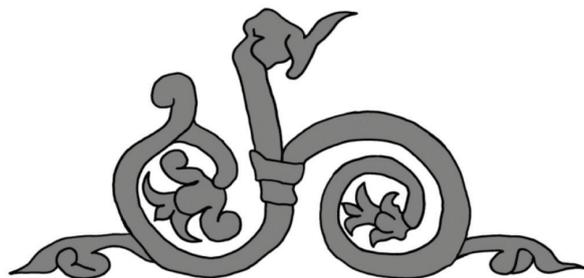


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This volume is dedicated to the memory of George Pascu Hurezan (1949–2016)

The Lithic Material Discovered in the Eneolithic Cemetery from Pecica-Est, in Western Romania*

Florian Mihail, Victor Sava

Abstract: This study analyses the lithic material discovered during the excavations conducted between 2015–2017, on the Eneolithic cemetery located in Pecica, Arad County. This lithic group is formed of 70 artefacts: 55 elements knapped of flint and 15 elements knapped of obsidian. Our analysis followed a few main directions, such as: establishing the types and sources of the raw material, the determination of the technological characteristics and the typological framing. A few preliminary observations regarding the correlation between the type of material and the context in which it was discovered were also made.

Keywords: Pecica; Eneolithic; cemetery; flint; obsidian.

The Eneolithic cemetery in *Pecica-Est*, located in Western Romania (Fig. 1), was discovered and investigated during several campaigns of preventive archaeological researches performed in 2015, 2016, and 2017. On these occasions, the teams have excavated 13800 m². This area contained 278 inhumation graves and two other cenotaph/symbolic-type depositions dated to the early and middle Eneolithic phases (Fig. 2). The analysis of the funerary rite and ritual showed that most graves contained a single individual, but one can also mention graves with multiple burials (20 such examples). Most of the deceased had been placed in crouching position, on the right or on the left. The cemetery under discussion stands out through the number and variety of the funerary inventories. Naturally, most of the items deposited together with the deceased were ceramic pots, but one also notes a significant number of artifacts made of gold, copper, bone, and stone.

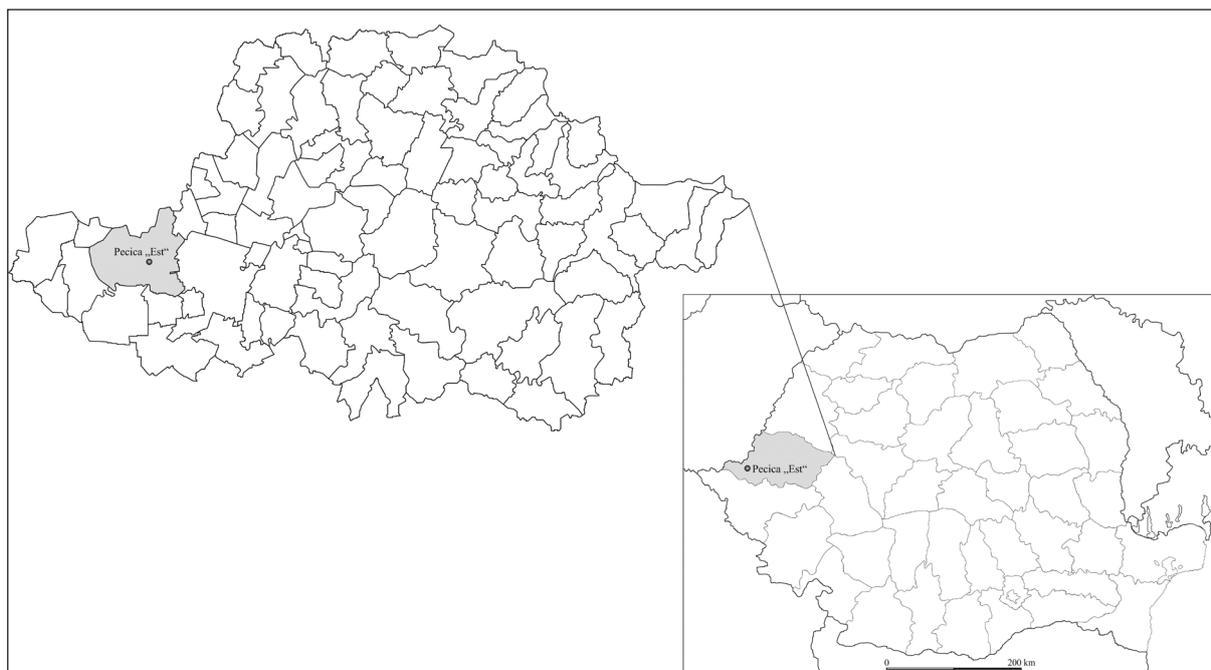


Fig. 1. Administrative map of Romania and of the county of Arad, with the location of the site.

* Translated by: Ana-Maria Gruia.

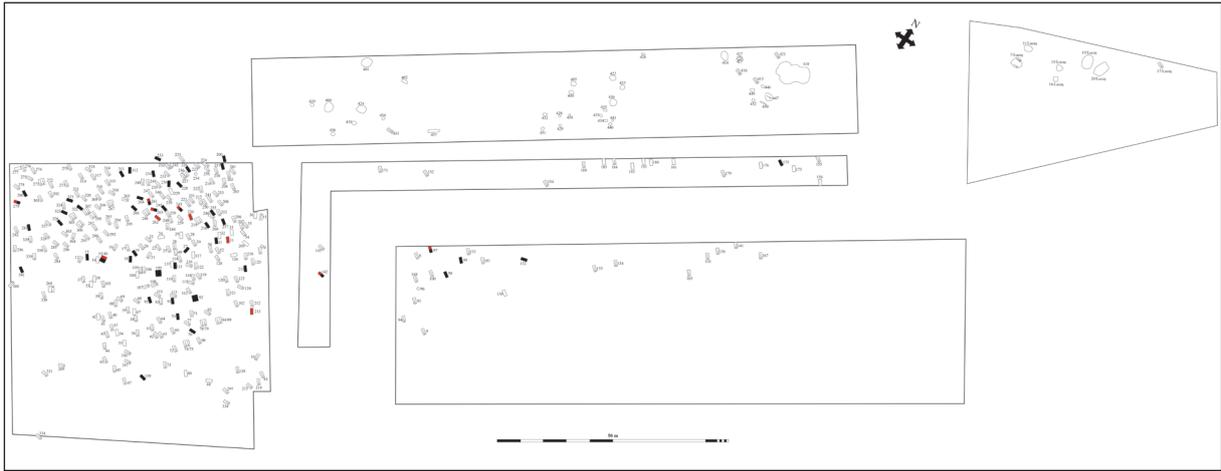


Fig. 2. Topographic ground plan of the cemetery (the graves containing flint pieces are marked in black and those containing obsidian pieces are marked in red).

The present study focuses on a lot of 70 flint and obsidian artefacts discovered in the Early and Middle Eneolithic necropolis in Pecica-Est¹.

The 55 flint artefacts were found dispersed in the funerary features, i.e. in 47 graves (Table 1). Only two graves contained more than one or two pieces. Grave cx. 98, for example, contained four flint blades (two made of type A flint² and the other two made of type B flint), without traces of processing. In the inventory of grave cx. 263 the team has identified two blades (made of A and D type flint) and a blade flake (type F flint); only one of the blades shows traces of processing, in the shape of an end-scraper front. One blade had also been deposited in each of the five double graves (Cx. 92 and Cx. 109)³.

The obsidian artefacts follow the same pattern: the 15 pieces were deposited in the funerary inventory of 11 graves (Table 2). Among them one notes grave cx. 220 that contained three elements (two arrowheads and one proximal blade fragment).

Seven graves contained both items made of flint (eight) and items made of obsidian (nine) (Table 3). The proportion between finished and unprocessed elements is relatively balanced, though one should mention the predominance of unprocessed blades among the flint objects and a predominance of finished items among the lot made of obsidian. Two of the seven graves under discussion (cx. 97 and cx. 142) stand out through the richness of their inventory⁴; they contained not only pieces made of gold, copper, hard animal materials, stone, and ceramic containers, but also artefacts made of flint and obsidian.

The artefacts made of flint

The raw material

The analysis of the 55 flint artefacts has led to the identification of six types of raw material. They are briefly described macroscopically in the lines below.

Among the six types one notes the clear predominance of the type labeled here A (75%) (Fig. 3/a). It consists of gray/black flint, translucent on the edges, dull, with average-fine granulation. Some of the objects are full black or full gray, but on others one can note alternating stripes or surfaces in gray/black.

The second group of certain size (11%) was labeled B (Fig. 3/e). This flint is light gray, a little translucent on the edges, with average granulation. On three fragments one can see a reddish line by the contact with the cortical area.

