

University of Miskolc
Faculty of Earth Science and Engineering
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**APPEARANCE FORMS OF THE BLADE TECHNOLOGY
DURING THE UPPER PALAEOLITHIC
IN THE EASTERN BORDERS OF BÜKK MOUNTAINS
AND THE ENVIRONMENT OF THE BÜKK PLATEAU**

Theses of Dissertation

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INTRODUCTION

In my doctoral dissertation, I studied the forms and variations of the Upper Palaeolithic-type blade technology in three geographical regions of the Bükk Mountains, Hungary. I selected eight (four & four) archaeological sites from the border territories of Bükk-fennsík (Plateau), Bükkalja (Piedmont) and Bükk-hát (Ridge) to the total analyses. As the sites cover the Upper Palaeolithic, chronologically, they are suitable to present tendencies of the forms, qualities, quantities and causes of the technological changes as non-representative samples.

There are three cave sites and five open-air sites in my sample group. Five sites of them had been excavated and published earlier (Szeleta Cave, Istállóskő Cave, Herman Ottó Cave, Sajószentpéter–Margit-kapu and Miskolc–Rózsás). Two of them (Miskolc–Molotov St, Miskolc-harsányi elágazás) had been excavated, but they have not been published, yet. One site (Miskolc–Kis-föld) is unexcavated (known from field-survey) and unpublished. The cave sites represent two evolutionary stages at least, separately. The all archaeological sites can be ranged into five cultural units (1. Early and Developed Szeletian, 2. Aurignacian I–II., 3. Late Gravettian, 4. Early Epigravettian, 5. Late Epigravettian) and four chronological periods (~44–28 ka uncalBP, 26–21 ka uncalBP, 20–18 ka uncalBP and 18–[16]–12 ka uncalBP). (*Fig. 1*)

THESIS 1

Correlation of the Herman Ottó Cave and Miskolc-harsányi elágazás open-air site

My research had been established and started by two assumptions: 1. László Vértes published in 1965 that the cultural determination problem of the Herman Ottó Cave (HOC) has been solved by only a similar lithic assemblage excavated by modern methods (VÉRTES 1965, 179); 2. Árpád Ringer assumed from 1999 that the lithic assemblage of Miskolc-harsányi elágazás open-air site (MHEL) was in connection with the Aurignacian collection of the Herman Ottó Cave. He based it on the similarities of the blade cores of the sites (RINGER, 2001, 100; RINGER, 2002, 309–310).

My techno-typological analyses on the lithic assemblages and the other results of my excavations at the sites confuted the possibility of connection, admittedly (RINGER *et al.* 2006; KORDOS–SZOLYÁK 2008; SZOLYÁK 2008–2009a–b, 2010; SZOLYÁK–RINGER 2018). The lithic collection of MHEL is contemporaneous with the Layer 5 (by Kadić) of HOC (24,3–18,5 ka uncalBP – SZOLYÁK 2008–2009a), which layer has not given enough artefacts to the detailed comparison in 2005–2006, contrary to the Layer 2 in 1915. The chronological difference between the MHEL and the Layer 2 of HOC is confirmed by the radiocarbon data of two layers of HOC (RINGER *et al.* 2006; SZOLYÁK 2008–2009a), the sedimentological phenomena (ice-wedges) and order of the layers observed in MHEL in

1999 (RINGER 1999), and the laboratory analyses of the samples taken from MHEL in 2010 (MARSÍ 2010).

Although the previous opinion of the techno-typological similarities between the two assemblages based on the morphological and technological features of the blade cores and raw materials (metarhyolite) of them was valid, but my detailed analyses demonstrated the following substantive differences:

The assemblage of the HOC (35–28 ka uncalBP) represents an industry, in which the blade production was very important (laminar elements in total: 29.85%; laminar elements in the tool-kit: 69.23%), while in the assemblage of the MHEL (20–18 ka uncalBP), the flakes are dominant contrary to the blades and bladelets (laminar elements in total: 8.81%; laminar elements in the tool-kit: 17.95%). The situation is very similar in the ratio of the flake and blade cores (laminar cores in total: 80.00% [HOC] and 32.47% [MHEL]). Moreover, in spite of that the technological knowledge is almost the same based on the two assemblages, the blade core-kit of the HOC is in a larger range in metrical sense and it presents more diversified technological picture. The features of the HOC blade cores prove the more ambitious approach. The laminar blanks are longer and they fit better to the criteria of the literature (INIZIAN *et al.* 1995 & 1999; HOLLÓ *et al.* 2002, 2004; PIEL-DESRUISSEAU 2007).

