AKADÉMIAI KIADÓ

A Middle Palaeolithic workshop at Andornaktálya-Marinka site (Northeast Hungary)

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SHORT COMMUNICATION

ABSTRACT

Although many Palaeolithic open-air sites are known on the foothills of the Bükk Mountains near Eger, Andornaktálya-Marinka was only discovered in 2014 thanks to new vine plantations on a hilltop. It was prospected regularly until 2019, and a test excavation was carried out in 2018. The archaeological material consists of a few undiagnostic prehistoric ceramic sherds and daub fragments, and 1706 stone artefacts. Except two fragments of polished axes, the lithic assemblage contains knapped stones. The paper presents the analysis of the lithic assemblage. This demonstrates the characteristics of an 'older' flake industry using almost exclusively local and regional raw materials, and those of a 'younger' blade industry working with long-distance 'northern' flints. The 'older' can be attributed to the Middle Palaeolithic Bábonyian, while the 'younger' should be related to Early Upper Palaeolithic Aurignacian or even to a Late Neolithic or Copper Age occupation.

KEYWORDS

Bükk Mountains, flake industry, blade industry, quartz-porphyry (metarhyolite), northern flints

ABSZTRAKT

Habár a Bükk hegység hegylábi területén számos paleolitikus nyílt színi lelőhely ismert, Andornaktálya-Marinkát csak 2014-ben fedezték fel egy dombtetőn új szőlőtelepítéseknek köszönhetően. A lelőhelyen rendszeres terepbejárások folytak 2019-ig, s egy szondázó ásatásra került sor 2018-ban. A régészeti leleanyag néhány jellegtelen őskori cserépből és paticstöredékből, valamint 1706 darab kő artefaktból áll. Két csiszolt balta töredéktől eltekintve, a kőegyüttes pattintott köveket tartalmaz. A cikk ismerteti a kőegyüttes elemzését, amely egy "idősebb", helyi és regionális nyersanyagokat használó szilánkipar és egy "fiatalabb", "északi" tűzkövekkel dolgozó pengeipar jellemzőit mutatja. Az "idősebb" ipar a középső paleolitikus Bábonyien kultúrához sorolható, míg a "fiatalabb" kapcsolatba hozható a korai felső paleolitikus Aurignacien kultúrával, vagy éppen egy késő neolitikus vagy rézkori megtelepedéssel.

KULCSSZAVAK

Bükk hegység, szilánkipar, pengeipar, kvarcporfír (metariolit), "északi" tűzkövek

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INTRODUCTION

Although the region of the Bükk Mountains in Northeast Hungary, including the territories around Eger at the southwestern foothill of the mountains, is the most studied area since the beginning of the Palaeolithic research in the country,[1] Andornaktálya-Marinka was unknown until recently. As many other sites in the region,[2] it was discovered by an independent researcher involved in field surveys looking for Palaeolithic sites.[3] The viticulture provides good conditions for the prospections because the foothills of the Bükk Mountains constitute one of the famous wine regions of Hungary since the Middle Ages due to its favourable climatic and soil conditions.[4]

Based on the density of known open-air sites *(Fig. 1)*, the foothills – named Bükkalja – might have offered favourable conditions for the settlement of prehistoric human groups. Between mountains and lowland, they could have had access to rich natural resources for food and lithic raw materials.[5]

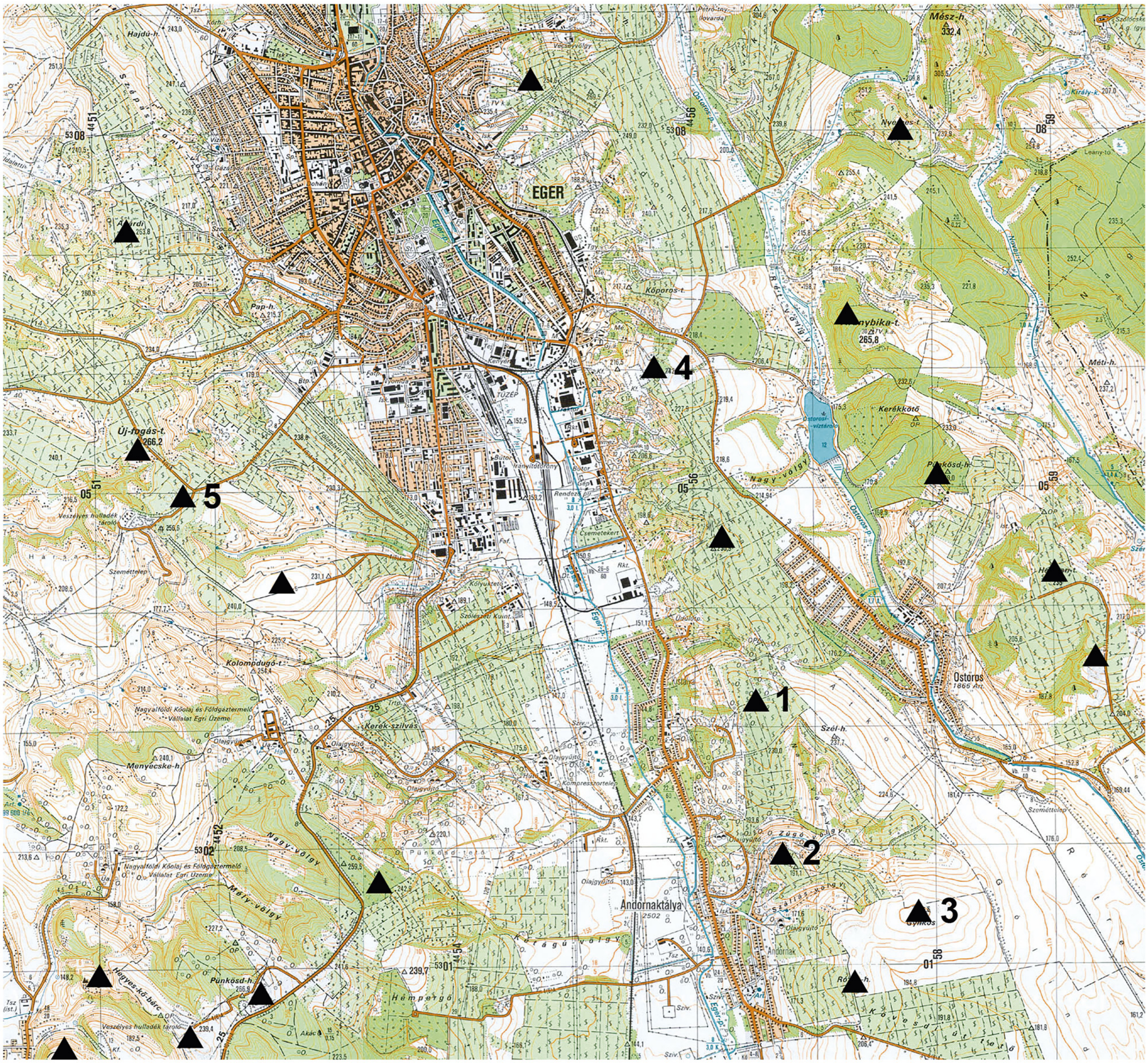


Fig. 1. Palaeolithic sites of the region of the Bükk Mountains. 1: Andornaktálya-Marinka; 2: Andornaktálya-Zúgó; 3: Andornaktálya-Gyilkos; 4: Eger-Kőporos; 5: Egeszalók-Kővágó

1. kép. A Bükk hegység régiójának paleolitikus lelőhelyei. 1: Andornaktálya-Marinka; 2: Andornaktálya-Zúgó; 3: Andornaktálya-Gyilkos; 4: Eger-Kőporos; 5: Egeszalók-Kővágó

[1]Kadić (1934); Dobosi (2005).

[2]Fodor (1984); Kozłowski and Mester (2004); Kozłowski et al. (2009); Kozłowski et al. (2012); Zandler (2012); Mester et al. (2021); Béres and Kerekes (2023).

[3]Mester et al. (2018).

[4]Paládi-Kovács (2002).

[5]Mester (2008a).

The Mesozoic formations of the mountains, as well as the Tertiary formations of the foothills, contain a wide spectrum of siliceous rocks: radiolarites, cherts, quartz-porphyry (metarhyolite), limnosilicites, silicified sandstone.[6] However, animal bones have not been unearthed on the open-air sites, as they could not be preserved due to the chemical properties of the soil.[7] Nevertheless, remains of human occupations in the neighbouring Subalyuk Cave site demonstrate the exploitation of both steppic (lowland) and wooden (foothills and mountains) environments.[8] From chronological point of view, lithic assemblages of the open-air sites in the region evidence occupations in the Middle Palaeolithic (Mousterian, Micoquian/Bábonyian, Jankovichian) and in the Early Upper Palaeolithic (Szeletian, Aurignacian, macroblade industry).[9] In several cases the remains of these cultural units have been found mixed on the surface or together in an archaeological layer. At Egerszalók-Kővágó and Eger-Kőporos sites, the sedimentological analysis and the radiometric dating showed that the archaeological material was embedded within a colluvial sediment redeposited around 30 ka BP.[10] At Andornaktálya 1 (Zúgó) and 2 (Gyilkos) sites the palaeosoil, dated to the Interpleniglacial period, was in sub-surface position, and thus, effected by erosional processes and agriculture.[11]

Based on the study of surface collections from the region of Eger, K. Zandler concluded a geographical separation between Szeletian and Aurignacian occupations.[12] According to his assumption, the borderline of the two distribution areas can be drawn on the northern outskirts of Andornaktálya village. The bifacial shaping and the preference of quartz-porphyry (metarhyolite) as raw material are documented on the sites to the north, while the dominance of endscrapers in the tool-kit and a higher proportion of regional and long-distance raw materials characterize the sites to the south. Andornaktálya-Marinka is located close to the borderline and represents both characteristics. More detailed observations during prospections and the results of excavation allow us to distinguish these phenomena in space and time.

ANDORNAKTÁLYA-MARINKA SITE: FIELD SURVEYS AND EXCAVATION

The site is located southeast of Eger on the eastern margin of Andornaktálya village. The hill is a member of the range along the left bank of the Eger Stream *(Fig. 2)*. The location is named ‘Parti földek’ on the map of the Third Military Survey of the Habsburg Empire (1869–1887).[13] The site was identified on the top of the hill at 234 m asl *(Fig. 3)*. A dirt road crosses the site dividing the hilltop into the northern ‘Marinka’ and the southern ‘Parti-szőlők’ parts.[14] The hill is covered by vineyards and the discovery of the site by one of us (F. Cs.) in 2014 was due to ploughing up the soil for a new plantation.

The site extends over four vineyard units on the hilltop on both sides of the dirt road *(Fig. 4)*. Next to units 1 and 3, two small areas remained out of agriculture: a borehole and an oil well no more in service, belonging to the petroleum company since the hydrocarbon geology of the 1960s.[15] Between these two areas, a hundred metres long and five metres wide zone was also never planted along the dirt road.

Methods of the field surveys

The first discovery was made in unit 3 and the archaeological material has been collected by subsequent field surveys in the four units *(Table 1)*. In 2014 and 2015, the distribution of collected artefacts suggested two distinct find concentrations *(Fig. 5. A)*, the northern one was characterized by the dominance of quartz-porphyry (metarhyolite), while the southern one yielded a higher amount of extra-Carpathian flints. In 2016, the two concentrations began to overlap *(Fig. 5. B)*. During the first stage of investigation (surveys 1–9), the artefacts were collected without a more precise location within the site. To provide more detailed information about the inner structure of the site, artefacts from the four vineyard units were collected separately in the second stage of investigation (surveys 10–12) *(Fig. 5. C)*. In the third stage of investigation (surveys 13 to 21, except 17), the position of the collected artefacts was registered by GPS devices allowing new perspectives in the analysis.

Excavation in 2018

In the Summer of 2018, a test excavation was carried out to clarify the geological position of the archaeological material within the sequence.[16] The excavation opened first three small trenches placed 15 m from each other, labelled S1, S2 and S3 from west to east *(Table 2, Fig. 4)*. Two other trenches were opened: S4 between S1 and S2, and S5 placed east of S3. The trenches were located between vineyard units 1, 2 and 4.

The stratigraphic sequence starts with a grey humus layer which apparently corresponds to the topsoil disturbed by agriculture *(Table 3)*. Its thickness was between 15 and 35 cm, suggesting that the hilltop was a plough-land before

[6]Faragó et al. (2022).

[7]Gordon and Buikstra (1981); Nicholson (1996).

[8]Mester and Patou-Mathis (2016).

[9]Ringer (1983); Adams (2000); Kozłowski and Mester (2004); Kozłowski et al. (2009); Kozłowski et al. (2012); Zandler (2012); Mester et al. (2021); Béres and Kerekes (2023); Mester and Lamotte (2024).

[10]Kozłowski et al. (2009) 407–416; Kozłowski et al. (2012) 412–420; Budek et al. (2013).

[11]Budek and Kalicki (2004); Budek et al. (2013); Dobos and Mester (2018); Mester et al. (2021); Dobos (2023).

[12]Zandler (2012) 35–38.