The other types of flint identified in the lot of 55 objects from Pecica have been used in the production of less than three items each.

¹ Sava *et al.* 2017.

² The description of the raw material types is to be found below.

³ Sava *et al.* 2017, 60.

⁴ Sava *et al.* 2017, 63; 65–66/ Fig. 19.



Fig. 3. Types of primary material identified among the series of knapped lithic artefacts in Pecica: a. Type A; b. Type B; c. Type E (1) and F (2); d. Type D and e. Type B.

Type C (three items) is a reddish-brown flint with rare red pigments, translucent on the edges, dull, with average-fine granulation (Fig. 3/b).

We have included in type D a dark grey-black flint, opaque, dull, with average granulation (three items) (Fig. 3/d).

Type E is also a reddish-brown flint, opaque, dull, with average granulation (one item) (Fig. 3/c1), while type F has different shades of light beige, is opaque, slightly shiny, with average-fine granulation (one item) (Fig. 3/c2).

Production

The observations made regarding the 55 knapped flint artefacts have revealed the existence of a certain technological uniformity on the level of the types of blanks, among which one notes a clear preponderance of blades (87%).

	Type A	Type B	Type C	Type D	Type E	Type F	Total
Flakes	2	1	2				5
Blades	39	5	1	2			47
Blade flakes			1		1	1	3
Total	41	6	4	2	1	1	55

Fig. 4. The proportion between the type of blank and the type of raw material among the flint artefacts.

Blades

The 48 blades identified in this assemblage are in a good state of preservation (Pl. 2–11).

More than 80% of them have been knapped out of type A flint and ca. 10 % out of type B flint. This matches the percentages of raw material types encountered on the level of the entire series.

We were able to note the predominance of complete pieces (50%) and proximal fragments (30%). We have recorded a relative balance regarding the type of section, with a small advantage to the elements with transversal section as compared to those with triangular section.

Inside the lot we have identified five side blades (Pl. 2/8; Pl. 3/5–6), corresponding to the preliminary stage in the processing of the primary material core. Four objects are characterized by the existence of a partial negative or a full cortical (Pl. 2/8; Pl. 3/1, 5–6). The last side blade displays a small area with patina, characteristic to an alluvial pebble (Pl. 3/1). A particular case is that of an *à crête*-type blade. Besides the negative specific to this type of blank, one can see a cortical area (Pl. 3/6). This type of artefact attests the processing of the core for debitage.

As for size, we were able to note a clear heterogeneity among the lot of blades (Fig. 5) that includes both short and thin blades and long and robust items.

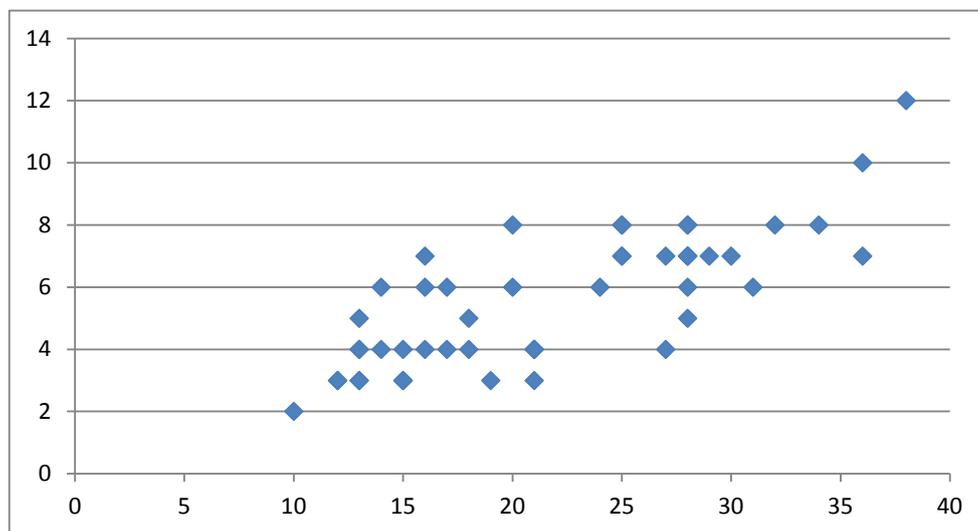


Fig. 5. Illustration of the proportion between the thickness and the width of the blades.

Regarding the types of butts, one notes the predominance of flat ones (55%). Faceted butts and those of the *chapeau de gendarme* type are also relatively notable (Fig. 6).

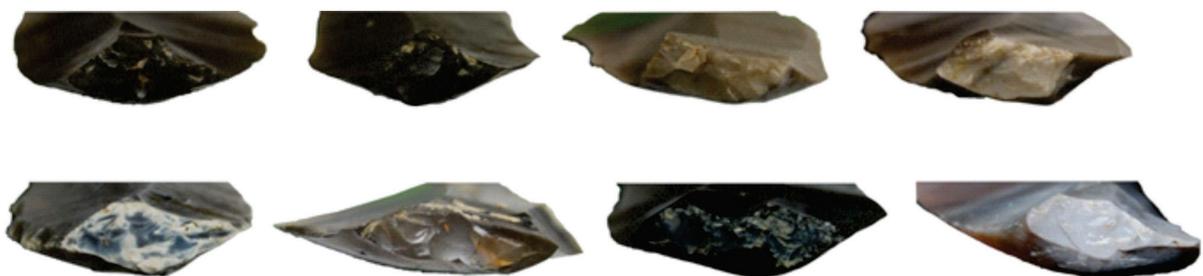


Fig. 6. Butt types of some of the Eneolithic blades discovered in Pecica.

Most of the blades (33 artefacts) show traces of indirect percussion: an arched profile, an undulated surface of the inner side, and a prominent and short bulb (Fig. 7). Another characteristic of this debitage technique noted on the blades from Pecica envisages preparations for it consisting either of short oblique blows, that lead to the creation of a triangular butt, or of performing a very fine abrasion butt level.



Fig. 7. Blades processed through indirect percussion.

There are several elements that can be interpreted as the result of the pressure technique. They are characterized by regularity, rectilinear profile with a small arched area at distal level, a faceted or flat butt, a very flat bulb, and straight and parallel arrises (Fig. 9; Pl. 7/1; 8/3; 9/3).

One also notes the presence, inside the group of blades, of three items of the *ourepassées* type. They are characterized by a strong arching and thickening of the distal area and are accidental products of knapping⁵. All three blades under discussion are side blades, with cortical area or areas covered in patina visible on the upper side (Fig. 8; Pl. 3/3–6).



Fig. 8. *Ourepassées*-type blades.

Fig. 9. Blade displaying characteristics of the pressure technique.

⁵ Inizan *et al.* 1995, 154.

Flakes

In the series of knapped lithic pieces discovered in Pecica we have identified five flakes (Pl. 1/1–5). Two flakes each have been made out of flint type A (Fig. 10/3–4) and C (Fig. 10/1–2), and a single one out of flint type B (Fig. 10/5).

All of the flakes are entirely preserved and small in size. Two of them, the smallest of the group of five, are the result of shaping, during the stage of nucleus preparation for debitage (Fig. 10/1–2). The third flake is characterized by a flat butt, a prominent bulb, and stressed thickness in the proximal area (Fig. 10/3). This is a test flake, a result of debitage through direct percussion, meant to verify the potential of a block of raw material. The fourth item is an interesting case, a result of the failed debitage of a blade, failed ever since the proximal area (Fig. 10/4). The butt is flat and the lower side undulated, obtained through the technique of indirect percussion. The final flake stands out through its robust outlook and irregular position of the negatives on the upper side (Fig. 10/5).

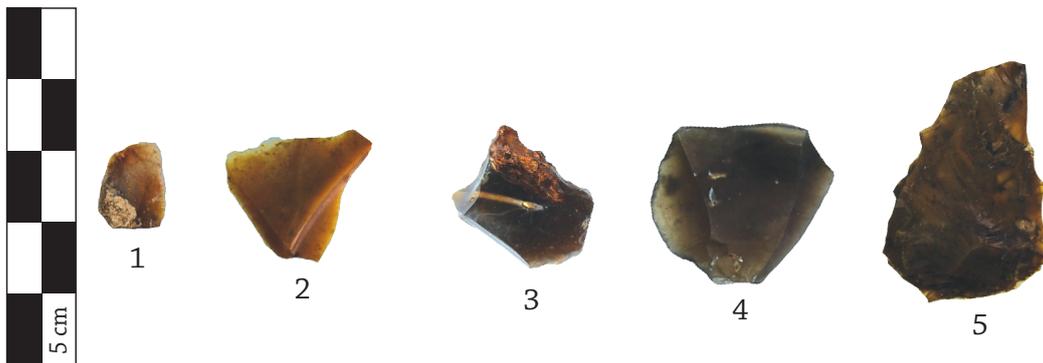


Fig. 10. Flakes discovered on the Eneolithic site in Pecica.

