The Aurignacian and after: chronology, geography and cultural taxonomy in the Middle Danube region

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ABSTRACT The specific technological and typological features of the Aurignacian of the Middle Danube region are reviewed in the context of available chronostratigraphic data and anthropological associations. Sites of the Early Aurignacian are rare and following the Danube valley, but the number of sites increases rapidly over the landscape in the period ca.34-29 kyr BP, when Evolved (typical) Aurignacian occurrences are of unambiguous technological and typological definition, and are most likely manufactured by modern humans. Assemblages often associated with the Aurignacian label, such as the "Late Aurignacian" of ca.26-21 kyr BP, the "Morava-river" or "Míškovice" type Aurignacian, and the Kašovian of ca.18-15 kyr BP, however, either share many cultural traits with the Gravettian, possibly relate to mechanical admixture, or represent altogether different traditions with "aurignacoid" elements (the Streletskian).

From a European perspective, the Aurignacian clearly appears as the first of the transcontinental entities of the Upper Paleolithic, and (despite a recent discussion) as a result of adaptation of anatomically modern humans to the northern latitudes. Such a simple statement, naturally, does not imply a completely "monolithic" unity all over the continent. Focusing on the individual regions, the techno/typological comparative studies of artifacts reveal a pattern of structuration and local differences.

One of the aims of this paper is to discuss how far such differences are real, or result from local research traditions and misunderstandings in artifact taxonomy. In the Middle Danube region, some of the uncertainties are rooted in the complex research history. Until the 1950s of the 20th century, when the Gravettian was recognized in this part of the continent, all Upper Paleolithic industries of Pre-Magdalenian age were usually labeled "Preaurignacian" and "Aurignacian". Since that time, important work has been realized in defining more clearly what the Aurignacian *sensu stricto* is (Klíma, 1959; Valoch, 1976, 1996; Bánesz, 1976; Hahn, 1977; Oliva, 1987; Neugebauer-Maresch, 1999; Svoboda et al., 1996), but a variety of "non-Aurignacian" industries are still being included into this group.

Although the Middle Danube region provided one of the richest Aurignacian concentrations in Europe, the majority of assemblages are just surface collections, or material from early excavations or from other unsecure archaeological contexts. Actually, modern research in Austria (Stratzing, Krems) and Moravia (Stránská skála, Milovice) correlates the Aurignacian development with the loess-and-paleosols stratigraphy of central Europe and with the ^{14}C chronology (Haesaerts et al., 1996; Neugebauer-Maresch, 1999; Svoboda and Bar-Yosef, 2003; Figs. 1-2). The "coarse-grained" stratigraphy, as reflected in the levels of pedogenesis visible at most loess sections in the region, may be subdivided into a finer sequence of climatic events in the key stratigraphic section of Willendorf II, and these, in turn, correlated with the global climatic development during OIS 3-OIS2 (Haesaerts et al., 1996, 2004). Even

if the stratigraphic sequence and the correlations between individual sites show a sequence of the basic archaeological horizons of the Initial, Early, and Middle Upper Paleolithic, the record also suggests partial overlaps between archaeological entities, as between the Late Bohunician and Early Aurignacian, or the Late Aurignacian and the Gravettian.

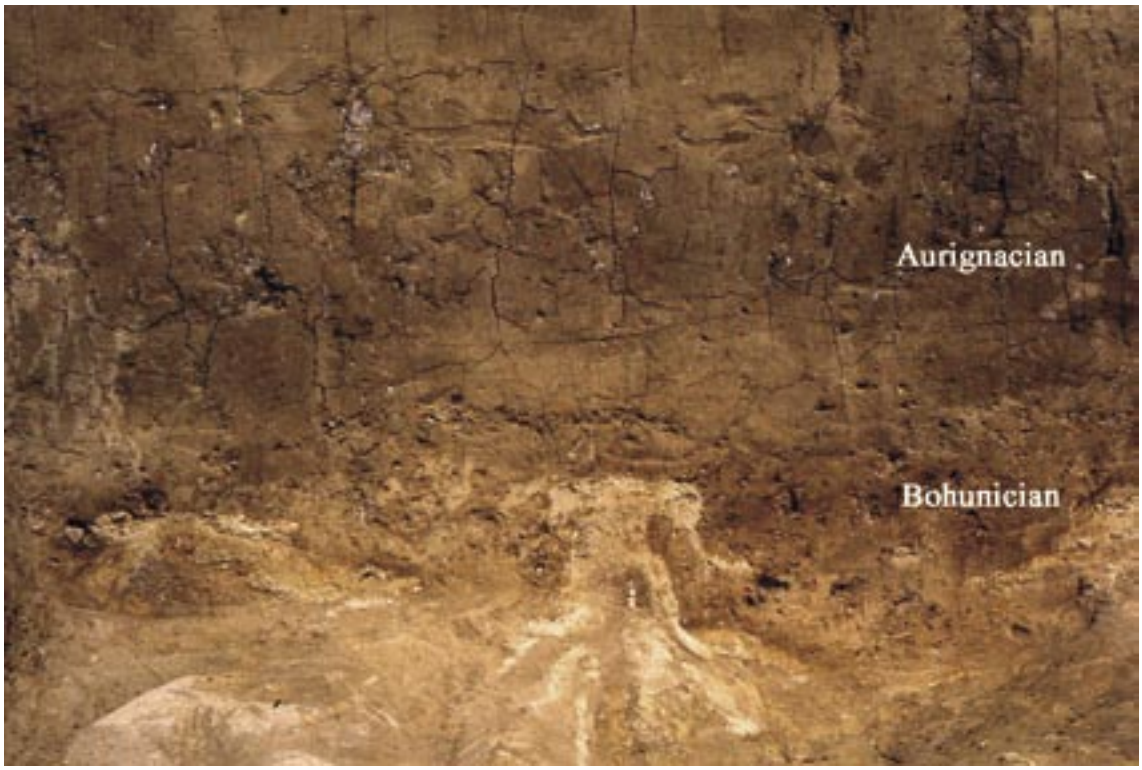


FIG. 1 – Stránská skála, site IIIa. Superposition of the two paleosols, showing a sterile loess interlayer in between. The lower paleosol includes the Bohunician (layer 4), the upper one the Aurignacian (layer 3). The effect of cryoturbation is seen visible in the lower paleosol. The Bohunician is dated to 41 300/+3100/-2200 BP (GrN-12606) (on displaced charcoal) and the Aurignacian to 30 980±360 BP GrN-12605 (regular hearth H3).