[13]Arcanum Maps. Habsburg Empire (1869–1887) – Third Military Survey (1:25000). https://maps.arcanum.com/en/map/thirdsurvey25000/ (Accessed 25.07.2024).

[14]Mester et al. (2018) 494.

[15]Körössy (2004).

[16]Mester et al. (2018).

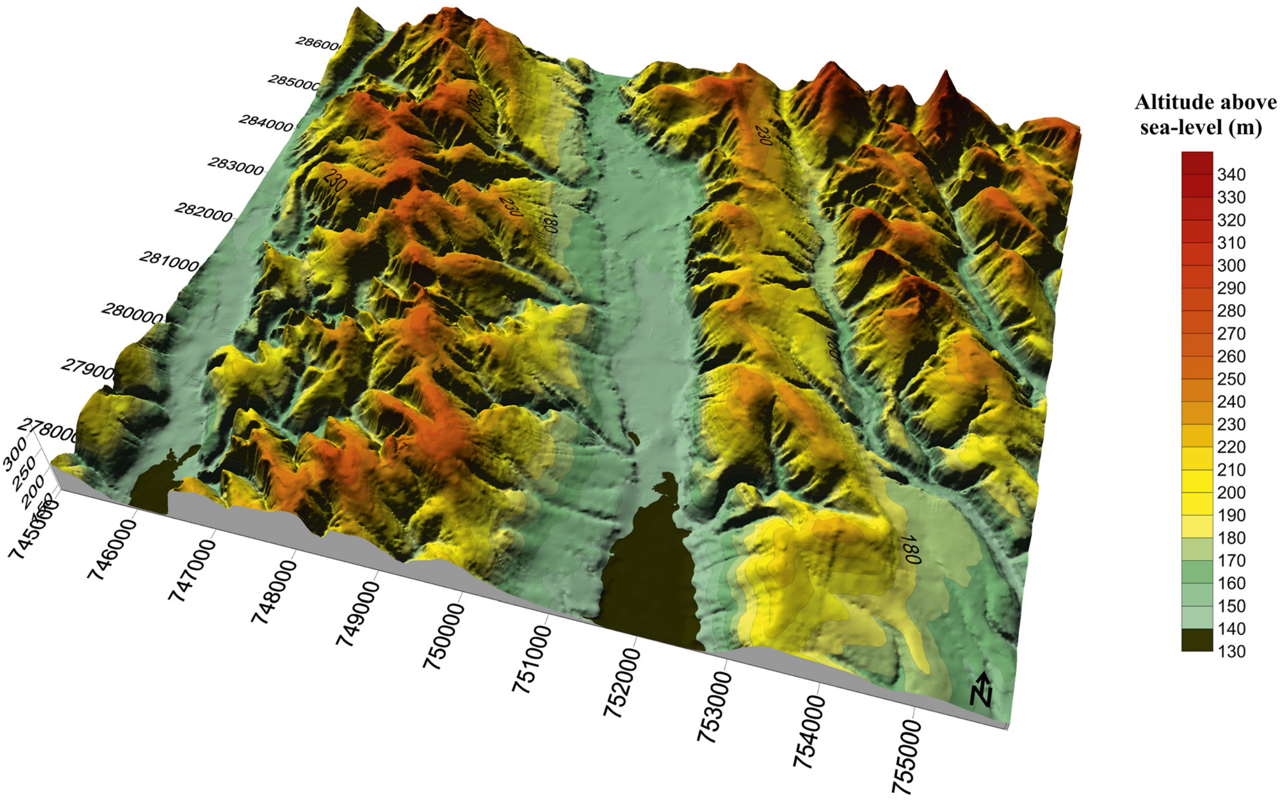


Fig. 2. Digital elevation model of the valley of Eger Stream between Eger and Andornaktálya, made by Anna Dobos and Sándor Molják in 2015 (Eszterházy Károly Catholic University, Eger) with SURFER 13.0 (map precision is 5 m)
2. kép. Az Eger-patak völgyének digitális domborzati modellje Eger és Andornaktálya között, készítette Dobos Anna és Molják Sándor 2015-ben (Eszterházy Károly Katolikus Egyetem, Eger) SURFER 13.0 szoftverrel (a térkép pontossága 5 m)

the plantation of vineyards. As a result, the excavated area has never been ploughed as deep as the neighbouring vineyards (60–70 cm). Below the topsoil, clayey sediments succeeded with gradually changing colour from grey through dark grey, brownish grey, and brown. At the bottom, the clayey sediment is mixed with yellowish weathered rhyolite grains of different sizes and proportions. In the profils of S2 and S3, dessication cracks could be identified, starting from respectively 40 and 30 cm depth downward. This phenomenon suggests high clay content in the sediment. In the lowermost layer of S3 appeared fissures filled with carbonate showing a polygonal pattern *(Fig. 6)*. These polygons witness the presence of periglacial processes in a cold period of the Pleistocene, probably during the Last Glaciation (Weichselian).[17] All artefacts have been unearthed from between 60 and 80 cm below the actual surface, and related to the greyish brown palaeosoil or soil level.

THE LITHIC ASSEMBLAGE

Besides a few undiagnostic prehistoric shards and daub fragments, the archaeological material found at the site consists of lithic artefacts. The assemblage contains 1,706 pieces, 43 of which were unearthed in the excavation trenches *(Table 4)*.

Raw materials

Sixteen types of lithic raw materials were distinguished in the assemblage *(Fig. 7)*. Quartz-porphyry (metarhyolite) is the most common, comprising 70.46% of all lithics. The 'quartz-porphyry' is the traditional name of this rock in the archaeological literature.[18] However, it was revealed to be a slightly silicified metarhyolite during the revision of the geology of the mountains.[19] We use the combination of the two names for avoiding confusion.[20] This rock is important because its only one occurrence is known in the Bagolyhegy Metarhyolite Formation (Triassic) of the eastern part of the Bükk Mountains.[21] Two variants of this raw material have been identified in the collection: a greenish-grey coloured one, eventually with white patina (1,066 pcs), and a white

[17] Kozłowski et al. (2012); Budek et al. (2013).

[18] Markó et al. (2003); Ringer et al. (2020).

[19] Pelikán (2005).

[20] Faragó et al. (2022).

[21] Pelikán (2005), 191–192.

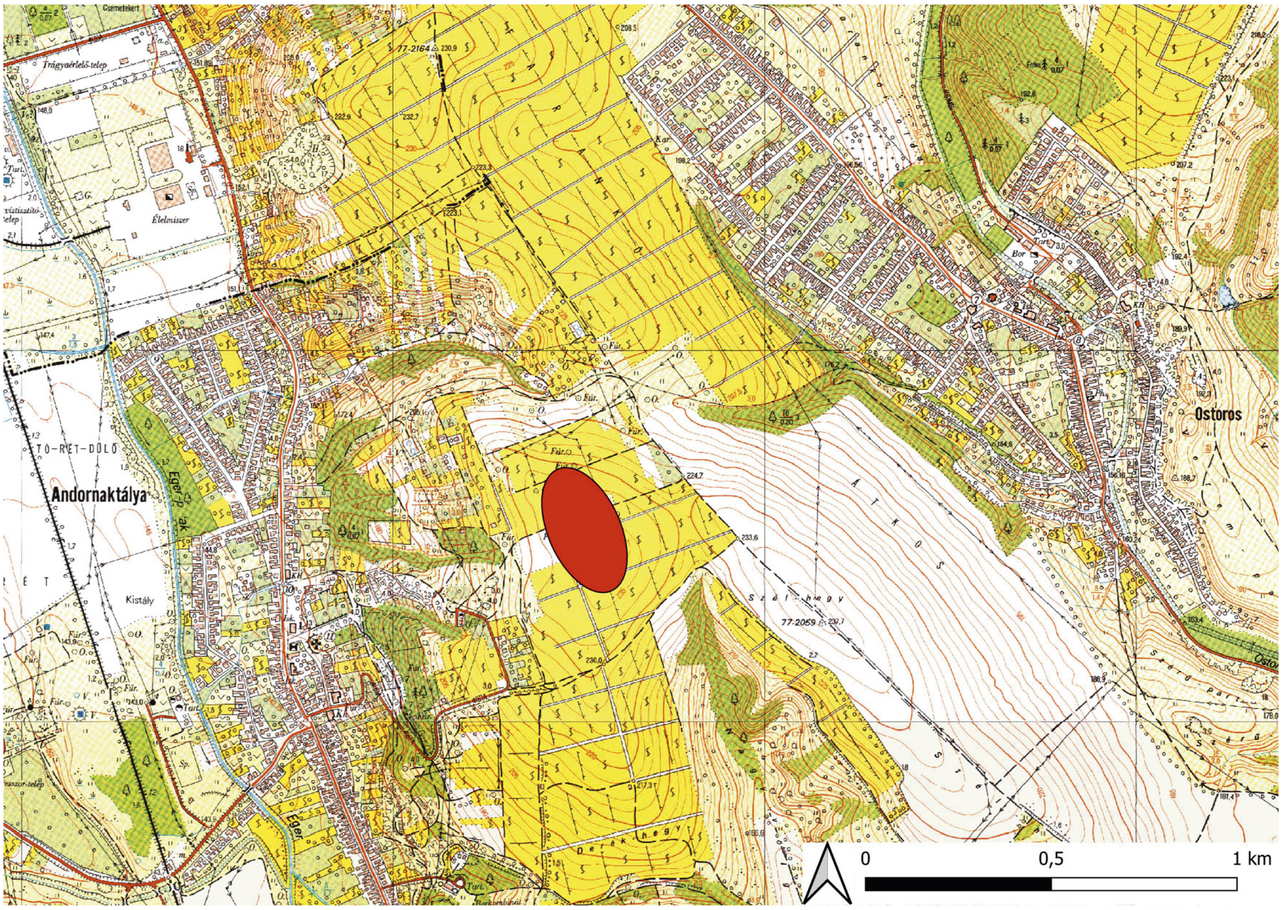


Fig. 3. Location of Andornaktálya-Marinka site on the topographic map (Mester et al. (2018) Fig. 1)
3. kép. Andornaktálya-Marinka lelőhely helyzete a topográfiai térképen (Mester et al. (2018) Fig. 1)

coloured one (136 pcs). The second variant was interpreted as a result of heating by natural fires and/or "fire setting".[22]

The second most abundant raw material, constituting 8.5% of the lithics, is the 'northern' flint which means a group of rocks originating from outside the Carpathians.[23] They can be easily recognized because there is no similar high-quality flint inside the Carpathian Basin.[24] The overwhelming majority of the 'northern' flint is a brown, translucent rock, eventually with bluish-white patina (136 pcs). Macroscopically, it can be identified as Silesian erratic flint.[25] Three artefacts were probably made of chocolate flint, while the raw material of a fragment of polished axe can be the banded flint of Krzemionki.[26] The well-known source area of these rocks is located in the region of the Holy Cross Mountains in Poland; however, another outcrop has been discovered and studied in the Kraków–Częstochowa Upland.[27] For the raw material of a core, the macroscopic identification as chocolate flint is not evident, it could also be Cracow Jurassic flint. This raw material has several variants in the sources of the Kraków–Częstochowa Upland, nevertheless, it was demonstrated in the Holy Cross Mountains too.[28] Three pieces could be identified as most probably made of Volhynian flint coming from Western Ukraine.[29] On the contrary, the Świeciechów flint can be identified unambiguously thanks to its grey colour and white-dotted pattern,[30] represented by one artefact in the collection.

The third most frequent raw material is represented by the group of limnosilicites[31] with 7.15% of the assemblage.

[22]Tóth and Kristály (2017).

[23]Simán (1989); Přichystal (2013).

[24]Kaminská (2001); Biró (2009). In Hungary, there is only one type of flint, the Tevel flint of Upper Cretaceous age, which has a very limited source area at the foot of the Bakony Mountains in Transdanubia (Western Hungary). Moreover, it is known as raw material from the Neolithic onward – Biró et al. (2010).

[25]Kozłowski and Pawlikowski (1989); Dmochowski (2006); Sobkowiak-Tabaka et al. (2016).

[26]Borkowski (1995); Domański and Webb (2000); Sałacińska and Sałaciński (2022).

[27]Krajcarz et al. (2012); Sudoł-Procyk et al. (2018); Sudoł-Procyk et al. (2021); Sudoł-Procyk and Krajcarz (2021).

[28]Kozłowski (1989); Krajcarz and Krajcarz (2009).

[29]Konoplya (1998).

[30]Balcer (1976); Domański and Webb (2000); Kaczanowska and Kozłowski (2005).

[31]Mester and Faragó (2016).