Blade flakes

The small group of blade flakes consists of two elements (Pl. 1/6–7), made out of flint type E (Fig. 11/1) and D, respectively (Fig. 11/2). Both have been entirely preserved. They are characterized by flat butts and arches profiles. They are very likely the result of debitage through the technique of indirect percussion.



Fig. 11. Blade flakes.

Typology

About one third (34%) of the 55 flint artefacts are finished pieces (Fig. 12).

We have identified five types, but only two are well represented: pieces with marginal retouches (10 items) and items with usage retouches (six items). A point, an end-scraper, and a drill complete the group.

	Type A	Type B	Type C	Type D	Type F	Total
End-scraper				1		1
Point					1	1
Item with marginal retouch	7	1	1	1		10
Item with usage retouch	6					6
Drill	1					1
Total	14	1	1	2	1	19

Fig. 12. Finished object/raw material type proportion among the flint items.

All ten pieces with marginal retouches (Pl. 4/4; 6/2; 7/2–3; 9/3; 10/3–5; 11/6) have been performed on blades, most of them (seven artefacts) out of type A flint. Other types of raw materials used are those labeled B, C, and D. The makers of these objects preferred complete blades (five objects) and proximal fragments (four items). Among the processed blades one encounters elements with trapeze-shaped section (six items) and triangular section (three items). One also notes the use of a side blade.

We have not recorded a predominant *pattern* in the selection of the segment four retouching, but we have noted either the retouching of both edges or only of the distal half (edges and extremity). Four items share a similar trait, consisting of the thinning of the size towards the distal extremity and the existence of a fracture at that level. One cannot exclude the design of a point that had fractured during use.

The degree of use-wear is very low. Five pieces with marginal retouches show no traces of use. At a macroscopic level one can note slight traces of use on the left edge of three of the items and on the right edge of another one. On the last object the traces of deterioration, also very light, have formed on both edges in the distal half and on the proximal extremity.

The blade has been the predominant support for the items with usage retouches as well (Pl. 4/5; 5/3; 10/2, 6; 11/3). A single exemplary out of the six under discussion has been made out of a flake. The level of fragmentation of the support is variable. Besides entire pieces (three) we have also recorded one distal fragment, one proximal fragment, and one median fragment.

Like in the case of items with marginal retouches, there is no predilection in the selection of the segment used: three of the items are worn on the left edge, two on both edges, while the last shows traces of wear on the right edge. The degree of wear is very low, indicating the fact that the items were in use for an extremely short period (Pl. 15; 16/2).

The drill (Pl. 1/1; 16/1) has been made out of type A flint on a flake-type blank. Despite its small dimensions, it has a robust outlook. Both its edges and two extremities have been processed through direct, short and long retouches, abrupt and scaled. They are more intense on the level of the distal extremity, due to the design of the active part. The wear is not deep. The active part is covered in a reddish substance.

The end-scraper (Pl. 1/8) has been made out of a blade from type D flint. The item is small in size. A small *front* has been obtained on the distal extremity through direct, short, abrupt and scale-shaped retouches. We have identified no trace of use.

The point (Pl. 7/2; 16/3) has been obtained out of a blade from type F flint. Both edges display along the length direct, short and long, abrupt and semi-abrupt retouches, scaled and stepped. The active part is fractured. On the level of the active part one notes a small surface with gloss.

Obsidian artefacts

The artefacts made of obsidian are in much smaller numbers (15 items), than those made of flint.

The blank type used for almost half of them could not be identified due to the strong degree of transformation. The determined blanks include two flakes (Pl. 12/4–5) and three blades (Pl. 12/1–2, 6). One can also add three cores (Pl. 13).

One of the blades stands out through its robust aspect (width–33 mm; thickness–11 mm) (Fig. 13/3) (Pl. 12/6). It is a proximal fragment, with punctiform butt and visible, though little stressed bulb. The other two laminar blanks are finer (1. width – 8 mm; thickness – 3 mm and 2. width – 9 mm; thickness–2 mm) (Fig. 11/4–5). The distal extremity of neither piece has been preserved.

The two flakes are similar in size (1. width – 24 mm; thickness – 5 mm and 2. width – 20 mm; thickness – 5 mm) (Fig. 13/1–2). One is a cortical item, as its entire upper side is covered by cortex. It has been preserved in the shape of a proximal fragment. Its butt is flat and its bulb is rather stressed. In the case of the second flake, the proximal extremity has not been preserved. Unlike the first item, that has a relatively rectilinear profile, the second flake has an arched profile.



Fig. 13. Obsidian flakes (1–2) and blades (3–5).

The small lot of cores is heterogeneous from the perspective of dimension, as two of the items are very small in size (Fig. 14).

The first core (length – 25 mm; width – 14 mm; thickness – 11 mm) (Fig. 14/1; Pl. 13/1) is entirely reserved and can be considered depleted. The extremity that corresponds to the striking plane has a faceted aspect due to its design for debitage. The areas of the bulb negatives (*les contre-bulbes*) are clearly individualized. The second extremity and part of one side displays slight patina. The debitage practice on this core had unipolar orientation and was aimed at producing bladelets.

The second core is also small (length – 21 mm; width – 13 mm; thickness – 12 mm) (Fig. 14/2; Pl. 13/2). A very small cortical area is visible on the level of the striking plane. Both extremities have a faceted outlook; the one that corresponds to the striking plane is double in diameter as compared to the proximal end (13/6 mm). In this case as well, the areas covered by the bulb negatives (*les contre-bulbes*) are clearly individualized. The negatives of the blades obtained through debitage are placed relatively parallel to each other.

The final core is the largest of the group (length – 50 mm; width – 37 mm; thickness – 35 mm) (Fig. 14/3; Pl. 13/3). Both of its extremities have a faceted outlook. One can note, on the level of each extremity, a cortical area covering 5–8 mm. The dorsal extremity is straight while the extremity corresponding to the striking plane is slightly bulging and tilted. The entire contour of the striking plane has been prepared through abrasion. The areas covered by the bulb negatives (*les contre-bulbes*) are clearly individualized. The negatives of the blades obtained through debitage are placed parallel and have a regular outlook. The debitage was bidirectional, though not balanced. The negatives visible on this core show that only three blades were obtained starting from the proximal end. Naturally, this does not exclude the fact that during an earlier phase the proportion between the two directions of the debitage was more balanced or in favor of the one performed from the proximal end.



Fig. 14. Obsidian cores.

Typology

A significant part of the obsidian items (11) display traces of processing and/or use.

The only item with marginal retouches has been made on a proximal fragment of cortical flake (width – 24 mm; thickness – 5 mm). The upper side is entirely covered with cortex. The retouches that were made on both edges, are alternating, lateral, short, semi-abrupt, and decorticated (Fig. 13/1).

Very fine wear retouches have been noted on the left side of a small median fragment of a blade (Fig. 13/4).

In the case of three items we have attested the design of more than a single type of active part on the same support.

In the first case, a flake was transformed by retouching the two extremities in an end-scraper *front* (Fig. 13/2; Pl. 17/2). The right edge had been entirely retouched, while the left edge is entirely covered with wear retouches. One cannot include it in the type of double end-scraper due to the subsequent intervention that aimed to obtain a *coche*-type shape.

The second item under discussion has been processed out of a small distal fragment (width – 8 mm; thickness – 2 mm). The distal extremity has been retouched in a direct, short, abrupt and decorticated manner, receiving the outlook of a small end-scraped *front*. A *coche*-type shape was obtained through retouches in the proximity of this area, on the right edge (Pl. 17/1).

The third item has been performed on a proximal blade fragment (Fig. 13/3). It looks robust (width – 33 mm; thickness – 11 mm). The blade fragment has been strongly retouched on both sides. Its surface is dominated by an ample end-scraper *front*. Intense retouches have also been performed on the level of the proximal extremity and two *coches* have been designed on its left side.

The most significant group of finished objects consists of arrowheads, including six such elements (Fig. 15; Pl. 14).



Fig. 15. Obsidian arrowheads.

The state of preservation of these points is good, with a single exception, of an exemplary broken in the median area that had lost its proximal half. We were unable to identify the blank employed due to the intense retouching of the entire surface.

