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TARTALOM • CONTENTS

A SZERKESZTŐK ELŐSZAVA

Negyedik évfolyamunkban folytatjuk a 2014-ben Miskolcon megrendezésre került 11. *SKAM Lithic Workshop: the multifaceted biface - Bifacial technology in Prehistory* konferencia előadásainak közlését. Adriána Voľanská és Petr Škrdla egyaránt a korai felső paleolitikum levéleszközeiről írnak. Janusz Kozłowski nagyívű tanulmánya a korai középső paleolitikum kulturális sokszínűségét tárgyalja. Eleki Ferenc és Péntek Attila egészen szűk fókuszt választottak egy Gravettien kőegyüttes vizsgálatához, Gutay Mónika és munkatársai pedig izgalmas terepi hírekkel jelentkeznek Feldebrő ásatásáról.

Ez évtől kezdve rendre közölni fogjuk a Kőkor Kerekasztal éves gyűlésein elhangzott előadások kivonatait, és a honlapunkon megjelenő rövidebb beszámolók is helyet kapnak. A tartalmi újdonságok mellett kis mértékű formai igazítás is történt, mindezeken túl pedig örömmel adjuk hírül a Magyar Tudományos Akadémia Könyvtár és Információs Központtal való együttműködésünket. Ezentúl a nálunk megjelent tanulmányok digitális tárgyazonosítót (doi) kapnak, az MTA, illetve MTMT repozitóriumokban automatikusan elhelyezésre kerülnek, valamint a Crossref doi ügynökség adatbázisába is beépülnek. Ez által a Litikum tanulmányok könnyen hivatkozhatók lesznek, és tudományos hasznuk is mérhetővé válik. Izgalmas évek következnek!

EDITORIAL

This year we continue to publish studies presented at the 11th *SKAM Lithic Workshop: the multifaceted biface - Bifacial technology in Prehistory* in Miskolc, Hungary. Adriána Voľanská and Petr Škrdla discuss EUP bifacial artifacts from Central Europe. Janusz Kozłowski present a comprehensive study about early Middle Palaeolithic taxonomy in the region, while Ferenc Eleki and Attila Péntek narrow their focus to one Gravettian assemblage from Hungary. Mónika Gutay and her associates share with us fieldwork news about an Epipalaeolithic site with ceramic artifacts in association lithics. Presentation abstracts of the 2016 Lithic Roundtable and several posts from our webpage close this volume.

We are happy to announce a cooperation between Litikum and the Library and Information Centre of the Hungarian Academy of Sciences (HAS). Beginning in this year all the Litikum articles will be equipped with a digital object identifier (doi), and will be archived in the HAS digital repository. The agreement extends to a Crossref database inclusion, through which our publications will be more easy to discover, to cite and to measure their impact.

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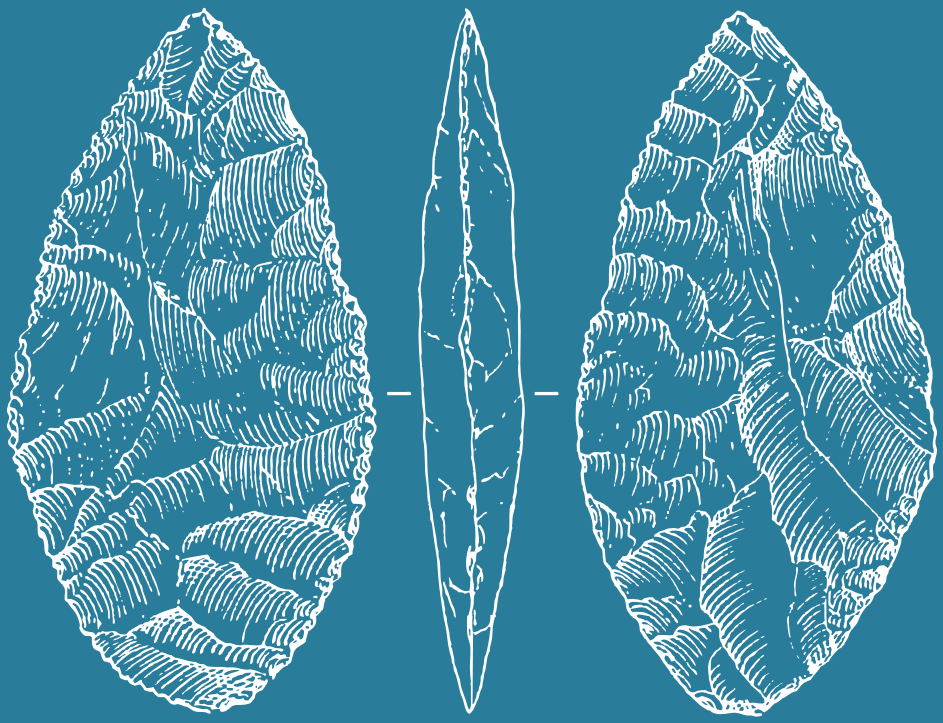

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Taxonomy of the Early Middle Palaeolithic in Central Europe

Janusz K. Kozłowski

Abstract

The objective of this paper is the analysis of cultural diversification in Central Europe, in the Penultimate Glaciation (MIS 8–6) on the basis of techno-morphological criteria. Using the taxonomic analysis of culture units in the Early Phase of the Middle Palaeolithic a hypothesis has been proposed that claims a complex, polycentric origin of some of the distinguished units that employed Levallois technology and bifacial tools such as Micoquian *Keilmesser* and leaf-points. The phylogenetic processes registered in the Early Phases of the Middle Palaeolithic determined the cultural diversity in the Late Phase of this time interval (from the Last Interglacial – MIS 5 – to the middle of the Interpleniglacial – MIS 3).