Fig. 4. Location of Andornaktálya-Marinka site on the Google Map in 2018. 1–4: vineyard units of the surveys; S1–S5: small excavation trenches along the dirt road; bh: borehole; ow: oil well

4. kép. Andornaktálya-Marinka lelőhely helyzete a Google térképen 2018-ban. 1–4: a terepbejárás szőlőterületei; S1–S5: ásatási szondák a földút mellett; bh: olajkutató fúrás; ow: olajkút

These silicious rocks are common in the North Hungarian Range due to hydrothermal silicifications[32] linked to the volcanic activities in the Tertiary.[33] Some variants are characteristic enough to be identified, like those from Miskolc-Avas, Fóny–Korlát–Arka or Gyöngyöstarján, however the exact provenance of the majority of these artefacts could not be determined due to their great petrographic variability even within one source.[34]

The silicified marlstone of greenish-grey colour is the fourth most common, accounting for 5.86% of all artefacts. This rock is considered as a local raw material of the southern foothills of the Bükk Mountains. It was described first by A. Vendl from the archaeological material unearthed in Subalyuk Cave.[35] Its outcrops were thought to be accessible in the Hór valley, near Cserépfalu. Based on new petrographic analysis in thin section and field observations, this kind of rock can be described as silicified aleurolite, and its blocks can be collected in several outcrops on the hills in the vineyards and dirt roads.[36]

The grey radiolarite and the hornstone (black chert) are also local raw material counting respectively 3.22 and 1.76 percent. Their occurrences can be found in the Jurassic formations of the southwestern part of the Bükk Mountains.[37] The other ten raw materials are present with less than 1%, respectively. Their origin cannot be identified with certainty. Some of them could be originated from local occurrences, like quartz/quartzite, tuffite and silicified wood, others can be brought from the neighbouring Mátra or Tokaj mountains, like andesite, porcelainite and opalite.[38] The siliceous pebble and the rock crystal were probably collected in a farther source.[39] On the contrary, sources of the obsidian and the silicified sandstone are well-known. Three variants of the Carpathian obsidian have been distinguished (C1, C2 and C3), their sources were identified respectively in the Zemplín Mountains in East Slovakia, in the Tokaj Mountains in Northeast Hungary, and in the

[32] Hartai and Szakáll (2005); Markó (2005); Szekszárdi et al. (2010); Přichystal (2013); Mester and Faragó (2022).

[33] Harangi (2001); Harangi and Lenkey (2007); Harangi and Lukács (2019).

[34] Mester and Faragó (2016); Mester and Faragó (2022).

[35] Vendl (1940).

[36] Faragó et al. (2022).

[37] Pelikán (2005), 201; Faragó et al. (2022).

[38] Biró and Dobosi (1991); Biró et al. (2000).

[39] Dobosi and Gatter (1996); Zandler et al. (2021).

Table 1. Field investigations at Andornaktálya-Marinka site

1. táblázat. Terepi kutatások Andornaktálya-Marinka lelőhelyen

	Date	Type of investigation	Number of pieces
1	06. 06. 2014	field survey by F. Cserpák, discovery of the site	18
2	25. 08. 2014	field survey by F. Cserpák	56
3	11. 11. 2014	field survey by F. Cserpák	14
4	13. 02. 2015	field survey by F. Cserpák	26
5	12. 05. 2015	field survey by F. Cserpák	90
6	13. 07. 2015	field survey by F. Cserpák	62
7	13. 10. 2015	field survey by F. Cserpák	88
8	03. 05. 2016	field survey by F. Cserpák	90
9	29. 06. 2016	field survey by F. Cserpák, Zs. Mester, A. Péntek, S. Béres	114
10	26. 07. 2016	field survey by F. Cserpák	89
11	07. 11. 2016	field survey by F. Cserpák	139
12	04. 04. 2017	field survey by F. Cserpák	107
13	25. 04. 2017	field survey by M. Gutay, A. Péntek, L. Bernáth, S. Bak (Dobó István Castle Museum, Eger) using GPS device	171
14	18. 07. 2017	field survey by F. Cserpák, Zs. Mester using GPS device	205
15	19. 10. 2017	field survey by F. Cserpák using GPS device	55
16	17. 05. 2018	field survey by F. Cserpák using GPS device	117
17	30. 07. 2018	field survey by Zs. Mester and students of ELTE Eötvös Loránd University, Budapest before excavating	76
18	30. 07. 2018–13. 08. 2018	archaeological excavation leaded by Zs. Mester (ELTE Eötvös Loránd University, Budapest)	45
19	16. 05. 2019	field survey by F. Cserpák using GPS device	53
20	10. 08. 2019	field survey by F. Cserpák using GPS device	85
21	09. 10. 2019	field survey by F. Cserpák, S. Béres using GPS device	27

Velikyi Scholles Ridge in Transcarpathian Ukraine.[40] All three variants were supposed to be recognized in the lithic assemblage of Andornaktálya-Marinka site. Here, obsidian is considered as distant raw material. The silicified sandstone is considered as local because its source is located on the Tó-hegy hill at Egerbakta, at a distance of 14 km from the site. This raw material is also well recognizable by its grey to light brown colour and grainy texture.[41] Unusually, one of the pieces can be determined as a fragment of a polished axe.

Composition of the lithic material

Flakes are predominant in the assemblage (72.98%), followed by retouched tools (14.30%), raw material nodules or slabs (6.86%), blades and bladelets (3.69%), and cores (1.64%) (*Table 4*). From technological point of view, if blanks of tools are added, these proportions increase to 84.00% for flakes, 8.50% for nodules or slabs, 5.45% for blades and bladelets, and 1.70% for cores, without changing the order of frequency (*Fig. 8*). Among the 'others' a hammerstone from quartz/quartzite and two burin spalls from Silesian erratic flint are to be mentioned.

Among raw material nodules or slabs 37 were tested (31.62%), their ratio is very low (around 1%) in the case of quartz-porphyry (metarhyolite) and limnosilicites, higher in the case of radiolarite (40%), while it exceeds 50% in the case of silicified marlstone, hornstone (black chert) and quartz/quartzite. It is no surprise since these are local or regional raw materials, and it is also no surprise that no raw material nodules have been found from 'northern' flint. On the contrary, this raw material represents 25% of the cores, while hornstone (black chert), silicified marlstone and radiolarite are also frequent among cores with 21.43 and 17.86%. However, only one quartz-porphyry (metarhyolite) core was identified, despite most of the flakes being made of this siliceous rock. Flakes, raw material nodules, and a broken hammerstone was used as core. Six flake cores, six blade cores, and three bladelet cores were found, most of them are completely exhausted and often irregular in shape. Based on these observations, the simple debitage dominates the assemblage, but unifacial discoidal debitage is also present. Bipolar method appears among blade cores, indicating some level of blade production. In one case, the exploitation method resembles that of the Middle Palaeolithic blade production. One crested blade made of quartz-porphyry (metarhyolite) and two neo-crested blades made of flint and porcelainite argue also in favour of the presence of blade production on the site. Bifacial shaping is proved by the presence of 73 bifacial trimming flakes, as well as on site tool production is demonstrated by 98 retouch flakes. Only a single hammerstone, a small number of cortical products and technical items resulting from core preparation, maintenance and rejuvenation were identified, which means knappers brought a limited stock of raw materials in an at least partly prepared state to the site for tool manufacture.

Significant proportion of the artefacts are complete items (48%), but there is a high degree of fragmentation (52%). Among the 68 knapping accidents, tongue breaks are predominant for artefacts made of quartz-porhyry (metarhyolite), while hinged and plunging accidents mostly

[40] Biró (1984); Williams Thorpe et al. (1984); Kaminská (2001); Rosania et al. (2008); Rácz (2013); Přichystal and Škrdla (2014); Bačo et al. (2017).

[41] Faragó et al. (2022).

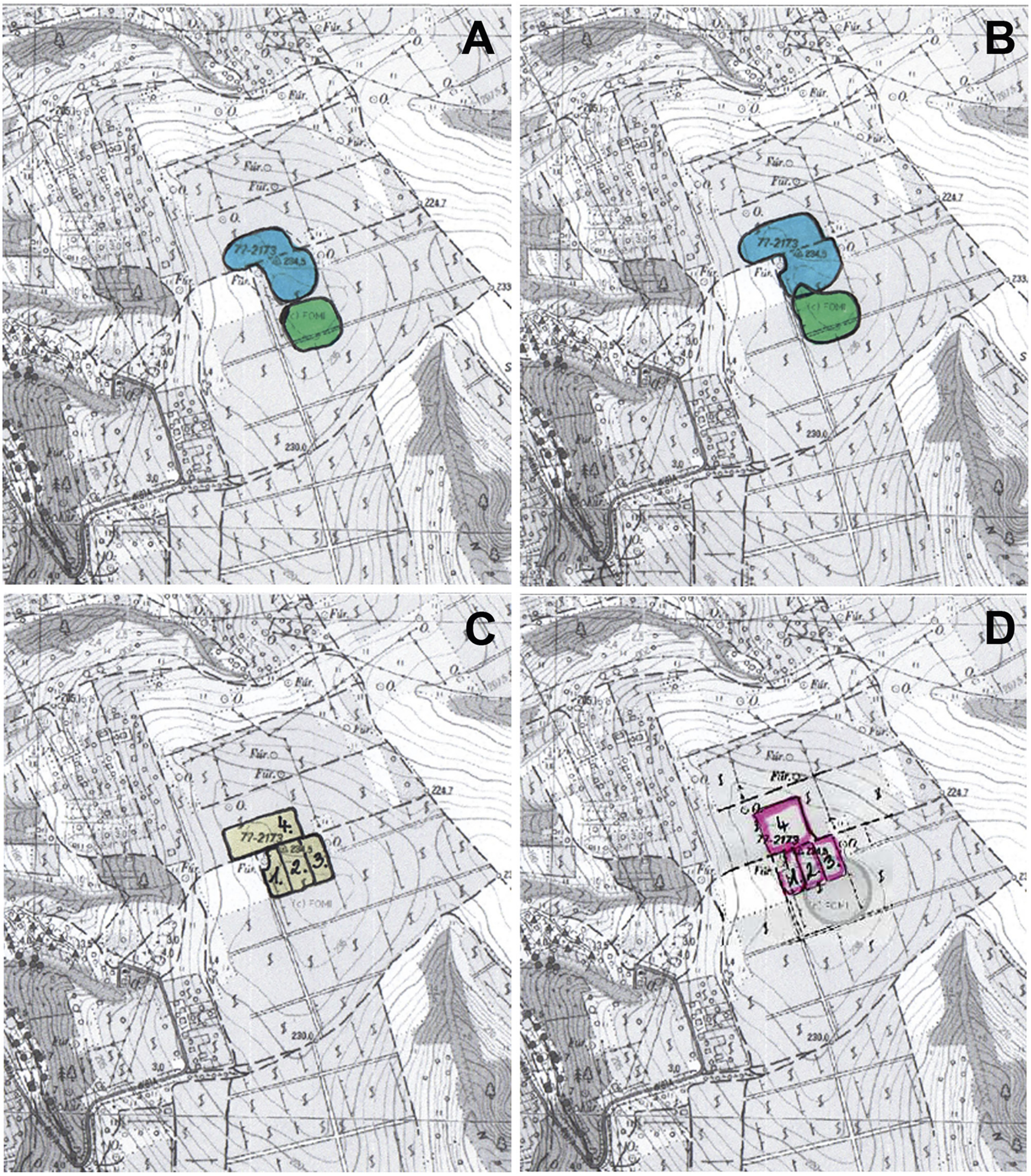


Fig. 5. The progress of the study area marked on the topographic map. A: 2014–2015; B: 2016; C: 2017; D: 2019. (Drawings by F. Cserpák)

5. kép. A kutatás által érintett négy szőlőterület a topográfiai térképen. A: 2014–2015; B: 2016; C: 2017; D: 2019. (Rajz: Cserpák F.)

occur with items made of Silesian erratic flint.[42] A rare 'Siret' break was also identified on an obsidian flake. Frost damage or heat-alteration was identified on twelve artefacts. 48% of items, especially quartz-porphyry (metarhyolite) and flint artefacts display varying degrees of patina. This post-depositional effect could be due to several physical and chemical factors.[43]

[42]Roche and Tixier (1982); Inizan et al. (1999); Holló et al. (2004).

[43]Glauberman and Thorson (2012); Caux et al. (2018); Fiers (2020); Oron et al. (2023).