FIG. 2 – Stránská skála, site IIIb. Section showing the upper loess at the top, and the superposition of the two paleosols (with Aurignacian in the upper one, Bohunician in the lower one, and a complex of stripped soliflucted layers at the base; charcoal from the Aurignacian layer was dated to 32 600/+1700/-1400 BP, GrN-16918).

The majority of radiocarbon dates from secure Aurignacian contexts cluster between 34-29 kyr BP, the "Aurignacian Golden Age". Discussions are held about the preceding Early Aurignacian on the one hand (Zilhão and d'Errico, 1999; Teyssandier, 2005), and about the Late Aurignacian or "Epi-Aurignacian" and other possible manifestations of an Aurignacian tradition on the other hand (Terberger and Street, 2002; Verpoorte, 2004; Svoboda and Novák, 2004).

Finally, and under the influence of the new Vogelherd dates (Conard et al., 2004), recent discussion questioned the previously accepted modern human authorship of the Aurignacian technology as well as Aurignacian art. After the complex revision and dating of Mladeč and after examining the Aurignacian anthropomorphic art of central Europe (which evokes modern rather than Neandertal anatomy), it seems that the paradigm of a relationship between modern humans and the Aurignacian will remain valid.

Anthropological context

The earliest modern human fossil find in Europe, Peştera cu Oase in Romania (34-36 kyr BP), originates from a cave bear site and lacks a typologically determinable archaeological context (Trinkaus et al., 2003a, 2003b). Two more ^{14}C dates were obtained from other human remains in Romania found during earlier excavations, also without reliable archaeological associations (Peştera Muierilor, 30 kyr BP; Cioclovina, 29 kyr BP) (Beldiman, 2004). Therefore, the key site in the Middle Danube region is the cave system of Mladeč I-II, Moravia, excavated since 1881 and providing more than 100 human fossils belonging to several individuals, together with bone-and-antler projectiles with oval section (the Mladeč-type points) and items of personal decoration (Szombathy, 1925). On the basis of the points, the Aurignacian classification was advocated already by Bayer (1922) and confirmed by later research (Hahn, 1977). Even if actual revision of the cave suggests that the deposition and redeposition of human and faunal remains together with the artifacts inside this deep underground system may have been a complex and long-term process (Svoboda, 2001), the ^{14}C dates from site I, be it from the associated calcite deposits (34-35 kyr BP; Svoboda et al., 2002) or directly from the human fossils Mladeč 1-2, 8-9a, and 25c, confirm the Aurignacian classification (Wild et al., 2005). The first two finds of Szombathy, 1-2, are dated to over 31 kyr BP, while the others, 8-9a, do not exceed the timespan of sever millennia around 30 kyr BP; only Mladeč 25c dates as late as 26.3 kyr BP, which may either be due to contamination, or reflect a longer time-interval of body deposition at this place. A monographic publication of the Mladeč sites from the viewpoints of physical anthropology, paleontology, ^{14}C dating, and archeological context is in preparation.

In the case of all the other cave sites of central Europe where Aurignacian age was suspected for human fossils, the recent ^{14}C dating proves a later age (Koněprusy - Zlatý Kůň, 12.9 kyr BP; Saint Prokop's cave, 5 kyr BP; Vogelherd, 5-4 kyr BP; Velika Pečina, 5 kyr BP).

The Aurignacian landscape

Early Aurignacian sites are too scarce to provide a clear picture of settlement patterns. We may only note the association of the Willendorf II site to the Danube River as the major axis of communication in this part of Europe.

During the Evolved Aurignacian, the settlement formed a dense network of sites extended from the Austrian Danube valley through the Moravian corridor to south Poland (Fig. 3). Sur-

prisingly, Aurignacian is rarely encountered in directly adjacent Bohemia, West Slovakia and Hungary — the next more important site cluster is recorded only as far as eastern Slovakia. Mapping of the Aurignacian sites on the Middle Danube shows that the "Aurignacian landscape" covered mainly the marginal areas between highlands and lowlands, 250-400 m above sea level, especially along the margins of the Bohemian Massif, beginning with the Austrian Danube valley in the south and going as far as southern Poland in the north, penetrating along valleys deeper into the Massif, or occupying marginal highlands of the Carpathians. Thus, the Aurignacian landscape is preferable for the exploitation of two types of environment, the highlands and lowlands, with their specific vegetation cover, and offering control over the movements of game in the lowland. With the exception of the Danube valley in Austria (Willendorf), most of the sites are situated at a distance from the large rivers. On the other hand, some of these microregions offered local sources of good-quality chert (Krumlovský Les, Stránská skála) or flint (southern Poland). Faunal materials are rarely preserved at these sites, and if so (e.g. at Stratzing), they suggest a variable composition of the last glacial fauna rather than tendencies for a specialization.

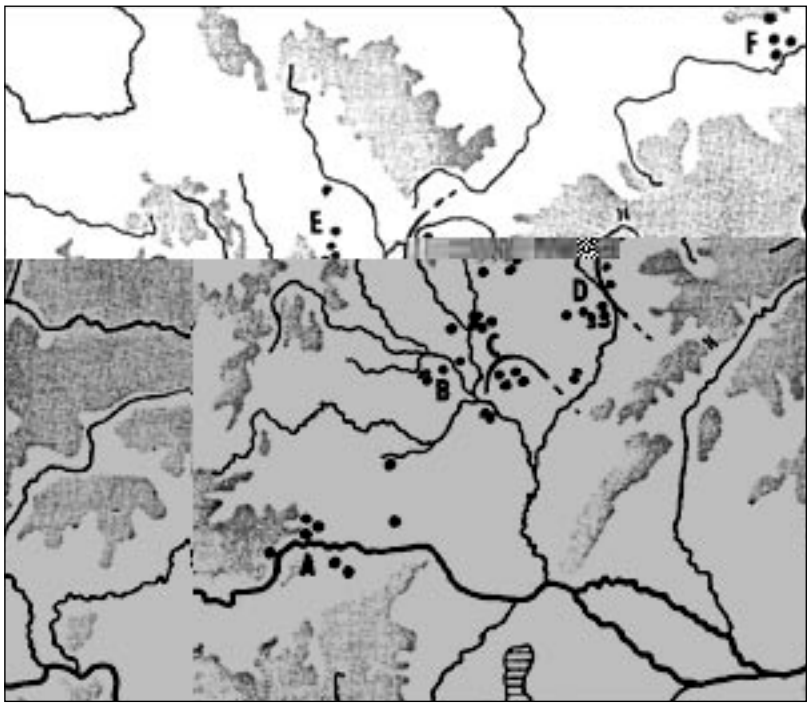


FIG. 3 – Aurignacian sites on the Middle Danube (Lower Austria, Moravia, south Poland). The letters refer to important site clusters: A. Wachau Gate (Willendorf, etc.); B. Krumlov Forest (Vedrovice); C. Brno Basin (Stránská skála); D. Kroměříž area; E. Prostějov area; F. Kraków area. The solid line separates the "Morava-river type" industries, probably penetrating from the east.