Each of the five entirely preserved elements looks unique – no two points are identical. We shall therefore present them all. The first arrowhead (Fig. 15/1; Pl. 14/6) (length – 23; width – 24 mm; thickness – 3 mm) has concave edges and convex base and is very thick in the central part. Starting from the median area, towards the central part of the base, its thickness diminishes considerably. The second arrowhead (Fig. 15/2; Pl. 14/3) (length – 23 mm; width – 18 mm; thickness – 4 mm) displays diverging characteristics from those of the previous item. Its edges are convex and its base is slightly concave. As compared to the areas located by the two extremities, in the central part the thickness is considerably more stressed. The third one (Fig. 15/3; Pl. 14/1) (length – 32 mm; width – 16 mm; thickness – 4 mm) is more prolonged than the other four and looks slender. Its edges are slightly convex and its base is strongly concave. The thickness is even throughout its length and only diminishes at the level of the proximal extremity. The fourth (Fig. 15/4) (length – 26 mm; width – 20 mm; thickness – 4 mm) displays one straight edge and the other slightly concave. The base is convex. Its thickness diminishes considerably at the level of the base. The final entirely preserved point (Fig. 15/5; Pl. 14/5) (length – 21 mm; width – 15 mm; thickness – 4 mm) has slightly convex edges and an undulated base. The item is uneven in profile as one of the sides is flat and the other is bulging. Only the distal extremity of the sixth point has been preserved (Fig. 15/6; Pl. 14/2).

Observations

Flint artefacts

The identification of six types of raw material in the group of flint items is a deceiving element, as four of these types are very poorly represented. The clearly dominant type is the one we have labeled A: gray/black in color, translucent on the edges, dull, with average-fine granulation. On the basis of the analogies identified from the literature dedicated to the topic, the area of origin can be located in the rich and high-quality deposits of Volhynia (Fig. 16)⁶.

The studies dedicated to the Tiszapolgár Culture mention expeditions organized by the Tiszapolgár communities to the Volhynian flint deposits located on the right bank of the upper basin of River Nipre, from where they brought back large blocks, weighing several kilograms⁷.

This suggests the existence of a clear choice regarding the raw material employed. The few intrusive elements are by-products of testing randomly-found flint blocks.

The patina observed on the surface of some of these elements places their origin among the alluvial pebbles.

The lack of heterogeneity is also visible on a technological level, as blades form the vast majority of items in the knapped lithic series from Pecica. Ca. 80% of them are entire or almost entire and have remained in a raw state. Subsequent debitage did not include other interventions such as retouching

⁶ Boghian 2009, 122; 139/Fig. 6, 142/Fig. 10; Kiosak, Kovalsky 2017.

⁷ Zakościelna, Libera 2013, 278.

or fragmentation in order to obtain finished objects. The number of cortical items is also remarkable. They represent one fifth of all blades. Most of the blades display characteristics typical to the technique of indirect percussion and only a few of them betray the use of pressure.

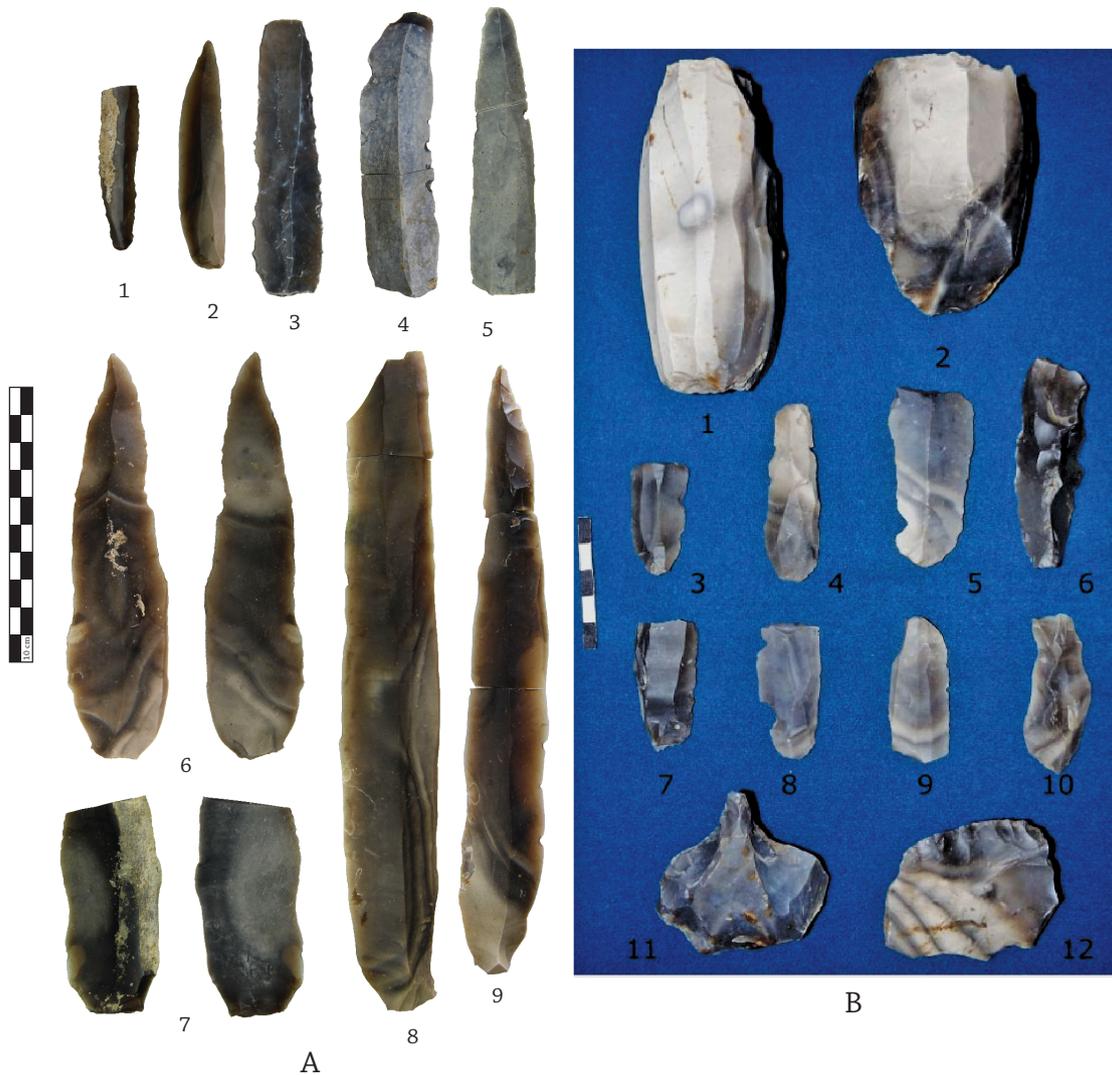


Fig. 16. Volhynian flint artefacts: A. Pecica, Arad County; B. Iziaslav (Ukraine) (apud Kiosak, Kovalsky 2017).

We have only noted traces of processing on 13 objects. There are also six finished objects with reuse retouches. In general, the degree of use-wear is rather low.

The analysis of the large blades, entirely preserved, has revealed a high level of standardization, very obvious in regard of the width and the thickness (Fig. 17).

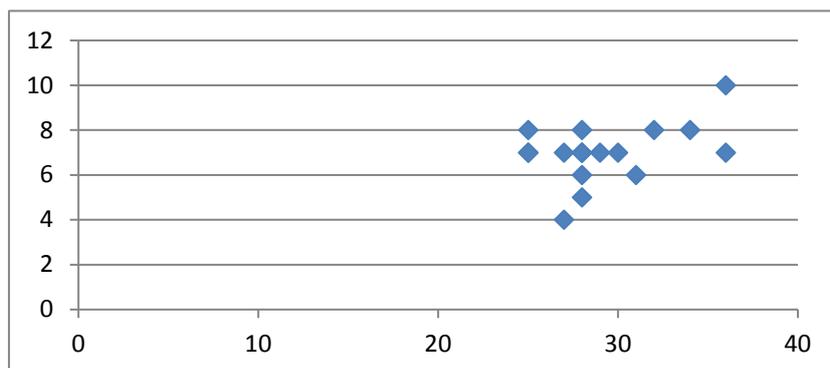


Fig. 17. Width/thickness proportion for the large blades that have been entirely preserved.

From an overall perspective, the series of flint items under analysis is characterized by a certain preference for a type of raw material, through the existence of average and large-size raw elements (measuring between 115 and 240 mm in length) that have not been processed, and through the preservation of the cortical elements in an equally raw state. The typological distribution is very poor. In fact, if one excludes the blades with marginal or wear retouches, there are just three types, each represented by a single element.

