cave, Micoquian layer 7a (ESR date, 50±5 kyr BP; ^{14}C dates, 46-38 kyr BP — Rink et al., 1996), Brno-Bohunice, Bohunician layer (TL date, 47.4±7.3 kyr BP, ^{14}C dates 43-36 kyr BP — Zöller, in Valoch et al., 2000), or the complex dating project carried out at Geissenklösterle, in Germany (Richter et al., 2000).

The interval of ^{14}C datings obtained from Stránská skála is 41-30 kyr BP. Dates for the lower paleosol are in the interval of 41-38 kyr BP, dates for the upper paleosol between 38.5-30 kyr BP, with an overlap between the two clusters of dates. I would see this overlap as a result of the coarse-grained stratigraphic value of the paleosols in loess, where the visible layers may, in fact, include several smaller-scale oscillations.

TABLE 1

Radiocarbon dates for the Bohunician of Moravia and Lower Austria.

Site and Level	Lab no.	Result BP (uncalibrated)
Bohunice-Kejbaly, layer 4a	GrN-6802	41 400/+1400/-1200
Bohunice-Kejbaly, 4a	Q-1044	40 173 ±1200
Bohunice-brickyard, 4a	GrN-6165	42 900/+1700/-1400
Bohunice-brickyard, 4a	GrN-16 920	36 000±1100
Stránská skála IIIa, lower paleosol	GrN-12 606	41 300/+3100/-2200
Stránská skála IIIc, lower paleosol	AA-32 058	38 300±1100
Stránská skála III, upper paleosol	GrN-12 297	38 200±1100
Stránská skála III, upper paleosol	GrN-12 298	38 500/+1400/-1200
Stránská skála IIId, upper paleosol	AA-32 058	37 900±1100
Stránská skála IIId, upper paleosol	AA-32 060	37 270±990
Stránská skála IIId, upper paleosol	AA-32 061	35 080±830
Stránská skála IIId, upper paleosol	GrA-11 504	34 530/+830/–740
Stránská skála IIId, upper paleosol	GrA-11 808	35 320/+320/–300
Stránská skála IIIc, upper paleosol	AA-41 475	34 440±720
Stránská skála IIIc, upper paleosol	AA-41 476	36 570±940
Stránská skála IIIc, upper paleosol	AA-41 477	34 530±770
Stránská skála IIIc, upper paleosol	AA-41 478	36 350±990
Stránská skála IIIc, upper paleosol	AA-41 480	34 680±820
Willendorf II, 2? (below layer 3)	GrN-11 190	39 500/+1500/–1200
Willendorf II, 2? (below layer 3)	GrN-17 806	41 600/+4100/–2700
Willendorf II, 2? (below layer 3)	GrN-11 195	41 700/+3700/–2500

TABLE 2
Radiocarbon dates for the Aurignacian of Moravia and Lower Austria.

Site and Level	Lab no.	Result BP (uncalibrated)
Mladeč I, locus "a" lower	GrN-26 334	34 930/+520/-490
Mladeč I, locus "a", upper	GrN-26 333	34 160/+520/-490
Stránská skála IIIa, layer 3	GrN-12 605	30 980±360
Stránská skála IIa, layer 4	GrN-14 829	32 350±900
Stránská skála IIIb, layer 4	GrN-16 918	32 600/+1700/-1400
Stránská skála IIIc, upper paleosol	AA-41 479	33 030±620
Stránská skála IIIf, hearth	AA-41 472	29 020±440
Milovice	GrN-14 826	29 200±950
Grossweikersdorf	GrN-16 263	32 770±240
Grossweikersdorf	GrN-16 244	31 630±240
Stratzing, 1985	GrN-15 641	30 670±600
Stratzing, 1985	GrN-15 642	31 190±390
Stratzing, 1985	GrN-15 643	29 200±1100
Stratzing, 1988	GrN-16 135	31 790±280
Willendorf II, layer 3	GrN-17 805	38 800/+1530/-1280
Willendorf II, layer 3	GrN-17 806	37 930±750
Willendorf II, layer 3	GrN-11 192	34 100/+1200/-1000
Willendorf II, layer 4	GrN-1273	32 060±250
Willendorf II, layer 4	H249/1276	31 700±1800
Krems-Hundsteig	KN-654	35 500±2000

The sequence is clearer from the viewpoint of archeology. Whereas all the datings from Bohunician contexts, be it from the lower paleosol or from the lower portion of the upper paleosol, range between 41-34.5 kyr BP, the Aurignacian dates from the upper part of the upper paleosol lie between 33-30 kyr BP. In the light of this, the Stránská skála chronostratigraphic record argues for a late persistence of the Bohunician, as well as for a late occurrence of the Aurignacian at this site.