Kivonat

A korai középső paleolitikum kulturális tagolódása Közép-Európában

A tanulmány célja, hogy technológiai-morfológiai szempontok alapján elemezzük a kulturális sokszínűség kialakulását Közép-Európában az utolsóelőtti eljegesedés (MIS 8–6) idején. A középső paleolitikum korai fázisában meglévő kulturális egységek taxonómiai vizsgálatára alapozva azt a hipotézist vetjük fel, mely szerint összetett, policentrikus eredettel rendelkeznek egyes, Levallois technológiát és bifaciális eszközöket – mint például Micoquien *Keilmesser*-eket és levélhegyeket – is használó iparok. A korai középső paleolitikum idején megfigyelt filogenetikai folyamatok meghatározták ezen időszak késői szakaszának kulturális sokszínűségét is, az utolsó Interglaciálistól (MIS 5) kezdve az Interpleniglaciális közepéig (MIS 3).

Keywords *Middle Palaeolithic, Penultimate Glaciation, Mousterian, Micoquian, Levallois technology*

Kulcsszavak *középső paleolitikum, utolsóelőtti eljegesedés, Moustérien, Micoquien, Levallois technológia*

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Introduction

This paper deals with the bases of taxonomy of the Early Middle Palaeolithic lithic industries, with particular emphasis on the origins of their diversification in the period of the Lower/Middle Palaeolithic transition. The base for taxonomic classification of Middle Palaeolithic assemblages are debitage technique: bifacial (Mode 2) and flake/blade (Mode 3) technologies. This distinction reflects norms of behaviours and cultural traditions handed on from generation to generation, that were, however, limited by the available raw materials. It should be emphasized that Mode 3 was not the effect of technological innovations but, rather, of the mastery and intensification of technical skills that determined Mode 2. It should be remembered that Mode 1 and Mode 2 co-occurred for a long time, especially in south-western Europe (Terradillos-Bernal, Díez-Fernández-Lomana 2012).Yet, these Modes cannot be assigned to a single anthropological group – i.e. either to *Homo heidelbergensis* or the Neanderthals – as both groups used the bifacial and blade/flake technologies.

Among bifacial technologies and tools produced by them we can distinguish:

a) Acheulian technology producing various types of symmetrical handaxes;
b) Micoquian technology aiming at the production of asymmetrical *Keilmesser*;
c) the technology of leaf-points production.

This division represents – to some extent – cultural traditions but the specific technologies are not a simple result of the *évolution buisonnante* of the Lower Palaeolithic Acheulian, but could have had polycentric origins in the effect of the interaction between Mode 2 and Mode 3.

This is the case of the relation between the Lower Palaeolithic Acheulian and Middle Palaeolithic units with bifacial technology (the Mousterian with Acheulian tradition and the Micoquian). While the Mousterian with Acheulian tradition is limited to western and southwestern Europe (Belgium, England, France, Spain), i.e. the territories of distribution of the Acheulian (Bordes 1950; White, Pettitt 1995), the range of the

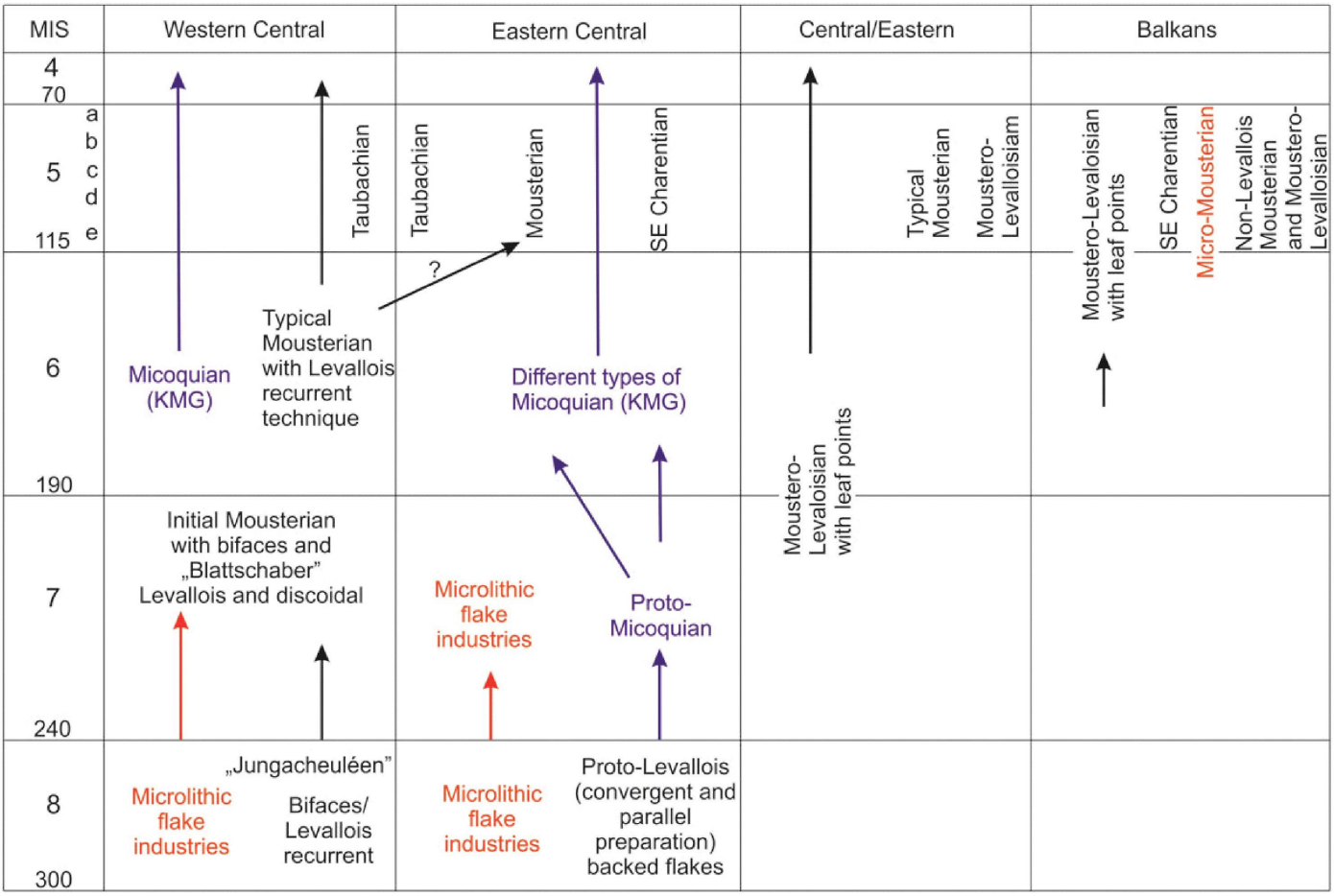


Figure 1. Chronological sequences and taxonomic differentiation in Central Europe between MIS 8 and MIS 5. //
1. ábra. Időrend és kulturális egységek Közép-Európában a MIS 8–MIS 5 időszakokban.

