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## CONSIDERATIONS ON THE LITHIC ASSEMBLAGES FROM THE SZELETA CAVE

*The Szeleta cave was the first excavated Palaeolithic site in Hungary. The artefacts were scattered along the layer sequence and very few of them were excavated in thin, discrete layers. After the general review of the available documentation and some questions of site formation, four assemblages are analysed in the present paper; all excavated in the so-called hearth levels in the entrance and the main hall of the cave. The variability of the used raw materials and the typological differences makes possible to describe several types of industries, but none of these was a typical Szeletian assemblage.*

*A Szeleta barlang volt az első feltárással hitelesített őskőkori lelőhely Magyarországon. A leletanyag a rétegsorban szórványosan került elő és csak nagyon kevés darabot lehetett vékony, jól elhatárolható szintekhez kötni. A rendelkezésre álló dokumentáció áttekintése és néhány, a lelőhely képződéséhez kapcsolható kérdés tárgyalása után négy, úgynevezett tűzhelyréteg leletanyagát tekintjük át, melyek a barlang bejárati szakaszában és az előcsarnokban kerültek elő. A felhasznált nyersanyagok és tipológiai különbségek alapján eltérő iparokat sikerült elválasztani, azonban ezek egyike sem típusos Szeletien leletegyüttes.*

Keywords: *site formation, Szeletian, Gravettian*

Kulcsszavak: *lelőhelyképződés, Szeletien, gravetti*

The monographic analysis of the Szeleta cave, the first systematically excavated Palaeolithic site in Hungary was published one hundred years ago (KADIĆ 1915). During the early fieldworks several lithostratigraphic units (Table 1) and two large Palaeolithic assemblages were documented: the younger Hochsoultréen (later Evolved or Developed Szeletian) entity in the reddish brown and light grey layer 5 and 6 and the Protosolutréen or Early Szeletian industry of the light brown layer 3 (VÉRTES 1965; SIMÁN 1995, Tab. 1).

Since the 1950s the cave has become the eponymous site of the Central European leaf point industries (PROŠEK 1953), although the specialists having first-hand information on the Szeleta artefacts gave expressions to their doubts of the validity of this term (GÁBORI-CSÁNK 1956, 80–81; VÉRTES 1956; VÉRTES 1967, 309; VÉRTES 1968, 388; GÁBORI 1964, 13). At the end of the 1980s the question of “what is the Szeletian?” was partly replaced by a problem directly referred to the site: “which Szeletian is the real Szeletian?” (SIMÁN 1990, 192 – c.f. GÁBORI 1989, 132),

and the expression “Szeletian of the Bükk mountains” was introduced (RINGER 1990).

The archaeological and stratigraphic revision of the find material raised new questions on both the cultural determination of the assemblages and the chronology of the lithostratigraphic units. For instance, the 189 lithics found in the dark grey layer 4 (RINGER–SZOLYÁK 2004, 7. ábra) were sorted into the Developed Szeletian (characterised by the presence of Aurignacian and Gravettian elements) and two different facies of the Mousterian industry (or the Middle-to-Upper Palaeolithic transitional industries: RINGER 2011, 30–31), finally the presence of Jankovichian types were also indicated (RINGER–MESTER 2000, Table 2; RINGER–MESTER 2001, 14–15, 3. ábra – c.f. RINGER 2002, Fig. 2). However, this later entity is rather problematic, as only the eponymous site yielded an important number of lithics, and even in this assemblage it was possible to separate Szeletian (*sensu* Prošek) and Middle Palaeolithic elements, partly on stratigraphic bases (MARKÓ 2013). At the same time we expressed our

KADIĆ 1915, ALLSWORTH-JONES 1978, 1986	RINGER-MESTER 2001	RINGER 2002
10 bat guano 9 travertine layer 8 black humus layer	<b>Holocene sediments</b>	
7 light grey cave loam	<b>6a yellowish grey layer</b> <b>6 light grey layer</b>	b: interstadial cave soil (Laugerie?) c: cave loess with limestone debris d: interstadial cave soil e: cave loess with limestone debris f: layer of limestone debris g: interstadial cave soil h: cave loess with limestone debris
6 reddish brown cave loam	<b>5 reddish brown layer</b>	i: interstadial cave soil
5 dark grey cave loam	<b>4 dark grey layer</b>	j: cave loess with limestone debris k: interstadial cave soil (Les Cottés)
4 light brown cave loam	<b>3 light brown layer</b>	l: cave loess with limestone debris m: interstadial cave soil (Hengelo) n: interstadial cave soil (Moershoofd) o: interstadial cave soil p: layer of limestone debris q: interglacial cave soil (Eem)
3 dark brown cave loam	<b>2 dark brown layer</b>	r: interglacial cave soil (Eem)
2 plastic clay 1 stream deposit	<b>1 plastic clay and stream deposit</b>	

Table 1 Lithostratigraphic units described from the Szeleta cave  
1. táblázat A Szeletából leírt lithosztratiográfiai egységek

doubts about the identification of this industry after single tools on far-lying localities, like the Szeleta cave, where tools of this Middle Palaeolithic entity were reported from Developed Szeletian layer 5 too (MESTER 2010, 121; RINGER–MESTER 2001, 15).

Most recently, the technological investigations of the leaf shaped implements pointed that the symmetrical forms (morphological groups 1 and 2) are characteristic for this evolved industry, while the asymmetric pieces made on flakes (group 3) were mainly found in the earlier layers (MESTER 2010; MESTER 2011, 28; MESTER 2014, 52).<sup>1</sup> However, using the data enumerated in table 4 of MESTER 2011 and MESTER 2014 it is clear that roughly one third of the studied pieces of each morphological group were collected from unknown or secondary position and that the second third of the pieces belonging to group 3 were found in the Developed Szeletian layer.

The difficulties of any analysis of the Szeleta assemblages are obvious: several items of the 2000

pieces found in 1906–1913 were used for thin sectioning, sorted out as valueless ecofacts (28 pieces, i.e. 1.4% of the collection), or were identified as modern fragments. Finally a total of 183 (9.15%) artefacts were donated to different museums in Miskolc, Veszprém (where part of the tools were erroneously catalogued as pieces from the Balla cave), Kaposvár and Cluj and to the private collection of K. Maška.

After the first excavations a number of trenches primarily of stratigraphic interest were opened in the cave, however, the resolution was rather coarse (with arbitrary levels of 1–2 m of thickness) or the interpretation of the field observations are questioned today (LENGYEL–MESTER 2008). That is why the archaeological revisions of the Szeleta cave (SIMÁN 1990; SIMÁN 1995; RINGER–MESTER 2000; RINGER–MESTER 2001; RINGER–SZOLYÁK 2004; RINGER 2011) were based on the lithic artefacts excavated in 1907–1913 and stored today in the collection of the Hungarian National Museum. The starting point

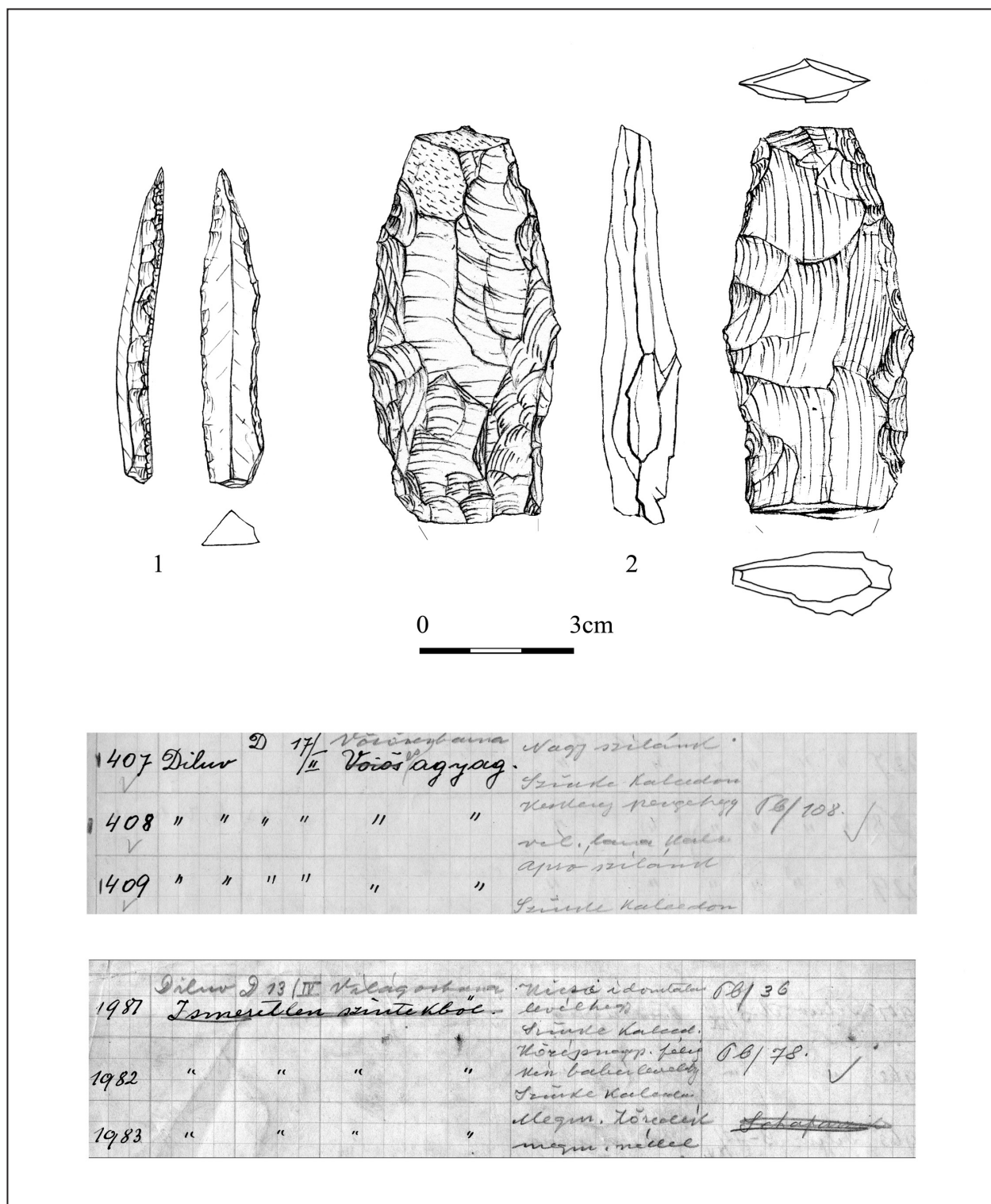


Fig. 1 Szeleta cave: pieces with problematic provenance data. 1: backed point (inv. nr Pb/108, number in the find registry: [408] - from "red loam" "reddish brown loam"); 2: a half-made tool (Inv. nr Pb/78, number in the find registry: [1982]: "from unknown levels" modified to "light brown") (drawings by K. Nagy)

1. kép Szeleta barlang: leletek problémás rétegtani adatokkal. 1: tompított hegy (ltsz: Pb/108, gyűjtőleltári száma [408]: "Vörös agyag", "Vörösbarna agyag" rétegből); 2: félkész bifaciális eszköz (ltsz: Pb/78, gyűjtőleltári száma [1982]: "Ismeretlen szintekből", "Világosbarna") (Nagy K. rajzai)

of our study is the 1632 pieces (81.60% of the excavated artefacts of the 1907–1913 seasons) identified in the Budapest, Miskolc and Veszprém collections.

The methods of the field works, which determined our knowledge on the site and the possibilities of recent investigation, were published in details several times (KADIĆ 1915, 157–158; MESTER 2002); only the most important points and problems will be mentioned here.

### *The documentation from the seasons of 1906–1913*

The stratigraphic division of the sediments was based on the observed lithological units (Table 1) and on technical levels of 0,5 m of thickness, indicated by Roman numerals. For the horizontal recording the cave was divided to six sectors marked by capital letters (A: Entrance, B: Main Hall, C: front section of the Main Corridor, D: rear section of the Main Corridor, E: front section of the Side Corridor, F: rear section of the Side Corridor and G: cavity with stalagmites) and to squares of generally 2x2 meters, marked by Arabic numerals. Significant differences are observed in the system of the numbering of the squares between the maps published by Kadić (KADIĆ 1915, XIII. t.) and Mottl (MOTTL 1945). The find registry, stored in the Archives of the Hungarian National Museum, recording the find circumstances of the 2000 items can be interpreted (with the exception of 52 pieces, i.e. 2.60% of the items: MESTER 2002, 61) according to the maps and section views, stored in the Hungarian Geological and Geophysical Institute and partly published by MOTTL 1945. For example, “D 15/I” on Fig 2. means that the given piece was found in square 15 (or square 23 according to the system of the monograph) in the back section of the main corridor, during the excavation of level I. The individual identity numbers of the find registry are referred in square brackets in this paper.

In the past fifteen years it became widely accepted that the find registry and maps and sections by Mottl give the solid basis for the stratigraphic evaluation of the artefacts (RINGER–MESTER 2000; RINGER–MESTER 2001, 11; MESTER 2002; RINGER–SZOLYÁK 2004, 14, LENGYEL et al. 2015, 4). For a closer look, however, it is obvious that the original drawings by O. Kadić were completed in 1937, i.e. (1) 24 years after the end of the excavations and (2) without using the documentations made by J. Hillebrand in 1909 and 1911.

Moreover, there are a number of evidences, that the find registry was also developed well after the

field works.<sup>2</sup> It is revealing that in 1928 the provenance data were recorded according to the system of the monograph, although one of the excavators, J. Hillebrand participated in several campaigns of 1906–1913 (c.f. MESTER 2002, 64, 71). Keeping in mind that the artefacts were listed at the moment of their recovery only from 1932 (KADIĆ 1940, 21–22), we assume that the “find registry” of the 1907–1913 excavations was probably completed in the 1930s, together with the drawings by Mottl. This way it is clear that none of the datasets are regarded as primary field documentations and cannot be used as an exclusive source.

It is more problematic that the lithostratigraphic data of the find registry were modified (in practice, overwritten by pencil: Fig. 1) in 1054 cases, i.e. 52.70% of the artefacts. At 550 items the red, reddish or reddish grey identification was replaced, mainly to the light brown loam (layer 3), but in 19 cases (i.e. at 3.45% of the modified data) to light grey layer 6 and 25 cases (4.55%) to reddish brown layer 5. These modifications affected not only the stratigraphic data of some “Jankovichian” implements, but also of a Gravettian point (Fig. 1, 1), collected in the same technical unit. Otherwise, the stratigraphic position of this piece, compared to the Zwierziničian tools (KOZŁOWSKI–SACHSE–KOZŁOWSKA 1981) is highly questionable, as in the monograph published six years after the recovery of this part of the cave “dark grey cave loam” (i.e. layer 4: KADIĆ 1915, 264, nr. 106, 32. ábra I) was given.<sup>3</sup>

The best examples to demonstrate the problems with the modified data of the find registry are the items [1976]–[2000], linked to the light brown layer and technical level IV in square 13 (square 30 by Kadić) of the rear part of the main corridor (RINGER–SZOLYÁK 2004, 4, 3. ábra). In fact, these data were indicated only at the artefact nr. [1976] and at the other items the „unknown” data were modified, with one exception by ditto marks (Fig. 1). Moreover, the place of recovery of three pieces including a half-made tool (Fig. 1, 2) was given as „uncertain” in the monograph too (KADIĆ 1915, 234, nr. 9, 7. ábra; 260, nr. 93, 26. ábra; 245, nr. 46, 16. ábra). On the whole, it seems to be clear, that the supposed Early Szeletian artefact concentration in the dark part of the cave (RINGER–SZOLYÁK 2004, 27) and especially the occurrence of a backed blade fragment<sup>4</sup> in the same technical unit (RINGER–MESTER 2001, 16; RINGER 2011, 24) should be explained by the late modification of the data, which themselves were written well after the field works.

