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The Upper Palaeolithic in the Dunazug Mountains (Transdanubia, Hungary): A case study from Kiskevély Cave near Csobánka

Kristóf István Szegedi[1,2*], Tibor Marton[3] and György Lengyel[1,4]

[1] National Institute of Archaeology, Hungarian National Museum Public Collection Centre, Múzeum krt. 14–16, H-1088 Budapest, Hungary

[2] Faculty of Earth and Environmental Sciences and Engineering, University of Miskolc, Egyetem út 1, H-3515 Miskolc-Egyetemváros, Hungary

[3] HUN–REN Research Centre for the Humanities, Institute of Archaeology, Tóth Kálmán utca 4, H-1097 Budapest, Hungary

[4] Faculty of Humanities and Social Sciences, University of Miskolc, Egyetem út 1, B/2 Épület, H-3515 Miskolc-Egyetemváros, Hungary

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ABSTRACT

The objective of this paper is to enhance our understanding on the Upper Palaeolithic chronology and archaeological taxonomy of the Carpathian Basin based on the sites of the Dunazug Mountains (Western Hungary, Transdanubia). At the onset of the 20th century, both the cave and open-air sites of the region were attributed to the 'Magdalenian' corresponding to the late Pleistocene. From the 1960's the lithic assemblages of the cave sites were grouped together under the term 'Pilisszántó culture' which encompassed Late Glacial industries in Hungary. Following the abandonment of the term 'Pilisszántó culture', both the cave sites and the open-air Pilismarót site cluster were integrated into the Epigravettian phase. As a result, the sites in the Dunazug Mountains were not only considered contemporaneous but also thought to be integral components of the same hunter-gatherer annual cycle. This conclusion was drawn from the presumed similarities in the lithic industries and the observed differences in the faunal remains. To test this hypothesis, we analyzed the lithic assemblage from Kiskevély Cave near Csobánka. Our study revealed that the tool types from the cave differ from those previously published from open-air sites. The high proportion of armatures, characteristic of the Late Gravettian in Eastern Central Europe, indicates that the site was occupied by hunter-gatherers prior to the Last Glacial Maximum. These findings suggest that the area was not exclusively inhabited by Epigravettian groups, suggesting a more complex pattern of hunter-gatherer presence and landscape use in the region during the Upper Palaeolithic.

KEYWORDS

cave site, Late Gravettian, lithic typology, Upper Palaeolithic

INTRODUCTION

Since the early 20th century, the Dunazug Mountains in Transdanubia (Western Hungary) yielded several Upper Palaeolithic (UP) (45–12 ka calBP) cave and open-air sites (Fig. 1). Their taxonomic and chronological classifications have been a topic of enduring debates.

Three cave sites excavated in the 1910s yielded the first UP finds of that region: Pilisszántó I Rock Shelter, Jankovich Cave, and Kiskevély Cave (also known as Mackó Cave). The whole sequence of Pilisszántó I Rock Shelter, and the uppermost Pleistocene layers of Jankovich and Kiskevély Caves were identified as Magdalenian due to the presence of backed