The cave of Potočka zijalka in Slovenia evidently played a special role in the Aurignacian landscape: its location in mountainous landscape at 1700 m above sea level, and the quantity of polished bone points hitherto recovered (more than 130 items), predominantly in the deep inner part of the cavity, out of daylight, make it, possibly, a place of symbolic significance.

In the following, we shall discuss the question of the "Morava-river Aurignacian" on the basis of typology (separated by the solid line of Fig. 3). Taken from the geographic viewpoint, the tendency of this strange cultural unit to follow a river is in contrast with the Aurignacian habits. However, along the rivers of eastern Europe (Prut and Don), typologically similar industries show similar tendencies.

After the Aurignacian, the "Kašovian" (previously labeled as "Epigravettian" or "Epiaurignacian") constitutes a more regular network over the Carpathian Basin (Fig. 4). In Moravia, the same type of landscape was still settled but we documented a shift from exposed ele-

vations to sheltered valleys or slopes. In the faunal material, we observed more pronounced tendencies to specialization on horse (e.g. the horse-hunting site at Stránská skála IV) and reindeer (West, 1997). This change may be related with climatic deterioration during the Upper Pleniglacial.

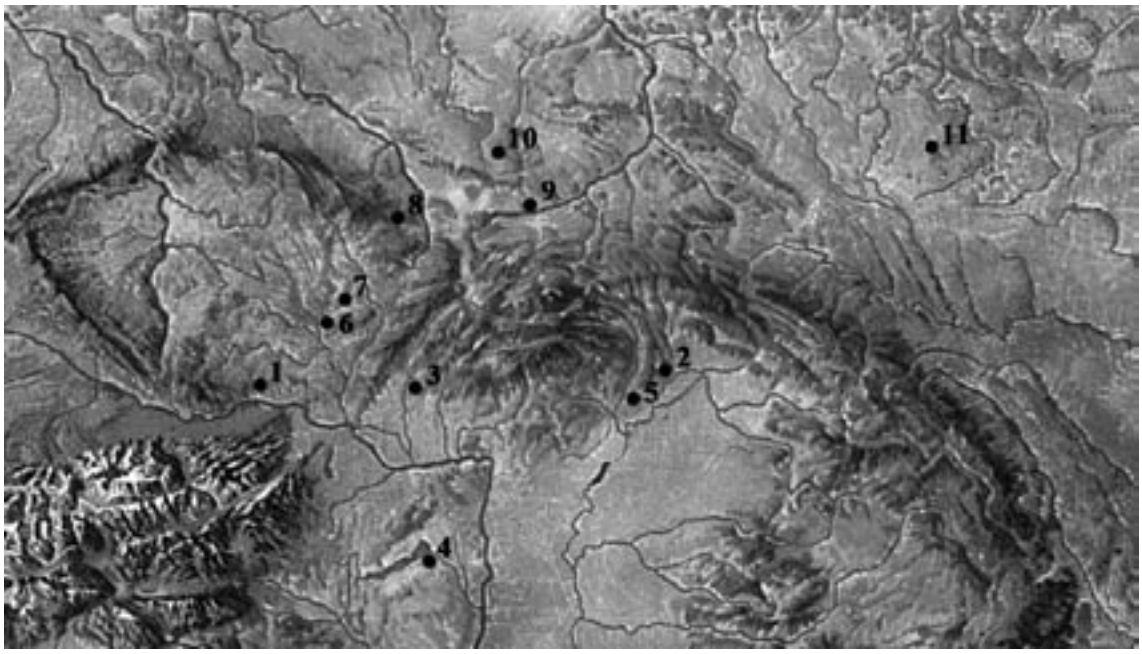


FIG. 4 – The Kašovian of eastern Central Europe, with sites mentioned in the text. 1. Grubgraben (A); 2. Kašov (SK); 3. Moravany-B
10. Deszczowa cave (PL); 11. Lipa (UA).

Aurignacian typology

In our region, the Aurignacian has been defined especially on the basis of lithic style, dominated by thick and polyhedric endscrapers and burins, the other major typological groups being retouched blades, sidescrapers, notches and denticulates (Klíma, 1959; Bánesz, 1976; Hahn, 1977; Svoboda et al., 1996). Following the comparative typological tables and indices offered in these publications, the quantitative proportion between the two most important tool-types, endscrapers and burins, displays a remarkable inter-site variability. This observation has been explained either in terms of chronology (Valoch, 1976) or cultural facies (Oliva, 1987). The more sites and dates we have, however, the more difficult it is to demonstrate statistically any regular trends that would be meaningful from chronological or spatial viewpoints.

Even if microblades logically resulted from the technological process of both the polyhedric endscraper and burin production (so that some of these specimens may, in fact, be understood as cores), the percentage of microliths is surprisingly low in most of the assemblages. This bias has sometimes been explained by the imprecise collecting and excavation methods used in the past, and by the lack of sieving and floatation, but not even the recently excavated sites provide higher percentages of these elements; on the contrary, the highest frequencies of Dufour bladelets and other microliths were found at the early excavated site of Krems-Hundsteig (Neugebauer-Maresch, 1999, p. 62). Even if microblades as one of the important indicators of Aurignacian patterning over Europe deserve a special attention, the Middle Danube region will hardly contribute in an essential manner to this problem. Except

Krems-Hundsteig, it seems that microblades were not frequent before the Late Aurignacian (as at Alberndorf), and even there, this feature is sometimes explained as an influence from the contemporaneous, and strictly microlithic Gravettian (Pavlovian).

As a result of unfavorable conditions for bone preservation at most of the open air sites in Danubian Europe, the typical bone-and-antler industry of the Aurignacian is preserved mainly from caves. A few cave sites, especially Potočka zijalka in Slovenia (Brodar and Brodar, 1983), suggest an association of the bone projectiles with the Aurignacian lithic implements. In other cave sites, the bone-and-antler projectiles may appear in other Initial and Early Upper Paleolithic contexts as well, and one may dispute to what extent this is a matter of mechanical mixture or of a broader, cross-cultural importance of these projectiles (Svoboda, 2001).