It is clear that the uncertainties in the documentations of the Szeleta cave<sup>5</sup> make rather difficult

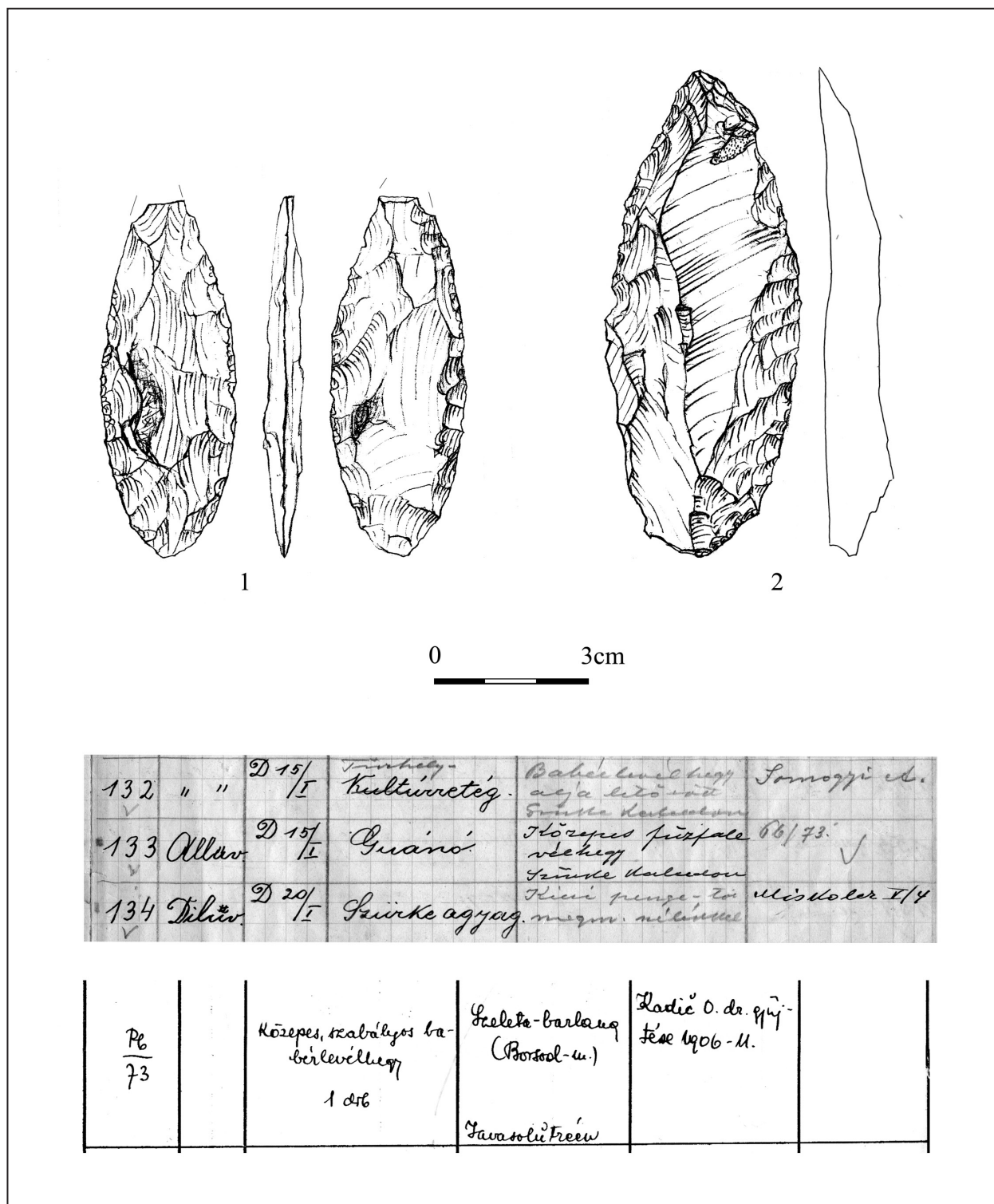


Fig. 2 Szeleta cave, lithic tools collected from secondary position. 1: leaf point (Inv. nr Pb/73, find registry nr [133]) found in guano; 2: double scraper, number [488] from the infilling of a pit (according to the find registry) or from the dark grey layer 4 (KADIĆ 1915, 266, nr. 110, 33. ábra) (drawings by K. Nagy)  
2. kép Szeleta barlang, másodlagos helyzetben gyűjtött kőeszközök. 1: guanóban talált levélhegy (ltsz: Pb/73, gyűjtőleltári száma [133]); 2: a gyűjtőleltár szerint gödör kitöltéséből, a monográfia szerint sötétszürke 4. rétegből gyűjtött kettős kaparó (KADIĆ 1915, 266, nr. 110, 33. ábra) (Nagy K. rajzai)

to interpret the artefacts excavated more than one hundred years ago. However, there is another group of problems at the evaluation of the assemblages, largely independent from the human factors: the role and the character of the post-depositional effects.

### *Problems of the site formation*

Mechanical mixing of artefacts found in cave sediments is often supposed in Hungary (for the osseous and leaf shaped tools see: MARKÓ 2011), however, the question was never studied in details. The results of the recent investigations of the Szeleta assemblages also raised several ad hoc taphonomic explanations. The hearths larger than five square meters (RINGER–SZOLYÁK 2004, 14–16), the inconsistencies observed in the stratigraphic position of certain leaf shaped tools (MESTER 2010, 120; MESTER et al. 2013, 61) and the radiocarbon dates (ADAMS 2002, 53; ADAMS–RINGER 2004, 545–546; LENGYEL–MESTER 2008), the refitted lithics documented from different lithostratigraphic layers (RINGER–MESTER 2000, 266; RINGER–MESTER 2001, 13; LENGYEL–MESTER 2008, 81) or the various industries described from the same arbitrary excavation units (RINGER–MESTER 2000, 266–268; RINGER–MESTER 2001, 13–16; RINGER 2011; MESTER et al. 2013, 61) could have been caused by post-depositional factors.

One of the first papers on the excavations of the Szeleta cave reported that several chipped stone artefacts, including leaf shaped tools were collected from „alluvial”, Holocene deposits (KADIĆ 1909, 533, 525, nr. 5). During the later excavations several Palaeolithic tools were also found on the surface, in black loam or in guano (Fig. 2, 1). These observations, together with the potsherds documented in Pleistocene layers (HILLEBRAND 1910, 665) show that the uppermost levels of the sediment were at least partly disturbed before the excavations. The most obvious evidences are the pits of treasure hunters and the features of Prehistoric or Historic periods (KADIĆ 1915, 206–208). The largest one, found in the main hall on the surface of 8x4 meters, reaching 4 m of depth (pit  $x_1$ ; KADIĆ 1915, 207) yielded at least seven Palaeolithic artefacts (see: Fig. 2, 2).

A note by J. Hillebrand (HILLEBRAND 1910, 52) throw light on another aspect of the assemblage formation. In certain levels rich in limestone pebbles the bones and lithics were heavily worn which led him to suppose, that these artefacts were washed into the cave from the surface (HILLEBRAND 1910, 652–653). In the sixties L. Vértes attributed technological importance to the angle of the retouched

edges (VÉRTES 1962) and at the end of the same decade Fr. Bordes (BORDES 1968a, 180; BORDES 1968b, 180) suggested that the steep, sometimes alternating “retouch” and the more or less extensive shine on the surface of the pieces are traces of natural factors. In the next years rolling (GÁBORI 1969, 159; GÁBORI–CSÁNK 1970, 8; GÁBORI 1981, 103; GÁBORI 1982, 5; GÁBORI 1989, 137), cryoturbation (LAPLACE 1970, 279; ALLSWORTH–JONES 1978; ALLSWORTH–JONES 1986, 87–88; DOBOSI 1989, 236; RINGER 1989, 224; SIMÁN 1990), both of these agents (SVOBODA–SIMÁN 1989, 302) or trampling of cave bears (ADAMS 1998, 8–9; ADAMS 2009, 253; LENGYEL et al. 2015, 4) were suspected as the main factor at the shaping of these artefacts.

After macroscopic and low resolution microscopic observations the lithics could be sorted into several intuitive categories. The first of them is indicated by non-continuous edge damages (Fig. 8, 1). The more intense mechanical impact led to the formation of steep scars along one or each edge, and as it is obvious in the cases of the pieces of flint and limnic quartzite after the patina formation. The next group is consisted of pieces with slightly rounded ridges and blurred scars (Fig. 8, 6), finally the artefacts with heavily damaged edges (Fig. 8, 4) are not possible to classify in typological and technological point of view.

The most heavily altered artefact of the cave, as rolled as a pebble (Fig. 3, 1) was collected in the light brown layer (level IV) in the rear of the main corridor (square 27 of Mottl and 26 according to the monograph). In the same technical unit a little chip of limnic quartzite/limnosilicite (Fig. 3, 2), in the neighbouring square 28 (or 32) a blade of silicified wood (Fig. 3, 3) were found, both without obvious traces of mechanical damages. The occurrence of pieces of various states of preservation in a relatively small area warns us to the difficulties in making conclusions after the study of single artefacts: tools of Fig. 8, 1 and 4 were collected from the same technical level (square 2 of the main hall) in layer 3/b. On the other hand, our data coincide with the observations by M. Gábori (GÁBORI 1981, 103; GÁBORI 1982, 5): in the lower layers the leaf shaped tools are heavily altered, while the other groups of artefacts are more or less intact. We argue, however, that this does not imply the presence of a Mousterian layer under the Early Szeletian one. Instead, the proportion of the artefacts seems to be the main factor: the relatively thick bifacial tools were rather more affected by rolling than the thin flakes and blades. The low number of the pieces known from each arbitrary

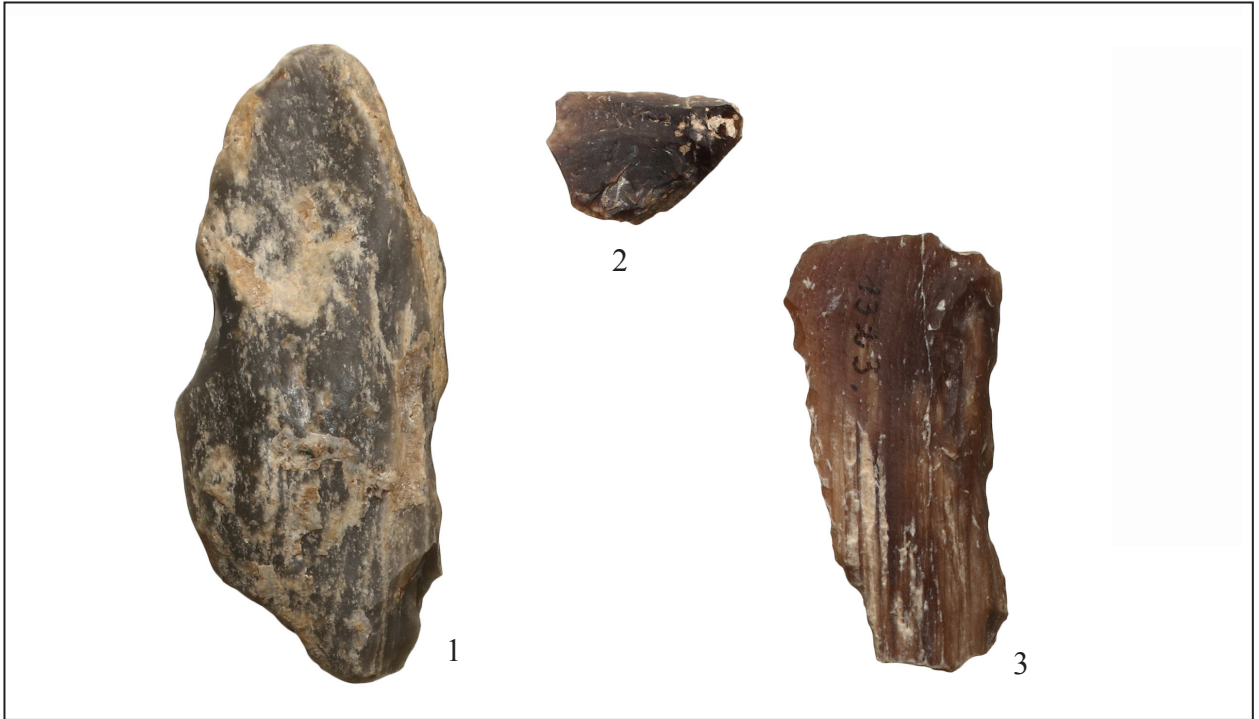


Fig 3 Szeleta cave, artefacts from the end of the main corridor (photograph by A. Dabasi)  
 3. kép Szeleta barlang, a főfolyosó végén gyűjtött leletek (fotó: Dabasi A.)

unit in the cave, however, prevents any further investigations.

Conjoining of broken or knapped artefacts may give important data about the site formation (e.g. BORDES 2003; MARKÓ 2015). The remarks of the find registry document that 47 items (i.e. 2.35% of the total inventory), missing from the collection today could have been refitted into 9 groups. In the preliminary reports of the recent revision works three refitted flakes of porphyry tuff were repeatedly mentioned (RINGER–MESTER 2000, 266; RINGER–MESTER 2001, 13; LENGYEL–MESTER 2008, 81) and during our works confined merely to the collection of the Hungarian National Museum we were able to identify 35 refit groups. As a total 79 pieces are refitted, forming 3.95% of the inventory and 4.84% of the available pieces (for the details see the Appendix).

The elements of refit group 5 were possibly broken during the excavations (c.f. KADIĆ 1912, 182), showing that the numerical data received mechanically from the find registry may be misleading at the evaluation of the find density: at the given example four of the six pieces excavated in a single technical unit (RINGER–SZOLYÁK 2004, 2, 5. ábra) were refitted. The freshly broken pieces of group 10 (Fig. 4,

7) on the other hand were found in three squares at the edge of the large feature in the Main Hall and this fragmentation event may be in connection with the pit  $x_1$  of historic age.

The elements of refit groups 21 and 25 (Fig 4, 5–6) were found in the “grey” layer 4 or 6, but at a distance of 15 and 12 m from each other. This later group provides an important data to the reconstruction of the site formation, as the little flake without bulb of percussion was refitted to a scar similar to natural edge modifications.

According to the find registry the fragments of groups 28 and 32 (Fig. 4, 2–3) were excavated in the entrance of the cave, partly in the yellow, partly in the light brown layer. The interpretation of these observations, however, is rather problematic as the stratigraphic data of two pieces were modified from yellow to light brown loam. The fragments of group 27 (Fig 4, 4) were found in the yellow and the “grey” (4/6) layers and the refitted lithics of group 22 (Fig. 5, 2) show connections between light brown (originally “red”) layer and the yellow one. In fact, the designation “yellow” does not necessarily refer to layer 6a, as during the 1911 excavations yellow loam with limestone fragments was documented from level III until

VI in the entrance of the cave (KADIĆ 1911, 179; KADIĆ 1915, 170). On the sections of this part of the cave (fig. 7, c.f. KADIĆ 1915, XV. t. I–II) dark grey and light brown loam is indicated. Generally, there are a lot of uncertainties in our data, but the large vertical distance of the conjoining artefacts in the entrance of the cave (at least 2,5 meter in the case of the fragments of group 31 and 1,5 m at the refit group identified by Ringer and Mester), probably crossing the lithostratigraphic layers suggest for an important mechanical mixing.

In the Carpathian Basin the first observations on cryoturbated sediment on a Palaeolithic site were reported from dark grey layer 4 (or dark brown layer 7) of the Dzeravá skála, Western Slovakia (PROŠEK 1951, 295–296, Obr. 188; PROŠEK 1953, 185). Concerning the Szeleta cave, the papers by Fr. Bordes are commonly referred to: during the excavations of the Pech de l'Azé II artefacts with steep, alternating scars, originally identified as intentionally shaped tools (BORDES–BOURGON 1950) were collected from the sediment of polygonal structure (BORDES–BOURGON 1951a, 522, 532). However, this site is a shallow rockshelter with a northwest orientation and the sediment was affected by cryoturbation during the Riss glaciation (TEXIER 2006), while the 60 m long Szeleta cave looking into southern direction is heated by sunlight even during winters (RINGER–SZOLYÁK 2004, 27). Moreover, as B. Adams (ADAMS 1998, 8) stressed, the geologist O. Kadić did not observe any structures in the sediment. In fact, only rather general information is available about each layer, and the detailed description of the cryodeformation is missing even from the modern stratigraphic evaluations of the cave sediment (e.g. RINGER 1988). Finally, in spite of the supposed cryoturbation and large hearth-layers few artefacts bear traces of thermal alterations recognised by a bare eye. The potlid-type and angular fracture or the „grainy” fracture surfaces cannot be linked unambiguously to any of the thermal extremity (PURDY 1974, 40–42; PURDY 1975, 135; STAPERT 1976, 20; LUEDTKE 1992, 97, 100). The dull surface with net-like cracking system or the smoky pieces on the other hand obviously suggest the effect of fire.

Trampling could modify the shape of lithic pieces generating steep, alternating removals, as the pioneering experiments by Fr. Bordes revealed (BORDES–BOURGON 1951b, 17). The recent studies (THIÉBAUT 2007; MCPHERRON et al. 2014) shed light on a number of important factors, like the petrologic properties of the raw material, the dimen-

sions and proportions of the lithics, or the nature and the characteristic grain size of the sediment substrate. According to the observations, however, these edge-damages are found on a restricted part of the tool and there are no inferences that the shine typical for the Szeleta implements would have formed by trampling.

The interpretation of the refit group 25 and the observations on the most heavily altered artefact found at the end of the cave, which is best protected from the frost are of crucial importance at the reconstruction of the site formation. The large distance between the little fragment similar to a retouch flake and the piece with a steep scar suggest that flowing water and moving sediment particles could have been the most probable factors that caused the alterations observed on the artefacts.

Nevertheless, three important points should be stressed. According to O. Kadić (KADIĆ 1915, 196–197) the structure and the morphology of the artefact-bearing sediment differs from the fluvial ones and the “slightly washed out” hearths documented in level VII and VIII, in close association with lithic tools suggest for a wet but not fluvial environment. Possibly the observation by Mottl (MOTTL 1945, 1554, 1559) about heavy drips and the presence of an intermittent spring in the cave after a single rainy month in 1936 may resolve this conflict and can give an explanation of the surface and edge alterations observed on the pieces. Secondly, our idea is based solely on the study of the artefacts, too. In our opinion new excavations carried out in or in front of the cave with modern methods of documentations and sedimentology (e.g. micromorphology, fabric analysis of artefacts, bones and limestone fragments, etc.) can support or reject our reconstruction about decisive role of periodically flowing water at the site formation. Finally, we should keep in our mind that “site formation is a process, rarely an event” (HAYNES 1988, 155).