This lack of diversity, visible in all of the significant sectors (raw material, technology, and typology), can be connected to the deposition of this inventory in funerary features. Besides, the transfer of long blades made of Volhynian flint, without traces of processing, from the bearers of the Lublin-Volhynian Culture to the carriers of the Tiszapolgár and Bodrogkeresztúr cultures is known, as such items have been discovered in the funerary features of some of the graves in the area of the above mentioned cultures⁸. Such blades were often part of rich funerary inventories, consisting of pieces representing a variety of raw materials⁹ (Fig. 18/4–6). Such a context has also been documented in the necropolis in Pecica. Grave cx. 142 contained, besides ceramic pots, a copper axe, a polished stone chisel, items made of flint and obsidian¹⁰, and two flint blades measuring 150 and 240 mm in length. Blades measuring between 170 and 220 mm in length were also present in other funerary features (Fig. 18/1–3).



Fig. 18. Volhynian flint blades discovered in the inventory of graves in: Pecica (1–3), Gródek and Książnice (4–6) (apud Zakościelna, Libera 2013, 282/Fig. 5).

Obsidian artefacts

The few obsidian artefacts deposited in the graves from Pecica are insufficient for one to understand the manner in which the community that lived in this area managed to obtain, process, and use this raw material.

As for the source of obsidian employed for the processing of the items deposited in the graves researched in Pecica, recent analyses indicate that all of the obsidian items in this cemetery originate

⁸ Zakościelna 2008, 590–591; Zakościelna, Libera 2013, 282–283; Mączyński, Zakościelna 2017, 347.

⁹ Zakościelna, Libera 2013, 281.

¹⁰ Sava *et al.* 2017, 65–66.

from the source conventionally labeled *Carpați 1*¹¹, just like in the case of other contemporary archaeological sites from neighboring regions¹². The region with obsidian deposits closest to the site in Pecica is located in south-eastern Slovakia (*Carpați 1*), north-eastern Hungary (*Carpați 2*) and south-western Ukraine (*Carpați 3*)¹³. Despite the name chosen for these areas, they are not part of the Carpathian Mountains, but of the Tokaj-Prešov Mountains¹⁴. The best obsidian and most sought-after during Antiquity is to be found in the deposits from the present-day territory of Slovakia (*Carpați 1*)¹⁵.

Most of the analyzed samples indicate as area of origin the area labeled *Carpați 1* located in Eastern Slovakia, with the ores in Cejkovand Kašov¹⁶. To a smaller degree the analyses have determined the presence of obsidian from the area of *Carpați 2E* (Tokaj Mountains, north-eastern Hungary)¹⁷.

The existence of cores and cortical flake suggest that, even partially, some of the stages of processing could have been performed in the inhabited area as well. The two small blades (Fig. 13/4–5) correspond, from the perspective of size, to the two small cores included in the series (Fig. 14/1–2). All three cores show traces of debitage, predominantly from a single direction, performed through the technique of pressure.

The group of items with traces of processing and/or use represents three quarters of all items and is dominated by points. Though different in shape, they are standardized from the perspective of size (Fig. 19). In the case of the other processed items, one notes a preference for the design on the same blank or areas in the shape of *coches* and end-scraper *fronts*.

Point	Length (mm)	Width (mm)	Thickness (mm)
1	23	24	3
2	23	18	4
3	32	16	4
4	26	20	4
5	21	15	4

Fig. 19. Dimensions of the obsidian arrowheads.

Conclusions

In the context of the entire cemetery, the graves that preserve knapped lithic material represent 18% (51 out of 278). The research of these graves indicates the fact that they fit the funerary rite and ritual norms of the entire cemetery. Thus, the disposition of the deceased according to the geographic orientation reflects the general tendency of the entire cemetery (Fig. 20). The same can be mentioned regarding the position of the deceased – the absolute majority of the bodies have been deposited in crouching positions (Fig. 21). A significant difference from the trend of the entire cemetery can be identified in the percentage of the deceased deposited on the right and on the left. In the case of the entire cemetery the number of those placed on the right side almost equals that of the bodies placed on the left side, but in the case of the graves that preserve knapped lithic material one notes a clear preference for the deposition on the right side of the deceased accompanied by knapped stone items, mainly large blades (Fig. 22).

	incidence	percentage
ESE-WNW	-	-
E-W	6	12
N-S	-	-
SE-NW	41	82

¹¹ Boroneanț *et al.* 2019.

¹² Biagi *et al.* 2007; Dobrescu *et al.* 2016.

¹³ Dobrescu 2007, 18; Dobrescu *et al.* 2016, 54.

¹⁴ Biró 2006, 268.

¹⁵ Biró 2006, 271; Bonsall *et al.* 2017, 3.

¹⁶ Biagi, Voytek 2006, 180; Biagi *et al.* 2007, 141; Dobrescu *et al.* 2016, 55; Barbu *et al.* 2018, 179.

¹⁷ Constantinescu *et al.* 2002; Biagi *et al.* 2007, 141–142/Table 2.

	incidence	percentage
S-N	-	-
SW-NW	1	2
NE-SW	1	2
Undetermined	1	2
total	50	100

Fig. 20. Orientation of the graves that preserve knapped lithic material as funerary inventory.

	incidence	Percentage
crouched	47	94
dorsal decubitus	2	4
undetermined	1	2
total	50	100

Fig. 21. Position of the deceased that have knapped lithic material in their preserved funerary inventories.

	incidence	Percentage
crouched on the right side	35	70
crouched on the left side	8	16
mixed (double, or triple graves)	4	8
Undetermined	3	6
total	50	100

Fig. 22. Position of crouched deceased that preserve knapped lithic material as funerary inventory.



Fig. 23. Photography of grave cx. 19.



Fig. 24. Photography of grave cx. 93.



Fig. 25. Photography of grave cx. 142.



Fig. 26. Photography of grave cx. 266.

It is interesting to note that the majority of large blades were deposited on the skull, rarely under the skull, or on the anterior thorax (Fig. 23–26). Smaller blades have been found in the area of the pelvis, under the mandible, under the elbow or under the knees. At the same time, we have noted that the large blades are sometimes associated with other weapons, such as copper axes (cx. 142 and cx. 232), a mace (cx. 279), or arrowheads (cx. 257, cx. 15/cx. 48).

The analysis of the knapped lithic material discovered in the Eneolithic necropolis from Pecica provides valuable data on significant components such as the raw material and the techno-typological panel, but at the same time it provides interesting research directions that we will have to pursue in order to obtain solid knowledge of the behavior of the communities that have created and used them. One of these directions envisages the correct identification of the areas where the raw materials were obtained and the identification of the manner in which they were obtained. In the case of both flint and obsidian, the main sources were located significant distances away, so that they could have only been accessed through existing networks for the circulation of goods. These could have traveled in various manners: as blocks, cores, un-retouched blades, or finished objects. Another aspect that has to be clarified is to what degree the supply of lithic objects was aimed at fulfilling the demand for the domestic and/or the funerary environment. But, in order to provide appropriate answers to these questions, one must research representative lithic series from both settlements and necropolises.

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Table 1. The flint artefacts discovered on the site of Pecica-Est.

Feature	Number of items	Raw material						Support			Typology
		A	B	C	D	E	F	Blade	Flake	Blade flake	
13	1	1						1			
15	1	1						1			
18	1	1						1			
19	1	1						1			Item with marginal retouches
27	1	1						1			
51	1	1						1			
70	1	1						1			Item with marginal retouches
76	1			1					1		
92	1	1						1			
93	1	1						1			
97	1	1						1			
98	4	2	2					4			
99	1		1					1			
109	1	1						1			
111	1		1					1			Item with marginal retouches
132	1	1						1			Item with usage retouches
142	2	2						2			Item with usage retouches
159	1	1						1			Item with usage retouches
175	1	1						1			Item with usage retouches
200	1		1					1			Item with usage retouches
211	1	1						1			Item with marginal retouches
218	1	1						1			
226	1	1						1			
228	1					1				1	
230	1	1							1		Item with marginal retouches
233	2	2						2			Item with marginal retouches
234	1	1						1			Item with marginal retouches
237	1	1						1			
243	1			1					1		
245	2	2						2			Item with marginal retouchesx 2
255	1	1						1			
257	1	1						1			
261	1		1						1		
263	3	1			1		1	2		1	End-scraper
264	1						1	1			Point
266	1	1						1			
279	1	1						1			
280	1	1						1			
281	1	1						1			
311	1				1			1			Item with marginal retouches
312	1	1						1			Item with marginal retouches
322	1	1						1			

Feature	Number of items	Raw material						Support			Typology
		A	B	C	D	E	F	Blade	Flake	Blade flake	
323	1	1						1			
325	1	1						1			
326	1	1						1			
341	1	1						1			
430	1	1							1		Drill
	55	42	6	2	2	1	2	48	5	2	19

Table 2. The obsidian artefacts discovered on the site of Pecica-Est.