Table 2. Excavation at Andornaktálya-Marinka site in 2018

2. táblázat. Ásatás Andornaktálya-Marinka lelőhelyen 2018-ban

Trench	Size (m)	Depth (cm)	Finds (pcs)
S1	2 × 1	110	5
S2	2 × 1	147	21
S3	2 × 1	150	1
S4	2 × 1	90	2
S5	2 × 2	100	14

Table 3. Observed stratigraphy in the three main profils from top to bottom

3. táblázat. A három fő metszetben megfigyelt rétegződés felülről lefelé

Trench	Layer	Thickness (cm)	Aspects of the layer
S1	1	15–20	grey humus (ploughed)
S1	2	25–30	dark grey, clayey sediment
S1	3	40–55	greyish brown, clayey sediment
S1	4	5–20	yellowish grey sediment with rhyolite tuff
S2	1	20–30	grey humus (ploughed)
S2	2	15–20	grey, clayey sediment
S2	3	40–50	greyish brown, clayey sediment
S2	4	45–55	brown, clayey sediment
S2	5	15–20	greyish yellow, clayey sediment, with rhyolite tuff
S2	6	5–10	rhyolite tuff
S3	1	25–35	grey humus (ploughed)
S3	2	5–10	grey, clayey sediment
S3	3	20–25	dark grey, clayey sediment
S3	4	25–30	brownish grey, clayey sediment
S3	5	25–30	brown, clayey sediment
S3	6	10–20	brown, clayey sediment, fissures filled by carbonate
S3	7	5–15	loess-like lens
S3	8	5–10	rhyolite tuff

Composition of the tool-kit

The lithic assemblage contains 244 tools which can be classified typologically,[44] representing 14.30% of the assemblage *(Table 5)*. The most frequent raw materials have very similar tool ratios *(Fig. 9)*. Except for one gunflint made of Silesian erratic flint which is completely intrusive, all are prehistoric stone tools. Among the ‘others’, it is worth mentioning two hammerstones (both of quartz/quartzite), two fragments of polished axe (one of banded flint, one of silicified sandstone), as well as an interesting artefact of silicified marlstone which can be classified as a preform of a polished axe. Retouched tools are dominated by sidescrapers (28.69%), followed by retouched flakes (19.26%), bifacial tools/leaf points (12.29%), notched tools (9.01%), endscrapers (6.56%), retouched blades (5.33%), and denticulated tools (4.51%). The blanks of the tools are predominantly flakes (75%), but blades and nodules or slabs were often used as well (11.89 and 11.48 percent). There is an interesting piece which is difficult to classify both by tool type and by blank. This is a distal fragment of a blank, broken by tongue fracture, and so it could be either a flake or a blade. Both lateral edges are retouched, evoking either a double sidescraper or a retouched blade. Sidescrapers of different forms were almost exclusively made on flakes, five slabs and a single exhausted core are out of this rule. Bifacial tools/leaf points were manufactured on wide flakes, as well as on nodules or slabs.

Quartz-porhyry (metarhyolite) was mostly used to produce sidescrapers, bifacial tools/leaf points, retouched flakes, and notched tools, while ‘northern’ flints served for making retouched blades, endscrapers, burins and a borer *(Figs 10 and 11)*. It is to highlight that two splintered pieces were produced from this raw material. Besides these Upper Palaeolithic tool types, Middle Palaeolithic ones have been also made from flint, such as sidescrapers, retouched flakes, notched and denticulated tools. Out of the specific tool types, bifacial tool-shaping is demonstrated by the presence of bifacial trimming flakes and retouch flakes. Moreover, four roughouts, four preforms, and two unfinished bifacial tools have been recorded. Altogether, thirteen leaf points and eight *Keilmesser* were identified in this category.

Only five retouched tools were unearthed in the excavation trenches between 60 and 80 cm below the surface. These are an atypical trapeze made of flint, a notched tool, a *Keilmesser*, a simple sidescraper, and a bifacial leaf point. Except for the trapeze, all were made of quartz-porphyry (metarhyolite), and each artefact can be attributed to a Middle Palaeolithic industry.

DISCUSSION

The analysis indicates that the lithic assemblage has two components, flake industry and blade industry. The flake industry used almost exclusively local and regional raw materials, while the blade industry involved ‘northern’ flints. It needs to be underlined that the two industries could not be strickly separated neither by raw material use nor by tool types because of the presented overlapping. However, the distribution of some artefact categories, based on the pieces recorded with GPS devices (31.54% of the assemblage), suggests that there is a spatial shift between the occupations *(Fig. 12)*. According to this distribution, the ‘older’ industry occupied the northern part of the hilltop, while the ‘younger’ one preferred the southern part lying to the slope. In this

[44] Bordes (1961); Demars and Laurent (1992); Debénath and Dibble (1994).

Fig. 6. The fissures filled with carbonate at the bottom of trench S3 suggesting periglacial polygons. (Photo by N. Faragó)
6. kép. A meszes kitöltésű repedések, amelyek periglaciális poligonokra utalhatnak. (Fotó: Faragó N.)

Table 4. Composition of the lithic assemblage by raw materials and main categories

4. táblázat. A pattintott kőegyüttes összetétele nyersanyagok és fő kategóriák szerint

Raw material	Nodules/slabs	Flakes	Blades/bladelets	Cores	Bifacial tools	Tools	Others	Total	Total %
quartz-porhyry (metarhyolite)	55	991	16	1	25	114		1,202	70.46
'northern' flint		62	33	7		38	5	145	8.50
limnosilicite	9	80	8	3	2	20		122	7.15
silicified marlstone	29	50	1	5	2	12	1	100	5.86
radiolarite	10	22	3	5	1	14		55	3.22
hornstone (black chert)	5	13		6		6		30	1.76
quartz/quartzite	5	3		1		2	2	13	0.76
tuffite		10				1		11	0.64
silicified sandstone	1	7	1				1	10	0.59
obsidian		3	1			3		7	0.41
silicified wood	2	1						3	0.18
andesite						2		2	0.12
rock crystal		1				1		2	0.12
siliceous pebble	1	1						2	0.12
porcelainite						1		1	0.06
opalite		1						1	0.06
total	117	1,245	63	28	30	214	9	1,706	100.00
total %	6.86	72.98	3.69	1.64	1.76	12.54	0.53	100.00	

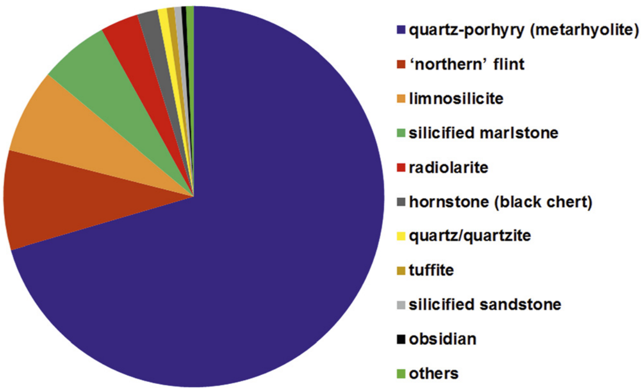


Fig. 7. Composition of the lithic assemblage by raw materials
7. kép. A pattintott kőegyüttes nyersanyagösszetétele

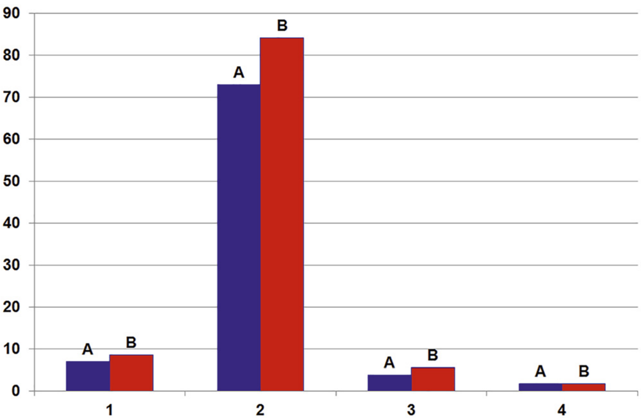


Fig. 8. Ratios of the main technological categories in the lithic assemblage. 1: raw material nodules or slabs; 2: flakes; 3: blades and bladelets; 4: cores; A: without blanks of retouched tools; B: including blanks of retouched tools
8. kép. A fő technológiai kategóriák arányai a pattintott kőegyüttesben. 1: nyersanyaggumók vagy tömbök; 2: szilánkok; 3: pengék és lamellák; 4: magkövek; A: a retusált eszközök szupportjai nélkül; B: hozzáadva a retusált eszközök szupportjait

regard, the stratigraphic observation made during the excavation concerns the 'older' one.

When comparing Andornaktálya to the Middle Palaeolithic industries already known in the region, the dominance of single sidescrapers in the tool-kit is a common characteristic of the Typical Mousterian and the Quina type Mousterian of Subalyuk Cave.[45] All other types of sidescrapers are scarce at Andornaktálya, but the double, the transversal and the *déjeté* types are also frequent in the cave. This difference should be explained by different site function, however, there is no any bifacial tool in these Mousterians. Furthermore, the main raw material of the Mousterians of Subalyuk is the hornstone (black chert) which is much less important at Andornaktálya.[46] On the other hand, the quartz-porphyry (metarhyolite) which is over 70% for the assemblage and almost 60% for the tool-kit at Andornaktálya, is quite frequent in the cave, representing 5.80 and 18.18 percent in the Mousterian tool-kits.

When comparing Andornaktálya-Marinka assemblage to Sajóbábony-Méhész-tető open-air site, representing the Micoquian-like Middle Palaeolithic industry, named Bábonyian,[47] more similarities can be detected.[48] On the one hand, the predominance of the quartz-porphyry (metarhyolite) is over 70%, followed by limnosilicites, but 'northern' flints are scarce at Sajóbábony. There, the tool-kit is dominated by the bifacial tool/leaf point category (60%), followed by the sidescrapers (20%). There is a considerable difference in the artefact dimensions. At Andornaktálya, the ratio of pieces smaller than 20 mm counts from 34 to 45 percent according to the main raw materials, however, it is around 70% at Sajóbábony. It is worth noting that the ratios at Sajóbábony were calculated on excavated material coming from trenches covering 46 m^2. The presence of *Keilmesser* and leaf points at each site argues also in favour of an attribution to the Bábonyian for the 'older' industry of Andornaktálya-Marinka.

Lithic assemblages, containing bifacial tools/leaf points, have been found formerly on three open-air sites in the region of Eger: Egerszalók-Kővágó, Eger-Kőporos, Ostoros-Rácpa.[49] These sites are located in a few kilometres to the north and to the east from Andornaktálya-Marinka. All of them yielded lithic assemblages of several Middle Palaeolithic (Mousterian, Bábonyian) and Early Upper Palaeolithic (Szeletian, Aurignacian, macroblade industry) cultural units, mixed by erosional processes. Thus, the cultural attribution was based on typological and technological considerations.

Concerning the function of Andornaktálya-Marinka site, the possibilities of the evaluation are limited. As usual on the open-air sites of the foothills of the Bükk Mountains, no bones were preserved. As a result, human activities can be supposed through the lithic analysis. Regarding the composition of the tool-kit, there are mostly general domestic tools unable to be linked to specific activities. Even the high number of retouched flakes suggests an opportunistic human attitude, as they can be occasional tools not linked to specific activities. Therefore, the only well documented activity is the tool production, rather bifacial tools by the exploitation of quartz-porphyry (metarhyolite). Similarly to Sajóbábony-Méhész-tető. The quite high ratio of fragmentation (52%) suggests that the collected tools are, at least partly, those which were not convenient to further use. It is very important that knappers had to bring the raw material blocks into the site because the sources of quartz-porphyry (metarhyolite) are located on the opposite side of the

[45]Mester (1989, 1990).

[46]Mester (2004, 2008b).

[47]Ringer (1983).

[48]Mester and Lamotte (2024).

[49]Kozłowski et al. (2009); Kozłowski et al. (2012); Zandler (2012).

Table 5. Typological composition of the lithic assemblage by raw materials

5. táblázat. A pattintott kőegyüttes tipológiai összetétele nyersanyagok szerint

Raw material	Quartz-porhyry (metarhyolite)	'Northern' flint	Limnosilicite	Silicified marlstone	Radiolarite	Hornstone (black chert)	Others	Total	Total %
Sidescraper	51	3	5	2	5	1	3	70	28.69
Retouched flake	26	4	10	1	2	1	3	47	19.26
Retouched blade	2	9	1			1		13	5.33
Retouched bladelet					1			1	0.41
Bifacial tool/ leaf point	25		2	2	1			30	12.29
Unifacial point	2							2	0.82
Limace	1							1	0.41
Notched tool	11	4		4	2	1		22	9.01
Denticulated tool	5	3		2	1			11	4.51
Endscraper	4	5	4	1	1		1	16	6.56
Burin	3	4					1	8	3.28
Borer		1						1	0.41
Composite tool		1			1			2	0.82
Chopper/ chopping tool							2	2	0.82
Splintered piece		2						2	0.82
Trapeze		1						1	0.41
Others	9	1		2	1	2		15	6.15
Total	139	38	22	14	15	6	10	244	100.00
Total %	56.97	15.57	9.01	5.74	6.15	2.46	4.10	100.00	

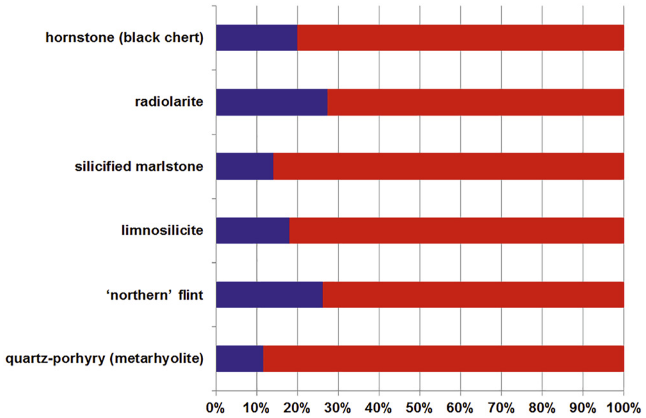


Fig. 9. Tool ratios in the case of the six main raw materials
9. kép. Az eszközök aránya a hat fő nyersanyag esetében

mountains, accessible by 35 km walk through the mountains or 60 km walk along the foothill region. Taking into account that Micoquian industries with a high ratio of quartz-porphyry (metarhyolite) in the raw materials were documented in the Cserhát Mountains about a hundred kilometres to the west,[50] Andornaktály-Marinka site can be a stop on this road. Finally, it should not be excluded that the collected material of the site represents several short-term occupations by human groups belonging to the same cultural tradition.