Micoquian or Micoquian-like industries, covering the territories of Germany, Poland, the Czech Republic, Slovakia, Hungary, Ukraine and the European part of Russia (Kozlowski 2006), extends markedly beyond the Movius-line (Movius 1948).

Moreover, the origins of the Micoquian cannot be restricted to the territories where the range of this unit and of the Acheulian overlap. The sequence in the eponymous site of La Micoque points to a late chronological position of the Micoquian level. At La Micoque the Micoquian occurs in level 6 dated to the early phase of the Last Glaciation (MIS 4). The underlying level 5 contained Acheulian handaxes, yet it is later than level 4 with the typical Mousterian. Thus, the Micoquian in south-western Europe is a much later phenomenon than in Central Europe where it appears already in isotope stage MIS 7 (Texier, Bertran 1993).

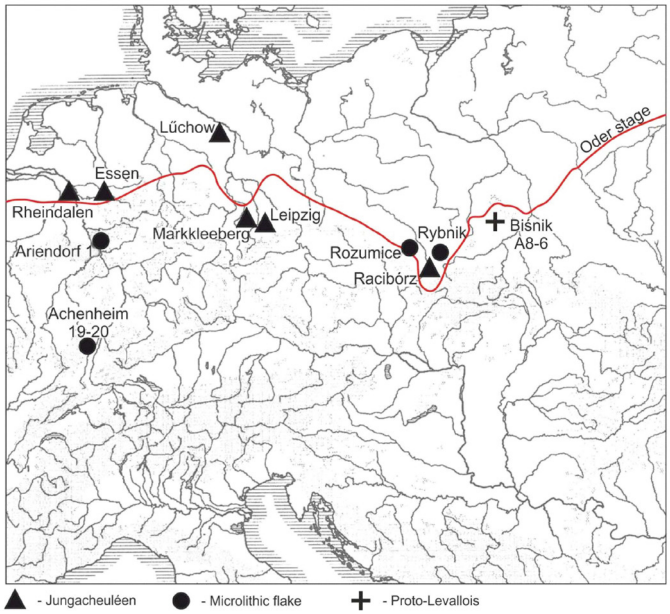
The relation between the Micoquian and the typical Mousterian has been claimed to be solely that of parallel cultural traditions. Attempts have been – just as in the case of the various facies of the Mousterian – to treat the two units as different stages of tool exploitation: unifacial tools representing a less advanced stage of tool use, and bifacial tools representing a more advanced stage of use and tool re-shaping (Soressi, Dibble 2003). On the basis of such a distinction J. Richter (2006) wants to interpret Mousterian sites as transient Summer occupations, and Micoquian sites as more stable Winter camps. Consequently, the morphological/typological diversity of forms within a specific technology would not, necessarily, represent a variety of final forms but, rather, reflect re-shaping in the effect of life-history of artefacts. However, this hypothesis seems unlikely as at other sites, except Sesselfelsgrotte (Richter 2006), no correlation exists between the Micoquian or the Mousterian and seasonality of camp occupation. It should be added that interference of the two units has also been registered.

Among unifacial technologies the basic difference is between flake technologies which do not determine blank forms and technologies that attempt to pre-determine the shape of the blank, namely

- various types of Levallois methods (unidirectional, centripetal recurrent, convergent, parallel) and
- volumetric blade debitage.

These two technologies belong to the set of norms of behaviours of specialized flint-knappers. At the same time, an important determinant of these norms was the availability and quality of raw materials.

The third level of taxonomic classification is blank re-shaping into different forms of retouched tools using various types of retouch. Among diagnostic tool groups belong side-scrapers, points, denticulated/notched tools, and Upper Palaeolithic type tools. At this level the interaction of a number



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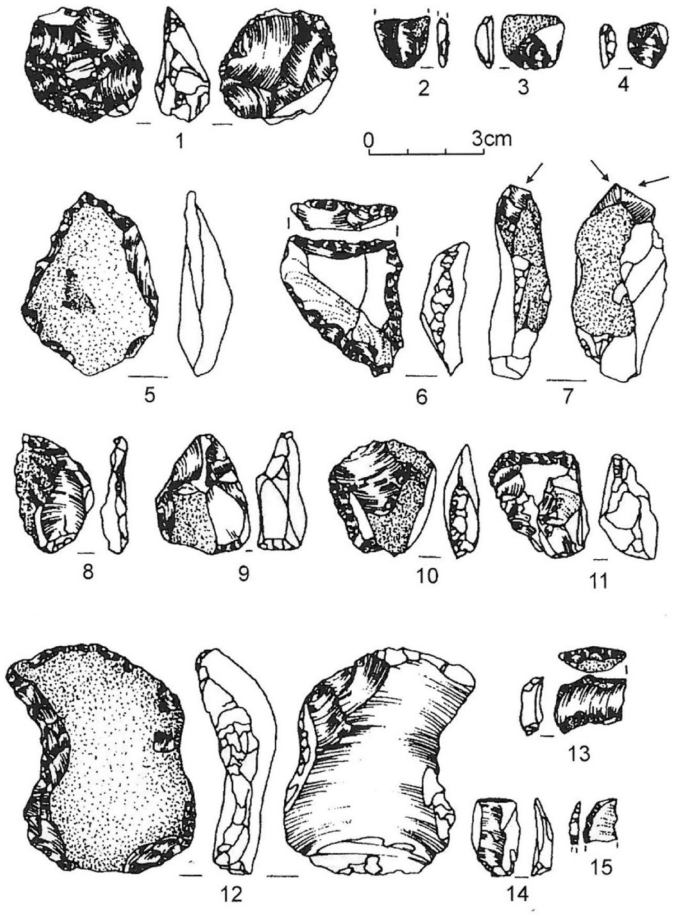