*Corresponding author.
E-mail: szegedi.kristof@hnm.hu

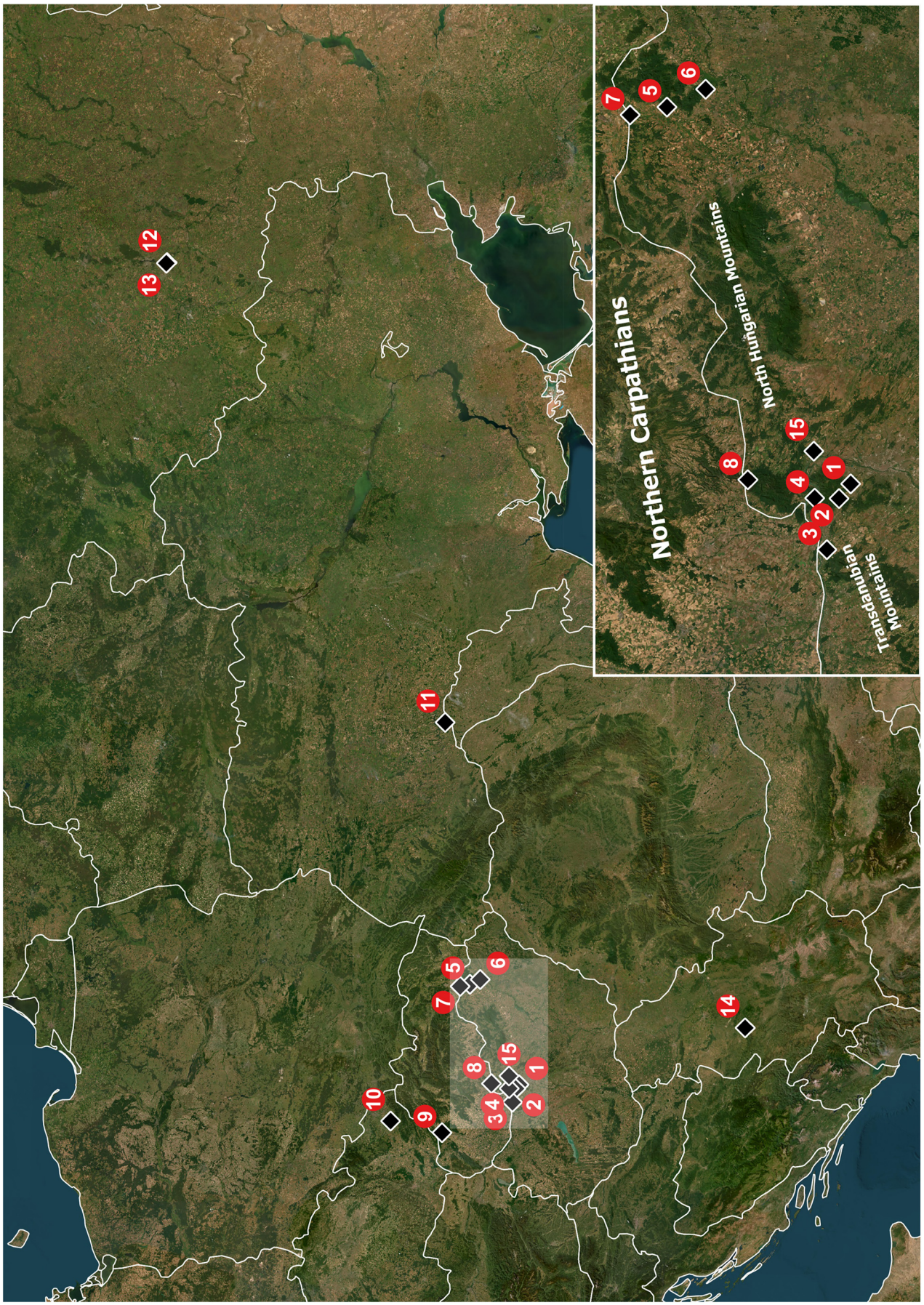

Fig. 1. Sites mentioned in the text. 1: Kiskevély Cave; 2: Pilisszántó 1. Rock Shelter; 3: Jankovich Cave; 4: Pilismarót-Bitóc; 5: Arka; 6: Bodrogkeresztúr-Henye; 7: Hidasnémeti; 8: Hont-Parassa III; 9: Trenčianske Bohuslavice; 10: Petřkovice I; 11: Molodova 5; 12–13: Borschevo 5 and Kostienki 9 (Map compiled by K.I. Szegedi)

bladelets accompanied by a reindeer-dominated fauna.[1] The Hungarian research in the early 1950s found the backed bladelet assemblages analogous to the Eastern European 'Late Aurignacian' (today Gravettian),[2] and the term 'Magdalenian' was gradually replaced with Cave Gravettian (originally published as *Höhlengravettien* or *Höhlenepigravettien*),[3] and then with the Pilisszántó culture in the 1960s, all representing the end of the UP.[4] A subsequent revision of these sites in the 1980s found that the lower stratigraphic portion of Pilisszántó I Rock Shelter belonged to the Pavlovian dated to older than 24 ka calBP.[5] Meanwhile, open-air sites on the right bank of the Danube were unearthed at Pilismarót and classified as Epigravettian, the term that eventually replaced the Pilisszántó Culture.[6] In the light of the Pilismarót site cluster,[7] the upper layer of Pilisszántó I Rock Shelter and all the assemblages with backed bladelets of cave sites were found to be contemporaneous with the Pilismarót site cluster dated to the Epigravettian culture between 20 and 15 ka calBP.[8] However, a no detailed analysis of the lithic toolkit has ever supported this hypothesis.