The chronological and cultural attribution of the 'younger' industry is much more problematic. From the Early Upper Palaeolithic onward, the knapped lithic industries are based on blade production, even until the Bronze Age. Without diagnostic tool types, the attribution is practically impossible. In the collection of the 'younger' industry, the two splintered pieces can be linked to the Upper Palaeolithic Aurignacian, Gravettian and Epigravettian industries.[51] In the region of Eger, this tool type was documented in Aurignacian context at Egerszalók-Kővágó, Eger-Kőporos, Andornaktálya-Zúgó and Andornaktálya-Gyilkos.[52] Contrary to these sites, the typical Aurignacian tools are lacking at Andornaktálya-Marinka. On the other hand, splintered pieces were mentioned from Middle Neolithic lithic industries too.[53] But these industries used local and regional raw materials, while the splintered pieces at Andornaktálya were made of Świeciechów flint and Silesian flint.

[50]Markó et al. (2002); Markó and Péntek (2004); Markó (2007, 2009); Zandler et al. (2021).

[51]Perpère and Schmider (2002); Le Brun-Ricalens (2006); Lengyel (2018).

[52]Kozłowski et al. (2009); Kozłowski et al. (2012); Zandler (2012); Mester et al. (2021).

[53]Kozłowski (2001); Kaminská et al. (2008); Faragó et al. (2015).

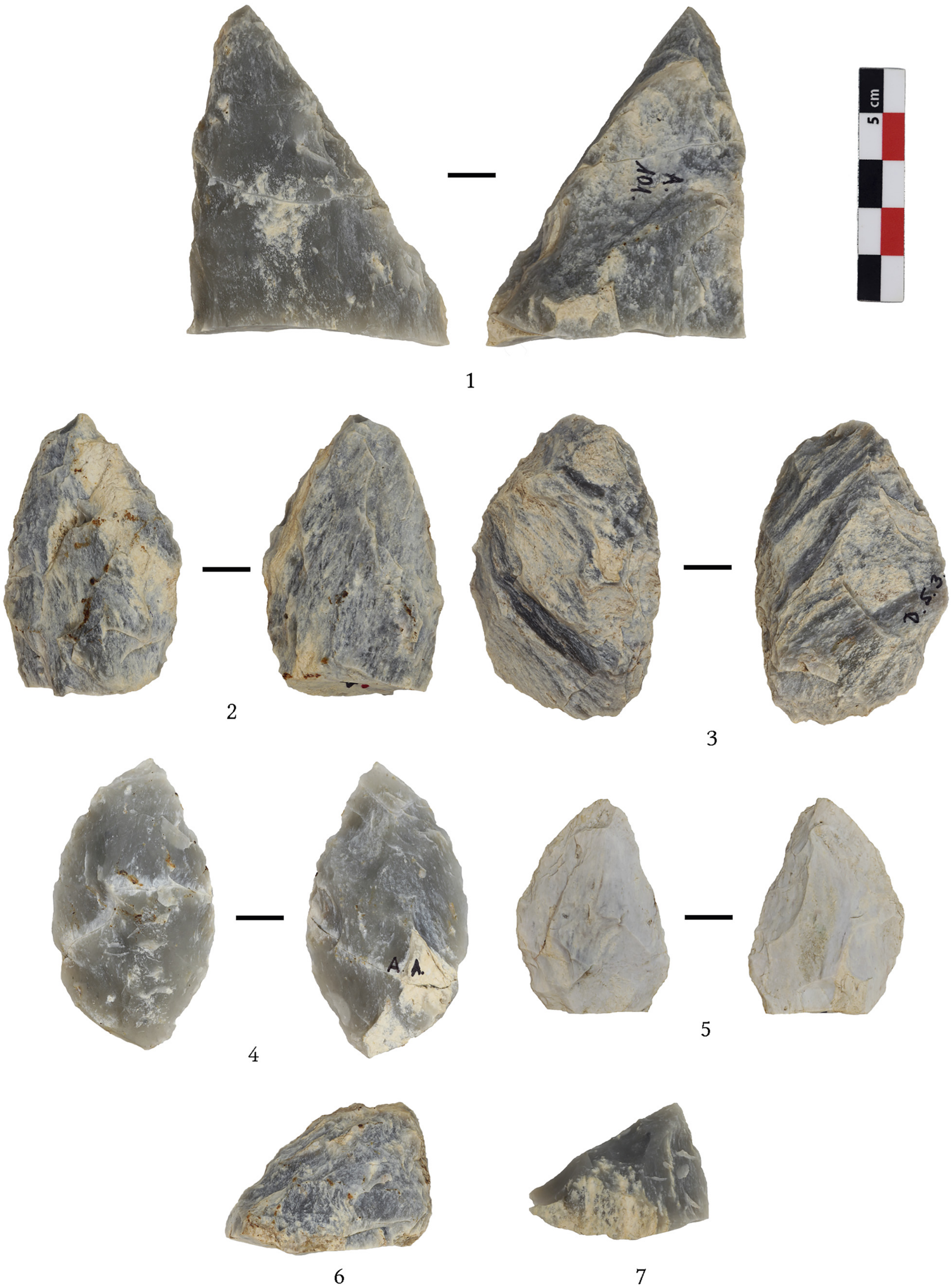
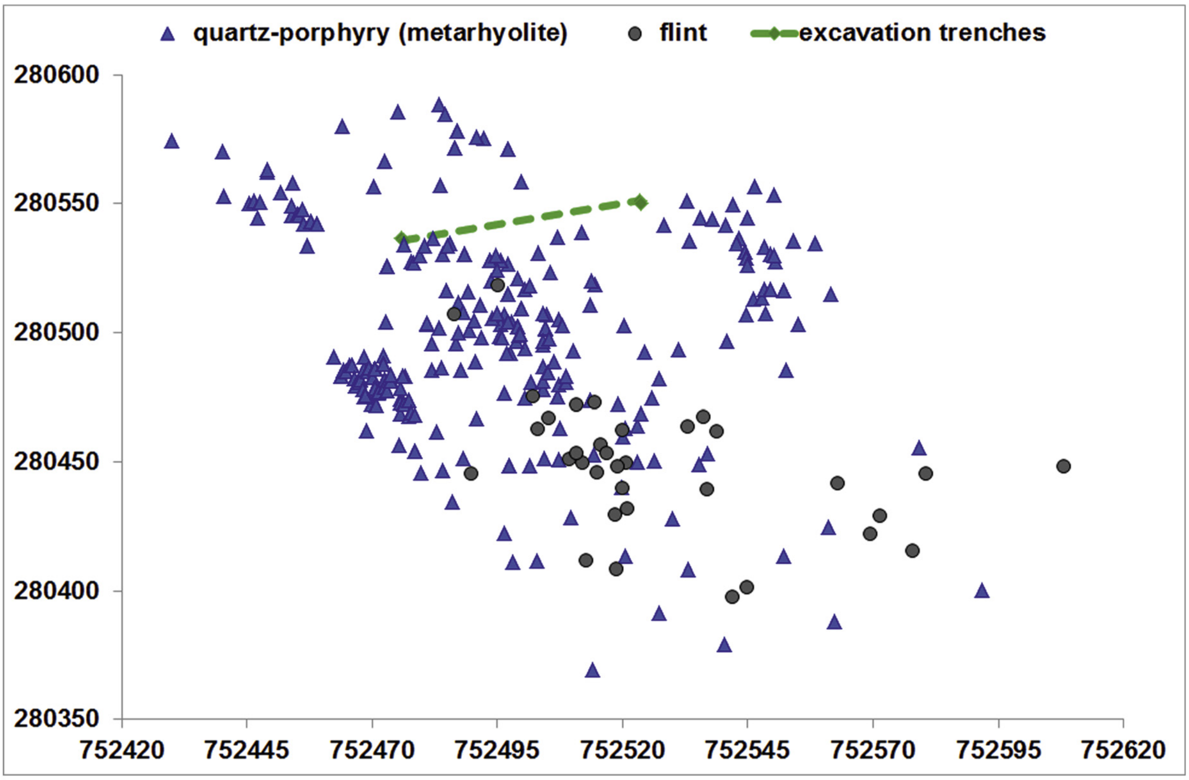


Fig. 10. Bifacial tools made of quartz-porphyry (metarhyolite). 1, 3: *Keilmesser*; 2, 4–5: leaf points; 6–7: fragments of leaf point
10. kép. Kvarcporfírból (metariolitból) készült bifaciális eszközök. 1, 3: *Keilmesser*; 2, 4–5: levélhegyek; 6–7: levélhegy töredékek

Fig. 11. Retouched tools made of different raw materials. 1–2: bladelet cores; 3–4: bladelets; 5: retouched blade; 6–8: burins; 9–12: endscrapers; 13–15: sidescrapers; 16: fragment of polished axe; 17: hammerstone. 1: hornstone (black chert); 2–9, 16: 'northern' flint; 10, 13: limnosilicite; 11–12: quartz-porphyry (metarhyolite); 14–15: radiolarite; 17: quartzite

11. kép. Különböző nyersanyagokból készült retusált kőeszközök. 1–2: lamella-magkövek; 3–4: lamellák; 5: retusált penge; 6–8: vésők; 9–12: vakarók; 13–15: kaparók; 16: csiszolt balta töredéke; 17: ütőkő. 1: bükki szarukő; 2–9, 16: „északi" tűzkő; 10, 13: limnoszilicit; 11–12: kvarcporfír (metariolit); 14–15: radiolarit; 17: kvarcit



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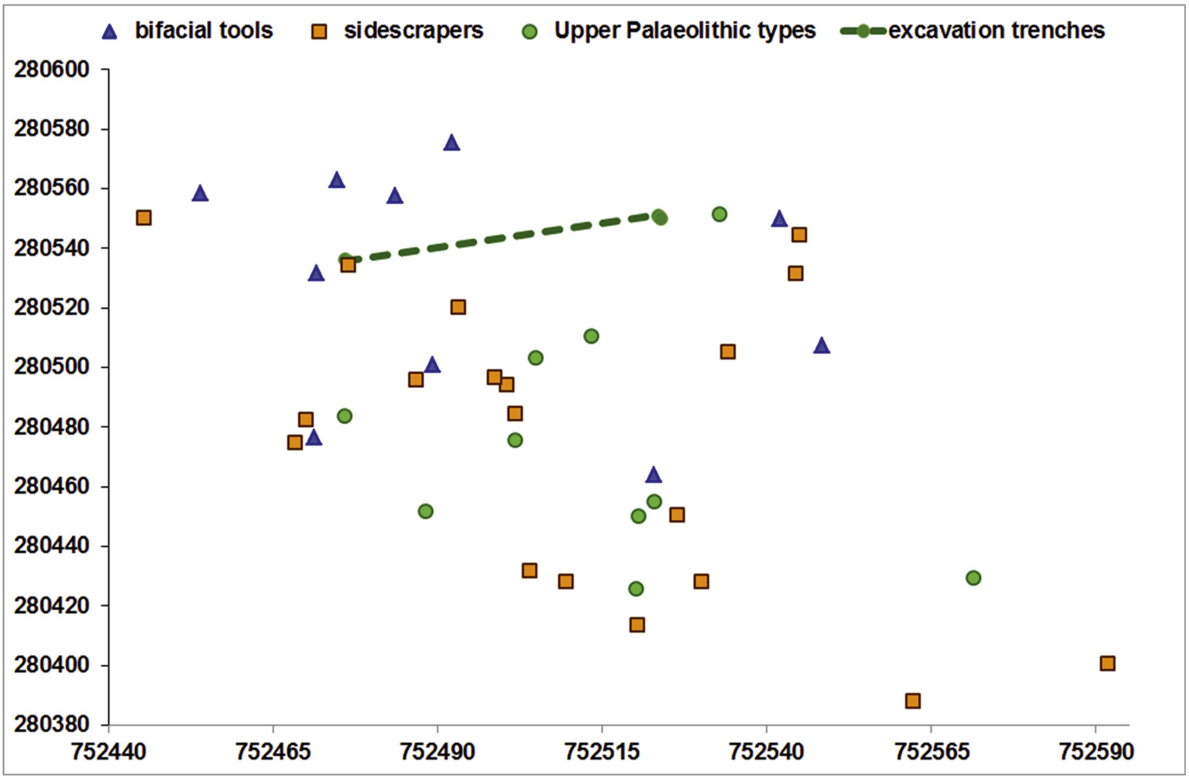

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Fig. 12. Spatial distribution of the finds on the site. A: artefacts made of 'northern' flints and quartz-porphyry (metarhyolite); B: bifacial tools/leaf points, sidescrapers and Upper Palaeolithic types. The broken line shows the position of the excavation trenches
12. kép. A leletek térbeli eloszlása a lelőhelyen. A: „északi" tűzkőből és kvarcporfírból (metariolitból) készült darabok; B: bifaciális eszközök/levélhegyek, kaparók és felső paleolitikus típusok. A szaggatott vonal az ásatási szondák helyzetét jelzi

The high amount of long-distance raw materials can be an argument in favour of the Aurignacian context too. The presence of 'northern' flints is a common feature of the Aurignacian assemblages in the region of Eger.[54] The most attractive example in this regard is Andornaktálya-Zúgó, where this category represents more than 20% and is predominated by the Silesian flint.[55] It is worth noting that Marinka and Zúgó are located on the opposite sides of the same dry valley, named Zúgó valley. 'Northern' flints were commonly used during the Middle and Late Upper Palaeolithic in Late Gravettian and Late Epigravettian cultural context.[56] This context is quite unprobable for Andornaktálya-Marinka, because no diagnostic Gravettian tool types were recorded at the site, and the backed retouch appears only on two pieces, on a hinged flake and on the right edge of a burin on retouched blade, respectively of quartz-porphyry (metarhyolite) and Silesian flint. 'Northern' flints became practically unused from the Mesolithic until the Middle Neolithic in Hungary. They re-appear in the raw material spectra in the Late Neolithic and in the Copper Age.[57] At Andornaktálya-Marinka, the presence of undiagnostic prehistoric shards and daub fragments, as well as the fragments of polished axes suggests these periods. Finally, the gunflint is linked to the Early Modern Age. Thus, the cultural attribution of the 'younger' industry cannot be done actually.