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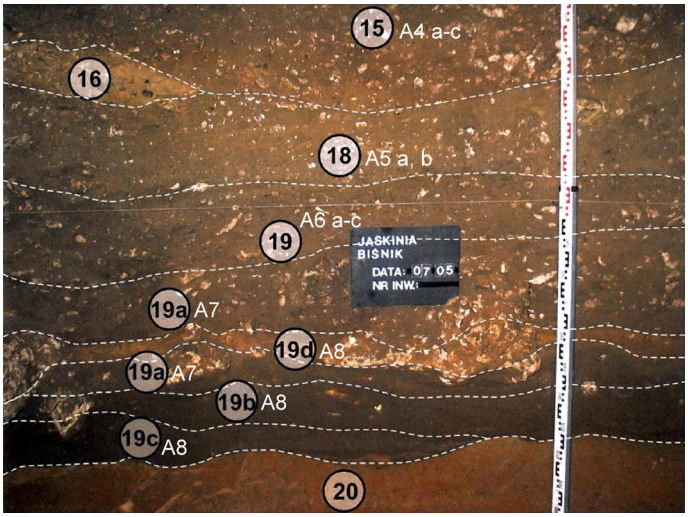

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4. ábra. Biśnik-barlang (Kraków-Częstochowa-fennsík, Lengyelország). Az S metszetfal profilfotója (20–15. rétegek, A8–A4a–c kőegyüttesek). (Cyrek 2013 nyomán).

of factors is clearly noticeable: cultural tradition (which determines type of retouch and tool shapes, but also blank type), available raw materials, and tool maintenance registered as life history of an artefact.

An important stimulus of technological and morphological changes were climatic oscillations: from cool episodes partially related to the ice-sheet transgressions (MIS 8, 6, 4) to warmer interglacials or interstadials (MIS 7e, 7c, 7a, 5e, 5c, 5a). Adaptations to these conditions influenced the functional structure of lithic assemblages and the accessibility to raw materials.

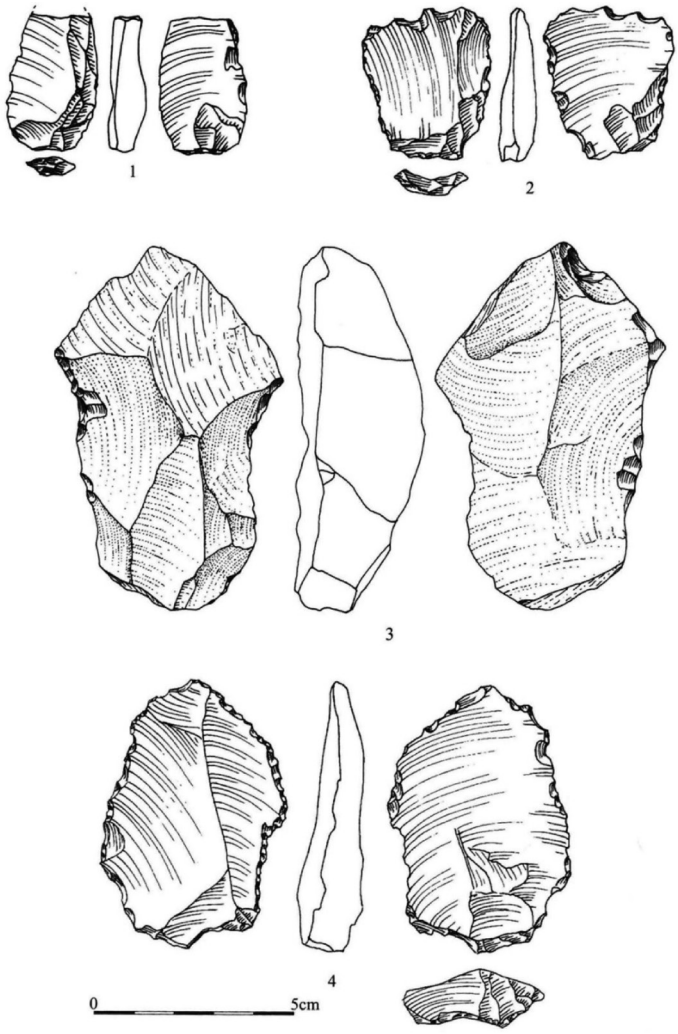
Taxonomic variability during MIS 8 (300–240 ka BP)

In the period between MIS 8 and MIS 4 the Middle Palaeolithic taxonomic diversity reflects persistence of a variety of technological-morphological traditions, their modifications, and the emergence of new cultural entities (Bosinski 2000–2001; Kozłowski 2014) (**Fig. 1**).

The beginning of the Middle Palaeolithic is placed at MIS 8 stage when settlement expanded, for the first time, into the marginal zone of the Oder ice-sheet. In this period the following units are distinguished (**Fig. 2**):

a) The post-Acheulian represented by workshop sites in the Elbe and the Saale basin, with the largest site of Markleeberg. The most characteristic feature of this unit is the co-occurrence of two technologies: Mode 2 with bifacial tools and Mode 3 with a fairly well-developed Levallois technology. In its nature, the site of Markleeberg near Leipzig was a large workshop. The site has provided about 100,000 artefacts (Grahmann 1955; Baumann, Mania 1983).

b) The microlithic flake industries in the western part of Central Europe and in the Upper Oder basin (Ariendorf, Rozumice 3 – 279–253 ka BP). A distinctive feature of these