Feature	Number of items	Support					Typology
		Blade	Flake	Blade flake	Core	Undetermined	
15	1					1	Point
31	1	1					Tool with multiple uses
97	1					1	Tool with multiple uses
142	1					1	Arrowhead
213	1	1					Item with usage retouches
220	3	1				2	Arrowheadx 2
243	1					1	Arrowhead
261	1					1	Arrowhead
262	2				2		
263	2		2				Item with marginal retouches Tool with multiple uses
279	1				1		
	15	3	2		3	7	11

Table 3. Archaeological features with inventories that included both flint and obsidian items.

Feature	Flint		Obsidian		Total
	Finished item	Unprocessed item	Finished item	Unprocessed item	
15		1	1		2
97		1	1		2
142	1		1		2
243		1	1		2
261	1		1		2
263	1	1	2	1	5
279		1		1	2
	3	5	7	2	17

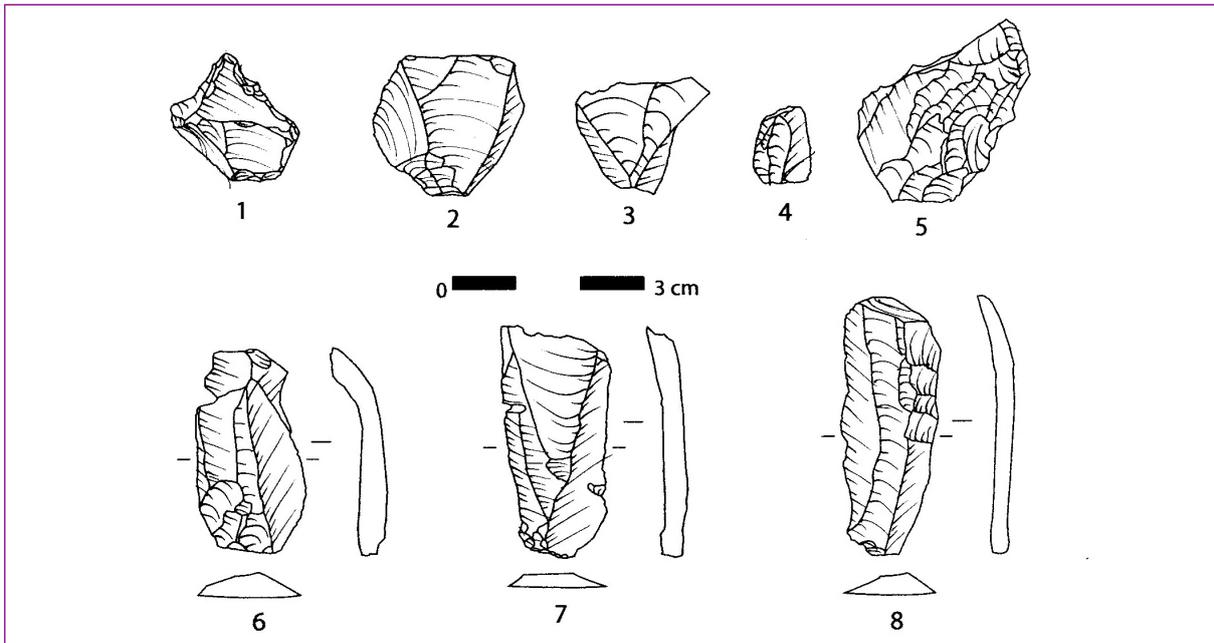


Plate 1. Flint artefacts: flakes (1-5); blade flakes (6-7) and blade (8).

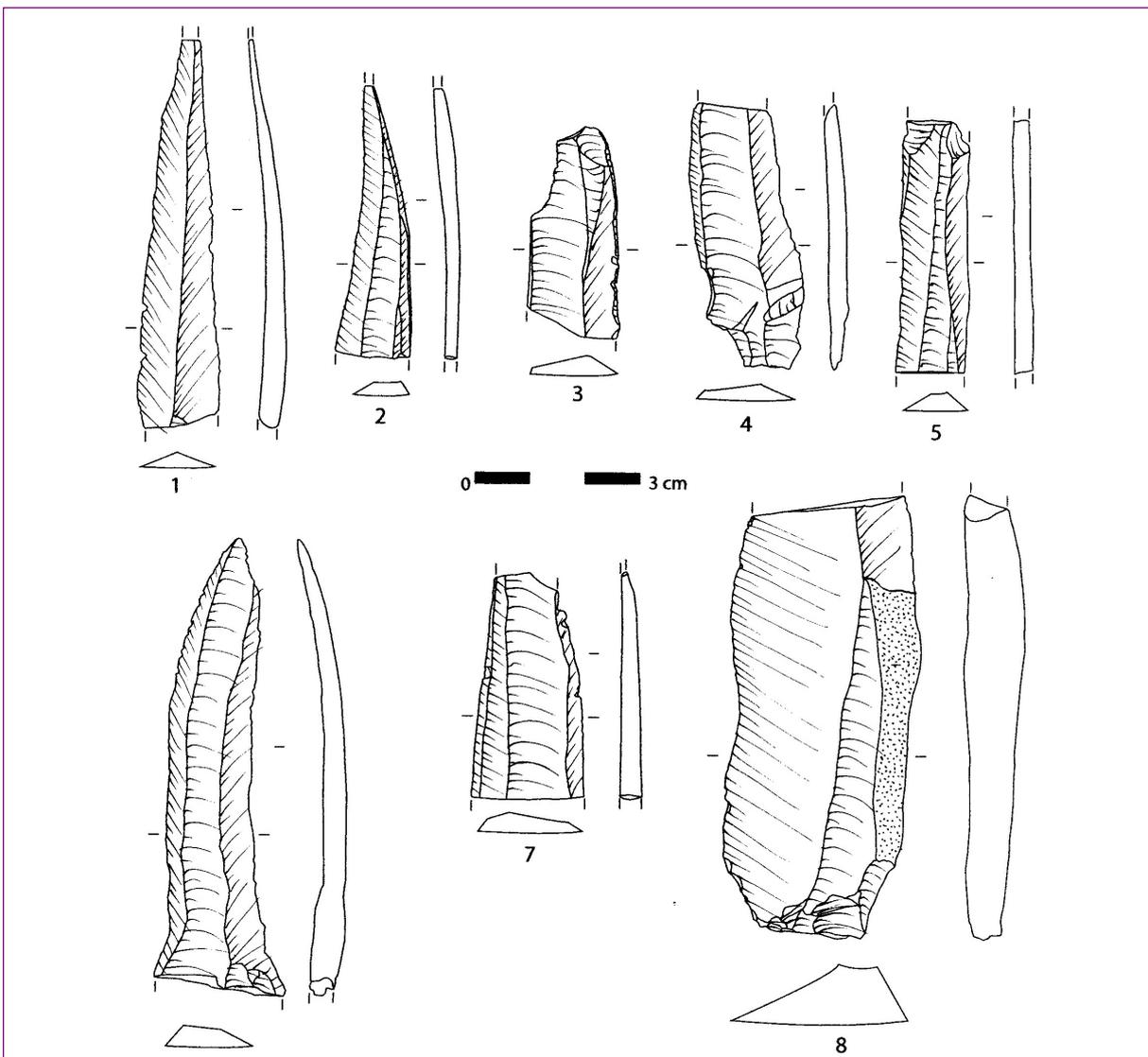


Plate 2. Flint blades.