New data on the Aurignacian and the associated human fossils: Willendorf and Mladeč

There are only a few sites along the course of the Danube river that provided early Aurignacian dates as early as 38 kyr BP: Temnata cave in Bulgaria (Ginter et al., 2000), Willendorf II in Lower Austria (layer 3, Haesaerts et al., 1996), and Geissenklösterle in South Germany (TL, ESR and ^{14}C, Richter et al., 2000). This axial settlement pattern, with the sites distributed over longer distances, suggests that early Aurignacian groups were small and widely dispersed. Only the site of Willendorf II is located on the Middle Danube, in contact with the nearby Bohunician centers in south Moravia.

The new chronostratigraphic examination of the loess section at Willendorf II (Haesaerts et al., 1996) distinguishes four episodes of climatic amelioration in the time-span between 42 and 30 kyr ago: Willendorf (ca.42 kyr BP), Schwallenbach I (39-38 kyr BP), Schwallenbach II (ca.32 kyr BP) and Schwallenbach III (ca.30.5 kyr BP). Human occupation of Stránská skála broadly corresponds to these events. At the base, there is a small "Transitional" lithic assemblage, possibly Bohunician (layer 2). The first Aurignacian occupation (layer 3) occurred during the Schwallenbach I interstadial and a later Aurignacian occupation (layer 4) is dated to the Schwallenbach II. The Gravettian part of the sequence starts during the Schwallenbach III interstadial and continues until the Last Glacial Maximum. Pedostratigraphically, the Schwallenbach I interstadial may be correlated with the Bohunice soil and with the lower paleosol at Stránská skála, whereas the Schwallenbach II and III interstadials both correspond to the upper paleosol at Stránská skála (Table 3).

TABLE 3

Schematic correlation of the loess sections at Stránská skála II-III (Moravia) and Willendorf II (Lower Austria).

^{14}C Age	Stránská skála: stratigraphy	Stránská skála: cultural context	Willendorf: stratigraphy	Willendorf: cultural context
30.5	Upper paleosol (chernozem)	Middle Aurignacian	Schwallenbach III humiferous horizon	Gravettian
32	Upper paleosol	Middle Aurignacian	Schwallenbach II humiferous horizon	Middle Aurignacian
38	Lower paleosol (pararendzina or pellet sands)	Bohunician	Schwallenbach I humiferous horizon	Early Aurignacian
42	Lower paleosol	Bohunician	Willendorf brownish loam	Bohunician?

In the light of the ^{14}C chronology and the pedostratigraphy of the two sites, it appears that there was a period of several millennia of coexistence of the later Bohunician with the early Aurignacian, between 38 and 34.5 kyr BP.

After 35 kyr BP, the increase in number of Aurignacian ^{14}C dates and sites suggests a period of expansion and stabilization, which may be called the Middle Aurignacian (Table 2). The Stránská skála ^{14}C dates for the Aurignacian are identical to the dates of 32 kyr BP from layer 4 of Willendorf II, of 33-28 kyr BP from Stratzing (Lower Austria), and of 30-29 kyr BP from Milovice (Moravia) and Barca (Slovakia). The settlement pattern of the Middle Aurignacian, forming compact site clusters over the landscapes, seems to reflect a population growth.

Special attention is being paid to ^{14}C dates from sites associated with early modern human fossils. At Vogelherd (Stetten, Germany), a central European human fossil site with at least three individuals, the Aurignacian context and age is confirmed by ^{14}C dates between 30.7 and 31.9 kyr BP (H-series; Churchill and Smith, 2000; Conard, 2001), whereas at Veliká Pečina (Croatia), the proposed Aurignacian age of the human fossil has to be rejected in the light of a ^{14}C direct date of ca.5000 BP (Smith et al., 1999). In the Czech Republic, the sites of Mladeč (Central Moravia), Zlatý kůň-Koněprusy and St. Prokop (both Bohemian Karst) and Svitávka (western Moravia), all listed as early Upper Paleolithic in the existing catalogues and paleoanthropological reviews, were recently selected for ^{14}C dating (Svoboda et al., 2002).