A recent revision of the chronology of the Late UP questioned the cultural and chronological assertions of the Dunazug cave sites and the Pilismarót sites.[9] Newly obtained radiocarbon dates from Pilismarót-Bitóc I suggested an age a few millennia earlier (24 and 20 ka calBP) for the Pilismarót site cluster thus the chronological position of the Dunazug cave sites became again labile.[10] If the contemporaneity between the sites is sound, as it was earlier suggested on the basis of the sedimentological and faunal features,[11] then the Pilismarót site cluster and the cave sites must be dated to the LGM period and the Early Epigravettian.[12] To examine the cultural and chronological similarities between the cave sites of the Dunazug Mountains and the open-air sites around Pilismarót, we reassessed the lithic assemblage of Kiskevély Cave.

MATERIALS AND METHODS

Site and stratigraphy

The Kiskevély (Mackó) Cave is situated near Csobánka, on the northern slope of Kis-Kevély Mountain in the Dunazug Mountains. The site was discovered at the end of the 19th century.[13] The first archaeological investigation carried out between 1912 and 1914.[14] Most of the cave sediment was removed down to the bedrock. Original sediment was only left at the entrance of the cave, which was excavated in 1957.[15] The stratigraphy of the cave included a: (1) brownish-black humus; (1a) greyish-brown clay; (2) yellowish-gray clay; (3) yellow clay; (4) brownish clay; and (5) plastic yellow clay (Fig. 2). UP knapped lithic artefacts together with reindeer and wild horse remains were found in layers 2 and 3.[16] The upper layer also contained prehistoric ceramic shards.[17]

Lithics

The exact provenance of the knapped lithic items within the cave's stratigraphic sequence remained uncertain. The excavations in 1912–1914 did not document the precise location of the artefacts except the stratigraphic unit marked only by the cultural affiliation. Henceforth, the relative positions of the archaeological finds can be identified: 'Magdalenian' means layer 2 and the upper part of layer 3, 'Solutrean' designate the lower part of layer 3, and 'Protosolutrean' meant layer 4. A former revision counted 115 items that can be linked to the 'Magdalenian' layers.[18] We found a total of 91 lithic artefacts attributed to the 'Magdalenian', of which only 18 were deemed suitable to revise archaeological cultural identity. Those artifacts put aside were unretouched items that only may indicate the period of UP such as blades, and domestic tools (including endscrapers and retouched blades), which are mostly unsuitable to refine Middle and Late UP inner chronology.[19]

To identify specific Upper Palaeolithic tool types, we employed comparative lithic typology.[20] We followed a scheme developed for the Upper Palaeolithic of Eastern Central Europe, which applies armature tool types as chronological/cultural indicators.[21]

The lithics examined are housed in the Hungarian National Museum under the inventory numbers Pb/392–503, Pb/807–832, and 108/1914.1–43.

RESULTS

The examined lithic tools preserved sharp edges, suggesting that the sediment did not suffer from heavy redepositional events. The overall composition of the assemblage resembles

[1] Hillebrand (1935); Kadić (1934); Kormos and Lambrecht (1916); Mottl (1942).

[2] Gábori (1954a); Gábori (1954b).

[3] Vértes (1957).

[4] Vértes (1965) 202–213.

[5] Dobosi (2004); Dobosi and Vörös (1987).

[6] Dobosi (2006).

[7] Dobosi (2006).

[8] Dobosi and Vörös (1987, 1994); Dobosi (2009, 2014, 2016); Markó and Biller (2023).

[9] Lengyel (2016, 2018).

[10] Lengyel et al. (2021).

[11] Markó and Biller (2023); Dobosi (2004, 2014); Markó (2018).

[12] Lengyel et al. (2021).

[13] Koch (1871).

[14] Hillebrand (1913, 1914).

[15] Vértes (1957).

[16] Dobosi and Vörös (1994) Fig. 8; Hillebrand (1913).

[17] Hillebrand (1913) 154.

[18] Dobosi and Vörös (1994) 16–18.