THESIS 2

The closest technological and cultural analogy of the Palaeolithic assemblage of the Herman Ottó Cave – Miskolc–Molotov St

Meanwhile investigation of the regional blade technological changes by the eight archaeological sites, I proved that the closest analogy of the HOC in space and time is the unpublished assemblage of Miskolc–Molotov St (MOL), which had been excavated in 1959. My evidences lean on only techno-typological data (SZOLYÁK 2018). I found that both of the assemblages have clear typological connections with the Aurignacian II. and the Developed Szeletian, and there is concordance between the applied methods of their blade technology.

There is a special importance of the bifacial leaf-shaped tool of the MOL. Although it fits into the Developed Szeletian based on the morphometrical analysis (MESTER 2010, 2011, 2014), but the almost perfect analogy of it can be found in another and older culture with blade productions and leaf-shaped tools (points), the Jerzmanowician (CHMIELEWSKI 1961; KOZŁOWSKI 2002, 57; FLAS 2008, 19, 225, Fig. 1).

I exposed spectacular conformities between the lithic assemblages of the HOC and MOL: a) expending of the closest (within 2.5 km!) raw material sources (HOC: metarhyolite, MOL: limnic silicite) in greatest ratio (>65.00%); b) proportion of the laminar elements in the total assemblages: HOC – 29.85%, MOL – 31.69%; c) laminar elements in

the tool-kits: HOC – 69.23%, MOL – 60.00%; d) ratio of the laminar cores: HOC – 80.00%, MOL – 89.74%; e) similar technological variability among the blade cores; f) long and relatively great blade blanks, which fit well to the criteria of the literature (INIZIAN *et al.* 1995 & 1999; HOLLÓ *et al.* 2002, 2004; PIEL-DESRUISSEAU 2007).

THESIS 3

Variations of the Upper Palaeolithic blade technology and the question of its evolution in the studied regions of the Bükk Mountains

As the studied groups of the Upper Palaeolithic peoples, which had been belonged to different cultural and techno-typological complexes, had almost the same technological and technical knowledge, we cannot talk about *sensu stricto* evolution of their blade technology from the chronological horizon of the Developed Szeletian/Aurignacian II. I think that the two most important criteria of the blade technology, the preparing of the Upper Palaeolithic blade debitage and the capability of the exhausting bipolar blade cores, can be proved in case of the above-mentioned four chronological periods. The real differences can be searched not by the presence or absence of the technological/technical knowledge, but the quality and variability of their applications. In this sense, we can rather make mentions of apparent decadence than concrete evolution from the Late Pleniglacial, except Sajószentpéter. The preparation of the blade debitage, the length of the blade blanks, the ratio of the application of blades in the tool production and the variability of the raw materials represent better values in the former (first) period. These modifications had probably been caused by the long-range climatic changes, which directly affected the natural environments (e.g. the obtainable fauna and the floral coverage) (PAZONYI 2006 & 2011; SÜMEGI 2014) and the possibilities of the procurement of raw materials (LENGYEL 2014). The enduring changes correlate well with the H3–H2–H1 events (HEINRICH 1988; RASMUSSEN *et al.* 2014).