Mladeč I-II is the most important complex of early modern human fossil sites, yielding several individuals and numerous fossil fragments. Unfortunately, it is one of the early excavated sites with limited or unreliable contextual information. In cave I, the dating project concentrated on the Szombathy's find-spot "a" in the so-called Dome of the Dead (Szombathy, 1925). The graphic reconstruction of this cave's sedimentary fill suggests that before removal of the sediments this spot lied at the foot of the large debris cone under a chimney (Svoboda, 2001). Szombathy described his section, 3 m deep, as having a solid calcite cover at the top, with the Upper Pleistocene human and faunal remains just below it, and basically sterile deposits underlying them down to the base. Today, remains of these sediments and several generations of calcite layers are still visible on the cave wall adjacent to the find-spot (and portions of the calcite are still visible on some of the fossils preserved in the Vienna Natural History Museum). Two samples, both from the top calcite layers and 5 cm apart were collected recently and dated by ^{14}C. The results are 34 160/+520/-490 BP for the upper sample (GrN-26333), and 34 930/+520/-490 BP for the lower sample (GrN-26334), and they are consistent with the Aurignacian nature of the associated bone and antler industry. Since the interval between our two samples documents a rapid formation of the series of the calcite layers, we may conclude that the deposition of human bodies was either more or less contemporaneous or slightly earlier. Thus, the two ^{14}C dates of 34-35 kyr BP provide minimal ages for the fossils; a direct date from the human bone is still needed for confirmation.

Whereas at Mladeč the deposition of human bodies seems to be a repeatedly practiced act, another Czech cave, Zlatý kůň at Koněprusy, shows a single burial event. At both sites, human bodies were deposited during terminal stages of the accumulation of the debris cones. This kind of analogy, together with the associated fauna, led researchers to date the time of deposition at the both sites to the early Upper Paleolithic (Prošek et al., 1953; Svoboda, 2001). However, the supporting evidence for Koněprusy was scarce: stratigraphically, the human remains were deposited on or just below the surface, the associated lithic artifacts were culturally undiagnostic, and the presumed bone projectile fragment (Mladeč -type) later appeared to be just a fragmented bone. In addition, the glacial fauna from the upper layers of the debris cone might be older than the human fossils. For dating, we selected a fragment of the cranial bone of the buried individual. The resulting date, 12 870±70 BP (GrA-13696), does not fit the presumed early Upper Paleolithic age, but rather the regional Magdalenian context of the Bohemian karst. However, we still propose to confirm this single date by additional dating. The nearby St. Prokop Cave provided post-Paleolithic dates of the human fossils.

During geological surveying in 1962, skeletal fragments of a female individual were discovered in a loess section near Svitávka (Smolíková and Ložek, 1963). The find was dated to the Upper Paleolithic because of its location in a paleosol stratified in loess, and of its association with several lithic artifacts, charcoal and fauna. With the more detailed geological evidence available today, it appears that the type of chernozem paleosols in which the find was presumably located developed earlier during the last glaciation (between late OIS stage 5 and stage 3). At Stránská skála, their last formation is dated to ca.30 kyr BP, which would make Svitávka an early Upper Paleolithic find. At the same time, several anthropologists pointed to the slight surface fossilization and whitish coloration, which is different from the more fossilized Upper Paleolithic specimens. All this information raised considerable doubts about the age of the find. For dating, we selected a fragment of the cranial vault. The result, 1180±50 BP (GrA-13711), confirms earlier doubts about the Pleistocene age of the fossil. Most probably, it is an early medieval pit burial, dug as deep as the level of the paleosol, and later refilled with loess.

Conclusions

Whereas local developmental trends across the Middle-to-Upper Paleolithic transition in the Middle Danube region result in the formation of the Szeletian, two other early Upper Paleolithic entities, the Emiro-Bohunician and the Aurignacian, are considered to be technologically innovative. Compared to the compact settlement patterns created in certain parts of the Middle Danube region by the Szeletians, both the Bohunician and the Early Aurignacian demonstrate patterns of distribution of isolated sites or smaller site-clusters over the landscape.

The Bohunician is based on a specific, late Levallois (or Levallois-leptolithic) technology producing Levallois blades, flakes and points from crested pre-cores. Two sites in the region are dated by ^{14}C: Bohunice, 43-36 kyr BP, and Stránská skála, 41-34.5 kyr BP.