[19] Lengyel (2016).

[20] Demars and Laurent (1989).

[21] Lengyel (2016, 2018); Lengyel and Wilczyński (2018).

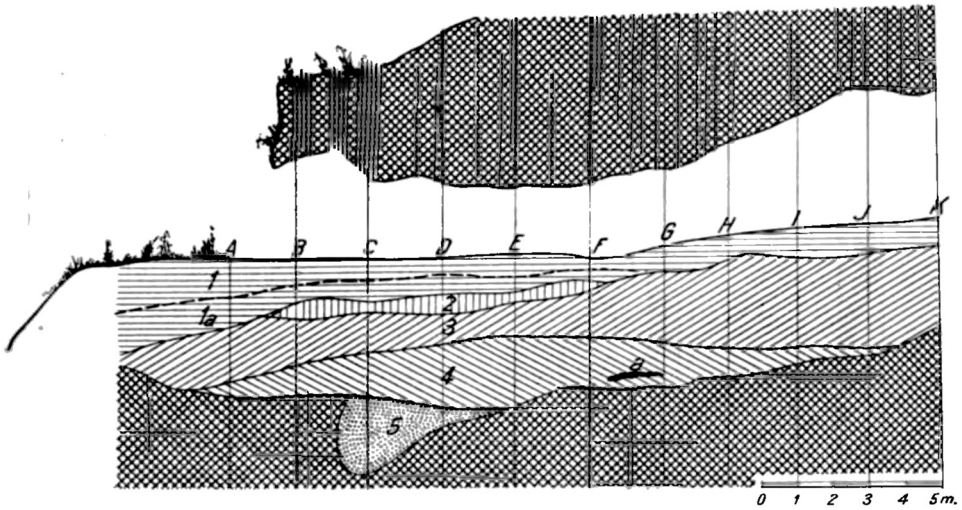

Fig. 2. The stratigraphy of Kiskevély Cave. (1) brownish-black humus; (1a) greyish-brown clay; (2) yellowish-gray clay; (3) yellow clay; (4) brownish clay; and (5) plastic yellow clay (Figure made by Z.F. Tóth, based on Hillebrand, 1913)

an UP industry focused on blade production. With one exception, the lithic tools were made of reddish-brown radiolarites, likely originating from the Western Carpathians or Transdanubia. The exception was made of an erratic flint procured most likely from north of the Carpathians.[22]

A total of 14 tools can be classified as UP armatures. Three artefacts (Pb/412; Pb/413 and Pb/425; Fig. 3.12–14) are mesial fragments of backed bladelets made of radiolarite, with backing on the right edge. There is a proximal fragment of a backed bladelet with a backed left edge (Pb/427; Fig. 3.11).

An artefact (Pb/418; Fig. 3.3) is a proximal fragment of a Gravette point. This piece was earlier recognized as a 'retouched-backed blade' with 'dorsal scalar retouch'.[23] Previous revisions noted that the dorsal retouch at the base of this piece cannot be compared to the dorsal basal retouch of Swiderian tanged points in contrast to what László Vértes suggested when argued for a Late Glacial chronology for the lithics.[24] Another item (Pb/430; Fig. 3.2) classified in a previous revision as a 'retouched-backed blade' with dorsal basal retouch, can also be considered a proximal fragment of a Gravette point. Two artifacts (Pb/447 and Pb. 443; Fig. 3.1,4) showed the features of the Vachons point which are the flat ventral retouch at the tip and base.[25] One of these artefacts (Pb/443; Fig. 3.4) is a proximal fragment.[26] Pb/424 (Fig. 3.7) previously identified as a Gravette point in fact lacks the characteristic flat basal ventral retouch and the backing does not reach the distal end and thus it is a backed blade.

Another former Gravette point (Pb/446; Fig. 3.6) has been reclassified during the current revision as a backed point. This item is a distal fragment backed along its right edge and features semi-abrupt partial retouch on its left edge.