CONCLUSIONS

Andornaktálya-Marinka open-air site is located on a hilltop in the southwestern foothill of the Bükk Mountains in Northeast Hungary. The hill is a member of the range along the left bank of the Eger Stream. The site was discovered in 2014 thanks to the labour preparing new vine plantations, however dozens of open-air sites became known around the town of Eger since 1948. Andornaktálya-Marinka site was regularly prospected from 2014 to 2019. The method of documenting the finds have been changed during this period. Thanks to applying GPS devices from 2017 onward, third of the artefacts, collected on the surface, can be localized within the site. In 2018, a test excavation was carried out to clarifying the stratigraphy of the site. Five excavation units were dug out covering a surface of 12 m^2. Artefacts were unearthed at a depth from 60 to 80 cm below the surface, which could be considered the archaeological horizon.

The archaeological material consists of a few undiagnostic prehistoric ceramic shards and daub fragments, and 1,706 stone artefacts, 43 of which have been unearthed in the excavation trenches. Except two fragments of polished axes, the lithic assemblage contains knapped stones. From technological point of view, the flakes are predominant, followed by retouched tools, raw material nodules or slabs, blades and bladelets, and cores. The tool-kit is dominated by sidescrapers, followed by retouched flakes, bifacial tools/leaf points, notched tools, endscrapers, retouched blades, and denticulated tools. The blanks of the tools are predominantly flakes, blades and nodules or slabs were often used too. Among raw materials, quartz-porphyry (metarhyolite) is the most common, followed by 'northern' flints, limnosilicites, silicified marlstone, radiolarite and hornstone (black chert). Other rocks are present sporadically, like Carpathian obsidian and silicified sandstone.

The lithic assemblage shows the characteristics of an 'older' flake industry and those of a 'younger' blade industry. The first one used almost exclusively local and regional raw materials, while the second one worked with long-distance 'northern' flints. Based on the distribution of the pieces recorded with GPS devices, there is a spatial shift between these occupations. According to this distribution, the 'older' industry occupied the northern part of the hilltop, while the 'younger' one preferred the southern part lying to the slope. In this regard, the stratigraphic observation made during the excavation concerns the 'older' one.

Taking into consideration the typological composition and the raw material use, the 'older' industry can be attributed most probably to the Micoquian-like Bábonyian, dated to the Late Middle Palaeolithic. The chronological and cultural attribution of the 'younger' industry is much more problematic because of the lack of diagnostic tool types. The presence of splintered pieces and the important role of 'northern' flints suggest linking it to the Aurignacian which has several open-air sites in the region. But a more recent prehistoric age cannot be excluded too, taking into account the ceramic shards, polished axes, and the 'northern' flints in the raw material spectra.

A possible site function can be supposed for the occupations by the 'older' industry, based on a comparison with the recently analyzed Sajóbábony-Méhész-tető site. It is the production of tools, including bifacial types, like *Keilmesser* and leaf points, by exploiting local and regional raw materials, including quartz-porphyry (metarhyolite). The only known sources of this latter rock are located to the northeast in the eastern part of the Bükk Mountains. However, this raw material was transported to the west along the foothill region of the North Hungarian Range to the Cserhát Mountains. Andornaktálya-Marinka could be a stop on this road.

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[54]Kozłowski et al. (2009); Mester et al. (2021).

[55]Kozłowski and Mester (2004); Mester (2009); Mester and Kozłowski (2014).

[56]Lengyel (2014, 2018).

[57]Biró (1998); Faragó (2016, 2021, 2024).

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REFERENCES

Adams, B. (2000). Archaeological investigations at two open-air sites in the Bükk Mountain region of Northeast Hungary. In: Orschiedt, J. and Weniger, G.-C. (Eds), *Neanderthals and Modern Humans – discussing the transition: Central and Eastern Europe from 50.000–30.000 B.P.*, Vol. 2. Wissenschaftliche Schriften des Neanderthal Museums, Neanderthal Museum, Mettmann, 169–182.

Bačo, P., Kaminská, Ľ., Lexa, J., Pécskay, Z., Bačová, Z., and Konečný, V. (2017). Occurrences of Neogene Volcanic Glass in the Eastern Slovakia – Raw Material source for the Stone Industry. *Anthropologie (Brno),* 55(1–2): 207–230.

Balcer, B. (1976). Position and stratigraphy of flint deposits, development of exploitation and importance of the Świeciechów flint in Prehistory. *Acta Archaeologica Carpathica,* 16: 179–199.

Béres, S. and Kerekes, D. (2023). The Demjén-Szőlő-hegy III Early Upper Palaeolithic site. In: Király, A. (Ed.), *From tea leaves to leaf-shaped tools. Studies in honour of Zsolt Mester on his sixtieth birthday*, Vol. 2. Litikum Könyvtár, Lithic Research Roundtable and Institute of Archaeological Sciences ELTE Eötvös Loránd University, Budapest, 65–78. https://doi.org/10.23898/litikumsi02a03.

Biró, K. T. (1984). Distribution of obsidian from the Carpathian sources on Central European Palaeolithic and Mesolithic sites. *Acta Archaeologica Carpathica,* 23: 5–42.

Biró, K. T. (1998). *Lithic implements and the circulation of raw materials in the Great Hungarian Plain during the Late Neolithic Period*. Hungarian National Museum, Budapest.

Biró, K. T. (2009). Sourcing raw materials for chipped stone artifacts: the state-of-the-art in Hungary and the Carpathian basin. In: Adams, B. and Blades, B. S. (Eds), *Lithic Materials and Paleolithic Societies*. Wiley–Blackwell, Oxford, 47–53. https://doi.org/10.1002/9781444311976.ch4.

Biró, K. T. and Dobosi, V. T. (1991). *Lithotheca – Comparative Raw Material Collection of the Hungarian National Museum.* Hungarian National Museum, Budapest.

Biró, K. T., Dobosi, V. T., and Schléder, Zs. (2000). *Lithotheca II – The Comparative Raw Material Collection of the Hungarian National Museum, Vol. II*. Hungarian National Museum, Budapest.

Biró, K. T., Regenye, J., Puszta, S., and Thamóné Bozsó, E. (2010). Előzetes jelentés a Nagytevel-Tevel-hegyi kovabánya ásatásának eredményeiről (Preliminary report on the excavations at Nagytevel flint mine). *Archaeologiai Értesítő,* 135: 5–25. https://doi.org/10.1556/ArchErt.135.2010.1.

Bordes, F. (1961). *Typologie du Paléolithique ancien et moyen.* Publications de l'Institut de Préhistoire de l'Université de Bordeaux 1, Delmas, Bordeaux.

Borkowski, W. (1995). PL 6 Krzemionki, Kielce province. Prehistoric flint mines complex in Krzemionki. *Archaeologia Polona,* 33: 506–524.

Budek, A. and Kalicki, T. (2004). Sedimentological and micromorphological studies of T11 section at Andornaktálya. *Praehistoria*, 4–5: 145–152.

Budek, A., Kalicki, T., Kaminská, Ľ., Kozłowski, J. K., and Mester, Zs. (2013). Interpleniglacial profiles on open-air sites in Hungary and Slovakia. *Quaternary International*, 294: 82–98. https://doi.org/10.1016/j.quaint.2012.02.022.

Caux, S., Galland, A., Queffelec, A., and Bordes, J.-G. (2018). Aspects and characterization of chert alteration in an archaeological context: A qualitative to quantitative pilot study. *Journal of Archaeological Science: Reports,* 20: 210–219. https://doi.org/10.1016/j.jasrep.2018.04.027.

Debénath, A. and Dibble, H. L. (1994). *Handbook of Paleolithic typology. Vol. I: Lower and Middle Paleolithic of Europe*. University Museum, University of Pennsylvania, Pennsylvania. https://doi.org/10.9783/9781934536803.

Demars, P.-Y. and Laurent, P. (1992). *Types d'outils lithiques du Paléolithique supérieur en Europe.* Presses du CNRS, Paris.

Dmochowski, P. (2006). A new classification of erratic flint from western Poland. In: Wiśniewski, A., Płonka, T., and Burdukiewicz, J. M. (Eds), *The Stone: Technique and technology*. Uniwersytet Wroclawski, Instytut Archeologii, Wrocław, 217–226.

Dobos, A. (2023). Using geological, geomorphological and soil science description data in archaeological research: Andornaktálya, Gyilkos Hill as a case study. In: Király, A. (Ed.), *From tea leaves to leaf-shaped tools. Studies in honour of Zsolt Mester on his sixtieth birthday*, Vol. 2. Litikum Könyvtár, Lithic Research Roundtable and Institute of Archaeological Sciences ELTE Eötvös Loránd University, Budapest, 121–139. https://doi.org/10.23898/litikumsi02a06.

Dobos, A. and Mester, Zs. (2018). Felszínfejlődési rekonstrukciós vizsgálatok Eger környéki régészeti feltárások esetében. In: Fazekas, I., Kiss, E., and Lázár, I. (Eds), *Földrajzi tanulmányok 2018*. MTA DAB Földtudományi Szakbizottság, Debrecen, 63–66.

Dobosi, V. T. (2005). Cadastre of Palaeolithic finds in Hungary. State of art 2005. *Communicationes Archaeologicae Hungariae*, 49–81.

Dobosi, V. T. and Gatter, I. (1996). Palaeolithic tools made of rock crystal and their preliminary fluid inclusion investigation. *Folia Archaeologica,* 45: 31–50.

Domański, M. and Webb, J. A. (2000). Flaking properties, petrology and use of Polish flint. *Antiquity,* 74: 822–832. https://doi.org/10.1017/S0003598X00060476.

Faragó, N. (2016). Houses, Households, Activity Zones in the Post-LBK World. Results of the Raw Material Analysis of the Chipped Stone Tools at Polgár-Csőszhalom, Northeast Hungary. *Open Archaeology*, 2016(2): 346–367. https://doi.org/10.1515/opar-2016-0024.

Faragó, N. (2021). The Late Neolithic flint exchange network in the Great Hungarian Plain. *Hungarian Archaeology,* 10(3): 53–58. http://files.archaeolingua.hu/2021O/Upload/Farago_E21O.pdf (Accessed: 17.08.2024).

Faragó, N. (2024). Technological observations on the bifacial point from the Copper Age cemetery of Rákóczifalva. In: Király, A.

(Ed.), *From tea leaves to leaf-shaped tools. Studies in honour of Zsolt Mester on his sixtieth birthday*, Vol. 2. Litikum Könyvtár, Lithic Research Roundtable and Institute of Archaeological Sciences ELTE Eötvös Loránd University, Budapest, 141–157. https://doi.org/10.23898/litikumsi02a07.

Faragó, N., K. Tutkovics, E., and Kalli, A. (2015). Előzetes jelentés Bükkábrány-Bánya, VII. lelőhely pattintott kőeszköz anyagáról (Preliminary report on the chipped stone assemblage of Bükkábrány-Bánya VII). *A Herman Ottó Múzeum Évkönyve*, 54: 25–37.

Faragó, N., Péter, R. K., Viktorik, O., Máté, L., and Mester, Zs. (2022). Prehistoric stone raw materials from the Bükk Mountains in Northeastern Hungary. *Archaeologia Polona*, 60: 187–229. https://doi.org/10.23858/APa60.2022.3084.

Fiers, G. (2020). *The Characteristics and Alteration of Flint: A Multi-Methodological Approach and Significance for Archaeological Research*. PhD Thesis, Universiteit Gent, Faculteit Wetenschappen, Gent.

Fodor, L. (1984). Néhány őskori lelőhely Eger környékén (Einige prähistorische Fundstellen in der Umgebung von Eger). *Agria*, 20: 73–116.

Glauberman, P. J. and Thorson, R. M. (2012). Flint Patina as an Aspect of "Flaked Stone Taphonomy": A Case Study from the Loess Terrain of the Netherlands and Belgium. *Journal of Taphonomy,* 10(1): 21–43.