Isolated sites of the early Aurignacian appear slightly later, around 39-38 kyr BP, as at Willendorf II, Austria, or Geissenklösterle, south Germany. It should be recalled that the early Aurignacian dates of 38 kyr BP from the Danubian region rank among the earliest in Europe. Comparison of ^{14}C data and pedostratigraphy at Stránská skála and Willendorf suggests that during the time-span of 38-34.5 kyr BP the later Bohunician was contemporary with the early Aurignacian. This evidence certainly excludes the Bohunician as a direct predecessor of the Aurignacian. However, the role of Bohunician technology, with its high percentage of blades and Upper Paleolithic tool-types, should not be neglected, even if it is difficult to demonstrate how technological influences operated in time and space.

Finally, between 35 and 29 kyr BP, a dense network of Middle Aurignacian settlements is being established over the Middle Danube region. By that time, we observe the disappearance of Bohunician and Szeletian sites, and, around 29-28 kyr BP, the disappearance of the late Neandertals (Vindija).

Even if we lack a Szeletian context containing unequivocally Neandertal human fossils, several arguments make such an association plausible, whereas producers of the Bohunician remain anatomically anonymous. The radiocarbon datings of anatomically modern human sites confirm an Aurignacian age in the case of Mladeč (35-34 kyr BP) and Vogelherd (32-30 kyr BP), but reject an early Upper Paleolithic dating for Zlatý kůň-Koněprusy (probably Magdalenian), St. Prokop cave, Veliká Pečina (later prehistoric) and Svitávka (medieval). We know therefore that the makers of the Aurignacian were anatomically modern humans, but before we also learn who were the Emiro-Bohunicians, or the other makers of "transitional" technologies, we cannot conclude that Aurignacians were also the first representatives of modern humanity in Europe. All these data show that the modern human occupation of Europe in general and of the Middle Danube region in particular was a long-term process, characterized by anatomical and technological variability, and possibly by multiple interactions between the various human groups and techno/typological entities involved.

REFERENCES

ALLSWORTH-JONES, P. (in press). - *The Szeletian revisited.* Manuscript.

BOLUS, M.; CONARD, N. J. (2001) - The late Middle Paleolithic and earliest Upper Paleolithic in Central Europe and their relevance for the Out of Africa hypothesis. *Quaternary International.* Oxford. 75, p. 29-40.

CHURCHILL, S. E.; SMITH, F. H. (2000) - Makers of the Early Aurignacian of Europe. *Yearbook of Physical Anthropology.* New York. 43, p. 61-115.

CONARD, N. J. (2001) - Chronostratigraphy of the Aurignacian in the Swabian Jura as a test of the Danube corridor and Kulturpumpe models, in UISPP, XIVe Congres, Pre-Actes. Liège: Université, p. 139-140.

CZUDEK, T.; SMOLÍKOVÁ, L.; SVOBODA, J. (1991) - Profil IIIa na Stránské skále v Brně. *Anthropozoikum.* Praha. Nouvelle Série. 20, p. 203-223.

GINTER, B.; KOZŁOWSKI, J. K.; GUADELLI, J. L.; LAVILLE, H., eds. (2000) - *Temnata Cave. Excavation in Karlukovo Karst area, Bulgaria*. Volume 2, Part 1. Kraków: Jagiellonian University Press.

HAESAERTS, P.; DAMBLON, F.; BACHNER, M.; TRNKA, G. (1996) - Revised stratigraphy and chronology of the Willendorf II sequence, Lower Austria. *Archaeologia Austriaca*. Wien. 80, p. 25-42.

JÖRIS, O.; WENINGER, B. (1996) - Calendric age-conversion of glacial radiocarbon data at the transition from the Middle to Upper Palaeolithic in Europe. *Bulletin de la Société Préhistorique Luxembourgeoise*. Louxembourg. 18, p. 43-55.

MUSIL, R. (1999) - Životní prostředí v posledním glaciálu na území Moravy. *Časopis Moravského zemského muzea*. Brno. 84, p. 161-186.

OLIVA, M. (1991) - The Szeletian in Czechoslovakia. *Antiquity*. Cambridge. 65, p. 318-325.

PROŠEK, F. (1952) - Výzkum jeskyně Zlatého koně u Koněprus. *Československý kras*. Praha. 5, p. 161-179.