Because bone-and-antler projectiles of two types, with oval-shaped section (Mladeč-type) and with split base, are recorded in association with leaf-points and other Szeletian elements in several cave sites of the region, we suppose their cross-cultural distribution during the Initial and Early Upper Paleolithic. This suggestion is also of importance in the case of the presumed "earliest Aurignacian" from the lower stratigraphic complex of Istállos-Kö cave (dates of 44-40 kyr BP) where the cultural determination was exclusively based on the bone implements.

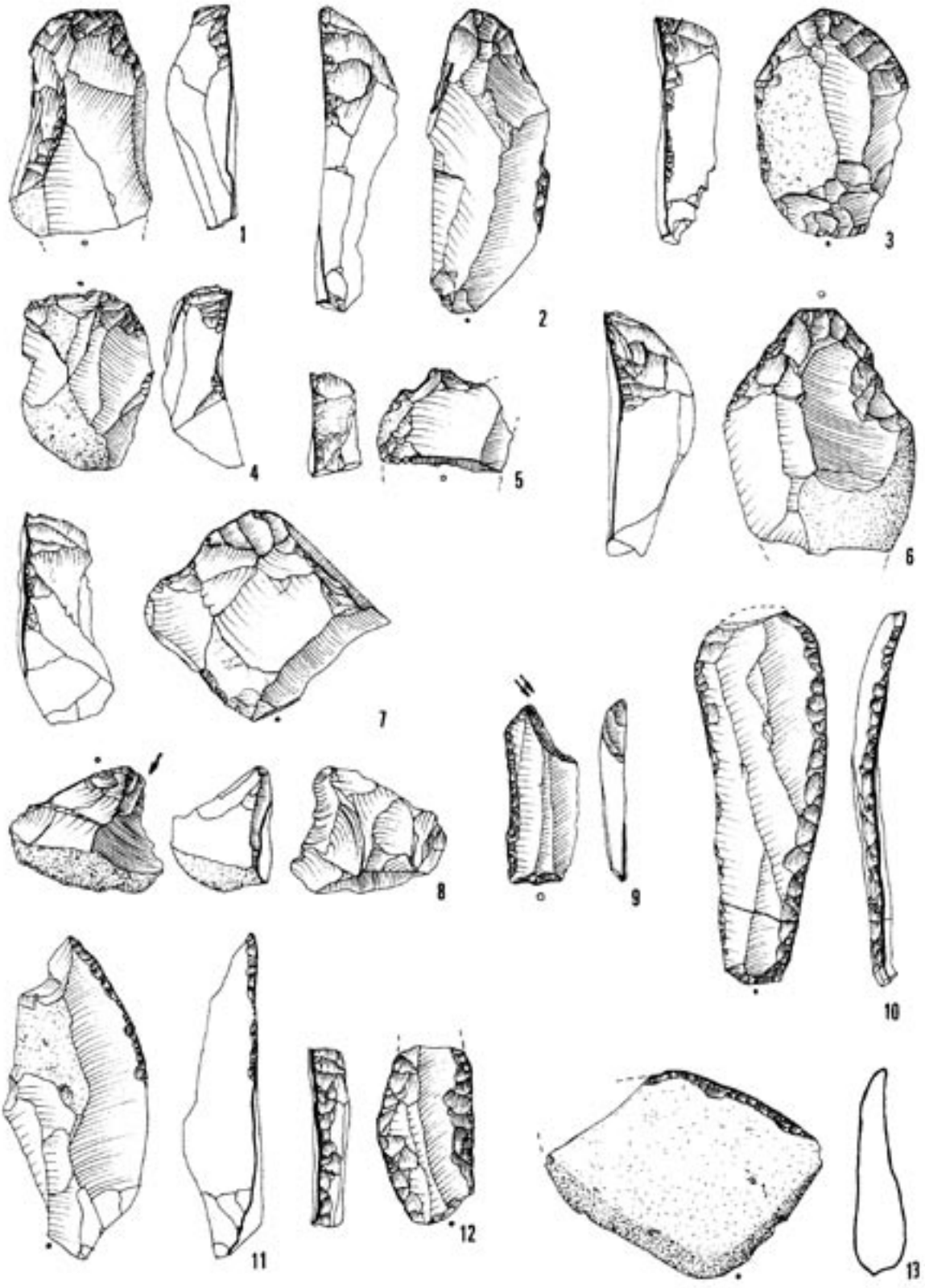
In addition, "aurignacoid", i.e., massive types of endscrapers and burins appear in our region in the IUP (Bohunician, Szeletian), in parallel non-Aurignacian industries (Morava river-type industries), and as late as after the Last Glacial Maximum (18-15 kyr BP). In this case, however, it should be underlined that the endscrapers, even if short, massive and broad in form, rarely display the typical carinated shapes and the *canelure* made by long and parallel microremovals.

There is also a reverse side of the question, i.e. the typologically foreign elements recorded in Aurignacian assemblages, discussed and interpreted by K. Valoch (1976). Since that time, it seems that the question may find simple and realistic answers. Some of these elements may be explained as misunderstandings (the "large" and "coarse" tools in the lithic exploitation areas being reinterpreted as functional, i.e., not chronological markers; Svoboda, 1983), wrong classification (the leaf-points in the "Morava-river type" industries, which should be excluded from the Aurignacian), mechanical mixture (the Levallois elements at Hradsko and Podstránská), or by a cross-cultural significance of certain tool types (the backed microblades in Late Aurignacian sites).

In the light of this, and after redefining the "earliest" sites with bone-and-antler points as Initial Upper Paleolithic in general, and the "latest" sites with Aurignacoid endscrapers and burins as Kašovian, we arrive to a more realistic chronology of the Aurignacian *sensu stricto*, placing it, maximally, and in terms of uncalibrated ^{14}C chronology, to a very broad interval between 38-21 kyr BP. It should be stressed, however, that the majority of the sites, and the most typical ones, belong to the middle stage, dated into the five millennia between 34-29 kyr BP.