In addition to backed bladelets, truncated backed bladelets are present with four pieces. The collection includes a distal and a mesial fragment of this tool type, both manufactured on slender blades. The distal fragment (Pb/448; Fig. 3.8) has a left edge backed with truncation at its distal end, while the second made of flint (Pb/451; Fig. 3.10) is backed on its right edge with truncation toward its base. Another backed bladelet (Pb/435; Fig. 3.9) was truncated dorsally at both its distal end and base, with a left edge backed. We consider this lithic as a bitruncated backed blade (rectangle). Item Pb/449 (Fig. 3.6) is backed on the left edge, truncated dorsally at its distal and proximal ends, and features a flat ventral retouch at its base as well at its distal end. These tools were previously interpreted as backed bladelets.[27]

Among blade cores, two were made of obsidian (Pb/392 and Pb/393; Fig. 3.15–16). These are conical and subconical in shape. The regularity of the blade negatives on the debitage surfaces, the circular preparation of the striking platform, suggest the use of pressure or indirect percussion technique. Some obsidian blades with straight parallel edges and trapezoid cross-sections were possibly produced using these knapping techniques (Pb/394; Fig. 3.18). A bitruncated regular blade was also identified, which can be interpreted as a trapeze (Pb/436; Fig. 3.17).

DISCUSSION

The analyzed lithic assemblage can be divided into two main components: a UP and a Neolithic or Copper age one.

[22] Přichystal (2013).

[23] Dobosi and Vörös (1994) 18.

[24] Vértes (1965) 207.

[25] Demars and Laurent (1989) 100.

[26] Lengyel (2016) Fig. 3.

[27] Dobosi and Vörös (1994) 18.