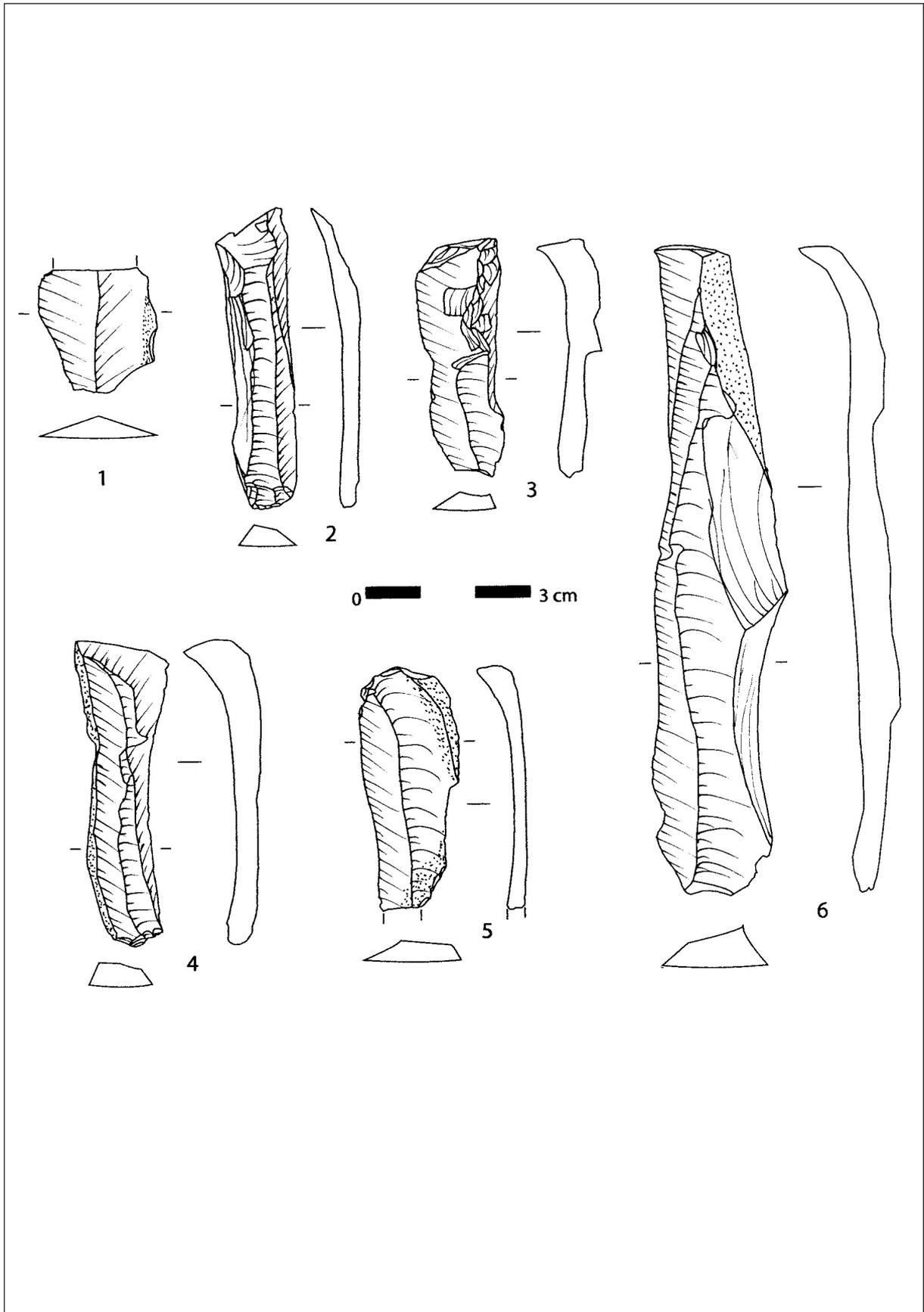


Plate 3. Flint blades.

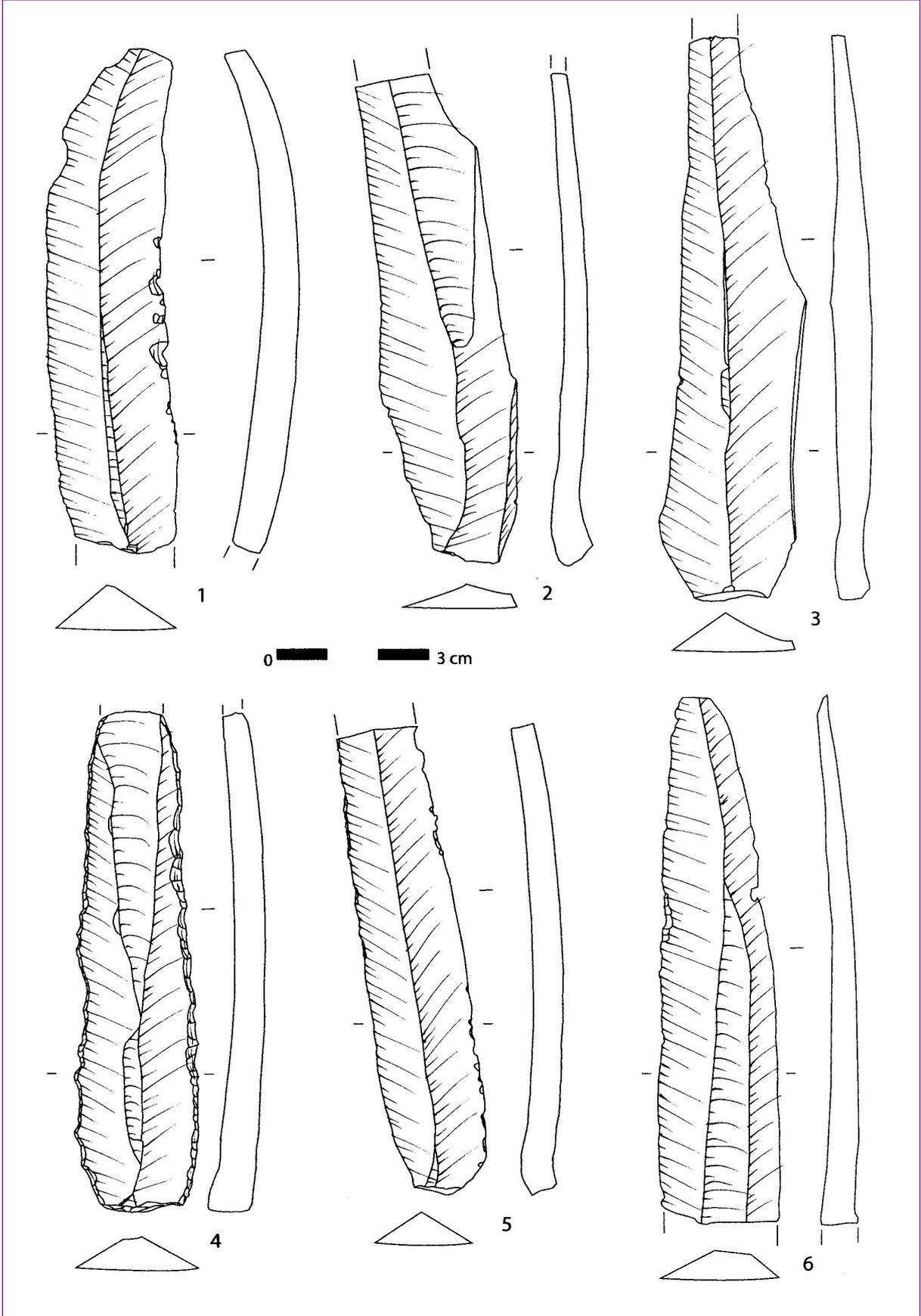


Plate 4. Flint blades.

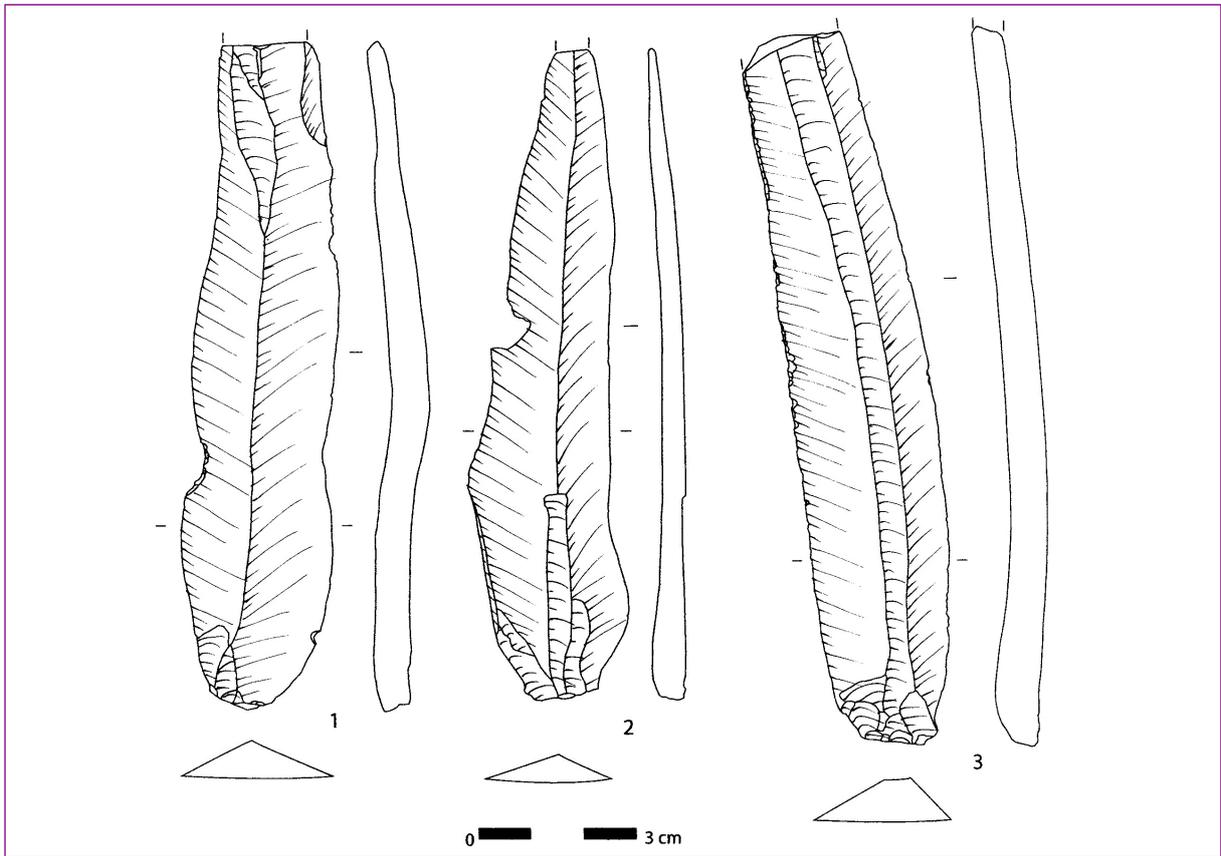


Plate 5. Flint blades.