The Early Aurignacian: before 35 kyr BP

As a part of the axis of Early Aurignacian sites spreading along the lower Danube (Temnata Cave, Bulgaria), upper Danube (Geißenklösterle, South Germany), and continuing as far as northern Iberia, the Middle Danubian site of Willendorf II, layer 3 (Fig. 5), provided uncalibrated ^{14}C dates around 38-34 kyr BP (Haesaerts et al., 1996; Haesaerts and Teyssandier, 2003). Sites attributed to this early period are rare, and located at considerable distances from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each other. Although the sample of Willendorf II, layer 3, is small, the industry is composed of typically Aurignacian, thick and polyhedric endscrapers and burins, whereas microliths are rare and art is absent. A date of 35.5 kyr BP was also obtained from the nearby site of Krems-Hundsteig, also on the Danube, but intensive new research is in course in this area.

It seems that the rarity of early sites is not only an effect of the actual state of research, but reflects an archaeological reality — the demographic growth of a spreading population. It should be added that at this stage of development, the Aurignacian was partly contemporary with the "transitional" or Initial Upper Paleolithic entities of central Europe such as the Szeletian and the Bohunician (Svoboda and Bar-Yosef, 2003).

Evolved (typical) Aurignacian: 34-29 kyr BP

During this time-period we observe a rapid increase in the number of Aurignacian sites, forming a regular network in Lower Austria, Moravia and south Poland, and a parallel center in east Slovakia. This is confirmed by a large series of uncalibrated ^{14}C datings between 34-29 kyr BP (Milovice, Grossweikersdorf, Senftenberg, Willendorf II – layer 4, Barca), some of which are multilayer sequences (Stránská skála – Fig. 6 – Stratzing). We need more published data about the excavations at the important Austrian sites of Senftenberg and Grossweikersdorf (Brandtner, personal communication).

Typically Aurignacian endscrapers and burins continue to form the index fossils of these assemblages. Their proportions are variable even at contemporary sites (cf. endscraper domination at all units from Stránská skála versus burin-domination at most layers at Stratzing). Therefore, these proportions can hardly be used as chronological markers, as was suggested previously. Also, microblades and other microliths are still rare in this stage of development, if we compare our industries to western Europe. Microliths (microblades, Font-Yves points or Krems points) were recorded previously at Krems-Hundsteig, and the industry has therefore been nominated "the Kremsian". As mentioned above, the typology of this site is an excep

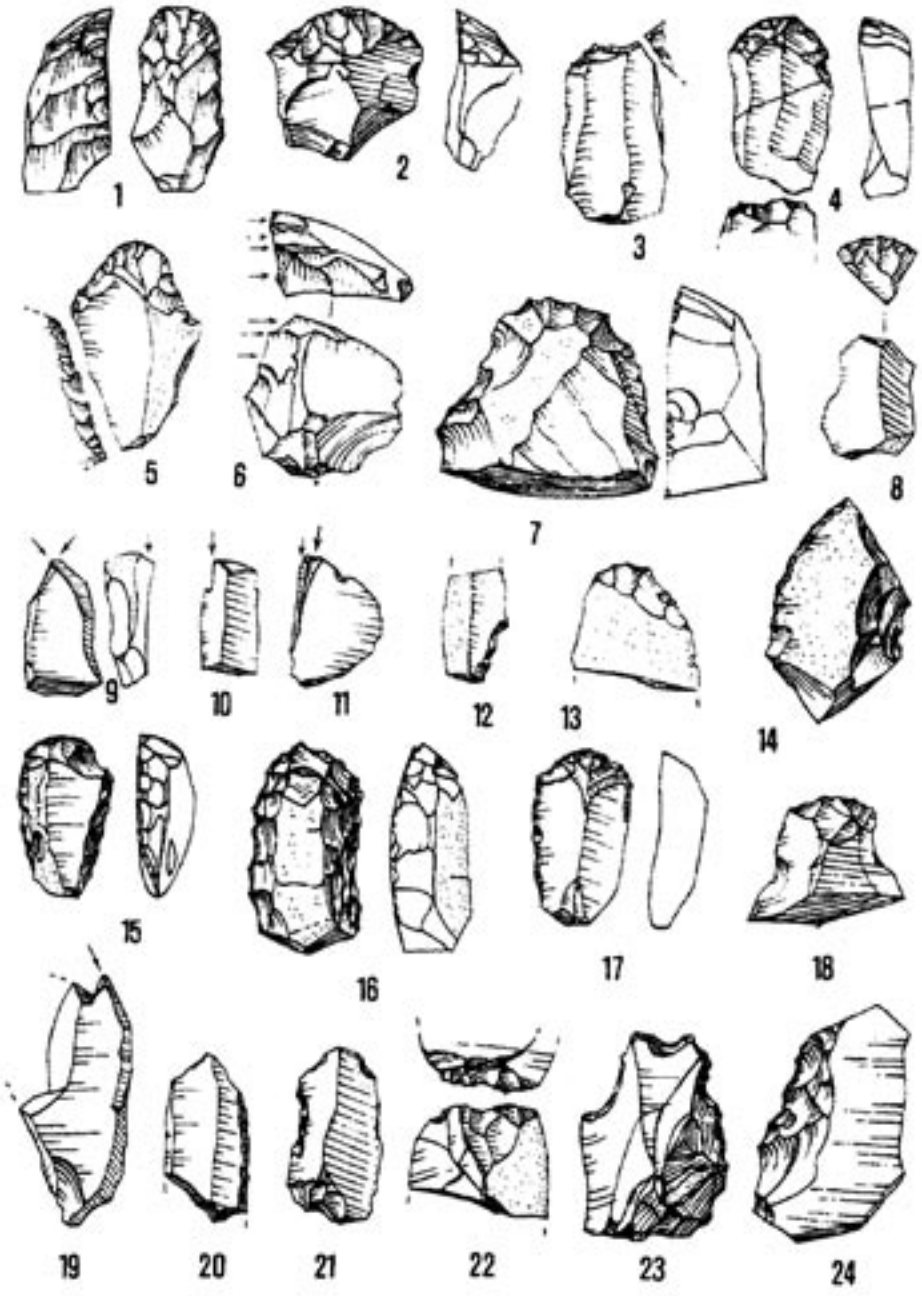

FIG. 6 – The Middle Aurignacian of Stránská skála, dated to 31 kyr BP: 1-14. site IIIa, layer 3; 15-24. site II, layer 4.

to the most recent datings, also Dolní Věstonice II-unit A (23.5 kyr BP; Fig. 7). These sites demonstrate a persistence of typically Aurignacian endscrapers and burins, accompanied, however, by microblades and backed microblades.

At this late Aurignacian stage, a mutual cultural influence and the sharing of technologies with the Gravettian should not be excluded as a possible explanation for these occurrences. This concerns also the industry in organic materials, as represented by the ivory working at Alberndorf, for example, which shows Gravettian parallels. Naturally, and especially in case of the surface assemblages such as Boršice, the coexistence of Aurignacian and Gravettian features may also be interpreted as mechanical mixture. Therefore, the term "Late Aurignacian" as applied in this paper, is provisional and open to discussion.