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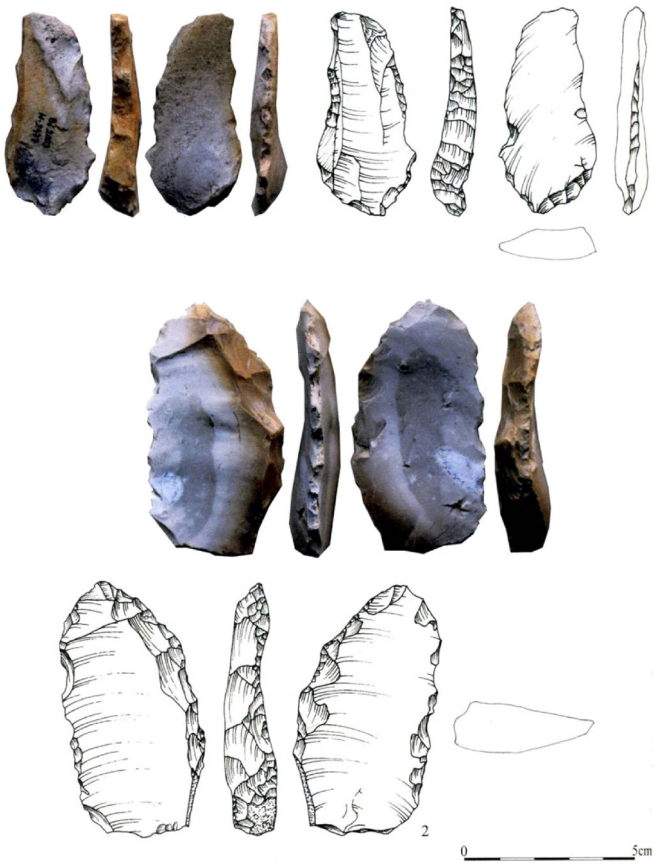

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6. ábra. Biśnik-barlang (Kraków-Częstochowa-fennsík, Lengyelország). A6a kőegyüttes (19. réteg; TL kora >279±97 ka BP). Tompított hátú eszközök (Cyrek 2013 nyomán).

industries is microflake technology based on discoidal or irregular multiplatform cores. Flakes, frequently cortical, are retouched round the entire circumference, sometimes notched (**Fig. 3**). Sites with microlithic flake industries have provided not only hearths but also – at Rozumice 3 – a probable round dwelling structure built from erratic boulders (Foltyn et al. 2004).

c) The Protolevalloisian – the lowest part of the Biśnik Cave (layers 19b, c, d to 19; assemblages A8 to A6 – Cyrek 2002; 2013) TL dated at >219 ka BP (**Fig. 4**). Prominent features are flakes with centripetal dorsal preparation, and prepared butts are characteristic. Flakes were retouched into lateral side-scrapers, or had lateral-transversal retouch, sometimes on the entire circumference (**Fig. 5**). Assemblage A6a contained tools with a blunted, weakly convex back (Cyrek 2013: Pl. VII). These tools – although with unilateral retouch – could be seen as prototypes of Micoquian knives (**Fig. 6**).

Thus Central Europe was dominated in isotope stages MIS 8–7 by the units that were rooted in the Lower Palaeolithic: in the western part of Central Europe in the Acheulian (Bosinski 1967), whereas in the northern part of Central Europe in the microlithic industries of Bilzingsleben–Vértesszőlős unit (Burdukiewicz, Ronen 2003; Burdukiewicz 2003). The initial stage of the Levallois technology known from the oldest assemblages in the Biśnik Cave seems to confirm the hypothesis forward in the literature (Gladilin, Sitlivy 1990; Kozlowski 2003; Wiśniewski 2014) that claims the origins of this technology in Central Europe independently of the western European Acheulian. One of the arguments in support is the very early appearance of Levallois technology at Korolevo in Transcarpathic Ukraine in the assemblage of layer VI (MIS 9) according to V. Stepanchuk (2006), although L. Kulakovska (2003) wants to see the first elements of its as late as layer V (MIS 7/MIS 6 boundary).

Taxonomic variability during MIS 7 (240–190 ka BP)

The period of MIS 7 between two transgressions of the Saalian Glaciation saw climatic amelioration. In Central Europe it was manifested by formation of travertine sediments in Thuringia and in Slovakia, by alluvial sedimentation (e.g. in

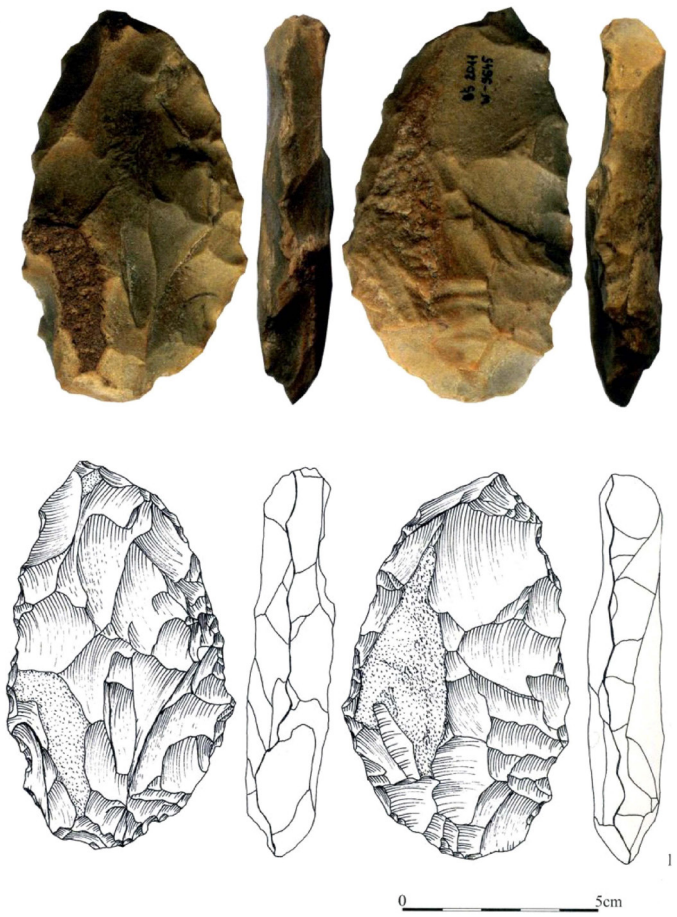

Figure 7. Biśnik Cave (Kraków-Częstochowa Jurassic Plateau, Poland). Assemblage A4a (layer 15, TL dated 195±35 ka BP and U/Th dated 200±32 ka BP). Proto-Micoquian bifacial *Keilmesser.* (After Cyrek 2013) // **7. ábra**. Biśnik-barlang (Kraków-Częstochowa-fennsík, Lengyelország). A4a kőegyüttes (15. réteg; TL kora 195±35 ka BP, U/Th kora 200±32 ka BP). Proto-Micoquien *Keilmesser* (Cyrek 2013 nyomán).