The coarse-grain resolution of the documentations makes possible to fix the position of the majority of the artefacts in the sediment in an area of 4 square meters in horizontal, in a thickness of 0,5 m in vertical direction and in a volume of 2 cubic meters. In the following we review some assemblages linked to discrete stratigraphic units, generally interpreted as hearth levels (RINGER–SZOLYÁK 2004). Instead, we prefer the term “culture bearing layer” used in the field reports (KADIĆ 1907, 345; KADIĆ 1909, 526; KADIĆ 1911, 174; KADIĆ 1913, 282; HILLEBRAND 1910, 648).





Fig. 4 Broken artefacts from the Szeleta cave, refit groups 31, 28, 32, 27, 21, 25 and 10 (photograph by A. Dabasi)  
 4. kép Törött kőeszközök a Szeleta barlangból, 31, 28, 32, 27, 21, 25. és 10. összeillesztési csoport (fotó: Dabasi A.)

#### *Artefact bearing layer 3/a in the entrance*

This feature was most probably identified in autumn 1912, when level VIII and IX was excavated on a surface of 12 square meters. Unfortunately, no observations were published in the field reports (KADIĆ 1913, 282; KADIĆ 1915, 176). According to the monograph 39 pieces were collected from the “hearth layer” of level VIII having a maximal thickness of 15 cm (KADIĆ 1915, 197, 223). In the find registry 28 pieces from the “light brown hearth layer” (with the original designation of “from dark

grey band” or “dark grey loam”) are listed and further two pieces were found in the same level VIII but in the light brown loam (originally “red loam”). Moreover, a thick flake, collected in square 26 and a leaf shaped scraper from the light brown loam of level IX were described by KADIĆ (1915, 248, nr. 54, 18. ábra II; 238, nr. 21) in details as pieces from the same layer, suggesting that the pieces from these levels may also belong to this feature. As a total, the number of available pieces assumed to belong to layer 3/a (identical with hearth 1a and 1b by RINGER–SZOLYÁK 2004, 1. ábra), is 32.

	Hearth level in the light brown loam, level VIII				Light brown loam		<b>Total</b>
	A/3	A/21	B/22	B/26	A/3, level VIII	A/3 level IX	
Square after Mottl							
Square after Kadić	A/11	A/15	B/3	B/36	A/11	A/11	
Avas-type hydroquartzite	1						<b>1</b>
Hydroquartzite	2		1	1	2	1	<b>7</b>
Felsitic porphyry	10	1	6	1		6	<b>24</b>
<b>Total</b>	<b>13</b>	<b>1</b>	<b>7</b>	<b>2</b>	<b>2</b>	<b>7</b>	<b>32</b>

Table 2 Raw material distribution of the assemblage from the culture bearing layer 3/a

2. táblázat A 3/a leletegyüttes nyersanyag-eloszlása

	Felsitic porphyry	Avas-type hydroquartzite	Hydroquartzite	<b>Total</b>
Unilaterally retouched blade	2			<b>2</b>
Bilaterally retouched blade	1			<b>1</b>
Leaf-shaped scraper	2			<b>2</b>
Retouched flake	1			<b>1</b>
Retouched edge fragment	3		1	<b>4</b>
Double scraper	1	1		<b>2</b>
“Raclette”	1			<b>1</b>
End-scraper?			1	<b>1</b>
<b>Total</b>	<b>11</b>	<b>1</b>	<b>2</b>	<b>14</b>

Table 3 Retouched tools found in the culture bearing layer 3/a

3. táblázat A 3/a leletes réteg retusált eszközei

The spatial distribution of the artefacts and the feature indicated on the section views is slightly different (see Figs. 6 and 7). From the stratigraphic point of view no artefacts were found in the underlying level IX (with the exception of the above mentioned pieces) and layer 3/a was separated from 3/b by a sediment sterile in archaeological point of view. However, the feature is not an intact artefact-bearing layer as pit  $x_1$  cut the layer and the presence of the proximal fragment of the blade of refit group 31 (Fig. 4, 1) support the significant post-depositional mixing.

Three quarters of this little assemblage is made of felsitic porphyry, collected at the cave from a distance of 2–3 kilometers from the cave. Beside the different hydrothermal raw materials, including the variant from the Avas hill, imported from a distance of 10–12 kilometres (Table 2), two pieces of obsid-

ian from the sources lying at least 40 kilometres of distance were also listed in the find registry, but the artefacts are missing today.

No cores are present in the assemblage; a pebble of felsitic porphyry with a single scar and traces of preparation along its periphery is interpreted as a tested piece. Because of the intense fragmentation it is problematic to classify certain blanks and taking technological observations. The presence of the lip on five blades and one flake fragment indicate the use of soft hammer, however, the original stratigraphic position of these artefacts remained an open question. The large bulb of percussion on a flake shows that hard hammer was also used.

According to the find registry both bifacial pieces were collected in level IX. The problems of typological classification are well illustrated by the number of retouched edge fragments (includ-

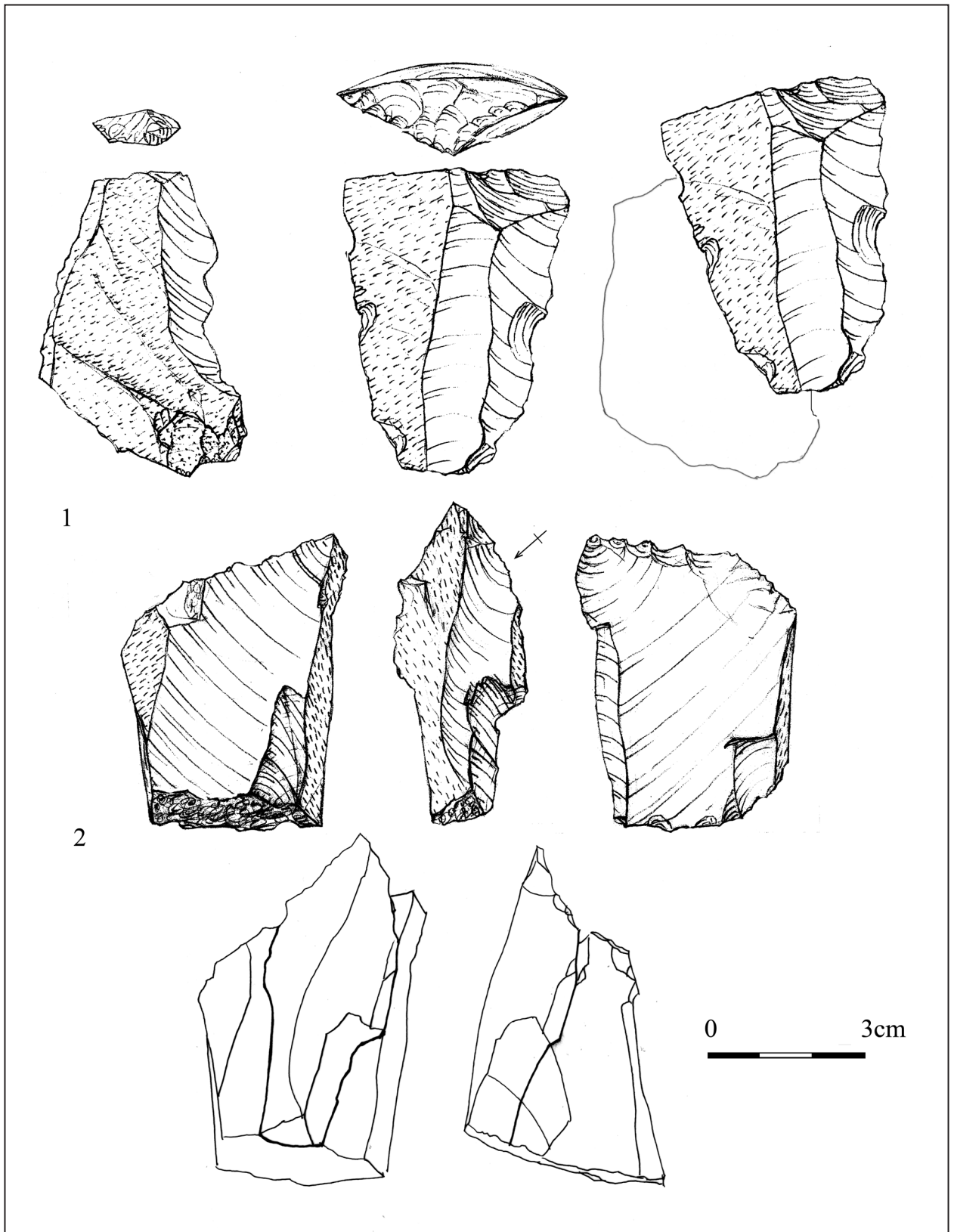


Fig. 5 Reduction refits on artefacts of porphyry tuff: refit groups 9 and 22 (drawings by K. Nagy)  
5. kép Porfirtufa leletek összeillesztése: 9. és 22. csoport (Nagy K. rajzai)

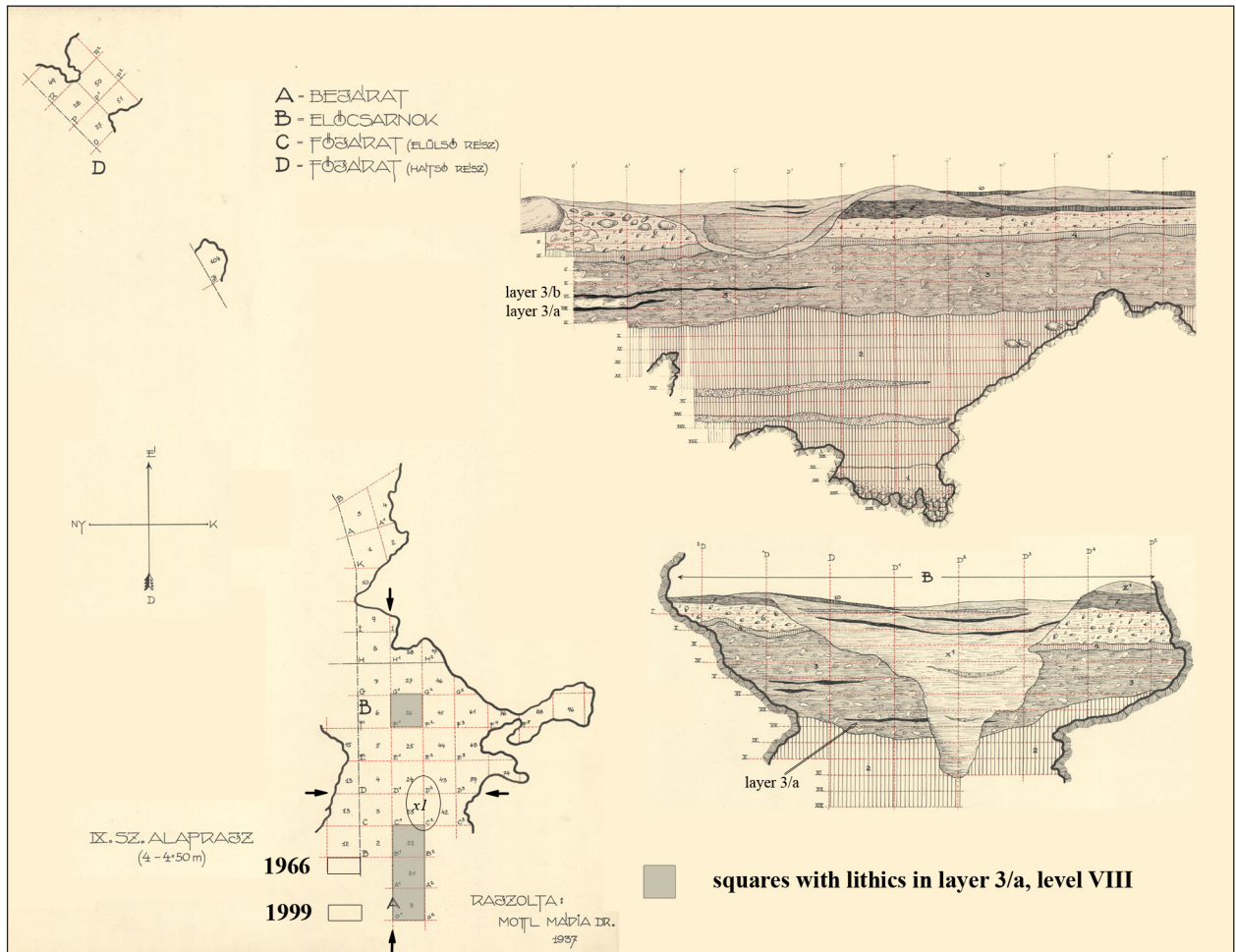


Fig. 6 Map and sections of layer 3/a  
 (after the drawings by M. Mottl, stored in the Geological and Geophysical Institute of Hungary; modified)  
 6. kép A 3/a réteg alaprajza és metszetei  
 (Mottl Máriának a Magyar Földtani és Geofizikai Intézetben őrzött rajzai nyomán, módosítva)

ing a piece of convergent tool) and the presence of a “raclette”, i.e. heavily fragmented piece with retouched or naturally damaged edges. The scars on the retouched blades and the possible end scraper are rather irregular, too. The double scrapers on the other hand are typical but fragmented pieces of this little collection.

#### *Level 3/b in the Entrance and the Main Hall*

This characteristic feature was identified during the 1911 and 1912 excavations by Kadić as a dark grey band in the light brown loam (or “yellow loam”, “rusty red loam”: KADIĆ 1912, 179; KADIĆ 1913, 282; KADIĆ 1915, 170, 176–177) in level VII. A large number of lithic tools were found in the feature (“lower reddish hearth level in the main hall”:

KADIĆ 1915, 197) having a maximum thickness of 20 cm. The artefact bearing layer is well documented on sections I and II by KADIĆ 1915, XV. t., as well as on the sections compiled by Mottl (Fig. 7). Layer 3/b was identified in level VI too (KADIĆ 1915, 223) and according to the find registry an end-scraper on bilaterally retouched blade was found in the “light brown hearth layer” of this level (Table 5). On the other hand, no artefacts are known from the hearth layers (number 3 and 4: RINGER–SZOLYÁK 2004, 15) depicted on the transversal section of Fig. 6.

The sections show a slightly larger area than the artefact scatter, excavated on a surface of at least 9x6 meters and partly destroyed by the large pit *x*<sub>1</sub>. Apart from the lithics of layer 3/b and that one found in the pit infilling, only 5 pieces were collected from 5 squares in this level in the main hall, showing that

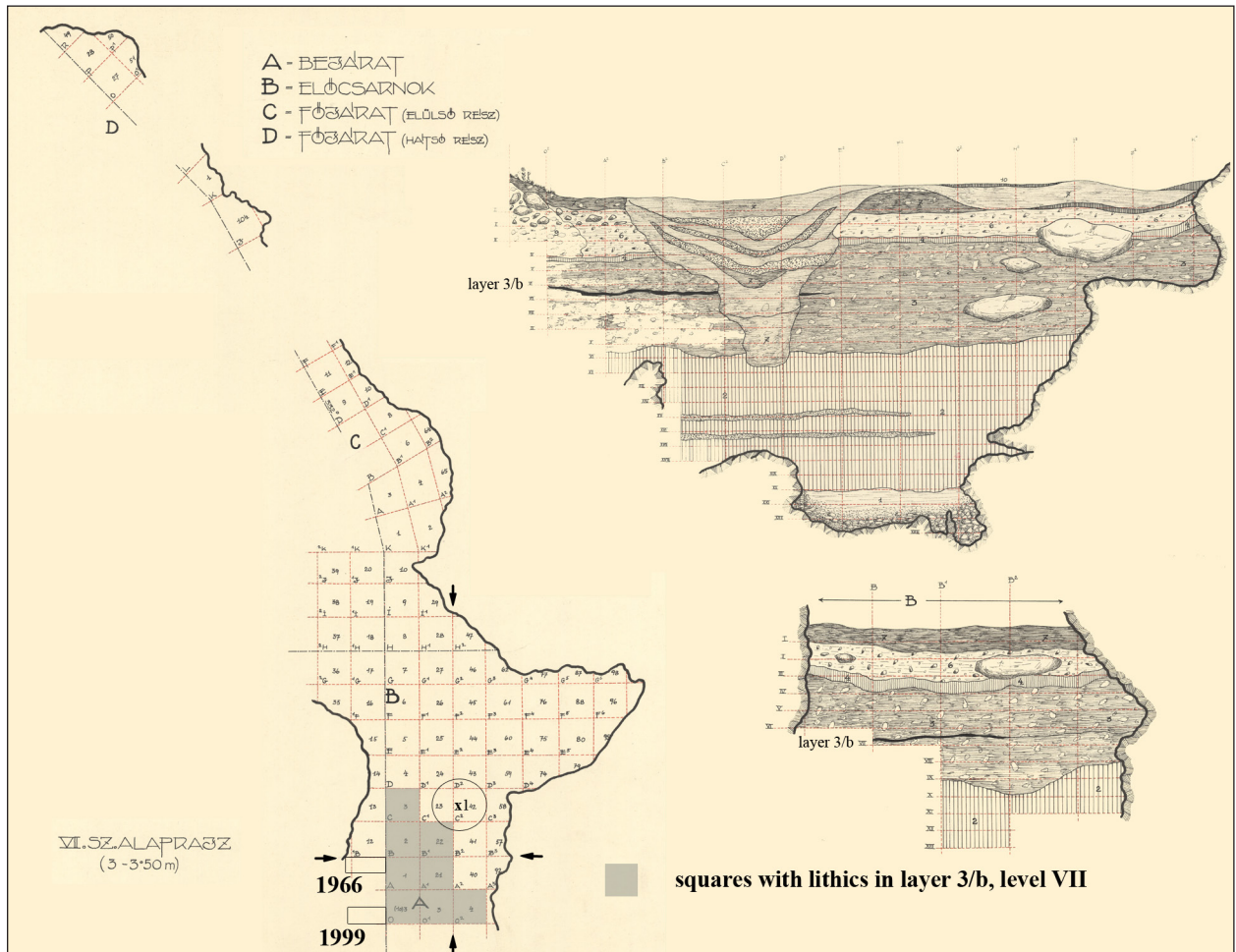


Fig. 7 Map and sections of layer 3/b

(after the drawings by M. Mottl, stored in the Geological and Geophysical Institute of Hungary; modified)

7. kép A 3/b réteg alaprajza és metszetei

(Mottl Máriának a Magyar Földtani és Geofizikai Intézetben őrzött rajzai nyomán, módosítva)

the artefact concentration is well defined horizontally. As we mentioned above layer 3/b was separated by a sterile layer from layer 3/a, but in the overlying level VI a rich collection of artefacts were found in the light brown layer. In this case the stratigraphic separation is possible only after the observations recorded in the find registry.