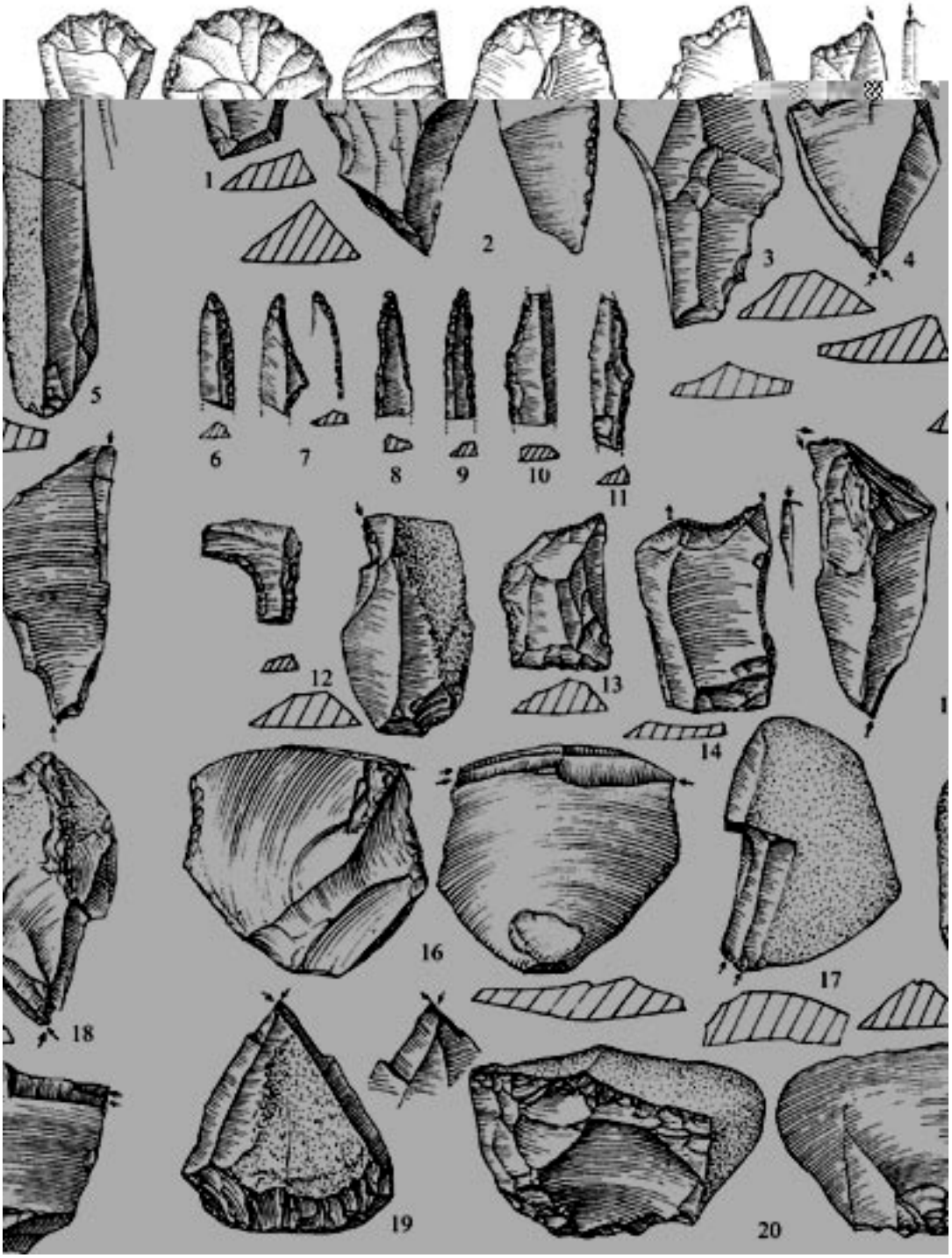

FIG. 7 – The Late Aurignacian. Dolní Věstonice II, northern slope, settlement unit A, dated to 23 540±180 BP (GrA-19498).

The problem of the industries of the "Morava-river type" (Streletskian elements)

Although it is clear that some industries classified previously Aurignacian do not belong to this group, I would like to mention in this context a specific type of industries with bifacial (sometimes triangular) leaf-points, short and broad endscrapers, and splintered pieces, found especially along the valley of the Morava river and its tributaries (Fig. 8). Until now, they have

been alternatively labeled "Aurignacian of the Morava-river type" (Klíma, 1978) and "Míškovice--type" (Oliva, 1990), but they were never found in a more secure context than surface surveys. From a broader European perspective, they can be compared to industries found along the east European rivers of the Váh, Prut and Don, which are labeled Prut-culture (Noiret, 2004), and with the Streletskian still farther to the east. Following Noiret (2004), these industries penetrated from the Don valley to the Prut River around 27-26 kyr BP. In my viewpoint, their occurrence as far as the Morava river valley may suggest a prolongation of this movement westwards. This intervention may be contemporary with the later Aurignacian, but both entities should be strictly separated (Fig. 3).