Gordon, C. C. and Buikstra, J. E. (1981). Soil pH, bone preservation, and sampling bias at mortuary sites. *American Antiquity,* 46(3): 566–571. https://doi.org/10.2307/280601.

Harangi, Sz. (2001). Neogen to Quaternary volcanism of the Carpathian-Pannonian region – a review. *Acta Geologica Hungarica,* 44(2–3): 223–258.

Harangi, Sz. and Lenkey, L. (2007). Genesis of the Neogene to Quaternary volcanism in the Carpathian-Pannonian region: Role of subduction, extension, and mantle plume. In: Beccaluva, L., Bianchini, G., and Wilson, M. (Eds), *Cenozoic Volcanism in the Mediterranean Area*, Vol. 418. Geological Society of America Special Paper, Geological Society of America, Boulder, 67–92. https://doi.org/10.1130/2007.2418(04).

Harangi, Sz. and Lukács, R. (2019). A Kárpát-Pannon térség neogén-kvarter vulkanizmusa és geodinamikai kapcsolata (The Neogene to Quaternary volcanism and its geodynamic relations in the Carpathian-Pannonian region). *Földtani Közlöny,* 149(3): 197–232. https://doi.org/10.23928/foldt.kozl.2019.149.3.197.

Hartai, É. and Szakáll, S. (2005). Geological and mineralogical background of the Palaeolithic chert mining on the Avas Hill, Miskolc, Hungary. *Praehistoria,* 6: 15–21.

Holló, Zs., Lengyel, Gy., Mester, Zs., and Szolyák, P. (2004). Egy pattintott kőeszköz vizsgálata. Magyar kifejezések a technológiai vizsgálatokhoz 3. *Ősrégészeti Levelek,* 6: 62–80.

Inizan, M.-L., Reduron-Ballinger, M., Roche, H., and Tixier, J. (1999). *Technology and Terminology of Knapped Stone*, Vol. 5. Préhistoire de la Pierre Taillée, Cercle de Recherches et d'Études Préhistoriques, Nanterre.

Kaczanowska, M. and Kozłowski, J. K. (2005). L'importance de silex de Świeciechów dans l'Âge de la Pierre: indicateur de changements de relations culturelles autour des Carpates occidentales. *Praehistoria,* 6: 71–83.

Kadić, O. (1934). Der Mensch zur Eiszeit in Ungarn. *Mitteilungen aus dem Jahrbuch der kgl. Ungarischen Geologischen Anstalt*, 30: 1–147.

Kaminská, L'. (2001). Die Nutzung von Steinrohmaterialien im Paläolithikum der Slowakei. *Quartär,* 51(52): 81–106.

Kaminská, L'., Kaczanowska, M., and Kozłowski, J. K. (2008). Košice-Červený Rak and the Körös/ Eastern Linear Transition in the Hornád Basin (Eastern Slovakia). *Přehled výzkumů,* 49: 83–91.

Konoplya, V. (1998). Klasifikatsiya krem'yanoi sirovini zakhodu Ukraini. *L'vivsk'y Istoritchny Muzei – Naukovi Zapiski,* 7: 139–157.

Kozłowski, J. K. (Ed.) (1989). *"Northern" (Erratic and Jurassic) flint of South Polish origin in the Upper Palaeolithic of Central Europe.* Institute of Archaeology Jagiellonian University, Cracow.

Kozłowski, J. K. (2001). Evolution of lithic industries of the Eastern Linear Pottery culture. In: Kertész, R. and Makkay, J. (Eds), *From the Mesolithic to the Neolithic. Proceedings of the International Archaeological Conference held in the Damjanich Museum of Szolnok, September 22–27, 1996.* Archaeolingua, Budapest, 247–260.

Kozłowski, J. K. and Mester, Zs. (2004). Un nouveau site du Paléolithique supérieur dans la région d'Eger (Nord-est de la Hongrie). *Praehistoria*, 4–5: 109–140.

Kozłowski, J. K. and Pawlikowski, M. (1989). Investigations into the northern lithic raw materials in Upper Silesia (Poland). In: Kozlowski, J. K. (Ed.), *"Northern" (Erratic and Jurassic) flint of South Polish origin in the Upper Palaeolithic of Central Europe.* Institute of Archaeology Jagellonian University and Department of Anthropology University of Kansas, Kraków, 17–46.

Kozłowski, J. K., Mester, Zs., Zandler, K., Budek, A., Kalicki, T., Moskal, M., and Ringer, Á. (2009). Le Paléolithique moyen et supérieur de la Hongrie du nord: nouvelles investigations dans la région d'Eger. *L'Anthropologie*, 113: 399–453. https://doi.org/10.1016/j.anthro.2009.04.005.

Kozłowski, J. K., Mester, Zs., Budek, A., Kalicki, T., Moskal-del Hoyo, M., Zandler, K., and Béres, S. (2012). La mise en valeur d'un ancien site éponyme: Eger-Kőporos dans le Paléolithique moyen et supérieur de la Hongrie du nord. *L'Anthropologie*, 116: 405–465. https://doi.org/10.1016/j.anthro.2012.05.004.

Körössy, L. (2004). Az észak-magyarországi paleogén medence kőolaj- és földgázkutatásának földtani eredményei (Hydrocarbon geology of northem Hungary [Palaeogene basin]). *Általános Földtani Szemle,* 28: 9–120. https://epa.oszk.hu/02700/02751/00028/pdf/EPA02751_alt_foldt_szemle_2004_28_009-120.pdf (Accessed: 17.08.2024).

Krajcarz, M. T. and Krajcarz, M. (2009). The outcrops of Jurassic flint raw materials from south-western margin of the Holy Cross Mountains. *Acta Archaeologica Carpathica,* 44: 183–195.

Krajcarz, M. T., Krajcarz, M., Sudoł, M., and Cyrek, K. (2012). From far or from near? Sources of Kraków-Częstochowa banded and chocholate silicite raw material used during the Stone Age in Biśnik cave (Southern Poland). *Anthropologie,* 50: 411–425.

Le Brun-Ricalens, F. (2006). Les pièces esquillées: état des connaissances après un siècle de reconnaissance. *Paléo,* 18: 95–114. https://doi.org/10.4000/paleo.181.

Lengyel, Gy. (2014). Distant connection changes from the Early Gravettian to the Epigravettian in Hungary. In: Otte, M. and Le Brun-Ricalens, F. (Eds), *Modes de contacts et de déplacements au Paléolithique eurasiatique. Modes of contact and mobility during the Eurasian Palaeolithic*, Vol. 140. E.R.A.U.L., Vol. 5. ArchéoLogiques, Université de Liège–Centre National de Recherche Archéologique, Luxembourg, 331–347.

Lengyel, Gy. (2018). Lithic analysis of the Middle and Late Upper Palaeolithic in Hungary. *Folia Quaternaria,* 86: 5–157. https://doi.org/10.4467/21995923FQ.18.001.9819.

Markó, A. (2005). Limnokvarcit a Cserhát hegységben. *Archeometriai Műhely,* 2(4): 52–55.

Markó, A. (2007). Preliminary report on the excavations of the Middle Palaeolithic site Vanyarc–Szlovácka-dolina. *Communicationes Archaeologicae Hungariae*, 5–18.

Markó, A. (2009). Raw material circulation during the Middle Palaeolithic period in northern Hungary. In: Gancarski, J. (Ed.), *Surowce naturalne w Karpatach oraz ich wykorzystanie w pradziejach i wczesnym średniowieczu. Materiały z konferencji, Krosno 25–26 listopada 2008.* Muzeum Podkarpackie w Krośnie, Krosno, 107–119.

Markó, A. and Péntek, A. (2004). Raw material procurement strategy on the Palaeolithic site Legénd-Káldy-tanya (Cserhát Mountains, Northern Hungary). *Praehistoria,* 4–5: 165–177.

Markó, A., Péntek, A., and Béres, S. (2002). Chipped stone assemblages from the environs of Galgagyörk (Northern Hungary). *Praehistoria,* 3: 245–257.

Markó, A., Biró, K. T., and Kasztovszky, Zs. (2003). Szeletian felsitic porphyry: Non-destructive analysis of a classical Palaeolithic raw material. *Acta Archaeologica Academiae Scientiarum Hungaricae,* 54: 297–314. https://doi.org/10.1556/AArch.54.2003.3-4.1.

Mester, Zs. (1989). A Subalyuk-barlang középső paleolitikus iparainak újraértékelése (La réévaluation des industries du Paléolithique moyen de la grotte Subalyuk). *Folia Archaeologica,* 40: 11–35.

Mester, Zs. (1990). La transition vers le Paléolithique supérieur des industries moustériennes de la montagne de Bükk (Hongrie). In: Farizy, C. (Ed.), *Paléolithique moyen récent et Paléolithique supérieur ancien en Europe. Ruptures et transitions: examen critique des documents archéologiques. Actes du Colloque international de Nemours 9-10-11 Mai 1988*, Vol. 3. Mémoires du Musée de Préhistoire d'Ile de France, Ed. A.P.R.A.I.F., Nemours, 103–106.

Mester, Zs. (2004). Technologie des industries moustériennes de la grotte Suba-lyuk (Hongrie). In: Le Secrétariat du Congrès (Ed.), *Actes du XIVe Congrès UISPP, Université de Liège, Belgique, 2–8 septembre 2001. Section 5: Le Paléolithique moyen: Sessions générales et posters*, Vol. 1239. British Archaeological Reports – International Series, Archaeopress, Oxford, 127–133.

Mester, Zs. (2008a). Adaptation à l'environnement montagneux au Paléolithique en Hongrie. In: Grimaldi, S., Perrin, T., and Guilaine, J. (Eds), *Mountain environments in Prehistoric Europe. Settlement and mobility strategies from Palaeolithic to the early Bronze Age. Proceedings of the XV World Congress (Lisbon, 4–9 September 2006) UISPP, vol. 26*, Vol. 1885. British Archaeological Reports – International Series, Archaeopress, Oxford, 35–42.

Mester, Zs. (2008b). A Suba-lyuk vadászai: két kultúra, két világ (The hunters of Suba-lyuk: Two cultures, two worlds). In: Baráz, Cs. (Ed.), *A Suba-lyuk barlang. Neandervölgyi ősember a Bükkben (Suba-lyuk Cave. The Neanderthal man in the Bükk).* Bükki Nemzeti Park Igazgatóság, Eger, 85–98.

Mester, Zs. (2009). Nyersanyagbeszerzés és -feldolgozás egy felső paleolit telepen: Andornaktálya-Zúgó-dűlő (Raw material acquisition and processing at an Upper Palaeolithic settlement: Andornaktálya–Zúgó-dűlő). In: Ilon, G. (Ed.), *ΜΩΜΟΣ VI. – Őskoros Kutatók VI. Összejövetelének konferenciakötete. Nyersanyagok és kereskedelem. Kőszeg, 2009. március 19–21.* Kulturális Örökségvédelmi Szakszolgálat and Vas megyei Múzeumok Igazgatósága, Szombathely, 239–254.

Mester, Zs. and Faragó, N. (2016). Prehistoric exploitations of limnosilicites in Northern Hungary: problems and perspectives. *Archaeologia Polona,* 54: 33–50. https://rcin.org.pl/dlibra/publication/83007/edition/63432/content.

Mester, Zs. and Faragó, N. (2022). From bedrock to alluvium: Considerations on human–lithic resource interaction. *Journal of Lithic Studies,* 9(1): 44. https://doi.org/10.2218/jls.7475.

Mester, Zs. and Kozłowski, J. K. (2014). Modes de contacts des Aurignaciens du site d'Andornaktálya (Hongrie) à la lumière de leur économie particulière de matières premières. In: Otte, M. and Le Brun-Ricalens, F. (Eds), *Modes de contacts et de déplacements au Paléolithique eurasiatique. Modes of contact and mobility during the Eurasian Palaeolithic*, Vol. 140. E.R.A.U.L., Vol. 5. ArchéoLogiques, Université de Liège–Centre National de Recherche Archéologique, Luxembourg, 349–367.

Mester, Zs. and Lamotte, A. (2024). New insights into the Middle Palaeolithic Bábonyian industry at the eponymous site, Sajóbábony-Méhész-tető (Hungary). In: Uthmeier, T. and Maier, A. (Szerk.), *STONE AGE: Studying Technologies of Non-analogous Environments and Glacial Ecosystems. Papers in Honor of Jürgen Richter*, Vol. 396. Universitätsforschungen zur prähistorischen Archäologie, Verlag Dr. Rudolf Habelt GmbH, Bonn, 197–214.

Mester, Zs. and Patou-Mathis, M. (2016). Nouvelle interprétation des occupations néanderthaliennes de la grotte Subalyuk (Hongrie du Nord). *Acta Archaeologica Carpathica*, 51: 7–46.

Mester, Zs., Cserpák, F. and Faragó, N. (2018). Preliminary report on the excavation at Andornaktálya-Marinka in 2018. *Dissertationes Archaeologicae,* 3.6: 493–497. https://doi.org/10.17204/dissarch.2018.493.