In the monograph (KADIĆ 1915, 223) 101 artefacts were mentioned from feature 3/b. Of the 108 pieces listed in the find registry, 92 lithics, collected from 8 squares, i.e. roughly 32 square meters are available for investigations (including the single tool of the hearth layer of level VI: Table 4).

The raw material composition of this assemblage is dominated by felsitic porphyry. The hydrothermal rocks from the Avas hill and from not identified sources, finally lydite (most probably from the

western part of the Bükk mountains) are represented by several pieces (Table 4). The two pieces of obsidian listed in the find registry are missing in this case too.

Only one core with lamellar scars on the narrow flaking surface is present in the collection, made on a felsitic porphyry pebble. The striking platform of the piece was formed by a single scar and prepared along its lateral edge (Fig. 8, 8). Because of the intense fragmentation and rolling of the pieces, the evaluation of the blanks and tools is rather problematic in this case too, especially that the edges of the thin artefacts seem to be relatively intact (Fig. 8, 1), while the thick artefacts have shiny, heavily altered surfaces (Fig. 8, 4).

Two fifth of the tools are broken pieces or edge-fragments of uni- and bifacially worked tools

Square after Mottl	A/1	A/3	A/4	A/10	A/21	B/2	B/3	B/22	<b>Total</b>	A/3, level VI
Square after Kadić	A/14	A/11	A/17	A/10	A/15	B/2	B/7	B/3		A/11
Avas-type hydroquartzite	9	2	2	3	6	4		3	<b>29</b>	1
Hydroquartzite	1	2				1			<b>4</b>	
Felsitic porphyry	3	7	12		8	11	3	5	<b>49</b>	
Wooden opal		1							<b>1</b>	
Lydite			1		1	1			<b>3</b>	
Radiolarite			1						<b>1</b>	
Burned silex		1							<b>1</b>	
Sandstone?					1				<b>1</b>	
Chalcedony						1			<b>1</b>	
Quartzite								1	<b>1</b>	
<b>Total</b>	<b>13</b>	<b>13</b>	<b>16</b>	<b>3</b>	<b>16</b>	<b>18</b>	<b>3</b>	<b>9</b>	<b>91</b>	<b>1</b>

Table 4 Raw material distribution of the assemblage from the culture bearing layer 3/b  
4. táblázat A 3/b leletgyűttes nyersanyag-eloszlása

	Felsitic porphyry	Avas-type hydro-quartzite	Hydro-quartzite	Lydite	<b>Total</b>
End-scraper on retouched-truncated blade	2				<b>2</b>
Retouched blade	2			1	<b>3</b>
Bilaterally retouched blade				1	<b>1</b>
Blade with alternating retouch	1				<b>1</b>
Truncated blade		1		1	<b>2</b>
Backed bladelet	1				<b>1</b>
Plano-convex leaf shaped scraper	3				<b>3</b>
Biconvex leaf shaped tool	1				<b>1</b>
Bifacial tool	1				<b>1</b>
Fragment of a retouched tool	4				<b>4</b>
Retouched edge fragment	2				<b>2</b>
Bifacially retouched edge fragment	1		1		<b>2</b>
Fragment with alternating retouch	2				<b>2</b>
<b>Total</b>	<b>20</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>25</b>

Table 5 Retouched tools found in the culture bearing layer 3/b  
5. táblázat A 3/b leletes réteg retusált eszközei

(Table 5). The intentional retouch is doubtful in many cases, especially at the not continuous and steep scars. The bifacial tools are mainly of plano-convex cross-section (Fig. 8, 1, 6) with the excep-

tion of the piece of heavily altered shape (Fig. 8, 4). The end-scrapers of the collection were shaped on retouched-truncated blades with denticulated edges (Fig. 8, 7), most probably at least partly due

to natural edge-modifications. Similarly, the intentional modification of retouched blades (earlier: “raclettes”: Fig. 8, 3) and the presence heavily fragmented retouched pieces (Fig. 8, 5) is rather problematic and there are no burins in this collection.

The backed bladelet found in layer 3/b (Fig. 8, 2) is seemingly the earliest occurrence of this type in the cave. However, a bladelet of “fresh” (non-patinated) hydrothermal raw material, wearing traces of punch technique on its butt was found in the same square B/2. Bearing in mind the lesson of refit group 31, we cannot rule out the post-depositional disturbances in this case, too.<sup>6</sup>

During the 1999 field works a thin hearth level, identified by layer 3/b of Kadić was excavated in the entrance of the cave. Two bone samples from this layer yielded 12 000 and 14 000 B.P. old AMS dates (ADAMS 2002, 53; ADAMS–RINGER 2004, 545–546), which are younger than the data measured from samples collected from overlying levels and they seem to be too young for cave bear bones (PACHER–STUART 2009). As Adams and Ringer (ADAMS–RINGER 2004, 546) pointed, the place of sampling is lying very close to the modern surface used by visitors of the cave, and that is why the recent contamination seems to be the best explanation for the anomalous dates (c.f. LENGYEL et al. 2015, 2).

#### *Artefact-bearing layer 3/c: the “Aurignacian occupation” in the Szeleta cave*

In September 1928 a typical split based point was excavated in the side corridor of the cave by F. R. Parrington (Cambridge) and J. Hillebrand (HILLEBRAND 1928, 100–101; SAÁD 1929, 245). The piece, associated with “Late Aurignacian” lithics and a bone awl was found in level IV (SAÁD 1929, 245) in the same layer as the „primitive leaf-points” in other sections of the cave. However, the typical Aurignacian lithics are absent from this assemblage (ALLSWORTH-JONES 1978, 15–18, 33): in the collection of the Hungarian National Museum there is a dihedral burin and a thick flake with steep scars found close to the 1928 antler point (both made of Avas-type limnic quartzite) and a rolled leaf shaped scraper was collected at the northern wall of the side corridor (Fig. 9).

K. Simán linked the artefacts to the assemblage of the artefact bearing layer 3/c by Kadić (SIMÁN 1990, 189–190). This feature having a maximum thickness of 25 cm was excavated in 1913 in the western part of the main hall. The characteristic layer of dark grey colour was observed in level III and IV, in the light brown loam. The majority

of the associated artefacts were found around a large and flat limestone block (KADIĆ 1915, 177, 197–198). The feature was depicted on section VIII of the monograph, but it is absent from section VI (KADIĆ 1915, XVI. t.), as well as from the sections compiled by Mottl (Fig. 10). On these later drawings the large block mentioned by Kadić was depicted in connection with lithostratigraphic layer 4, showing that Mottl could have erroneously interpreted the term “dark grey band”.

In our view the notes of the excavator (KADIĆ 1915, 197–198, XVI. t.) clearly show that layer 3/c was excavated in light brown layer 3. Importantly, the items [1923] and [1853] of the find registry, found in the “dark band” (Fig. 11, 1; Fig. 12, 5) are described as pieces from hearth level 3/c (KADIĆ 1915, 252, nr. 68, 252, nr. 67, 21. ábra). On the other hand, a retouched blade (item [1870] with the inv. nr. of Pb/50) found in level III was enumerated among the tools of the dark grey layer 4 (KADIĆ 1915, 245, nr. 43, 15. ábra I).<sup>7</sup> These data are in contradiction with another note (KADIĆ 1915, 224–225) that the 16 lithics collected from this level including the bifacially worked implement (Fig. 12, 5) most probably belong to the assemblage of the underlying hearth level.

In the levels underlying layer 3/c four artefacts were found in two squares of the “culture bearing layer” or hearth level of level V. The character and the origin of this “hearth”, not depicted on the section views was questioned by Ringer and Szolyák (RINGER–SZOLYÁK 2004, 16: hearth nr. 5) as a possible Holocene-age pit, however, one of the pieces fits to a fragment found in the reddish layer (refit group 15) suggesting for a Pleistocene age of the feature. Apart from these artefacts, only two pieces were found in the sediments directly underlying layer 3/c: the reconstruction of a vertically separated feature (SIMÁN 1990, 192) seems to be reasonable.

Of the 77 lithics listed from the two levels in the find registry 64 pieces are available today. Moreover, as refit group 2 shows the 13 pieces found in the “light grey layer” (originally “red loam”) of level III excavated in two squares should also be taken into consideration at the evaluation of the assemblage (see above); this way the number of the studied pieces from this feature is 77 (Table 6).

The artefacts are made of limnic quartzite/limnosilicite types, dominantly from the Avas hill, but three other variants are also represented. Five blade fragments, two flakes and two retouched tools are made of felsitic porphyry, and the extra-local rocks are represented by a single piece, most

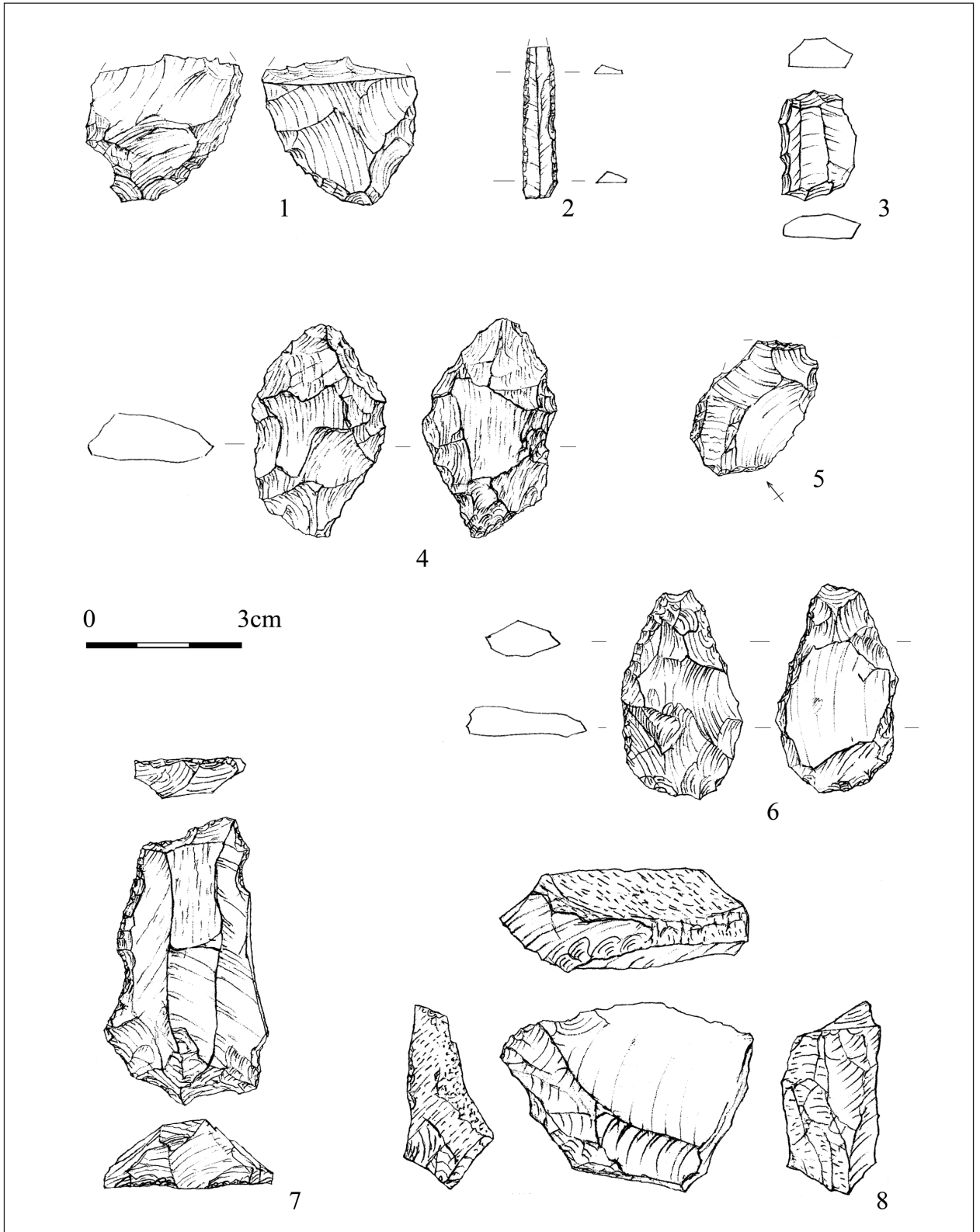


Fig. 8 Szeleta cave: artefacts from artefact-bearing layer 3/b (drawings by K. Nagy)  
 8. kép Szeleta barlang: a 3/b réteg leletei (Nagy K. rajzai)



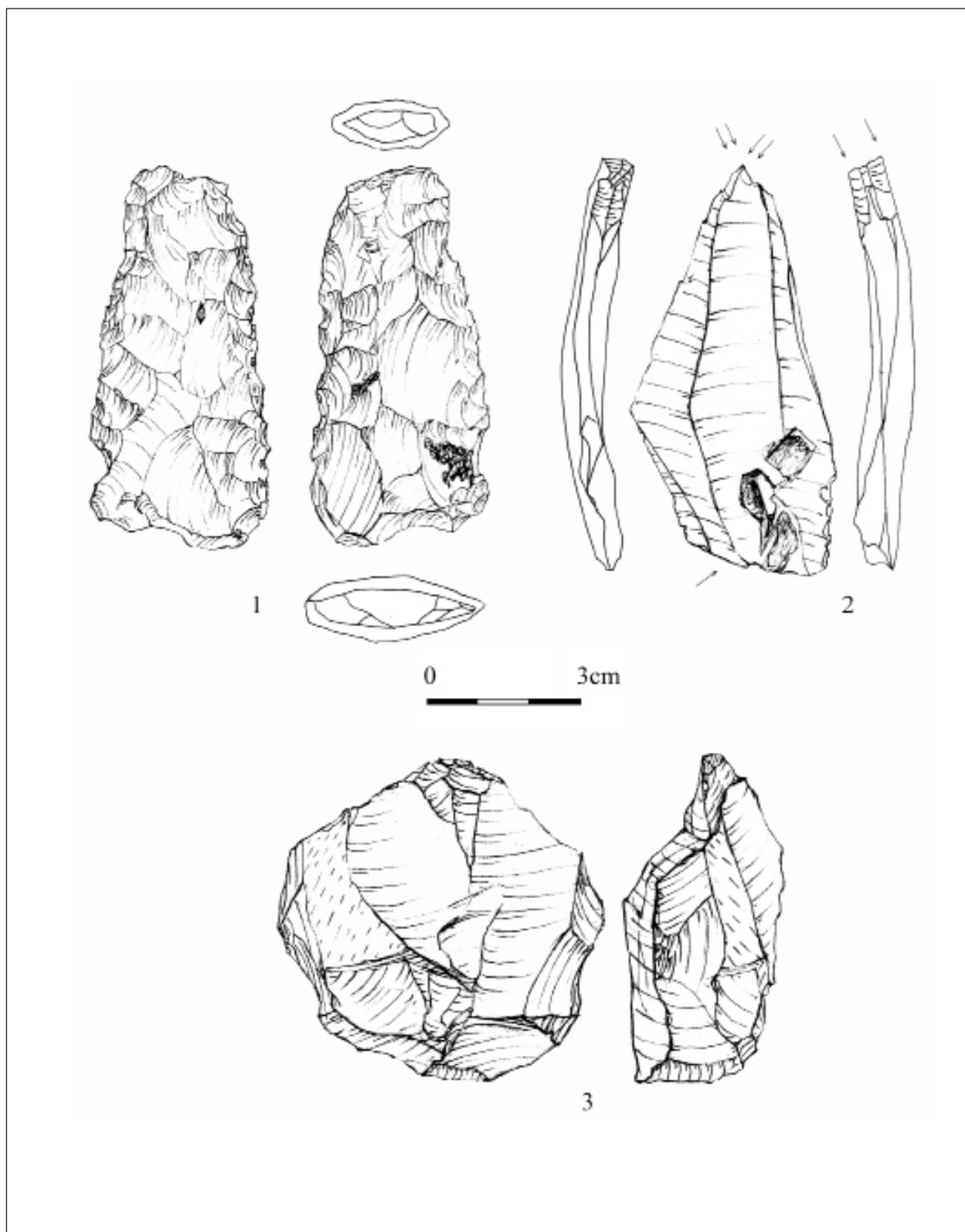


Fig. 9. Szeleta cave: tools from the 1928 excavations (drawings by K. Nagy)