The sharpest technological shift of the studied regions was near 28 ka uncalBP. Previously, the subsistence strategy generally demands larger domestic tools and armatures, and the blades were rather required to the former ones. The armatures consist of leaf-shaped points and polished bone points in that time, and the first Upper Palaeolithic group, which regularly made armatures from blades and bladelets, was the Gravettian in our regions. In the first period (~44–28 ka uncalBP), the blade blanks were produced from relatively large blade cores after preparing debitage accurately. The procurement/choosing of the local raw materials to the making longer, wider and thicker laminar elements were also more careful than during the Last Glacial Maximum and directly after it. There was greater significant of the repairing knapping accidents and the exhausting of the cores were usually finished at larger dimensions. Based on the assemblages of the HOC and especially the MOL, I suppose that the blade cores were mobile items in less degree before the Late

Pleniglacial, and those ones, which were used to the large blade production, were generally deposited to another occasion. The great dimensions of the blanks were functional, and the decrease of the measurements of blanks were not significant before 26 ka uncalBP.

During the Late Pleniglacial and the Late Glacial, the decrease of blank dimensions is unambiguous. In the Last Glacial Maximum and after, the groups usually used the local raw materials, but the quality demands of them were lower than formerly. In the blade debitage, the preparing of the cores (e.g. making crest) was conscious in less degree, and their exhausting move toward the unorganized forms. The correction of the knapping accidents were not too important and, probably because of the modified fauna, the armatures were made of significantly smaller blanks. As the faunal elements were also smaller built, the insertion armatures were made in many cases instead of the self-supporting points. To make of this latter one, there had been needed the blade debitage, but the aesthetic and regularity view-points were negligible, because the use, the attachment and the replacement of their unretouched edges were resolvable easily.

Based on research of the eight sites, I found that the repairing of the knapping accidents did not influence the evolution (changes) of the blade technology. The demand of it always depended on the quality and quantity of the procurable raw materials, and the repairing was solved by occasional or systematic opposite (or bipolar) detachments.

THESIS 4

Raw material procurement and the blade technology

I did not find significant differences between the raw material procurement and using of the four periods. In the environment of the Bükk Mountains, three kind of raw material with medium or good quality (limnic silicite, metarhyolite, wood-opal) could have been procured within short or regional distance in cases of any sites. The long-distance and exotic (Transcarpathian) raw material are notable ratio in only the assemblages of the Istállóskő Cave and Miskolc–Rózsás. Both of them indicate greater mobility and moderate climatic and favourable environmental conditions (LENGYEL 2009, 2014, 2017).

I could not represent context between the raw materials and the blade technology, save that the tabular raw materials were collected and preferred than the pebble and block in the studied region during the Upper Palaeolithic.

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CONFERENCE PRESENTATIONS IN MY RESEARCH THEME

Szolyák, Péter

Variations and Changes of the Upper Palaeolithic Blade Technology in the Region of Bükk Mountains, Hungary

Organizer: European Association of the Archaeologists

Conference name: 23rd Annual Meeting of The European Association of the Archaeologists

Locality: Maastricht, Hollandia

Date: 2017. augusztus 30.–szeptember 3. (1.)

Szolyák Péter – Szalacsi Klára

Közép-felső paleolitikus kő leletgyűttes a miskolci Molotov utca 12–14. (Papszer 32–34.) 1959. évi leletmentő feltárásából

Organizer: Herman Ottó Múzeum, Pannon-tenger Földtörténeti és Természetrájszi Tár

Conference name: 6. Kőkor Kerekasztal. A kőkor kutatóinak éves konferenciája

Locality: Herman Ottó Múzeum, „Pannon-tenger Múzeum” Kiállítóépület

Date: 2015. december 11.

Mester, Zsolt – Lengyel, György – Szolyák, Péter

Leaf-shaped artifacts at Szeleta Cave in their stratigraphic and cultural context

Organizer: Herman Ottó Múzeum, Pannon-tenger Földtörténeti és Természetrájszi Tár

Conference name: 11th SKAM Lithic Workshop. The multifaceted biface – Bifacial technology in Prehistory

Locality: Herman Ottó Múzeum, „Pannon-tenger Múzeum” Kiállítóépület

Date: 2014. október 20–22. (21.)

Szolyák, Péter – Lengyel, György*Techno-typological study of the "hand-axes" of Bársony's house*

Organizer: Herman Ottó Múzeum, Pannon-tenger Földtörténeti és Természetrajzi Tár

Conference name: 11th SKAM Lithic Workshop. The multifaceted biface – Bifacial technology in Prehistory

Locality: Herman Ottó Múzeum, „Pannon-tenger Múzeum” Kiállítóépület

Date: 2014. október 20–22. (21.)