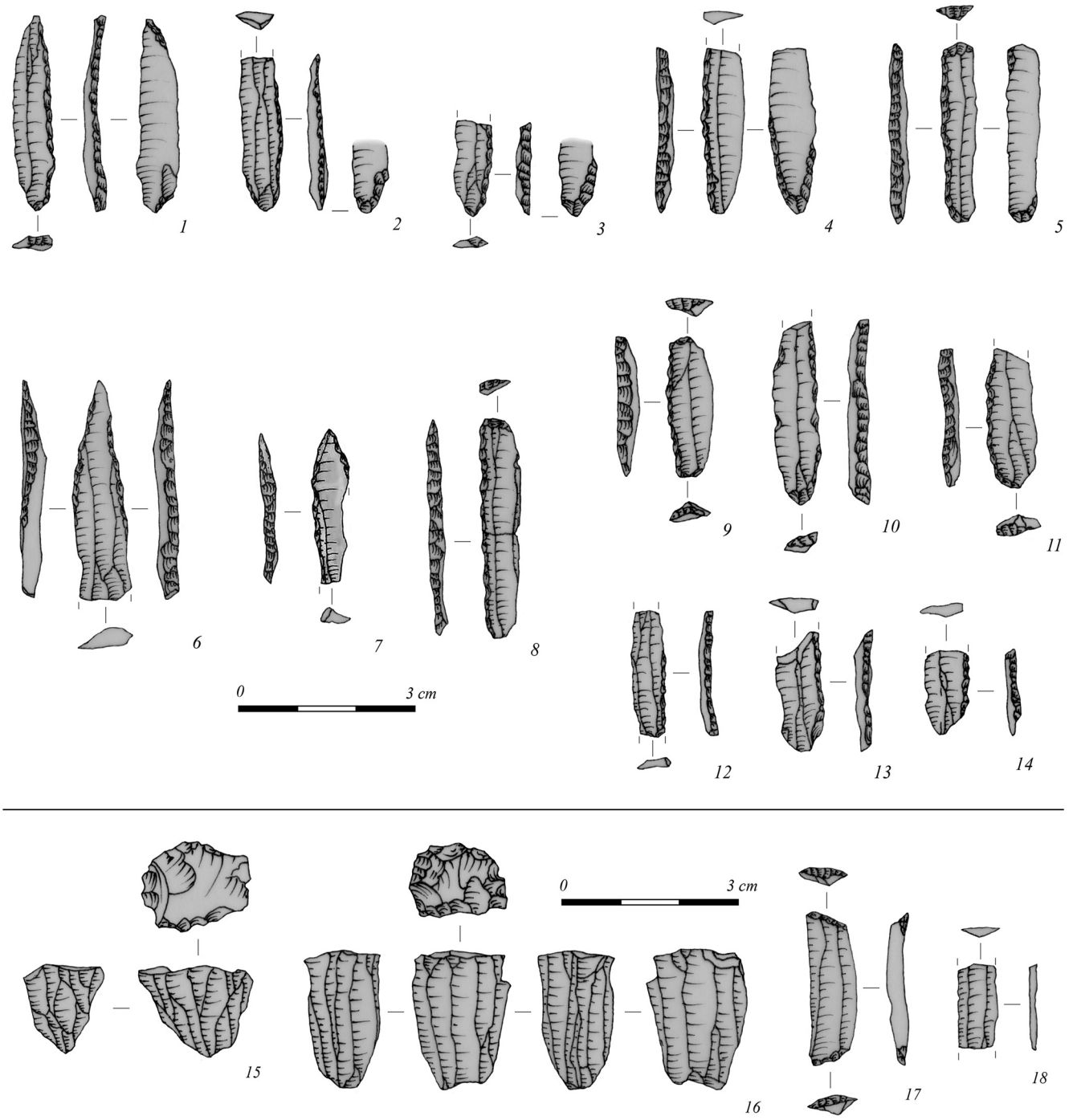

Fig. 3. Lithics from Kiskevély Cave. Vachons points (1 and 4); Gravette points (2 and 3); Late Gravettian rectangle (5); backed point (6); backed blades (7 and 11–14); truncated backed blade (8–10); unidirectional blade cores (15–16); trapeze (17); mesial fragment of a regular blade (18) (drawings made by T. Marton)

The lithic typological composition of the UP assemblage aligns with the Late Gravettian of Central Europe dated to between 30 and 26 ka cal BP.[28] The pieces of evidence are the Gravette points, Vachons points and a ventrally truncated backed bladelet which fit the definition of the Late Gravettian rectangle.[29] Backed blades, however, besides the Gravettian, could be attributed to the archaeological cultures of the Late UP, such as the Early Epigravettian, Late

[28]Lengyel (2018); Lengyel and Wilczyński (2018); Wilczyński et al. (2020a).

[29]Wilczyński et al. (2015).

Epigravettian, Magdalenian, and Epimagdalenian,[30] and this tool type is also documented in the Carpathian Basin up to the Mesolithic.[31] The Kiskevély assemblage thus can be contemporaneous with Arka, Bodrogkeresztúr, Hidasnémeti, Hont-Parassa III, and Hont-Templomdomb sites in Hungary (Fig. 1).[32]

Initially, Late Gravettian rectangles were defined based on the lithic assemblage from the Jaksice II site in Poland (Fig. 4.6).[33] This tool type, characteristic of Eastern Central Europe, is predominantly marked by abrupt retouch on their edges, ventral truncations, and straight distal and proximal ends, as observed at sites such as Trenčianske Bohuslavice (Slovakia) Fig. 4.10),[34] Petřkovice I (Czech Republic) (Fig. 4.4),[35] and Bodrogkeresztúr (Hungary) (Fig. 4.11).[36] In addition to these more symmetrical forms, Eastern European Late Gravettian sites have also produced less regular variants with convex ends, as found at Molodova 5 (layer 7) (Fig. 4.5),[37] Borschevo 5 (layers 1a and 1b) (Fig. 4.7–8),[38] and Kostenki 9 (Fig. 4.9).[39] From a morphological perspective, the Late Gravettian rectangle from Kiskevély Cave closely resembles those found at Eastern European sites. The notion of a possible connection between the Gravettian sites of Eastern Central Europe and Eastern Europe is by no means new, having first emerged in the 1960s.[40] It should also be noted that Šalitrena Cave (Serbia) yielded Late Gravettian rectangles with convex ends, alongside other typical armature types associated with the culture (Fig. 4.2–3).[41]