9. kép Szeleta barlang: az 1928-as feltárás eszközei (Nagy K. rajzai)

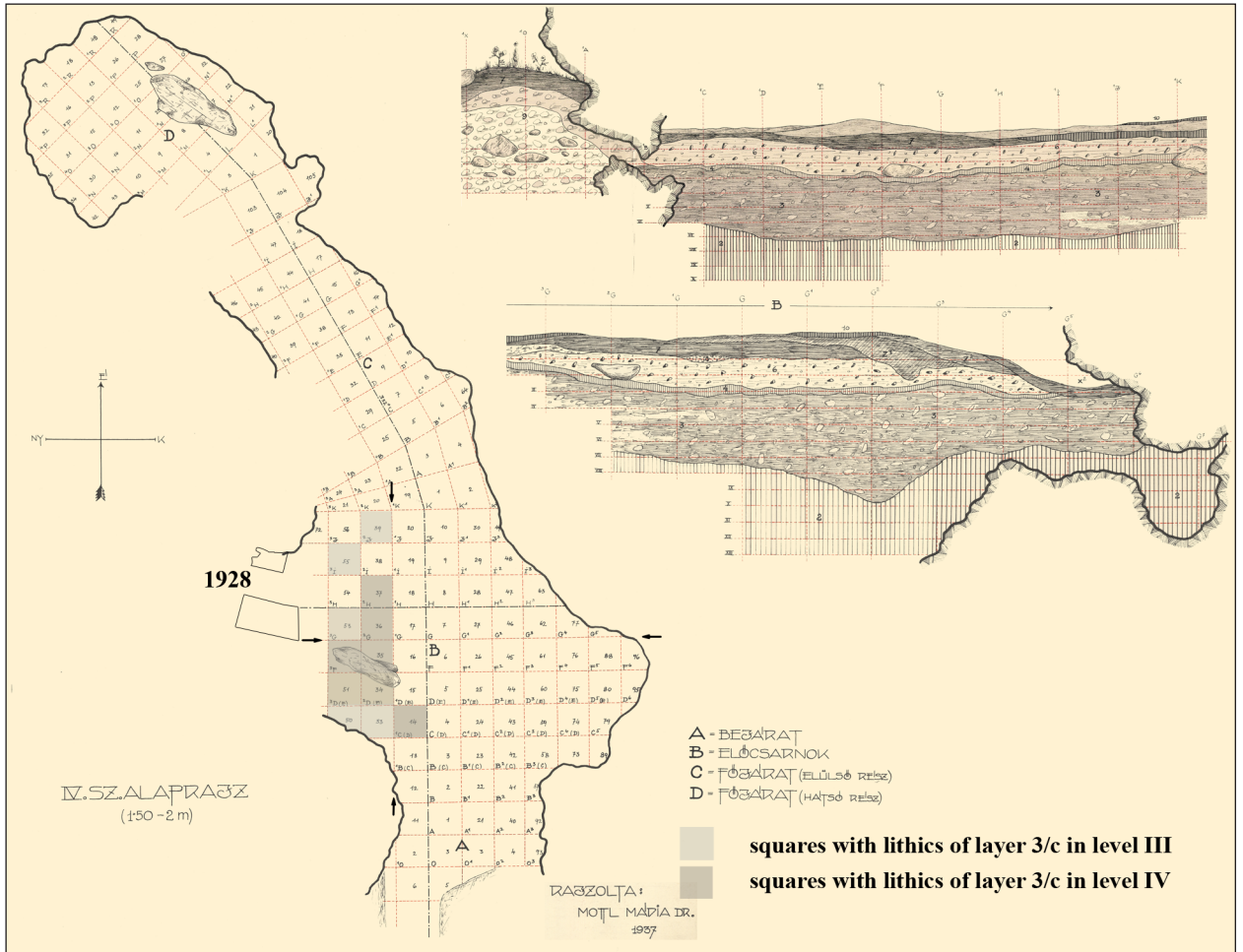


Fig. 10 Map and sections of layer 3/c (after the drawings by M. Mottl, stored in the Geological and Geophysical Institute of Hungary; modified)

10. kép A 3/c réteg alaprajza és metszetei (Mottl Máriának a Magyar Földtani és Geofizikai Intézetben őrzött rajzai nyomán, módosítva)

probably of flint.

In the assemblage there is a single core in the initial stage of exploitation, abandoned because of the cleavage surfaces hidden in the Avas-type hydroquartzite block (Fig. 11, 1). The crest preparation on the frontal and distal part of the piece is similar to the cores found in the “grey layer” (level III) in the eastern part of the main hall (Fig. 11, 3), suggesting that the same form of cores were used in the upper layers in the Szeleta cave. Another piece from layer 3/c with the prepared striking platform and a single scar on the exploitation surface formed on the narrow side of a tabular raw material block is classified as a pre-core.

The crested blade of refit group 2 (Fig. 12, 2) is the longest piece found in the Szeleta cave

(122 mm with a missing distal part). Besides, there are two flakes in the assemblage with traces of crest preparation on their dorsal side.

Six blades and five flakes show lip on the ventral edge of the butt, suggesting the widespread use of soft hammer. A retouched flake fragment (Fig. 13, 1) on the other hand was removed from the core by a hard hammer. The pebble of quartzite was described in the monograph as a hammer (KADIĆ 1915, 252, nr. 69), but it is not found in the collections and cannot be identified among the items of the find registry.

One third of the formal tools (Table 7) from layer 3/c are classified as burins of various types (Fig. 12, 3–4; Fig. 13, 2–3, 7–8) with generally short scars giving atypical form to the tools. In some cases the length of scars were limited by a shallow notch

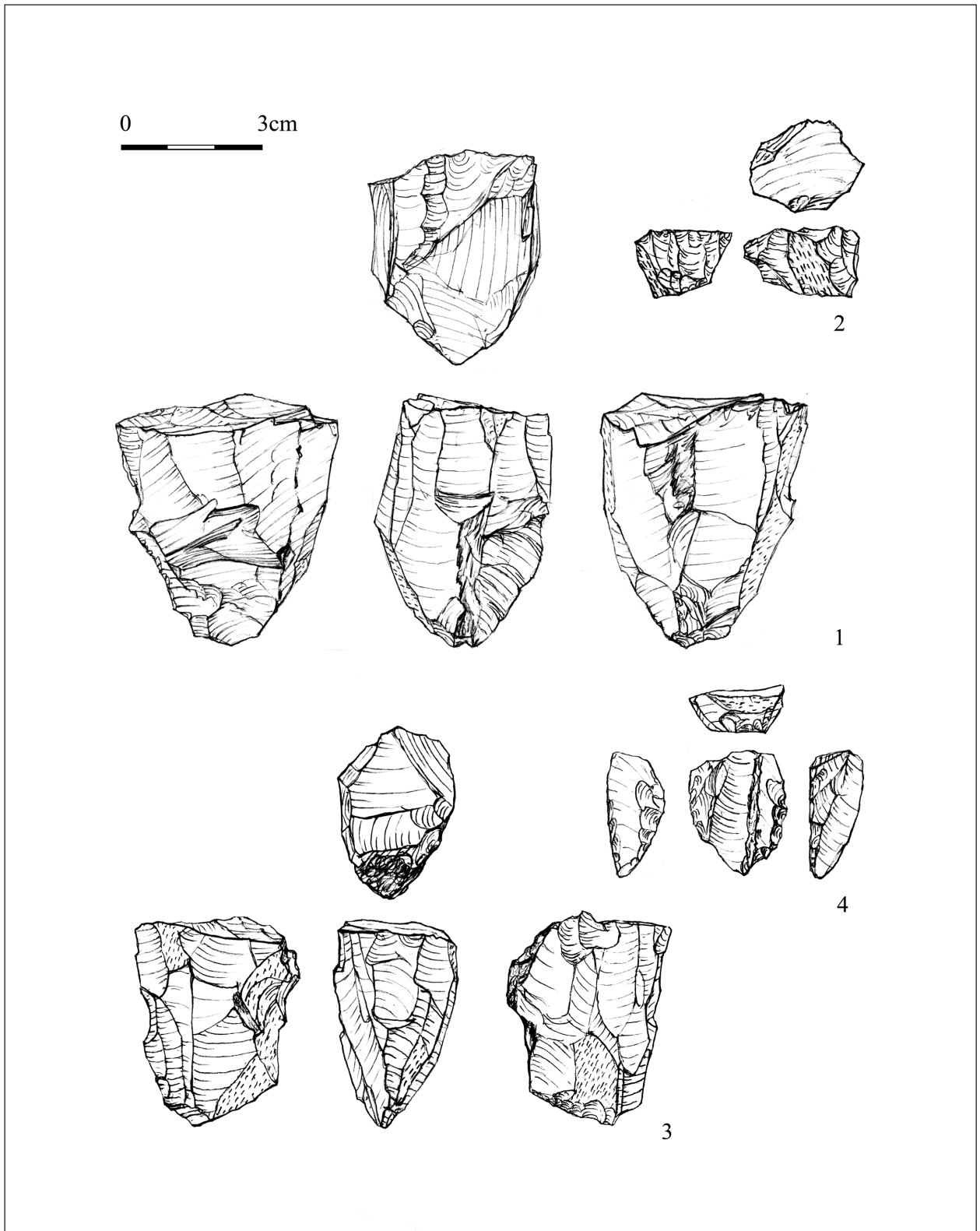


Fig. 11 Cores from layer 3/c and from the “grey layer” of the main hall (drawings by K. Nagy)  
 11. kép Magkövek a 3/c rétegből és az előcsarnok „szürke rétegből” (Nagy K. rajzai)

(Fig. 13, 2) and the double burin from the “light grey layer” (with a lateral notch: Fig. 12, 4) is rather similar to a microblade core formed on a flake. Finally, a piece with distal truncation (Fig. 12, 1) is also classified as burin, even if the relatively poor quality of the raw material and a modern damage at the tip of the tool does not allow the clear identification of the scar. Recently a piece of identical outline and dorsal pattern was published as a diagnostic shouldered point (LENGYEL et al. 2015, Fig. 4, 9);<sup>8</sup> the proximal part of the piece depicted by us, however, is fragmented, not intentionally modified.

The slightly rolled and rather atypical end-scrapers of this assemblage are made of felsitic porphyry. The edges of the retouched blades are damaged and the relatively high number of retouched flake fragments and fragmentary tools is due to the quality of the raw material.

Importantly, no leaf-shaped pieces are found in the assemblage, and the single bifacial tool is rather problematic in typological point of view (Fig. 12, 5). This tool was made on a thick flake covered by cleavage surfaces and on the ventral side traces of thinning of the bulb of percussion are seen. Finally, in the collection there is a characteristic flake from the surface retouching with scars of potlid type on the ventral face of the piece (Fig. 13, 5).

#### *The hearth level in the first section of the side corridor*

This cultural layer was excavated by J. Hillebrand in the upper horizon of the “upper red” layer 5 in level I (HILLEBRAND 1910, 648). The feature was indicated neither on the sections of the monograph (KADIĆ 1915, XV. t. VI and IX) nor on the drawings by Mottl (Fig. 9). Moreover, contrarily to the hearth level excavated by Kadić at the end of the side corridor (KADIĆ 1915, 177, 201) it was not discussed at the history of the excavations or in the chapter consecrated to the stratigraphy and the archaeological features (KADIĆ 1915, 166–168, 200, 225–226; but see: KADIĆ 1911, 174). At the description of a leaf point (KADIĆ 1915, 254, nr. 73, XVI. t. 2) and two backed bladelets (KADIĆ 1915, 262–263, nr. 101, 31. ábra I; 263, nr. 102, 31. ábra II), however, “the light yellow hearth layer in the front part of the side corridor” was given as the place of recovery. According to the find registry as a total of seven lithics including these tools were found in the “hearth” or “cultural layer” in the front part of side corridor, but the numbers of squares suggest for back section (c.f. Table 8, MOTTL 1945,

KADIĆ 1915). The base map showing the studied surfaces by the end of 1911 season shows that a surface of 48 square meters was excavated in the front section of the side corridor (KADIĆ 1912, 33. ábra) which is in accordance with the data about the size of the 1909 trench (KADIĆ 1915, 167). The recent reconstruction of a two times larger excavated surface from the same season (MESTER 2002, 67, Fig. 10) seems to be erroneous.

Five of the six pieces of this collection available today are leaf shaped tools of symmetric and asymmetric cross-section and steeply retouched bladelets (Fig. 14)<sup>9</sup> made of felsitic porphyry. As refit group 30 (fragments of a bifacial thinning flake: Fig. 15, 4) suggests this culture-bearing layer is linked to the reddish brown layer 5 from where 15 pieces were collected (according to KADIĆ 1915, 226). In the find registry 9 artefacts are listed from this layer in the front and 3 from the back section of the side corridor, the later ones are missing from the collections. Among the 8 pieces available for the analysis different forms of leaf-points (Fig. 15, 2–3) and a borer made on a thick flake (Fig. 15, 1) are worth to mention (see note 7). Beside felsitic porphyry, hydrothermal raw material probably from the Hernád valley (Korlát type) is also found among the raw materials of this little collection.

According to the notes of Hillebrand (HILLEBRAND 1910, 648; c.f. SVOBODA–SIMÁN 1989, 302) the occurrence of cave bear bones found in anatomical order and the presence of sharp, angular limestone fragments prove that the sediment in this part of the cave lying out-of-the-way was not affected by serious disturbances. Accordingly, on the edges of leaf shaped tools only minimal edge damages are visible and only the flat (“ventral”) side of one of the leaf tools seems to be rolled (Fig. 15, 3), suggesting that in this part of the cave mechanical factors did not roll the pieces and probably did not mix the sediment significantly.

#### *Methodological observations*

Compared to the vast excavated surface and volume (according to the reports 950 cubic meters of sediment were dug during the excavations by Kadić), very few artefacts were found in the Szeleta cave during the one year, 3 months and 3 weeks long (KADIĆ 1915, 178) field works from 1906 until 1913. Regrettably, the excavation techniques did not allow the documentation of the smaller artefacts (chips, bladelets, burin spalls and flakes of surface retouching or tiny fragments of larger pieces). The maximal number of the pieces excavated in a

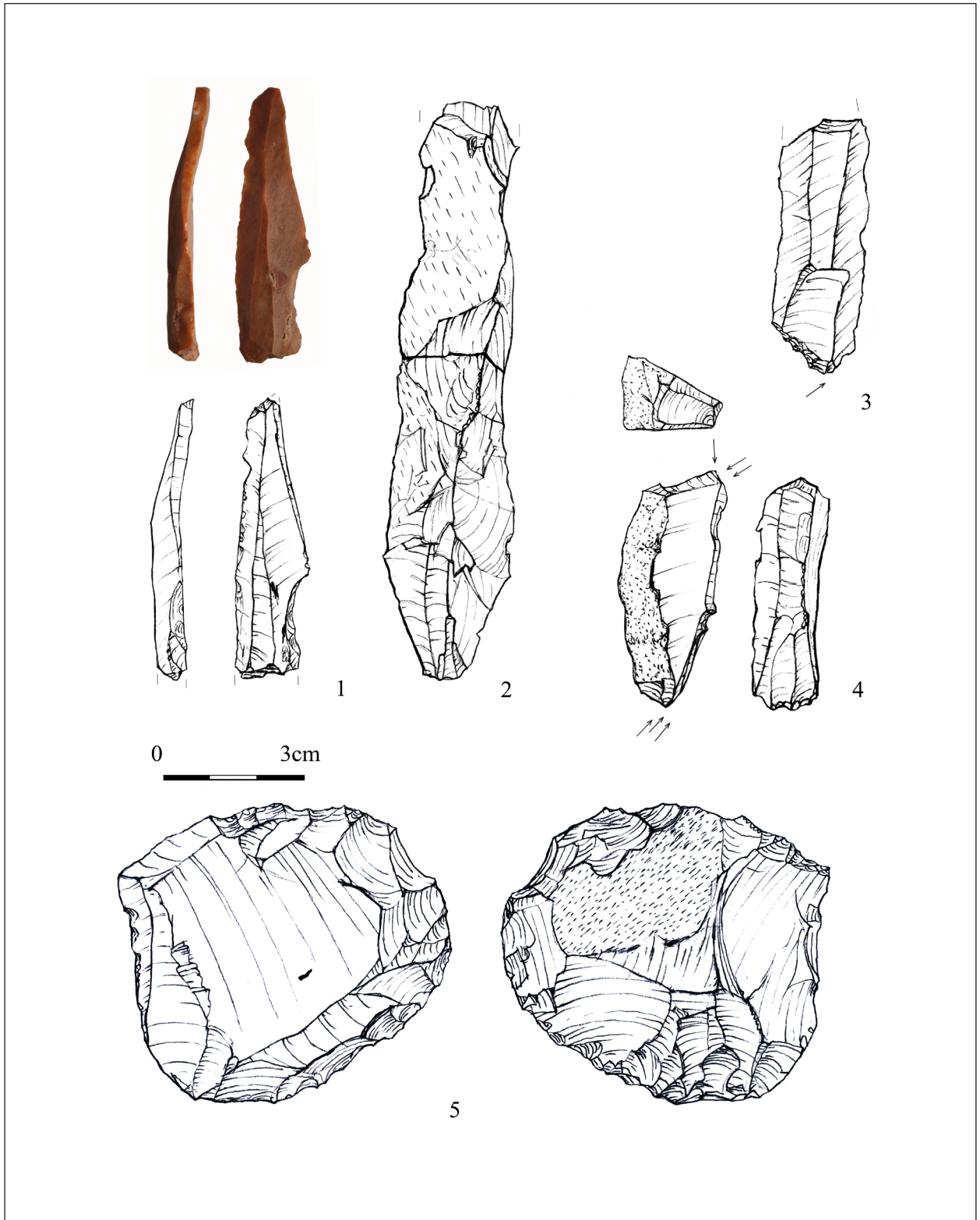


Fig. 12 Szeleta cave. 1: Artefacts from layer 3/c, level IV; 2–5: Artefacts from layer 3/c, level III  
(drawings by K. Nagy; photo by J. Kardos)

12. kép Szeleta barlang. 1: A 3/c réteg IV. szintjéből származó lelet; 2–5: A 3/c réteg III szintjéből származó leletek  
(Nagy K. rajzai, fotó Kardos J.).