the Elbe basin), by inter-loess soils (in the Carpathian Basin, in southern Poland and in Western Ukraine), also by lacustrine sediments (e.g. the Geisel valley in eastern Germany). Moreover, in cave sediments isotope stage MIS 7 can be marked by erosional processes with a major agency of water.

In the eastern part of Central Europe preserved sites from MIS 7 are more numerous. The following units have been distinguished:

a) The continuation of the post-Acheulian workshop type sites represented by the site of Hundisburg in eastern Germany where Levallois technology co-occurs with some few handaxes (Toepfer 1981).

b) The Proto-Micoquian (*Keilmessergruppe*, KMG) recognized in the sequence of the Biśnik Cave in layer 18 (assemblage A5a – TL dated on sediment and flints at 230 ka BP), and layer 15 (assemblage A4a – U/Th dated at 200±32 ka BP and TL dated on flints at 195±35 ka BP) (Cyrek 2013). While assemblage A5a (**Fig. 7**) is characterized by the presence of Levallois technology, with only one "*Blattschaber*" specimen (Cyrek 2013: Pl. XVI: 1) and one backed piece on a flake (Cyrek 2013: Pl. XV: 3), assemblage A4a provided a typical Micoquian bifacial *Keilmesser* (Cyrek 2013: Pl. XXV).

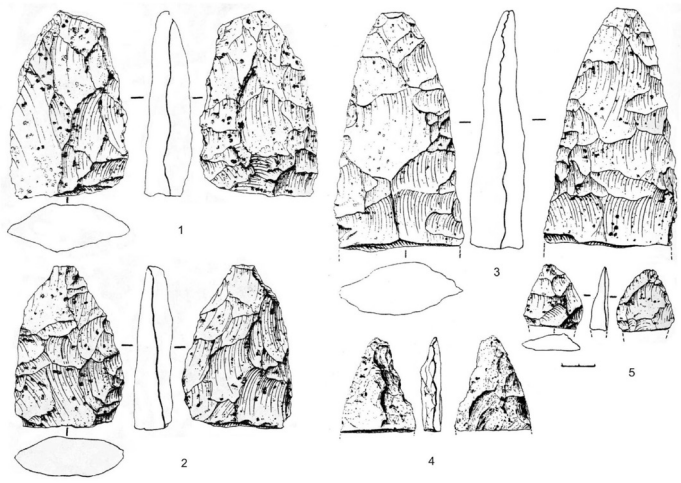

Figure 8. Korolevo II (Transcarpathian Ukraine). Leaf points: 1 – layer VI, 2–5 – layer Vb. (After Gladilin, Sitlivy 1990). // **8. ábra**. Korolevo II (Kárpátalja, Ukrajna). Levélhegyek: 1 – VI réteg, 2–5 – Vb réteg (Gladilin, Sitlivy 1990 nyomán).

c) The Initial Mousterian with handaxes and *Blattschaber*, with Levallois and discoidal technology. This type of assemblages is known, mainly, from the western part of Central Europe. The most classical assemblages are embedded within travertines in Ehringsdorf near Weimar. The lower portion, U/Th dated at 245–190 ka BP, had formed in temperate, sub-continental conditions. Periodically, Mediterranean type of vegetation was also present. The Initial Mousterian shows a number of features in common with the typical Mousterian of the post-Eemian period: the prevalent discoidal technology, fairly thick blanks detached from discoidal cores. Blanks were steeply retouched into side-scrapers, points and *limaces*. Stepped retouch and even *envahissante* retouch were also used (Behm-Blanke 1960). The fauna associated with assemblages from these sites included *Elephas antiquus,* rhinoceros, horse, and beaver (Soergel 1922).

d) The microlithic flake industries continued to develop. Sites of this unit concentrate in the northern part of the Carpathian Basin, embedded, as a rule, in travertines. The most important site is Beharovce-Sobocisko that was initially attributed to MIS 5 (Bánesz 1961; Kaminská 2014), but – subsequently – the travertines at Beharovce provided an U/Th date of about 206 ka BP (Hausmann, Brunnacker 1988). The microflake industry, mainly on radiolarites, consists of denticulated-notched tools, retouched flakes and side-scrapers. The presence of microflake industries in the western part of Central Europe could, possibly, be claimed at the site of Neumark-Nord in the Geisel river valley, TL-dated at 204 ka BP (Mania 2000). However, Neumark-Nord is a killing site where *Rhinoceros kirchbergensis* and *Bos primigenius* were hunted. The presence of Levallois technology makes the inventory from Neumark-Nord different from other microflake assemblages.

e) The Mostero-Levalloisian with leaf-points reached its easternmost range. This industry has been best recognized in Transcarpathian Ukraine. At Korolevo – the classical site of this unit – within the inter-loess soil (TL dated at 220±35 ka BP) layer 12 contained assemblages Vb and Va (**Fig. 8**)