Based on the available data, the lithic assemblage of Kiskevély Cave does not include armature tool types characteristic of the Epigravettian of Eastern Central Europe, which almost entirely lacks typical Gravettian armatures.[42] It is also worth noting that dorsally bitruncated backed armatures (rectangles) are numerous in the Magdalenian.[43] Despite their typological similarity, we argue that this tool type, in the present context, cannot be classified as a Magdalenian rectangle. Firstly, bitruncated blades are also common in the Late Gravettian and Epigravettian of Eastern Central Europe.[44] Secondly, according to current knowledge, the Magdalenian bypassed the Carpathian Basin entirely, with its presence limited to the Greenland Stadial 2.1 and Greenland Interstadial 1 in the territory of today's Poland, Moravia and possibly Lower Austria[45] alongside evidence of occasional visits to the Northern Carpathians.[46] As a result, typical Magdalenian tool types—such as *Zinken*, shouldered points, Magdalenian triangles, and denticulated backed blades—are absent from the archaeological record of the Carpathian Basin, including the assemblage from the Kiskevély Cave.[47] Late Gravettian tool types, such as *fléchette* and microgravette, in the cave sites of Dunazug Mountains were identified in the lower layer complex of Pilisszántó I Rockshelter dated to 29 ka.[48] Three Gravette/microgravette points were previously reported from surface collections, and one from the excavation at Pilismarót-Bitóc.[49] Radiocarbon dating of two reindeer molars from Pilismarót-Bitóc, however placed the age of the site to between 23.3 and 22.4 ka cal BP Early Epigravettian period.[50] The nearest site with a reported Gravette point is Vác-Csipkés.[51] However, based on the published drawing, this artefact lacks the basal ventral retouch opposed to the backed edge, therefore that is not a Gravette point. This dataset indicated the cave and open-air sites of the Dunazug Mountains cannot be classified contemporaneous on the basis of the abundancy of backed bladelets. In contrast to what former studies claimed,[52] the backed artefact component of a lithic tool kit may reveal cultural and chronological differences when studied via a detailed comparative typological analysis especially when supported with absolute chronological data. Therefore, we propose that the UP chronology of this area is more diverse and at least two cultural units, the Late Gravettian and the Early Epigravettian are surely represented by archaeological finds.

The younger lithics, such as the obsidian blade core and regular blades, can likely be correlated with the Neolithic or the Copper Age, as ceramics from this period have also been reported from the cave.[53] The method of the knapping technique (indirect percussion or pressure) further supports this argument, as the latter techniques are not documented in the archaeological record of Hungary before the Neolithic.[54] The trapeze most likely dates to the Copper Age as well, as similar long and wide trapezes are known from this period.[55]

[30] Lengyel (2018); Lengyel et al. (2021).

[31] Lengyel (2016, 2018); Marton et al. (2021).

[32] Lengyel (2016); Szegedi et al. (2023).

[33] Wilczyński et al. (2015).

[34] Wilczyński et al. (2020b) Fig.12.

[35] Polanská et al. (2021).

[36] Lengyel (2015) Fig. 3.12.

[37] Nuzhnyi (2009) Fig. 6.21,22,23,27,28,29,31.

[38] Lisitsyn (2015) Fig. 5.1,2,3; Fig. 7.1,3,4.

[39] Reynolds et al. (2021) Fig. 6.3.

[40] Gábori (1964) 61.

[41] Mihailović (2008).

[42] Lengyel (2016); Lengyel (2018).

[43] Demars and Laurent (1989) 118–119.

[44] Lengyel (2016); Lengyel et al. (2021).

[45] Händel et al. (2021); Reade et al. (2021); Wiśniewski et al. (2017).

[46] Valde-Nowak et al. (2022).

[47] Maier (2015) 19–26.

[48] Wilczynski et al. (2020a).

[49] Dobosi (2006) Table 3.

[50] Lengyel et al. (2021) Table 12.

[51] Dobosi (2014) Fig. 9.7.

[52] Markó and Biller (2023).

[53] MRT 7 (1986) 74.

[54] Mester and Faragó (2010).

[55] Marton (2002).