Mester, Zs., Kozłowski, J. K., Kalicki, T., Dobos, A., Frączek, M., Zandler, K., Gutay, M., Béres, S., and Cserpák, F. (2021). Nouveaux assemblages du Paléolithique supérieur ancien en Hongrie du nord dans le contexte de l'hypothèse du Couloir danubien. *L'Anthropologie*, 125: 102914. https://doi.org/10.1016/j.anthro.2021.102914.

Nicholson, R. A. (1996). Bone degradation, burial medium and species representation: Debunking the myths, an experiment-based approach. *Journal of Archaeological Science,* 23: 513–533. https://doi.org/10.1006/jasc.1996.0049.

Oron, M., Roskin, J., Avni, Y., Porat, N., Aladjem, E., Yegorov, D., Vardi, J., and Hovers, E. (2023). A conceptual model of multi-scale formation processes of open-air Middle Paleolithic sites in the arid Negev desert, Israel. *Quaternary Research,* 116: 162–180. https://doi.org/10.1017/qua.2023.31.

Paládi-Kovács, A. (2002). A Bükk-vidék népe. Települési és építészeti hagyományok. In: Baráz, Cs. (Ed.), *A Bükki Nemzeti Park. Hegyek, erdők, emberek*. Bükki Nemzeti Park Igazgatóság, Eger, 429–444.

Pelikán, P. (Ed.) (2005). *Geology of the Bükk Mountains. Explanatory Book to the Geological Map of the Bükk Mountains (1:50 000)*. Magyar Állami Földtani Intézet, Budapest.

Perpère, M. and Schmider, B. (2002). L'outillage lithique. In: Schmider, B. (Ed.), *L'Aurignacien de la Grotte du Renne. Les fouilles d'André Leroi-Gourhan à Arcy-sur-Cure (Yonne),* Vol. 34. Supplément à Gallia Préhistoire, CNRS Éditions, Paris, 143–195. https://doi.org/10.3406/galip.2002.2794.

Přichystal, A. (2013). *Lithic raw materials in Prehistoric times of Central Europe*. Masaryk University Press, Brno.

Přichystal, A. and Škrdla, P. (2014). Kde ležel hlavní zdroj obsidiánu v pravěku střední Evropy? (Where was situated the principal source of obsidian in prehistory of Central Europe?). *Slovenská Archeológia,* 62(2): 215–226.

Rácz, B. (2013). Main raw materials of the Palaeolithic in Transcarpathian Ukraine: Geological and petographical overview. In: Mester, Zs. (Ed.), *The lithic raw material sources and interregional human contacts in the Northern Carpathian regions*. Polska Akademia Umiejętności, Kraków–Budapest, 131–146.

Ringer, Á. (1983). *Bábonyien. Eine mittelpaläolithische Blattwerkzeugindustrie in Nordostungarn*, Vol. 11. Dissertationes Archaeologicae Ser. II., Editio Instituti Archaeologici Universitatis de Rolando Eötvös nominatae, Budapest.

Ringer, Á., Tóth, Z. H., and Németh, N. (2020). Neuer Beitrag zum Vorkommen des Szeletien Quartzporphyr in Bükkszentlászló und Bükkszentkereszt. *Praehistoria,* New Series 1–2(11–12): 15–23.

Roche, H. and Tixier, J. (1982). Les accidents de taille. In: Cahen, D. and U.R.A. 28 du C.R.A. (Eds), *Tailler! pour quoi faire: Préhistoire et technologie lithique: Recent progress in microwear studies,* Vol. 2. Studia Praehistorica Belgica, Musée Royal de l'Afrique centrale, Tervuren, 65–76.

Rosania, C. N., Boulanger, M. T., Biró, K., Ryzhov, S., Trnka, G., and Glascock, M. D. (2008). Revisiting Carpathian obsidian. *Antiquity,* 82(318), http://antiquity.ac.uk/projgall/rosania (Accessed: 17.08.2024).

Sałacińska, B. and Sałaciński, S. (2022). Settlement Base of the Neolithic Banded Flint Mines in Krzemionki Opatowskie – an Outline of the Issues. *Sprawozdania Archeologiczne*, 74(1): 67–104.

Simán, K. (1989). Northern flint in the Hungarian Palaeolithic. In: Kozlowski, J. K. (Ed.), *"Northern" (Erratic and Jurassic) flint of South Polish origin in the Upper Palaeolithic of Central Europe.* Institute of Archaeology Jagellonian University and Department of Anthropology University of Kansas, Kraków, 87–94.

Sobkowiak-Tabaka, I., Werra, D. H., Hughes, R. E., and Siuda, R. (2016). Erratic Flint from Poland: Preliminary results of petrographic and geochemical analysis. *Archaeologia Polona,* 54, 67–82. https://journals.iaepan.pl/apolona/article/view/430 (Accessed: 17.08.2024).

Sudoł-Procyk, M. and Krajcarz, M. T. (2021). The use of landscape and georesources at microregional scale during the later part of the Late Glacial in the south-eastern part of the Ryczów Upland (Polish Jura). In: Bostyn, F., Giligny, F., and Topping, P. (Eds), *From mine to user: Production and procurement systems of siliceous rocks in the European Neolithic and Bronze Age*. Archaeopress, Oxford, 16–30. https://doi.org/10.2307/jj.15136049.7.

Sudoł-Procyk, M., Budziszewski, J., Krajcarz, M. T., Jakubczak, M., and Szubski, M. (2018). The chocolate flint mines in the Udorka valley (Częstochowa Upland): A preliminary report on the field and Lidar surveys. In: Werra, D. H. and Woźny, M. (Eds), *Between history and archaeology: Papers in honour of Jacek Lech*. Archaeopress, Oxford, 89–102. https://doi.org/10.2307/j.ctvndv6qh.13.

Sudoł-Procyk, M., Brandl, M., Krajcarz, M. T., Malak, M., Skrzatek, M., Stefański, D., Trela-Kieferling, E., and Werra, D. H. (2021). Chocolate flint: new perspectives on its deposits, mining, use and distribution by prehistoric communities in Central Europe. *Antiquity*, 95(838): e25. https://doi.org/10.15184/aqy.2021.48.

Szekszárdi, A., Szakmány, Gy., and Biró, K. T. (2010). Tokaji-hegységi limnokvarcit-limnoopalit nyersanyagok és pattintott kőeszközök archeometriai vizsgálata. I.: Földtani viszonyok, petrográfia. *Archeometriai Műhely,* 7(1): 1–17.

Tóth, Z. H. and Kristály, F. (2017). Egy igazi „tűzkő": a fehér színű szeletai kvarcporfír archeometriai vizsgálata (Archaeometrical studies on white Szeletian felsitic porphyry). *Archeometriai Műhely,* 14(2): 85–98.

Vendl, A. (1940). Das Gesteinsmaterial der Paläolithe. In: Bartucz, L., Dancza, J., Hollendonner, F., Kadić, O., Mottl, M., Pataki, V., Pálosi, E., Szabó, J., and Vendl, A. (Eds), *Die Mussolini-Höhle (Subalyuk) bei Cserépfalu*, Geologica Hungarica Series Palaeontologica 14., Editio Instituti Regii Hungarici Geologici, Budapest, 169–199.

Williams Thorpe, O., Warren, S. E., and Nandris, J. G. (1984). The distribution and provenance of archaeological obsidian in Central and Eastern Europe. *Journal of Archaeological Sciences,* 11: 183–212. https://doi.org/10.1016/0305-4403(84)90001-3.

Zandler, K. (2012). A paleolitikum kőiparai Eger környékén. *Gesta*, 11: 3–54.

Zandler, K., Markó, A., and Péntek, A. (2021). Szeletian or not Szeletian. Bifacial industries from three open-air Middle Palaeolithic sites from the Cserhát Mountains (Northern Hungary). In: Nemergut, A., Cheben, I., and Pyżewicz, K. (Eds), *Fossile directeur. Multiple perspectives on lithic studies in Central and Eastern Europe*, Vol. 2. Študijné zvesti Archeologického ústavu SAV – Supplementum, Archeologický ústav SAV, Nitra, 31–47. https://doi.org/10.31577/szausav.2021.suppl.2.3.

Középső paleolitikus műhely Andornaktálya-Marinka lelőhelyen (Északkelet-Magyarország)

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Északkelet-Magyarország a hazai paleolitrégészet kezdetétől fogva a kutatás egyik kiemelt területe, Eger régiója mégis csak a második világháborút követően, amatőr régészek terepbejárásainak köszönhetően került a figyelem középpontjába. Ezeknek az erőfeszítéseknek köszönhetően ma már számos nyílt színi középső paleolitikus (Moustérien, Micoquien/Bábonyien, Jankovichien kultúrák) és korai felső paleolitikus (Szeletien és Aurignacien kultúrák, nagypengés ipar) lelőhely ismert a térségben *(1. kép)*, köztük Andornaktálya-Marinka is. A lelőhely Egertől délkeletre, Andornaktálya település keleti peremén található, az Eger-patak bal partján húzódó dombvonulat részeként *(2. kép)*, mintegy 234 méterrel a tengerszint felett *(3. kép)*. Cserpák Ferenc fedezte fel új szőlőtelepítéseket követően, aki 2014-től egészen 2019-ig rendszeres terepbejárásokat folytatott a dombtetőn *(1. táblázat)*. A lelőhely négy szőlőterületre terjed ki *(4. kép)*, a dombtetőt átszelő földút azonban két részre osztja azt: az északi részt Marinkának, a déli részt Parti-szőlőknek nevezik. A kutatás kezdeti szakaszában a leletanyag gyűjtése helymegjelölés nélkül történt, később azonban már szőlőterületenként elkülönítve, majd 2017-től kézi GPS segítségével rögzítették a leletek pontos előkerülési helyét *(5. kép)*.

2018-ban két hétig tartó szondázó ásatásra is sor került, melyet az 1–3-as szőlőterületek mellett húzódó, mezőgazdasági művelésből kivont sávban végeztek el *(4. kép)*. Az öt szelvény célja a leletanyag elhelyezkedésének és a lelőhely rétegtani viszonyainak megértése volt *(2. és 3. táblázat)*. A feltárásból származó 43 db lelet mintegy 60–80 cm mélységből került elő.

A lelőhelyen gyűjtött régészeti leletanyag néhány jellegtelen őskori cserépből és paticstöredékből, valamint 1706 darab kő artefaktból áll. Kettő csiszolt balta töredékétől eltekintve, az együttes csak pattintott köveket tartalmaz. A fő technológiai kategóriák alapján a leletegyüttest a szilánkok (72,98%) dominálják, jóval kevesebb arányban fordulnak elő retusált eszközök (14,30%), nyersanyag darabok (6,86%), pengék és lamellák (3.69%), valamint magkövek (1,64%) *(4. táblázat)*. Az eszközkészletben legnagyobb mennyiségben kaparók találhatók (28,69%), melyeket a retusált szilánkok (19,26%), a bifaciális eszközök/levélhegyek (12,29%), völgyelt eszközök (9,01%), vakarók (6,56%), retusált pengék (5,33%), és a fogazott eszközök (4,51%) követnek *(5. táblázat)*.

A lelőhelyen 16 nyersanyag került azonosításra *(7. kép)*, melyek között a kvarcporfír (metariolit) dominál, ami az együttes 70,46%-t teszi ki. A második leggyakoribb nyersanyag az úgynevezett „északi” tűzkő, ami a leletanyag 8,50%-t alkotja. A részletes technológiai-tipológiai vizsgálat, valamint a terepbejárásból származó megfigyelések alapján a lelőhely északi részén egy „idősebb”, helyi és regionális nyersanyagokat – főként kvarcporfírt (metariolitot) – használó szilánkipar helyezkedik el, mely a középső paleolitikus Bábonyien kultúrához sorolható; míg a déli részen a „fiatalabb”, elsősorban a Kárpátokon kívüli távolsági nyersanyagra támaszkodó együttes található *(12. kép)*. Az utóbbi kapcsolatba hozható a korai felső paleolitikus Aurignacien kultúrával, illetve egy késő neolitikus vagy rézkori megtelepedéssel is. A dombtetőről ismert egyetlen darab puskakova kora újkori nyomokra utal.

A lelőhely funkcióját tekintve következtetéseket csak a középső paleolitikus iparral kapcsolatban vonhatunk le. Andornaktálya-Marinka a Sajóbábony-Méhész-tető lelőhelyről ismert párhuzamok alapján kőeszközkészítő telepként funkcionálhatott, ahol kvarcporfírból (metariolitból) bifaciális eszközök/levélhegyek és *Keilmesserek* előállítása folyhatott. A lelőhely emellett egy nagyobb nyersanyag hálózat részeként értelmezhető, ami lehetővé tette a kvarcporfír (metariolit) feltűnését és használatát egészen a Bükk-hegység keleti részétől a Cserhátig.

Ez a tanulmány a Nemzeti Kutatási Fejlesztési és Innovációs Alapból biztosított támogatással, a K pályázati program finanszírozásában megvalósuló 124334 számú, *A kőnyersanyag-forrásokkal való gazdálkodás változásai a középső paleolitikumtól a középső neolitikumig Észak-Magyarországon* című projekt keretében született.