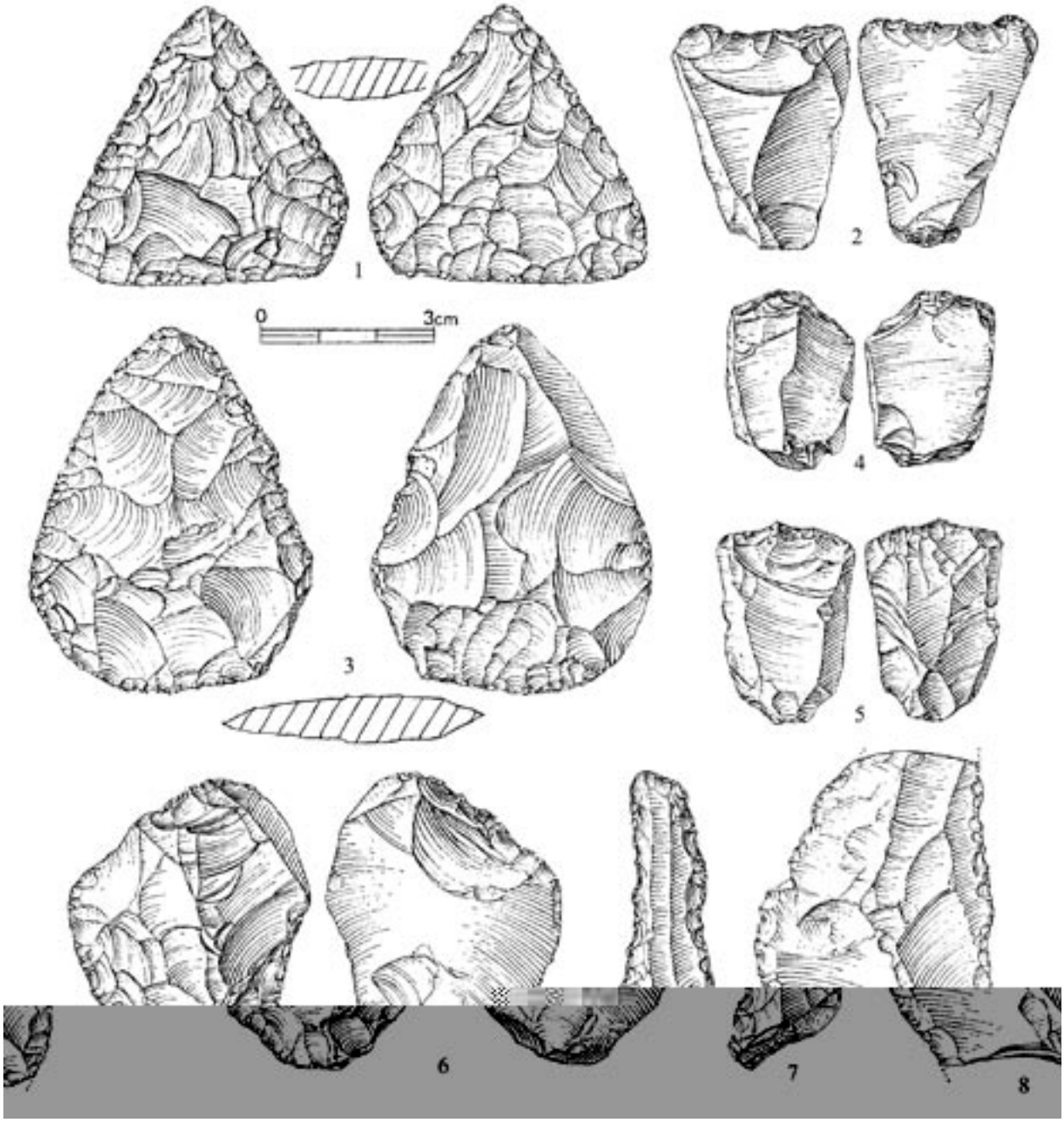

FIG. 8 – Non-Aurignacian industries, previously labeled "Aurignacian of the Morava-river type". Lhota u Lipníka, surface collection. After B. Klíma.

The Kašovian: 18-15 kyr BP

The Last Glacial Maximum played a more important role in cultural adaptation than was expected previously. During this time period, the western part of central Europe appeared as an area of remarkable demographic decrease. A more regular network of sites are recorded in the eastern part of central Europe, namely in the Carpathian Basin, which seemed to have functioned as one of the European refugia (Terberger and Street, 2002; Verpoorte, 2004; Svoboda and Novák, 2004).

As in the Late Aurignacian, the sites of this period retain certain typological elements of the Aurignacian and Gravettian traditions (Fig. 9). This seemingly justified that the cultural entities of that period were named either "Epigravettian" or "Epiaurignacian" (Kozłowski, 1996; Oliva, 1996; Svoboda et al., 1996; Valoch, 1996; Neugebauer-Maresch, 1999). However, the sites could equally well have been called "Protomagdalenian", especially on the basis of the bone industry from Grubgraben. Thus, it appears that one should reverse the process, by finding a local site of reference and define the entity as the first step, and looking for its developmental relationships as a second step.

Until recently, this time period was considered typologically extremely variable. However, new datings and the reclassification of certain sites (Moravany-Žakovská to Upper Gravettian — Verpoorte, 2002; Hranice and possibly Brno-Vídeňská to the Magdalenian — Svoboda and Novák, 2004) show that what remains is an entity which was technologically and typologically more homogeneous than expected.

One of the key sites of this period is Grubgraben in Lower Austria, with a series of dates around 18 kyr BP. This industry, accompanied by a relatively rich bone-and-antler industry (including *bâtons de commandement*), shows, however, a surprising typological variability. This is especially visible if one compares the "Epigravettian" typology as presented by A. Montet-White (1990) with the numerous "Aurignacoid" or even "Mousteroid" types recorded by Brandtner (1996). Therefore, this site still requires a detailed correlation of the various aspects of its chronology and typology.

In eastern Slovakia, the site of Kašov, providing a stratigraphy of Upper Gravettian in the lower layer and "Epigravettian" in the upper layer provides a more illustrative case. The site is located at an obsidian outcrop, a raw material which almost completely dominates in the upper layer. Compared to the lower (Upper Gravettian) layer, the upper layer is considerably larger and richer, and only a part of it has been published (Bánesz et al., 1992). Both layers are dated by ^{14}C: the lower one to 20.7 kyr BP, and the upper one to 18.6 ka BP (see Verpoorte, 2002, table 11). On the basis of the relatively clear stratigraphy, datings, amount of material, and central geographic position, we propose Kašov as the reference site of this cultural entity (Fig. 3; Svoboda and Novák, 2004).

A more dense occupation is recorded in the climatically favorable parts of Hungary. At Ságvár, on the basis of systematic excavation by Gábori in 1957, a dwelling structure has been reconstructed. In what concerns raw-material and technology, Tolnai-Dobosi (2001) emphasized the usage of river pebbles to produce short flakes. The industry is dominated by endscrapers (50-60%, after Kozłowski and Kozłowski, 1975). They are short, marginally retouched, and rarely thick. Burins make about 16-25% and are mainly angular, with several parallel removals. A *bâton de commandament* accompanies the lithic assemblage. Arka, another relevant site on the western margin of the Tokaj-Prešov Mountains, in an area of hydroquartzite outcrops, has been excavated by L. Vértés (1964/65).