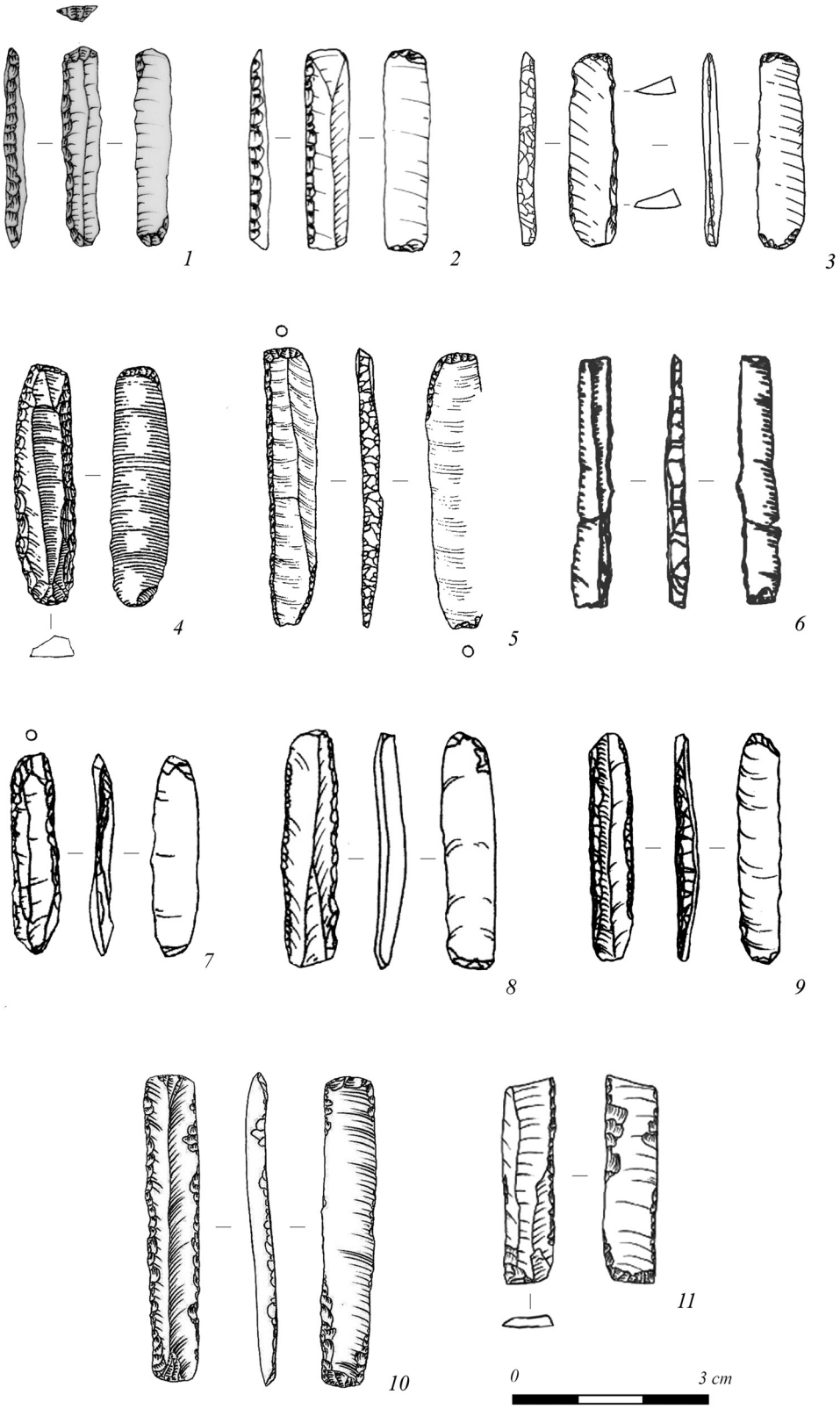

Fig. 4. Late Gravettian rectangles from Eastern Central Europe, Balkans and Eastern Europe. 1: Kiskevély Cave; 2–3: Šalitrena Cave; 4: Petřkovice I; 5: Molodova 5 (layer 7); 6: Jaksice II; 7–8: Borschevo 5 (layers 1a and 1b); 9: Kostenki 9; 10: Trenčianske Bohuslavice; 11: Bodrogkeresztúr (Figure made by T. Marton and Z.F. Tóth)

CONCLUSION

Our reassessment of the lithic assemblage from Kiskevély Cave refines the understanding of Upper Palaeolithic hunter-gatherer occupation in the Dunazug Mountains and the Transdanubia. The archaeological materials from the site confirm a reliable association with the Late Gravettian culture of Eastern Central Europe. This cultural and chronological affiliation demonstrates that the Dunazug Mountains were inhabited by hunter-gatherers both before and after the Last Glacial Maximum. Our findings suggest that the previously assumed connection between cave and open-air sites in this region is more complex than initially thought, indicating they were not necessarily components of a single hunter-gatherer mobility system.

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