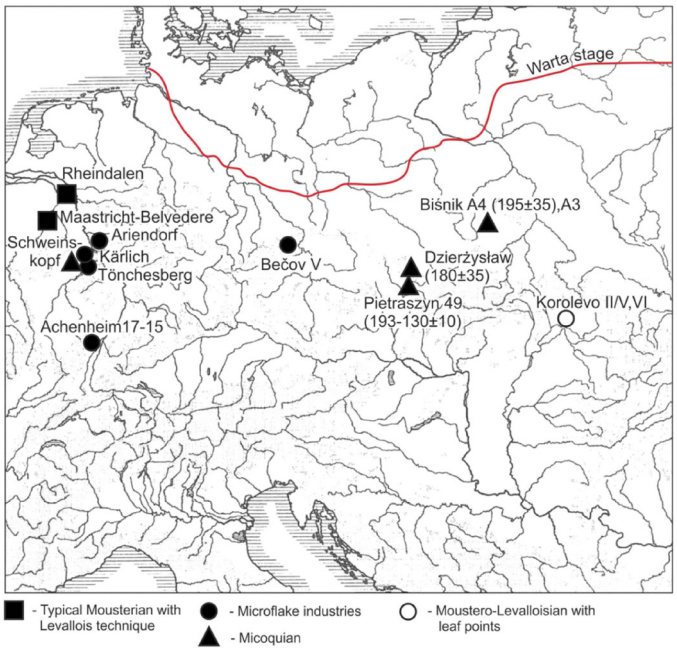

Figure 9. Map of Central Europe during MIS 6 (red line – Warta stage ice-sheet front). //
9. ábra. Közép-Európa a MIS 6 idején (vörös vonal – a Warta stadiálisban a jégtakaró kiterjedésének déli határa).

characterized by a well-developed Levallois technique in association with elongated leaf-points carefully shaped by bifacial retouch (Gladilin, Sitlivy 1990; Koulakovskaya 1995; 1999).

To sum up the cultural diversity in MIS 7: units from the initial phase of the Middle Palaeolithic (post-Acheulian workshop type sites and microlithic flake industries) are continued, simultaneously new units evolved such as the Micoquian (KMG), the Initial Mousterian of Ehrigsdorf type and the Moustero-Levalloisian with leaf-points. While the sequence in the Biśnik Cave indicates local origin of the Micoquian, the other three units do not have clear predecessors either in Central or in Eastern Europe.

Taxonomic variability during MIS 6 (190–125 ka BP)

In the period of the Warta stage ice-sheet transgression, despite the smaller range of the ice-sheet, settlement in Central Europe does not spread far to the north beyond the mountain ranges of the Beskids and the Sudetes (**Fig. 9**). Unlike in the Oder stage settlement does not extend close to the front of the ice-sheet. The most important taxonomic units, that existed in MIS 7 stage, such as the Micoquian, microflake industries and the Moustero-Levalloisian with leaf points still persist. Only in the western part of Central Europe a unit appears comparable to the typical Mousterian of the western European La Ferrassie type (Bosinski 2000–2001). no other new taxonomic units evolve in OIS 6.

Despite of continuity of earlier technological and morphological features in MIS 6 taxonomic units exhibit some differences in comparison with the units of MIS 7 stage viz. the distribution of cultural units and ways of exploitation of natural environments of cool loess steppe or even periglacial steppe. In MIS 6 stage the following units have been recognized:

a) The Micoquian (KMG), both with and without Levallois debitage. The facies without Levallois debitage is known from Pietraszyn in Upper Silesia TL dated at between 193±17 and 130±10 ka BP (Fajer et al. 2001). It is characterized by the presence of asymmetrical bifacial *Keilmesser* and typical Micoquian handaxes (**Fig. 10**). A similar early date for the few bifacial tools was obtained from the site of Dzierżysław I (Upper Silesia): 180±35 ka BP (Foltyn et al. 2000). The facies with Levallois debitage is represented by the assemblage from layer 14 (assemblage A3a) of the Biśnik Cave (Cyrek 2013). Distinctive features of this assemblage are fairly small assymetrical *Keilmesser* (Cyrek 2013: Pl. XLIV: 1, 2); unifacial backed forms (Cyrek 2013: Pl. XLIV: 3), similar to specimens in layer 19, continue to occur. In layer 14 (just as in layer 15) discoidal core technique and Levallois debitage co-occur with bifacial technique. Chronology of layer 14 is imprecise: for the lower boundary TL dates on flint gave 195–139 ka, but TL dates on sediment are younger (81±17 ka or even MIS 5/4).

b) Microflake industries occur in the territory of Germany (Achenheim layers 15–17 – Junkmanns 1991), and the Czech Republic (Bečov 5 – Fridrich 1982). The distinctive features of these industries are lateral side-scrapers and fine retouched flakes; sporadically small, bifacially retouched specimens also occur (Junkmanns 1991, Fig. 6:1).

c) Typical Mousterian with Levallois recurrent method is maintained in the western part of Central Europe, mainly in the upper level of the Older Loess, also in the volcanic sediments of the Rhein valley (Schweinskopf, Wannen). The sites of this facies were registered at Rheindalen-Ostecke B3 (Bosinski 2000–2001; Conard, Fischer 2000). The debitage technique and tool morphology resemble to the western European Mousterian of La Ferrassie type.

d) Levallois technology also persists east of the Carpathian mountain range, recorded in the sequence of Korolevo level II (Kulakovskaya 2009), and at other sites e.g. Velykyi Glybochok (Łanczont et al. 2014) or Buhliv V (Sytnyk 2000). Unfortunately, the correlation of absolute dates at these sites with the stratigraphy of loess levels and inter-loess soils is not always unequivocal. Nonetheless, the emergence of units with Levallois technology, also with leaf points, dates back in this part of Europe to stages MIS 8 (Protolevalloisian) and MIS 7 (Moustero-Levalloisian with leaf points). This chronology confirms the polycentric origins of Levallois technique proposed by A. Wiśniewski (2014). The polycentric model of the origins of Levallois technology associated with leaf-points is further confirmed by the presence of this association in the northern Balkans, most importantly in the sequence of the Kozarnika Cave (Bulgaria) where horizons 10c, 10b (**Fig. 11**) have been dated by palaeofauna to MIS 6 (200–130 ka) (Guadelli et al. 2005; Ferrier et al. 2009). Leaf-points, nearly oval in shape, occurred in the context of Levallois method with centripetal or bipolar preparation, with side-scarpers and denticulated tools (Sirakova 2009).