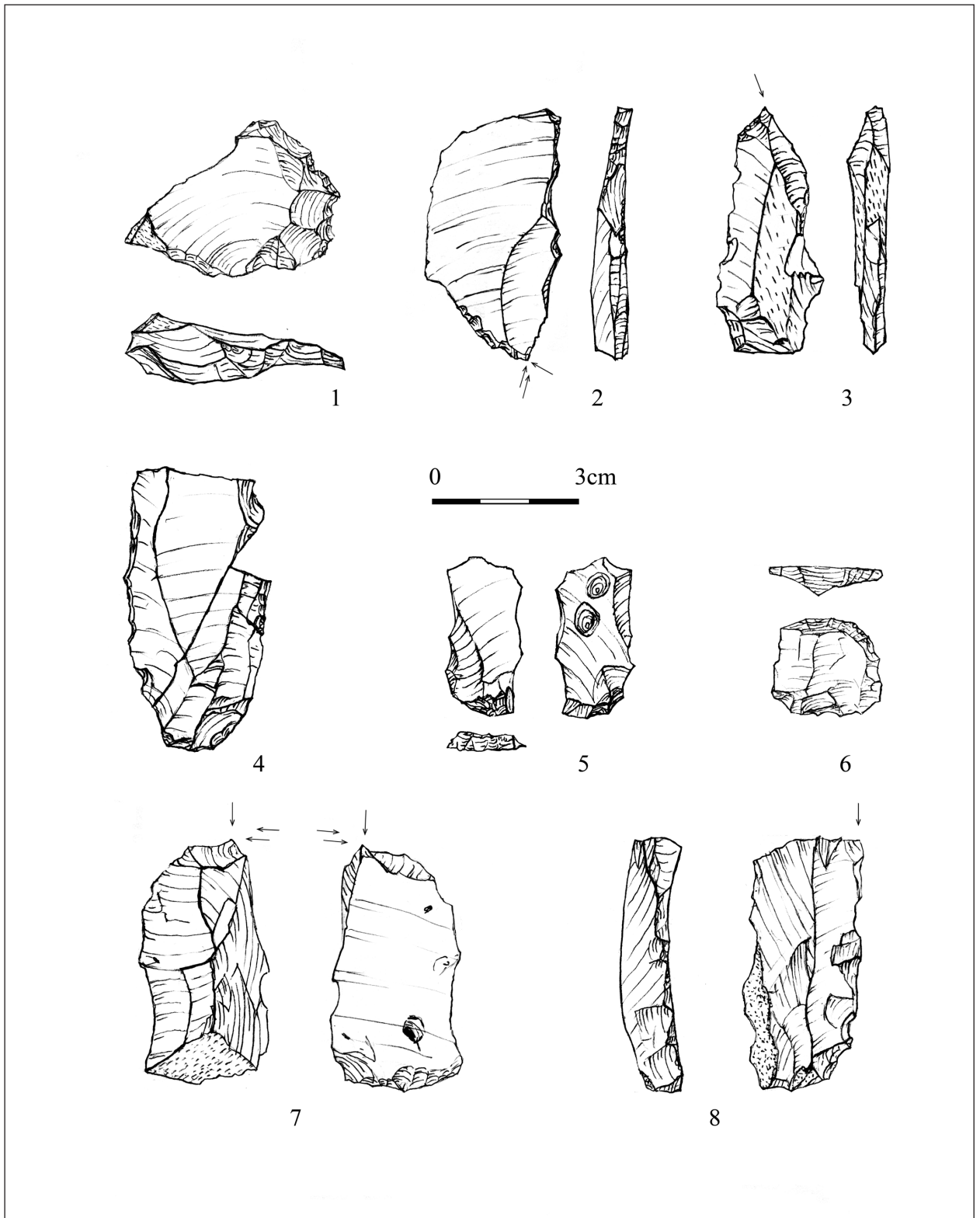


Fig. 13 Szeleta cave: artefacts from layer 3/c, level IV (drawings by K. Nagy)  
 13. kép Szeleta barlang: a 3/c réteg IV. szintjének leletei (Nagy K. rajzai)

single technical unit is only 29 (in level III of square 80 in Main Hall, „grey loam”), i.e. less than 15 pieces were found in each cubic meter and 8 pieces in square meters as an average. In the discussed features the maximum number of pieces found in a technical unit is 10 (from layer 3/a), 22 (layer 3/b) and 20 (layer 3/c) of which 10, 18 and 16 could be analysed. Evidently, these figures suggest for very low density artefact-scatters, showing that the reconstructions of short occupation episodes (see HILLEBRAND 1910, 653–654; GÁBORI-CSÁNK 1970, RINGER 1989; RINGER 2001, 97) seem to be correct.

Because of the few excavated artefacts, changes in the provenance data of some dozens of pieces could basically modify the accepted picture. By the revision of the pieces linked to level IV of square D/13 (D/30 by Kadić – see above) we questioned the reliability of the data of (1) 1.20% of the assemblage excavated in 1907–1913; (2) 1.17% of the pieces found in Pleistocene layers and identified in the collections; (3) 3.26% of the pieces found in the light brown layer 3; and (4) 13.44% of the artefacts found in the rear part of the main corridor (after RINGER–SZOLYÁK 2004, 17, 6–7. ábra).

It is clear that the uncritical use of the find registry and the drawings completed dozens of years after the excavations and biased by the potential errors raised during re-writing and by the uncontrollable corrections leads to a considerable distortion or even loss of stratigraphic information. We agree with the sceptical views of Simán (SIMÁN 1990, 189) and in this paper these data were compared to that one found in the yearly field reports (KADIĆ 1907; KADIĆ 1909; KADIĆ 1912; KADIĆ 1913; HILLEBRAND 1910; HILLEBRAND 1911) and the monograph published two years after the end of the excavations (KADIĆ 1915). Typically, the stratigraphic position of two of the ten tools published by Lengyel and his colleagues (Fig. 4, 7 and 9) differs if one looks the data of both the find registry and the monograph (see notes 4 and 9). Regrettably, at two other pieces (LENGYEL et al 2015, Fig. 4, 3–4) these data are erroneous even compared to the bookings of find registry, which calls certain doubts about the conclusions of that article.

The identification of the original stratigraphic position of the artefacts was the most problematic point at the assemblages of the Pech de l’Azé IV. Importantly, the analysis started only 20 years after the excavations by Fr. Bordes. Taking into consideration that his site yielded more than 90 thousand point-provenienced lithics from 52 square meters and the observations were documented on more than 2500 pages (DIBBLE et al. 2005), the Szeleta collections are “essentially useless” (expression by

DIBBLE et al. 2005, 319) indeed.

The more than 100 years old identification of different stratigraphic units as the yellow, grey, dark grey or red loam does not imply *sensu stricto* stratigraphic contemporaneity in each section of the cave. This may explain the occurrence of different industries, e.g. in the dark grey layer of the Szeleta cave units (RINGER–MESTER 2000, 266–268; RINGER–MESTER 2001, 13–16; RINGER 2011). This way we suggest an alternative explanation instead of the palimpsest formation and post-depositional mixing of artefacts of several occupational episodes, as artefact-bearing layer 3/a, 3/b and 3/c were all indicated in the find registry as “dark grey band”.

As a case study we present some problems of the layers excavated by L. Vértes in the entrance of the cave in 1966 (trench A: VÉRTES 1968, 382). The light grey, greyish brown and brown units were correlated with layers 6, 4 and 3 by Kadić, however, at the place of the excavations layer 6 and 4 were completely missing in the sixties (see the transversal section on Fig. 7) and it seems to be unrealistic to suppose that layer 3/b by Kadić having a maximum thickness of 20 cm is equal to the 1,4 meter thick greyish brown layer by Vértes. For a closer view a piece found in the lower part of the grey layer was refitted to a fragment from the upper part of the same unit, another to a piece from the brown layer. Taking into consideration that two fragments of the same quartzite implement were found in the lower, and three pieces fragmented according to the potlid pattern in the upper level of the greyish layer, the significant disturbance reconstructed after the assemblage excavated by Kadić in the entrance of the cave is confirmed (c.f. LENGYEL–MESTER 2008, 81).

Recently it was suggested that the speleologist Vértes who established the research of cave sediments in Hungary did not recognise the secondary character of the uppermost layer excavated in 1966 (LENGYEL–MESTER 2008, 80)<sup>10</sup>. Instead we remind to the observation about the presence of a 2 meter thick yellow loam with limestone fragments in the entrance of the cave (KADIĆ 1911, 179; KADIĆ 1915, 170). In our view the 32 000 years old radiocarbon date may refer to this local sedimentary unit.

Another problem discussed here is the question of the supposed but not proved taphonomic impacts. Our results show that certain post-sedimentational mixing is evident in layer 3/a, 3/b and probably 3/c too, making the technological and typological evaluation of the little assemblages problematic. In the material excavated in the side corridor, however, no important disturbance could be observed.

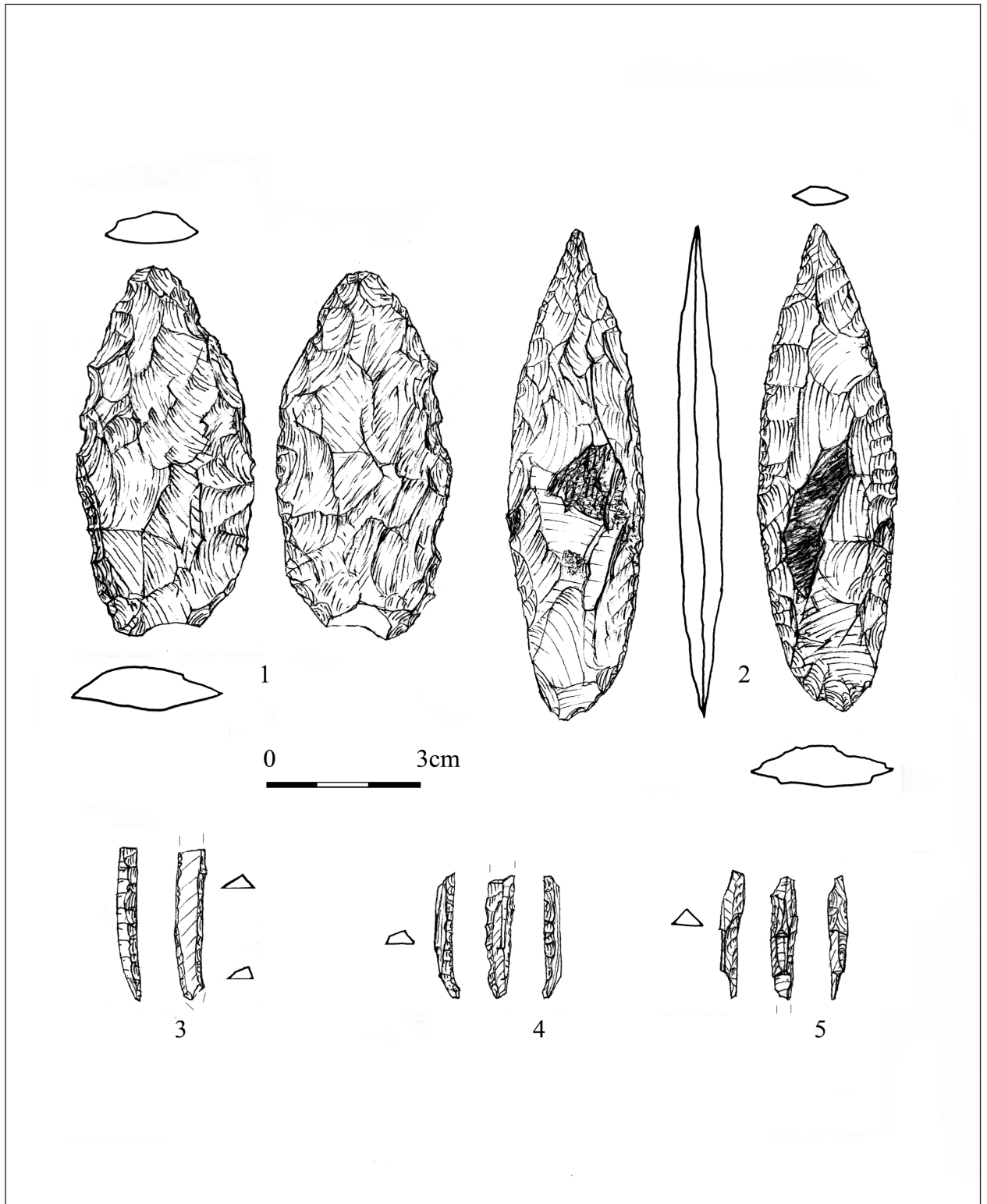


Fig. 14 Szeleta cave: retouched tools from the culture layer of the side corridor (drawings by K. Nagy)

14. kép Szeleta-barlang: az oldalág leletes szintjének eszközei (Nagy K. rajzai)



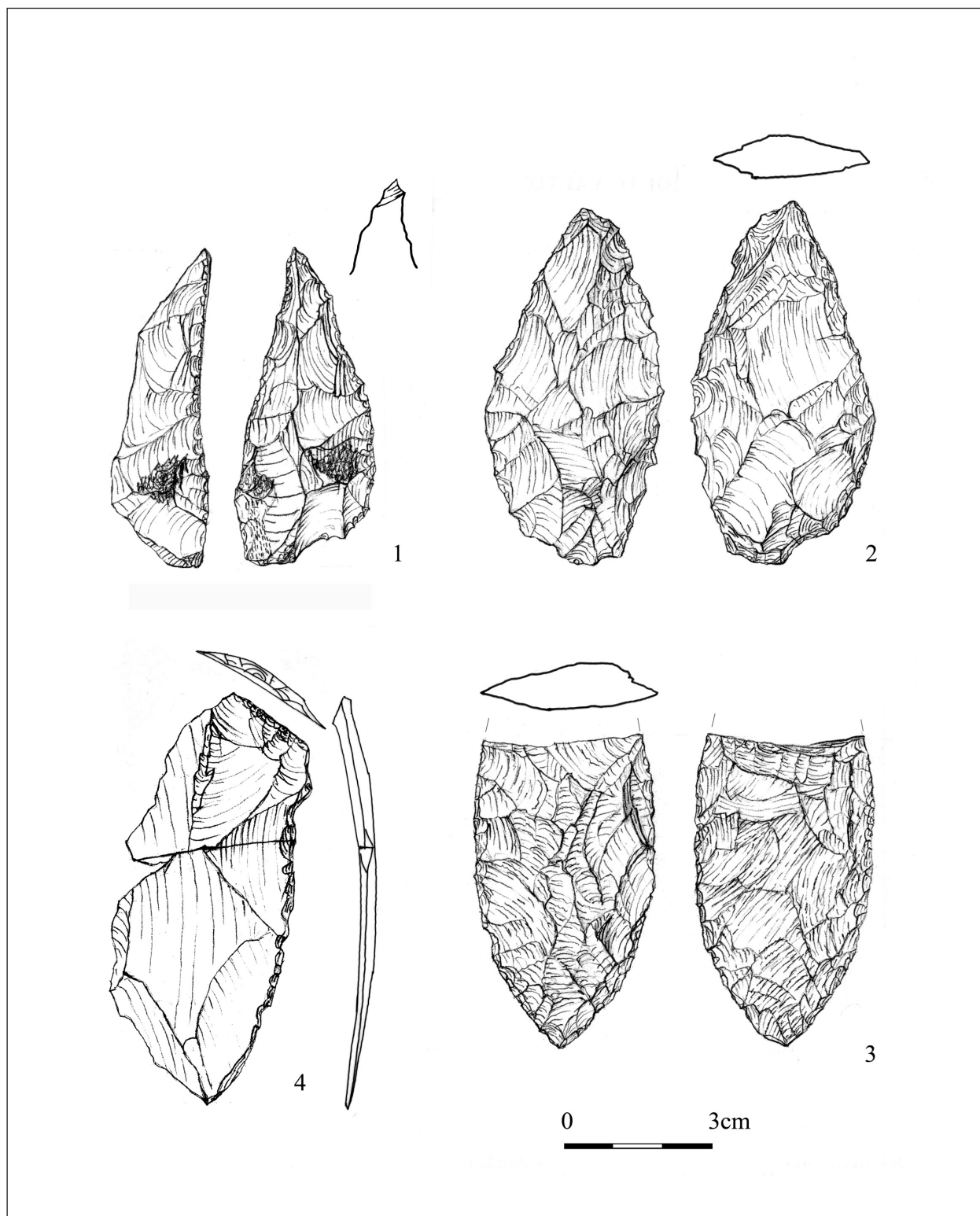


Fig. 15 Szeleta cave. 1–3: Retouched tools from the reddish brown layer excavated in the side corridor;  
 4: Retouched tools from refit group 30 (drawings by K. Nagy)