Szolyák Péter - Lengyel György*Ember a kőeszköz mögött - a bársony-házi "szakócák" újraértelmezése*

Organizer: Miskolci Egyetem, BTK, Történettudományi Intézet, Őstörténeti és Régészeti Tanszék

Conference name: Archeometria, kognitív- és szociálarcheológia

Locality: Miskolci Egyetem, XXXIV. előadó

Date: 2013. március 21-22. (21.)

Szolyák Péter*Gravetti leletgyűttesek Miskolc déli határából: a harsányi elágazás és a Kis-föld*

Organizer: Miskolci Egyetem, BTK, Történettudományi Intézet, Őstörténeti és Régészeti Tanszék

Conference name: Régibb kőkor kerekasztal

Locality: Miskolci Egyetem, BTK Könyvtára

Date: 2010. december 3.

Szolyák, Péter*Evidences of Lithic Technological Evolution between the Aurignacian and the Gravettian in Northeastern Hungary - The Region of Bükk Mountains*

Organizer: European Association of the Archaeologists

Conference name: 15th Annual Meeting of The European Association of the Archaeologists

Locality: Riva del Garda, Olaszország

Date: 2009. szeptember 15-20. (19.)

Mester, Zsolt - Vercoutere, Carole - Pathou-Mathis, Marylene - Markó, András - Lengyel, György - Szolyák, Péter*Upper Palaeolithic occupations at Istállóskő Cave, Northeast Hungary: archaeozoology and artefact technology*

Conference name: Venus08 - Art and Lifestyle Symposium: Cultural development of the European Upper Palaeolithic (Aspects of Gender, Anthropology, Settlement structures and Subsistence Strategies)

Locality: Bécs, Ausztria

Date: 2008. november 10-14. (13.)

Szolyák, Péter*A könyvsanyagok beszerzésének és felhasználásának stratégiái a "Miskolc-harsányi elágazás" felső-paleolit lelőhelyén*

Conference name: VI. Erdélyi Magyar Régészeti Konferencia

Locality: Babeş-Bolyai University, Cluj-Napoca (Kolozsvár), Románia

Date: 2008. november 7-9 (7.)

Lengyel, György - Petrykowski, Stanislaw - Szolyák, Péter

New evidence for migrations of Upper Palaeolithic populations and distribution of raw materials between Hungarian, Slovakian and Polish territories

Conference name: ORBIS INTERIOR ORBIS EXTERIOR - Konferencja Archeologiczna

Locality: Torun-Bachotek, Lengyelország

Date: 2008. október 16-18. (16.)

Lengyel, György - Szolyák, Péter

Salvage Excavation at Szeleta Cave 2007

Organizer: Szeleta Kultúráért Közalapítvány, Miskolc

Conference name: Szeleta Workshop. Comemorating the 100 years of anniversary of the Szeleta Cave's excavation

Locality: City Hotel, Miskolc

Date: 2007. október 12-15. (13.)

Szolyák, Péter

A Herman Ottó-barlang és a Herman Ottó-kőfülke paleolitikus leletanyagának revíziója

Organizer: Miskolci Egyetem, Bölcsészettudományi Kar, Őstörténeti Műhely, Miskolc

Conference name: Őstörténeti Konferencia

Locality: Miskolci Egyetem, Bölcsészettudományi Kar, Miskolc

Date: 2006. november 23.

Ringer, Árpád - Mester, Zsolt - Szolyák, Péter

Les mines de silex de Miskolc-Avas et leurs rôle dans le recherche paléolithique du Nord-est de la Hongrie. (In French with English)

Organizer: Miskolci Egyetem, Bölcsészettudományi Kar, Miskolc

Conference name: Prehistoric Flint Mining - Miskolc Avas Workshop

Locality: Palotaszálló, Miskolc-Lillafüred

Date: 2005. július 25-26. (25.)

Fig. 1 Chronological position of the studied sites (Changed by the author based on MARKOVA et al. 2013, 5, Fig. 1.: “Chronology of the Archaeological Sites”)