Moravia and Silesia provided only one stratified and dated site (a horse hunting station at Stránská skála IV, with two dates around 18 kyr BP), accompanied by a number of unstrat-

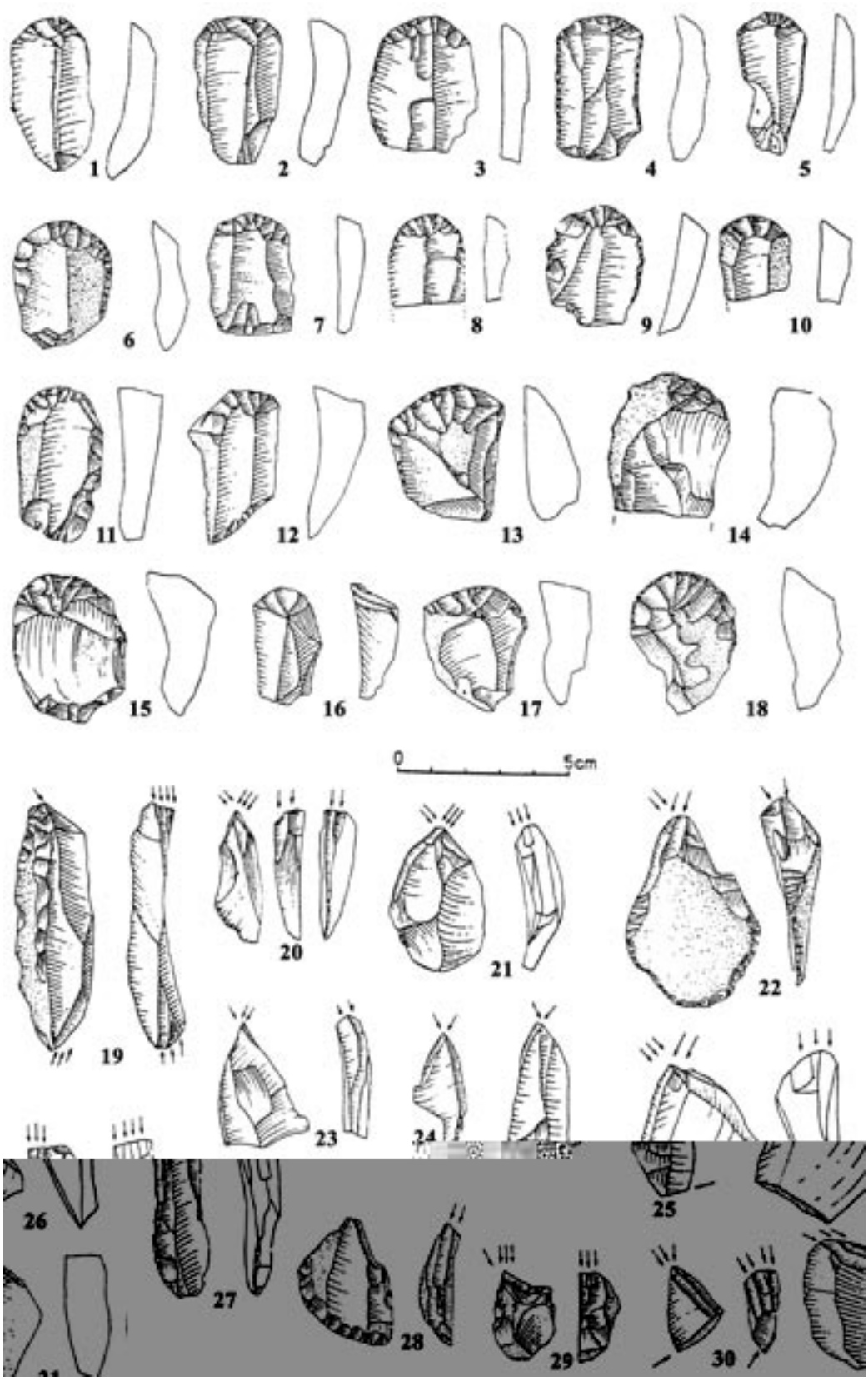

FIG. 9 – The Kašovian. Kašov, upper layer, dated 18 600±390 BP, Gd-6569. After Bánesz et al. (1992).

ified assemblages from living sites such as Pístovice II, in the Vyškov Gate, or Opava, in Czech Silesia.

In southern Poland, within the stratigraphic sequence of the multilayer site Kraków--Spadzista, the most important horizons belong to the later Gravettian (Willendorf-Kostenkian) occupations. However Kozłowski (1990) summarized several later assemblages, with dates of 17.4 kyr BP (site C2, layer II) and between 17-15 kyr BP (site B, workshop in layer 5). The industry includes some burins of various types made on shorter and longer blades, accompanied by a few backed and truncated blades; chisels of the Kostenki type are also present. A new site, dominated by typical broad endscrapers, was recently discovered at Targowisko (J. Wilczyński, personal communication).

In the western Ukraine, the site complex of Lipa, sites I-VI, has been excavated in 1963--1967 by V. P. Savich (1975), who recorded a cultural layer in the lower part of loessic clays, and also suggested a reconstruction of a dwelling structure. The industry is made of local Cretaceous flint, and is accompanied by rare bone-and-antler industry, especially by points with circular section in site VI. The cores are predominantly short (cubical), but also prismatic or discoid, suited for production of blades and flakes. The tool assemblage is dominated by endscrapers and burins. Endscrapers make about 10-20% (Kozłowski and Kozł owski, 1975) and they are short, marginally retouched, although some are thick (aurignacoid). Burins predominate (about 50%) and their forms are simple, on broken blade or truncation, and some are typically polyhedric. The assemblage is completed by pointed blades, retouched blades and microblades, and truncated blades. Some backed elements are equally present.

The Last Glacial Maximum induced complex changes in adaptation and behavior. In terms of raw materials, there is more emphasis on local sources compared to the Gravettian. However, limited amounts of materials were transported over surprisingly long distances. This is the case of obsidian, a raw material originating in the eastern Carpathian basin (also around Kašov), and found at this time as far as south Poland and Moravia. Technologically, the blanks are produced from short, cubical cores as well as from prismatic blade cores, and, specifically, from wedge-shaped microblade cores that strongly recall northern Asian parallels (Svoboda, 1995). Typologically, the groups of short endscrapers and burins predominate, but their quantitative relationship is variable at the individual sites. Both types are usually short. Some of them are thick and polyhedric, thus recalling some "aurignacoid" forms, however their quantity is low, and the morphology is different from the true Aurignacian. Also, backed implements, used as the main argument for a Gravettian tradition, are in fact surprisingly rare. Finally, the bone-and-antler industry, whenever preserved, shows parallels to the Magdalenian (*bâtons de commandament* at Grubgraben and Ságvár, needles at Grubgraben) or to the Gravettian (the circular section points at Lipa VI), but never to the Aurignacian.

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