15. kép 1–3: Szeleta barlang: az oldalág vörösesbarna 5. rétegének eszközei;  
 w4: A 30. összeillesztési csoport eszközei (Nagy K. rajzai)

	Dark grey culture bearing layer, level IV						Dark grey culture bearing layer, level III				Light grey loam, level III			
	B/14	B/35	B/36	B/37	B/52	Total	B/34	B/50	B/51	B/53	Total	B/33	B/55	Total
Squares by Mottl														
Squares by Kadić	B/15	B/33	B/43	B/52	B/32	17	B/23	B/13	B/51	B/42		B/14	B/59	
Avas-type hydroquartzite	3	1	2	11			2	7	16	4		7	2	9
Hydroquartzite	2	1		3		6	1		1	1				3
Felsitic porphyry	1	1	1	3		6	2					2	1	3
Lydite	1					1								
Flint?													1	1
<b>Total</b>	<b>7</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>17</b>	<b>30</b>	<b>5</b>	<b>7</b>	<b>17</b>	<b>5</b>	<b>34</b>	<b>9</b>	<b>4</b>	<b>13</b>

Table 6 Raw material distribution of the assemblage from the culture layer 3/c  
6. táblázat A 3/c leletgyűjtés nyersanyageloszlása

	Dark grey culture bearing layer, levels IV and III				Light grey loam, level III		
	Avas-type hydroquartzite	Hydroquartzite	Felsitic porphyry	Total	Avas-type hydroquartzite	Flint?	Total
Dihedral burin	2			2			
Truncated burin	2		1	3			
Burin on-a-snap	1			1			
Double burin					1		1
Flake end-scraper			2	2			
Unilaterally retouched blade	2			2			
Bilaterally retouched blade	1			1			
Perforator						1	1
Retouched flake	2	1		3			
Bifacial tool	1			1			
Fragmented tool	1			1			
<b>Total</b>	<b>12</b>	<b>1</b>	<b>3</b>	<b>16</b>	<b>1</b>	<b>1</b>	<b>2</b>

Table 7 Retouched tools found in the culture bearing layer 3/c  
7. táblázat A 3/c leletes réteg retusált eszközei

	Culture bearing layer, level I				Reddish brown layer, level II					
	E/34	E/37	E/38	Total	E/6	E/7	E/13	E/16	E/28	Total
Squares by Mottl	E/34	E/37	E/38	Total	E/6	E/7	E/13	E/16	E/28	Total
Squares by Kadić	F/5	F/8	F/9		E/5	E/6	E/10	E/13	E/23	
Felsitic porphyry	2	2	2	6			1	1	3	5
Hydroquartzite					2	1				3
<b>Total</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>8</b>

Table 8 Raw material distribution of the assemblage from the culture layer and reddish brown layer of the side corridor  
8. táblázat Az oldalág kultúrrétegének és a vörösesbarna réteg leleteinek nyersanyag-eloszlása

In the reddish brown layer and the cultural layer from the uppermost level of the same unit symmetric and asymmetric leaf shaped implements were found in close association. This way the hypothesis is rejected that these groups of artefacts could belong to distinct cultures or technological tradition. Similarly, we could not confirm the presence of the Jankovichian industry or the poorly defined Jankovich type implements in the analysed material. We presume that the study of the assemblage (including leaf shaped implements of asymmetric forms made on flakes: KADIĆ 1934, 49–51, Fig. 18, Taf. VI) from the Puskaporos rockshelter, dated to the same, or a slightly younger period as the last Palaeolithic occupations of the Szeleta cave (e.g.: RINGER 2011, 22) would give important new data on this question. Provisionally we suggest that the term “Puskaporos-type” leaf shaped tools would be adequate for denoting these artefacts.

### Conclusions

1. In the entrance of the Szeleta cave the sediment was heavily disturbed before the excavations. The 20 Palaeolithic tools found in Holocene deposits, making 1% of the total find material and 4.2% of the artefacts available from the light grey and yellow layers in 1907–1913 (RINGER–SZOLYÁK 2004, 7. ábra) suggest important mixing in the top horizon of the Pleistocene layers in each section of the cave.

The lithics collected from deeper units, basically from the light brown layer 3 are partly rounded most probably of mechanical impacts (rolling), while cryoturbation and trampling had played only a subordinate role. To explore the complexity of the site formation modern excavations, preferentially in the entrance section of at least 10 square meters would be necessary. In addition to taphonomic information it would be possible to interpret the layer sequences and to correlate the sampling points of the 1966 and

1999 excavations. Moreover, the observations during these works may give an explanation on the absence of the small artefacts and the generally low number of excavated pieces: are these features due to the excavation methods, to taphonomic factors or possibly to the character of the occupations?

2. Our working hypothesis that the study of the thin artefact-bearing or hearth layers makes possible to get information from largely undisturbed horizons was questioned after identifying refit group 2, 30 and 31 and the identification of intrusive pieces in layer 3/b. The impact of taphonomic factors is enhanced by the low number of artefacts: the evaluation of the four features is based on the analysis of 215 pieces (10.75% of the excavated assemblage and 13.17% of the artefacts available today).

3. At the junction of the side corridor Gravettian artefacts associated with symmetric and asymmetric leaf shaped implements were excavated in the culture-bearing layer and in the reddish brown loam. After the refits these pieces are contemporaneous in stratigraphic point of view in both layers and in agreement with the view by K. Simán (SIMÁN 1990) we link the assemblage to the Gravettian entity. Importantly, no shouldered points are known from this part of the cave and there is no reason to date the artefacts to the Late Gravettian period. Instead, we remind that there is only one site in Hungary where Gravettian and leaf shaped tools were found in a well dated context, the 30–29 thousand years old upper layer of the Istállóskő cave (MARKÓ 2015, 33, note 158).

The systematic analysis of the assemblage of the Puskaporos rockshelter may shed new light on the characters of this industry. Theoretically, some data can be expected from the study of the assemblages excavated in the rear part of the Szeleta cave, from where, however, only 27 and 16 pieces are reported from the artefact-bearing layer and the reddish brown layer, including the Gravette-type point (Fig. 1, 1) with problematic stratigraphic position. Another

er characteristic piece, a Pavlov-type point after Á. Ringer (RINGER 2001, 96, 98) or shouldered point by LENGYEL et al (2015, Fig. 4, 8) was found in the reddish brown loam at the north-eastern wall of the cave and according to the data of the find registry, at a distance of at least 4 meters from the relatively richest artefact concentration.

Importantly, the cultural layers found in the uppermost level of the reddish brown loam in the side corridor and in the lowermost part of the yellow loam at the rear part of the cave are separated by an at least 30 m long section where this stratigraphic unit was not observed. This way, it is problematic to analyse the artefacts as a single assemblage, especially, if they are counted at the pieces of the yellow loam (cf. LENGYEL et al. 2015, 3).

4. The evaluation of the “Aurignacian” occupation of culture bearing layer 3/c is problematic. This collection differs from the other assemblages reviewed in this paper in respect of the dominance of the Avas-type raw material, the few leaf shaped implements and the relatively high number of burins. On the other hand, K. Simán compared this assemblage to the Aurignacian I collection of the Istállóskő cave (SVOBODA–SIMÁN 1989, 311), but our analysis show a different picture. The poor lithic assemblage is characterised by unidirectional blade production with the use of soft hammer and crested blades of Upper Palaeolithic type in technological, the dominance of burins and presence of a single bifacial tool of non-Szeletian type in typological point of view. The Avas-type limnic quartzite/limnosilicite, the main raw material of layer 3/c is completely absent from the lower layer of the Istállóskő cave as the characteristic raw material of this later assemblage (flint, radiolarite and Korlát-type limnic quartzite: MARKÓ 2015, 20–26) or the open-air sites around Košice (Korlát-type hydroquartzite: KAMINSKÁ 1991, 8–10, 30–31) was not used in the Szeleta 3/c assemblage. The typological composition of layer 3/c differs from the Istállóskő lower layer: the typical elements of the Szeleta assemblage are the burins, while in the later material retouched blades and their fragments are dominating forms. In fact, the presence of split based points is seemingly the single common point of these two assemblages. In the blade industry with a number of burins of layer 3/c in the Szeleta cave Gravettian types, including shouldered points are absent and single pieces (Fig. 12, 4, collected from the light grey layer of level III) are similar to Aurignacian types indeed.

5. The identification of the Early Szeletian industry with layer 3/b and 3/a (SIMÁN 1990, 189–190) is also problematic, especially because of the docu-

mented disturbances. The assemblages are characterised by the dominance of the felsitic porphyry and the strong presence of leaf shaped tools, even if in layer 3/a these forms are known exclusively from level IX.

The high number of the fragmentary and rolled tools together with the taphonomic observations makes it impossible to compare the assemblages to the Szeletian industry as it was defined by Fr. Prošek (PROŠEK 1953) and as it is generally understood today. As a next step it would be possible to critically study the artefacts from level VI (light brown layer) of the main hall of cave. However, merely 150 artefacts were collected from a surface of 124 square meters and from a volume of 62 cubic meters, which is rather few compared to the vast assemblages of the open-air sites e.g. in Moravia. The low number of artefacts together with a complicated process of assemblage formation makes difficult to appoint a typical assemblage from the collection of the eponymous site.

On the other hand, looking from the aspect of priority, the term “Szeletian” was originally used for labelling Gravettian industries with leaf points (ANDRÉE 1930) or for the „*Protosolutréan*” finds of the Szeleta cave (HILLEBRAND 1935, 30 – for further details see: RINGER 2014). Taking into consideration the problems with the excavations, the documentation and the accessibility of the excavated artefacts dispersed into six collections in three countries and finally the taphonomic problems, the Szeleta cave is not the best choice for an eponymous site of cultural entity having a large distribution. In our view we must return to 1968, when the term “Szeletian” was suggested to be used exclusively for the assemblages known from the Bükk mountain (VÉRTES 1968; FREUND 1968, 372; c.f. GÁBORI 1968, 373). In this respect, the publication of the assemblages of the open-air sites on the Avas Hill and around it (VÉRTES 1965; SVOBODA–SIMÁN 1989, 307; RINGER 1993, 77–78; RINGER 2001, 97–98) may shed new light on the old questions posed by the Szeleta artefacts.

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## Notes

- 1 In fact, it is a bit difficult to follow the arguments of the technological approach published in the past few years. In the first paper consecrated to this topic 44 studied artefacts were enumerated (MESTER 2010, Table II), although a half made tool depicted on Fig. 5, 5 (see Fig. 1, 2 in this paper) is missing from the list. Later the number of the studied pieces changed to 77, 73 (MESTER 2011, 24, 4. táblázat; 2014, Tabl. 3, 4 - c.f. MESTER 2011, 25, 1. táblázat; MESTER 2014, 45, 47, Tableau 1) or 72 (MESTER 2014, Tableau 2). In 2010 58% of the elements of group 3 (asymmetrical tools, made on flakes) were stated to be “stratigraphically earlier than the Developed Szeletian” and MESTER (2010, 120–121) argued that “on the basis of the lithic technology of bifacial tools that the Jankovichian and the Early Szeletian belong to the same archaeological culture”. Later 61.1% (MESTER 2011, 28) or 50.0% (MESTER 2014, 52) of the pieces were linked to the early industry of the cave, noting, that leaf shaped tools are not suitable for solving cultural questions. After the conversion of the percentage data, used without reason at groups having only 32, 21 and 20 (or 32, 22 and 23) elements it became obvious, that the pieces found in the dark grey layer 4 (and with a rather unusual argumentation layer 5 too: MESTER 2010, 120) were sorted into the earlier period (MESTER 2011, 28; MESTER 2014, 52). In fact, four of the five studied pieces of layer 4 belongs to the group 1 and 2, linked to the Developed Szeletian (MESTER 2011, 4. táblázat; MESTER 2014, Tableau 4). Even more problematic is that the tools found in “grey” layer 4 or 6 were partly numbered at the younger (five pieces belonging to the groups 1 and 2), partly (two artefacts of group 3) at the early industry (using the data given by MESTER 2011, 4. táblázat; c.f. MESTER 2014, 52, note 61). In our view the stratigraphic position of the seven tools found in “layer 4 or 6” is “not known precisely”, especially, because J. Hillebrand (HILLEBRAND 1910) was the first to distinguish the light and dark grey layers during the 6<sup>th</sup> excavation season of the Szeleta cave. Finally, in the most recent paper 37 bifacial leaf points excavated in 1907–1913 and stored in Budapest, Miskolc and Cluj are presented (LENGYEL et al 2015, Table 5), however, in Table 1 of the same article the number of leaf points is 31. This time the asymmetric pieces are regarded as made by typical Middle Palaeolithic method.
- 2 For example, the bones collected in 1906 and supposed to be manufactured (KADIĆ 1907, 340; KADIĆ 1915, 159–160) or the prehistoric ceramics discussed in a separate chapter of the monograph (KADIĆ 1915, 273–276) are not found in this list. Moreover, the lithics are not enumerated in the order of their recovery. Item [83] (leaf point of asymmetric contour) and [84] (Molodova-type knife) were found in spring 1907 in the test pit at the end of the main corridor, however, as a total only 40 pieces were collected during this season (KADIĆ 1907, 342–345, 4. ábra; KADIĆ 1915, 161). At the same time, a polished chisel found in the same year is listed under the number of [1339], while a leaf shaped tool, excavated in 1911 is item [1396] of the list. Furthermore, the artefacts [239], [274], [279]–[281] and the piece of [1009], described in details by KADIĆ 1915, 233, nr. 5, were all collected from single unit (light brown layer, in level V, square B/14 – or B/15 by Kadić). Similarly, a blade of obsidian [456] and a leaf point [1272], linked to the reddish brown layer in level I in square C/49 (or C/38 after Kadić), were excavated in May 1909 (MESTER 2002, 66–67, Fig. 9). On the published photographs of item [1831] (inv. nr. Pb/71, see Fig. 14, 2 in this paper) the number of 71 (KADIĆ 1915, XVII. tábla 2) or 21 (KADIĆ 1934, Taf. V, 2) is clearly visible. In fact, item [71] is a blade collected from Holocene guano (inv. nr Pb/625), and the piece [21] (“manufactured fragment”) is found in the Cluj collection, according to the notes of the find registry. Finally the numbers on the pieces published by HERMAN 1908, 256, Taf. VII–VIII, 1–2, also show the original numbering of the artefacts, different from the system of the find registry.
- 3 According to Kadić (KADIĆ 1915, 168 – see also: KADIĆ 1912, 33. ábra) no lithic tool was found in level II at the end of the cave. Taking into consideration that two artefacts from this technical unit were published in 1911 (HILLEBRAND 1911, 72. ábra; KADIĆ 1911, III. tábla), we suppose that the excavations of this part of the cave were carried out by J. Hillebrand (HILLEBRAND 1910, 649) during the summer of 1909. However, no details are known about the field works, which are not mentioned in the papers consecrated to the history of the excavations (KADIĆ 1915, 167; MESTER 2002, 67, Fig. 10).
- 4 In a recent paper the recovery of this piece (item [1996], inventory nr.: Pb/667) was placed to the front section of the Main corridor (LENGYEL et al. 2015, Fig 4, 3 with an erroneous reference in the text on page 4 – c.f. Table 1 of the same article).
- 5 It was possible to compare the data of the find registry and the monograph in 53 cases and roughly at a quarter of the items (13 cases) we found differences in the stratigraphic data. The rigorous approach by K. Simán let her securely identify only 10% of all the artefacts (SVOBODA–SIMÁN 1989, 301).