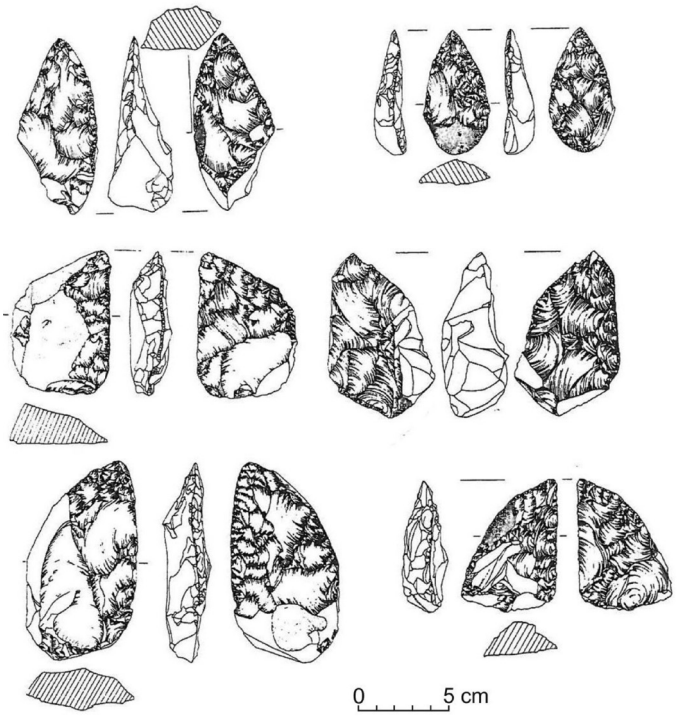

Figure 10. Pietraszyn 49 (Upper Silesia, Poland). Micoquian implements TL dated at 193–130 ka BP. (After Fajer et al. 2001) // **10. ábra**. Pietraszyn 49 (Felső-Szilézia, Lengyelország) Micoquien eszközök, TL koruk 193–130 ka BP. (Fajer et al. 2001 nyomán).

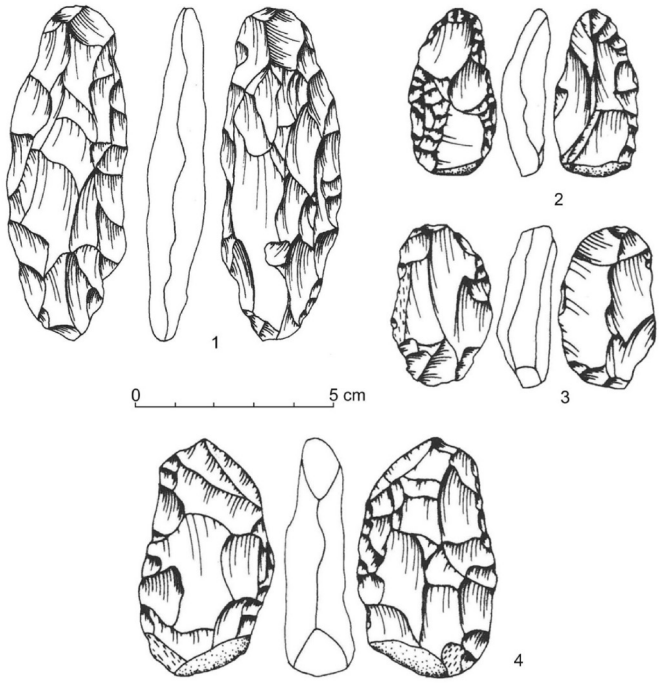

Figure 11. Kozarnika Cave (Bulgaria). Leaf points from layer 10a–10b (1–4), dated at 200–130 ka BP. (After Sirakova 2009) // **11. ábra**. Kozarnika-barlang (Bulgária). Levélhegyek a 10a–10b (1–4) rétegekből, koruk 200–130 ka BP (Sirakova 2009 nyomán).

Conclusions

The evolution of the Early Phase of the Middle Palaeolithic, mainly in the Penultimate Glaciation, indicates polycentric origins of units whose typical attribute is the use of Levallois technology associated or not with bifacial tools, including the Central European Micoquian. These units developed independently of their Western European or South-Western European counterparts. Other units such as the microlithic flake industries evolved from local, Lower Palaeolithic techno-morphological traditions.

The phylogenetic processes described in this paper determined the cultural diversification during the Last Interglacial (MIS 5). In Central Europe emerged:

a) The Micoquian (KMG) as a continuation from MIS 7 and MIS 6. Micoquian facies, such as Könisgause A and Prondnician (Buhlen), evolved before MIS 4. Other facies (Bockstein, Klausennische) are first evident as late as MIS 4 and developed until the first half of MIS 3 (Bosinski 2000–2001; Kozlowski 2014).

b) The Taubachian (microlithic non-Levallois), continuing the microlithic flake tradition in MIS 5e (Taubach, Weimar, Kůlna layer 11–12 – Behm-Blanke 1960; Valoch 1988).

c) The Moustero-Levalloisian with leaf points (Ripiceni Izvor IV–V, Mamaia – Păunescu 1993; Temnata members 10–7 – Sirakova 2009) and without leaf-points (Yezupil, Korolevo level II/III – Koulakovskaya 2009).

d) Typical Mousterian distributed across the whole Central Europe (e.g. Königsaue B – Mania, Toepfer 1973; Kraków-Zwierzyniec I 6, 7 – Kozłowski S. K. 2006; Bacho Kiro 14–12 – Kozłowski J. K. 1982).

e) SW Charentian (Krapina – Malez 1970), concentrated in the Western Balkans and the Middle Danube Basin.

The taxonomic units d) and e) are novel in the Last Interglacial in Central Europe. The processes of diversification of the Middle Palaeolithic units in Central Europe in the time interval from the Last Interglacial to the Early Phase of the Interpleniglacial have thus a complex polycentric nature (Kozłowski 2006). The beginnings of these processes reach back to the early phase of the Middle Palaeolithic when in the Penultimate Glaciation Central European Middle Palaeolithic units emerged independently of the Western and Eastern European, or even Mediterranean centres.

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