RICHTER, D.; WAIBLINGER, J.; RINK, W. J.; WAGNER, G. A. (2000) - Thermoluminiscence, electron spin resonance and 14C-dating of the Late Middle and Early Upper Paleolithic site of Geissenklösterle Cave in Southern Germany. *Journal of Archaeological Science*. London. 27, p. 71-89.

RINGER, A.; MESTER, Z. (2000) - Résultats de la révision de la grotte Szeleta entreprise en 1999 et 2000. *Anthropologie*. Brno. 38, p. 261-270.

RINK, W. J.; SCHWARTZ, H. P.; VALOCH, K.; SEITL, L.; STRINGER, C. B. (1996) - ESR dating of Micoquian industry and Neanderthal remains at Kůlna Cave, Czech Republic. *Journal of Archaeological Science*. London. 23, p. 889-901.

ŠKRDLA, P. (1996) - The Bohunician reduction strategy. *Quaternaria Nova*. Roma. 6, p. 93-107.

SMITH, F. H.; TRINKAUS, E.; PETTITT, P. B.; KARAVANIČ, I.; PAUNOVIČ, M. (1999) - Direct radiocarbon dates for Vindija G1 and Velika Pečina Late Pleistocene hominid remains. *Proceedings of the National Academy of Sciences*. Washington. 96, p. 12281-12286.

SMOLÍKOVÁ, L.; LOŽEK, V. (1963) - Interglaciál a nález pleistocénního člověka u Svitávky. *Časopis pro mineralogii a geologii*. Praha. 8, p. 189-197.

SVOBODA, J. (1980) - *Křemencová industrie z Ondratic*. Praha: Academia.

SVOBODA, J. (2001a) - Mladeč and other caves in the Middle Danube region: Early modern humans, late Neandertals, and projectiles. In *Les premiers hommes modernes de la Péninsule Ibérique. Actes du colloque de la Commission VIII de l'UISPP*. Lisboa: Instituto Português de Arqueologia (Trabalhos de Arqueologia); 17 p. 45-60.

SVOBODA, J. (2001b) - La question szélétienne. In *Les industries a outils bifaciaux*. Liège: Université. ERAUL 98, p. 221-230.

SVOBODA, J. (in press) - Continuities, discontinuities and interactions in Early Upper Paleolithic technologies. View from the Middle Danube In BRANTINGHAM, P. J.; KERRY, K.; KUHN, S., eds. - *Another World. The Early Upper Paleolithic East of the Danube*. 65th Annual Meeting of the Society for American Archaeology. Philadelphia. April 5-9, 2000.

SVOBODA, J.; ŠKRDLA, P. (1995) - The Bohunician technology. In DIBBLE, H. L.; BAR-YOSEF, O., eds. - *The Definition and Interpretation of Levallois Technology*. Madison: Prehistory Press, 1995, p. 429-438.

SVOBODA, J.; BAR-YOSEF, O., eds. (in preparation) - Stránská skála. Early Upper Paleolithic occupation in the Brno Basin, Czech Republic. Manuscript.

SVOBODA, J.; VAN DER PLICHT, J.; KUŽELKA, V. (2002) - Upper Palaeolithic and Mesolithic human fossils from Moravia and Bohemia (Czech Republic): some new ^{14}C dates. *Antiquity*. Cambridge. 76, p. 957-962.

SZOMBATHY, J. (1925) - Die diluvialen Menschenreste aus der Fürst-Johanns-Höhle bei Lautsch in Mähren. *Eiszeit*. Wien. 2:1, p. 1-34, 73-95.

VALOCH, K. (1976) - *Die altsteinzeitliche Fundstelle in Brno-Bohunice*. Praha: Academia.

VALOCH, K. (1993) - Vedrovice V, eine Siedlung des Szeletiens in Südmähren. *Quartär*. Bonn. 43/44, p. 7-93.

VALOCH, K. (2000) - L'histoire de la connaissance et les questions des industries paléolithiques à pointes foliacées sur le territoire de l'ancienne Tchécoslovaquie. *Praehistoria*. Miskolc. 1, p. 95-107.

VALOCH, K.; NERUDOVÁ, Z.; NERUDA, P. (2000) - Stránská skála III - Ateliers des Bohuniciens. *Památky archeologické*. Praha. 91, p. 5-113.