- 6 LENGYEL et al 2015, Table 1 mentioned three backed bladelets from layer 3 of the main hall without details.
- 7 In the monograph of the Hungarian Old stone age, published by Kadić twenty years later, however, the same piece is found among the tools of the lower (Protosolutrén) layer (KADIĆ 1934, 42, Fig. 12, I). The general deterioration of the stratigraphic information is testified by the changes of the data of a leaf shaped scraper of radiolarite (KADIĆ 1915, 237, nr. 18, 9. ábra – c.f. KADIĆ 1934, 41, Fig. 7) or a thick convergent tool (Fig. 15, 1 – c.f. KADIĆ 1934, Taf. III, 8), both placed in 1935 to the earlier period. Importantly, in the inventory book (“rewriting of the inventory of 1914 in 1936”) the leafpoint figured on Fig. 2, 1 collected from Holocene guano according to the find registry, was claimed to be found in the upper layer.
- 8 Incidentally, in the same article the provenance data of this piece was erroneously given as layer 4. In fact, item [1887] of the find registry was found in square 52 of the main hall in the same level IV and the same dark band as the core (Fig. 11, 1) found in the neighbouring square 35, enumerated by Kadić among the pieces of the hearth level (see above).
- 9 According to Lengyel and his colleagues (LENGYEL 2015, Fig. 4, 4) one of the backed bladelets was found in layer 6. However, according to the find registry the piece [1832] (inv. nr: Pb/104, see: Fig. 14, 3) was found in the “hearth” (originally: “cultural layer”).
- 10 According to the authors “It is known from Mottl (MOTTL 1945, 1553) that the sections of Kadić’s excavations at the Entrance were collapsed to the extent that they could not be correlated with the original drawings.” (LENGYEL–MESTER 2008, 80). Whereas in the cited paper Mottl reported that in that part of the cave the sediment were protected from collapse by a dry-stacked stone wall: „Die systematische Arbeit wurde auch dadurch erschwert, dass aus dem Steinmaterial der alten Grabungen eine steile hohe Wand errichtet wurde, die den ohnedies schmalen Eingang noch mehr verengte“ (MOTTL 1945, 1554).

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APPENDIX  
REFIT GROUPS OF THE LITHIC ARTEFACTS  
(STATE OF ART 10. 10. 2015)

Number of refit groups	Nr. in the find registry	Inv. nr	Square by Mottl	Square by Kadić	Level	Layer	Layer (original)	Raw material	Interpretation	Figure
1	[543]	Pb/1815	B/67	B/21	II	grey loam				
	[1728]	Pb/1815	C/20	C/2	II	light grey		hydroquartzite	fragmentation	
2	[1858]	Pb/659	B/50	B/13	III	dark grey	from dark band			
	[1836]	Pb/623	B/33	B/14	III	light grey	red loam	hydroquartzite	fragmentation	
3	[379]	Pb/1814	B/23	B/8	VI	light brown	red loam			
	[380]	Pb/1814	B/23	B/8	VI	light brown	red loam	felsitic porphyry	recent fragmentation	
4	[568]	Pb/1815	B/19	B/61	II	grey loam				
	[544]	Pb/1815	B/67	B/21	III	grey loam	dark grey			
	[554]	Pb/1815	B/66	B/12	II	grey loam		hydroquartzite	fragmentation	
5	[627]	Pb/619	E/4	E/4	I	dark grey loam				
	[630]	Pb/619	E/4	E/4	I	grey loam				
	[631]	Pb/619	E/4	E/4	I	grey loam				
	[633]	Pb/619	E/4	E/4	I	dark grey loam		hydroquartzite	recent fragmentation	4, 9
6	[1821]	Pb/1814	A/10	A/10	V	grey loam				
	[1824]	Pb/1814	A/10	A/10	V	grey loam		felsitic porphyry		
7	[642]	Pb/1814	B/9	B/62	III	dark grey loam				
	[647]	Pb/1814	B/9	B/62	III	grey loam		hydroquartzite		
8	[1263]	Pb/235	C/9	C/21	IV	grey loam				
	[1264]	Pb/683	C/9	C/21	IV	grey loam		hydroquartzite	thermic fragment?	
9	[1603]	Pb/778	A/7	A/8	V	light brown	red loam			
	[1604]	Pb/1815	A/7	A/8	V	light brown	red loam	porphyry tuff	flaking	
10	[960]	Pb/1815	B/59	B/19	IV	light brown	red loam			
	[978]	Pb/758	B/91	?	IV	light brown	red loam			
	[1014]	Pb/1815	B/58	B/10	V	light brown	red loam			

	[925] [1032]	Pb/1815 Pb/1814	B/58 B/44	B/10 B/27	IV V	light brown light brown	red loam red loam	hydroquartzite	broken during excavations?	
<b>11</b>	[782] [783]	Pb/1815 Pb/1815	B/17 B/17	B/44 B/44	VI VI	light brown light brown	red loam red loam	quartzite pebble	broken during excavations?	
<b>12</b>	[1072] [1094]	Pb/1815 Pb/1815	A/21 A/40	A/15 A/16	IV V	grey loam grey loam		hydroquartzite	fragmentation	
<b>13</b>	[560] [652]	Pb/1815 Pb/1815	B/66 B/66	B/12 B/12	II II	grey loam grey loam		felsitic porphyry	broken during excavations?	
<b>14</b>	[924] [992]	Pb/1815 Pb/1815	B/58 C/8	B/10 C/18	IV III	light brown dark grey loam	red loam	hydroquartzite	broken during excavations?	
<b>15</b>	[270]	Pb/1815	B/13	B/6	V	reddish brown loam	red loam			
<b>16</b>	[271] [1229] [1230]	Pb/1815 Pb/1815 Pb/1815	B/13 C/44 C/44	B/6 C/36 C/36	V II II	hearth grey grey	cultural layer	hydroquartzite		
<b>17</b>	[1059] [1063]	Pb/209 Pb/209	A/21 A/21	A/15 A/15	III III	grey loam grey loam		hydroquartzite	fragmentation	
<b>18</b>	[125] [126]		D/6 D/6	D/8 D/8	I I	light grey light grey	dark grey dark grey	hydroquartzite		
<b>19</b>	[875] [897]	Pb/1815 Pb/1815	B/75 B/74	B/29 B/20	IV IV	light brown light brown	red loam red loam	radiolarite	fragmentation	
<b>20</b>	[580] [581]	Pb/608 Pb/608	B/71 B/71	B/58 B/58	II II	grey loam grey loam		Mád-type obsidian	fragmentation	
<b>21</b>	[660] [811]	Pb/1814 Pb/1815	B/74 C/4	B/20 C/9	III II	grey loam grey loam		porphyry tuff		4, 6
<b>22</b>	[1601] [1795]	Pb/1815 Pb/708	A/7 A/5	A/8 A/7	V III	light brown yellow loam	red loam	porphyry tuff	flaking	5,2
<b>23</b>	[1487] [1489]	Pb/745 Pb/1815	A/4 A/4	A/17 A/17	V V	light brown light brown	yellow loam yellow loam	porphyry tuff	fragmentation	
<b>24</b>	[1483] [1490]	Pb/1815 Pb/1815	A/4 A/4	A/17 A/17	V V	light brown light brown	yellow loam yellow loam	porphyry tuff	fragmentation	

<b>25</b>	[801] [174]	Pb/1815 Pb/1815	C/4 B/34	C/9 B/23	II II	grey loam grey loam	grey loam grey loam		felsitic porphyry	fragmentation	4, 7
<b>26</b>	[1564] [1566]	Pb/1815 Pb/1815	A/10 A/10	A/10 A/10	III III	yellow loam yellow loam	yellow loam yellow loam		felsitic porphyry	fragmentation	
<b>27</b>	[1784] [1823]	Pb/1815 Pb/1814	A/2 A/10	A/9 A/10	III V	yellow loam grey loam	yellow loam grey loam		felsitic porphyry	fragmentation	4, 5
<b>28</b>	[1480] [1741]	Pb/665 Pb/1815	A/3 A/13	A/11 B/6	V II	light brown light yellow	light brown light yellow	yellow loam unknown	felsitic porphyry	fragmentation	4, 2
<b>29</b>	[1414] [1415]	Pb/680 Pb/1815	A/3 A/3	A/11 A/11	III III	yellow loam yellow loam	yellow loam yellow loam		felsitic porphyry	fragmentation	
<b>30</b>	[1208] [1829]	Pb/1815 Pb/721	E/13 E/34	E/10 F/5	I I	reddish brown hearth	reddish brown hearth	upper red cultural layer	felsitic porphyry	fragmentation	
<b>31</b>	[1553] [1947]	Pb/612 Pb/735	A/12 A/3	A/1 A/11	II VIII	yellow loam light brown hearth level	yellow loam light brown hearth level	from dark band	felsitic porphyry	fragmentation	4, 3
<b>32</b>	[1417] [1497]	Pb/1815 Pb/1815	A/3 A/4	A/11 A/17	III V	yellow loam light brown	yellow loam light brown	yellow loam	felsitic porphyry	fragmentation	4,4
<b>33</b>	[1894] [1890]	Pb/198 Pb/716	B/52 B/52	B/32 B/32	IV IV	dark grey dark grey	dark grey dark grey	from dark band from dark band	hydroquartzite	fragmentation	
<b>34</b>	[1856] [1860]	Pb/1815 Pb/614	B/50 B/51	B/13 B/22	III III	dark grey dark grey	dark grey dark grey	from dark band from dark band	hydroquartzite	fragmentation	
<b>35</b>	[239] [269]	Pb/736 Pb/1815	B/13 B/14	B/6 B/15	V V	light brown reddish brown loam	light brown reddish brown loam	red loam red loam	silix	fragmentation	
<b>36</b> <sup>1</sup>	[137] [1065] [1550]	57/912.20 Pb/1814 Pb/1815	B/2 B/75 A/9	B/2 B/29 A/5	IV V II	dark grey grey yellow	dark grey grey yellow	dark grey, with fragments	porphyry tuff	flaking	

<sup>1</sup> Kind oral informations from Zs. Mester.

## MEGFONTOLÁSOK A SZELETA BARLANG LELETEGYÜTTESÉI KAPCSÁN

## Összefoglalás

A Szeleta barlang 1906–1913-as nagy ásatásai kapcsán az első kérdés a dokumentáció használhatósága. A tanulmányban felsorakoztatott adatok alapozták meg szkeptikus véleményünket a gyűjtőleltárnak nevezett, ám nyilvánvalóan a feltárás után készített és utólag módosított lista megbízhatóságát illetően. Mivel a lista kritika nélküli felhasználása alapvető hibákhoz vezethet, az itt található adatokat összevetettük a rendszeresen megjelent feltárási jelentésekben, illetve az utolsó évad után mindössze két évvel publikált monográfiában található adatokkal.

Vizsgálataink szerint a barlang bejáratában az üledéket már az ásatások előtt erőteljes bolygatás érte. Emellett a 20. holocén üledékből gyűjtött őskőkori eszköz (a Szeleta 1907–1913-as ásatásain talált leletek 1%-a, illetve a legfelső világosszürke és sárga rétegben előkerült leletek 4,2%-a) arra utal, hogy a pleisztocén rétegek legfelső szintjét a barlang minden szakaszában jelentős bolygatás érte.

A mélyebben fekvő rétegek kőeszközei valószínűleg görgetés hatására részben kopottak, legömbölyítettek. A krioturbáció és a taposás ellenben vélhetően alárendelt szerepet játszott az leletek mozgása során. A lelőhelyképződés részleteinek tisztázására azonban modern szemléletű, a barlang bejáratában és lehetőleg legkevesebb 10 négyzetméteren elvégzendő feltárás szükséges. Ily módon lehetségessé válna az 1966-ban és 1999-ben dokumentált rétegsor és a radiokarbon minták eredeti helyének párhuzamosítása, és a 20. század első felében gyűjtött rétegtani adatokkal való azonosítása is. Végül a megfigyelések választ adhatnak arra is, hogy a kisméretű leletek hiánya ásatástechnikai, tafonómiai tényezőkre vagy a megtelepedés jellegére vezethető vissza.

Összeillő kőeszköz töredékek, illetve a 3/b rétegben előkerült másodlagos helyzetű leletek komoly kétségeket vetettek fel eredeti elképzelésünkkel kapcsolatban, mely szerint a barlang vékony leletes szintjeiben (vagy „tűzhelyrétegeiben”) feltárt leletanyag lényegében bolygatatlan helyzetben őrződött meg. Az alacsony leletszám (a négy vizsgált jelenség összesen 215 darabja a leletanyag 10,75%-ra, illetve a ma azonosítható leletek 13,17%-ra rúg) csak kiemeli a tafonómiai vizsgálatok jelentőségét.

A barlang oldalágának leletes rétegében, adataink szerint viszonylag bolygatatlan körülmények között megőrződött gravetti leletek, szimmetrikus és aszimmetrikus levéleszközök kerültek feltárá-

ra, melyek rétegtanilag egykorúnak tekinthetők az 5. réteg kőeszközeivel. A kis leletegyüttest Simán Katalin megállapításával egyetértve a gravetti körhöz soroljuk. Fontos körülmény, hogy az általunk vizsgált leletek között nem fordul elő vállas hegy és általában semmi sem indokolja, hogy a leletanyagot a késő gravetti horizontba soroljuk. Ellenben emlékeztetünk arra, hogy jelenleg egyetlen magyarországi lelőhelyről, az Istállós-kői barlang 30-29 ezer éves felső rétegéből ismertek jól keltezett környezetben előkerült gravetti és levéleszközök.

A vizsgálatok szerint a szimmetrikus és aszimmetrikus levéleszközök nem sorolhatóak külön kultúrába vagy technológiai hagyományhoz, ahogy a Jankovichien ipar és a részletesen nem definiált Jankovich-típusú eszközök jelenléte sem mutatható ki a Szeleta leletanyagában. Véleményünk szerint a puszkaporosi kőfülke leleteinek, különösen a szilánkon kialakított és javaslatunk szerint „Puszkaporos-típusú”-ként elkülöníthető aszimmetrikus levéleszközöknek a vizsgálata vethet új fényt a Szeleta fiatalabb iparára. A Szeleta főfolyosójának hátsó szakaszában feltárt leletes szintben, illetve a vörösesbarna rétegben előkerült minimális mennyiségű leletanyag értékét csökkentik a rétegtani bizonytalanságok. Végül nem szabad elfelejteni, hogy az oldalágból és a barlang végéből leírt rétegtani egységeket több mint 30 méter választja el egymástól, így nem indokolható összevont vizsgálatuk.

Az előcsarnokban feltárt 3/c leletes szint „Aurignacien” megtelepedésének kis leletanyaga eltér a többi tárgyalt leletegyüttestől, részben az avasi nyersanyag túlsúlyával, részben a levéleszközök hiányával és az árvésők viszonylag nagy számával. Egyidejűleg azonban az Istállós-kői barlang alsó rétegének, illetve a Kassa környéki nyíltszíni Aurignacien lelőhelyek leletanyagával sem sikerült lényegi hasonlóságot kimutatni. A 3/c réteg pengeiparából hiányoznak a gravetti típusok, míg a 12. kép 4. eszköze valóban hasonlít az Aurignacien típusokra.

Részben a dokumentált bolygatások miatt nem nyilvánvaló a 3/b és 3/a kultúrréteg anyagának azonosítása a korai szeletai iparral. Ezeket a kis leletanyagokat a metariolit (üveges kvarcporfir, „Szeleta nyersanyag”) és a levél alakú formák hangsúlyos szerepével jellemezhetjük.

A nagyszámú törött és görgött eszköz, illetve a tafonómiai megfigyelések eddig nem tették lehetővé a Szeletien ipar ma érvényesnek tekintett, Fr.

Prošek által definiált iparnak a kimutatását a névadó lelőhely anyagában. Véleményünk szerint az egyik lehetséges továbblépési pont lehet az előcsarnok VI. szintjében feltárt kis leletegyüttes körültekintő vizsgálata.

A prioritás szempontjából azonban a “Szeletien” meghatározás eredetileg a barlang levéleszközös és (mai terminológia szerint) gravetti iparára, illetve a lelőhely Protosolutréi, illetve korai szeletai leleteire vonatkozott. Figyelembe véve továbbá a feltárás, a dokumentáció és a leletanyag hozzáférhetősége körüli nehézségeket (a Szeleta néhány ezer darabos lelet-

anyaga három ország hat gyűjteményébe szóródott szét), illetve a tafonómiai problémákat, véleményünk szerint a Szeleta barlang nem a legszerencsésebb választás egy nagy területen elterjedt kulturális egység névadó lelőhelyeként. Úgy gondoljuk, vissza kell térni az 1968-ban felvetett javaslatához, mely szerint a “Szeletien” vagy szeletai ipar elnevezést korlátozzuk a bükki vagy magyarországi leletegyüttesekre. Ebből a szempontból az Avas környéki, nyíltszíni leletegyüttesek rendszeres közlése új válaszokkal szolgálhat a Szeleta kőeszközei által felvetett régi kérdésekre.

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