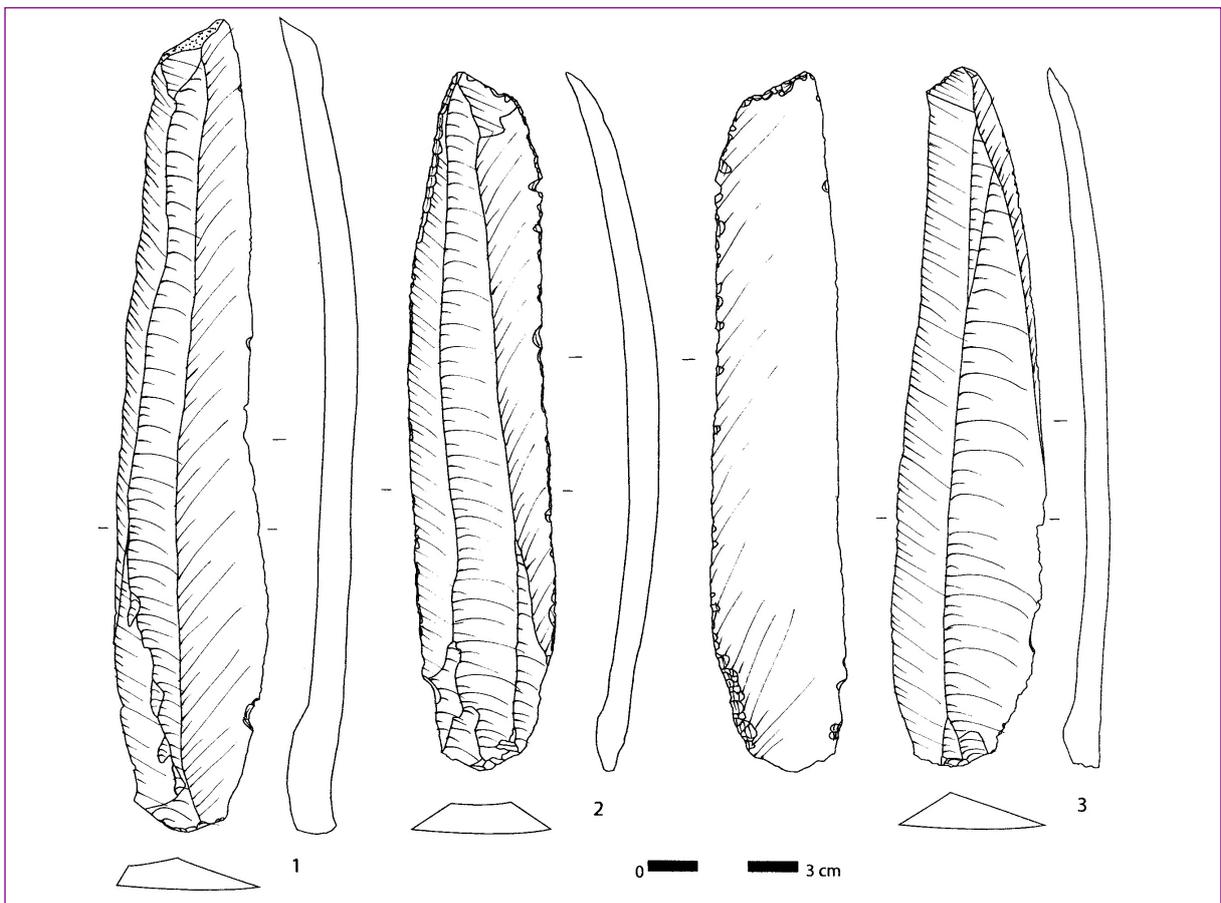


Plate 6. Flint blades.

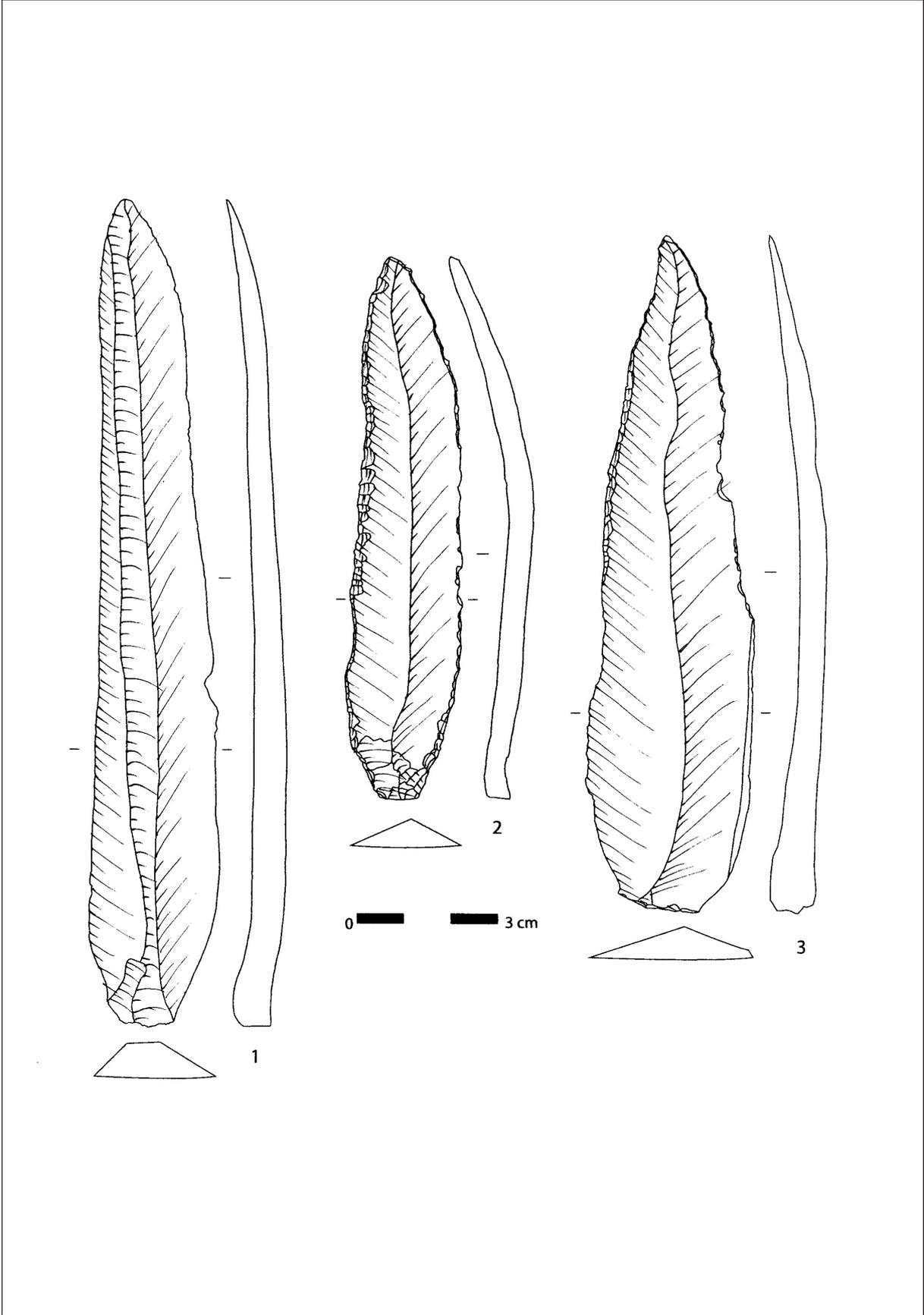


Plate 7. Flint blades.

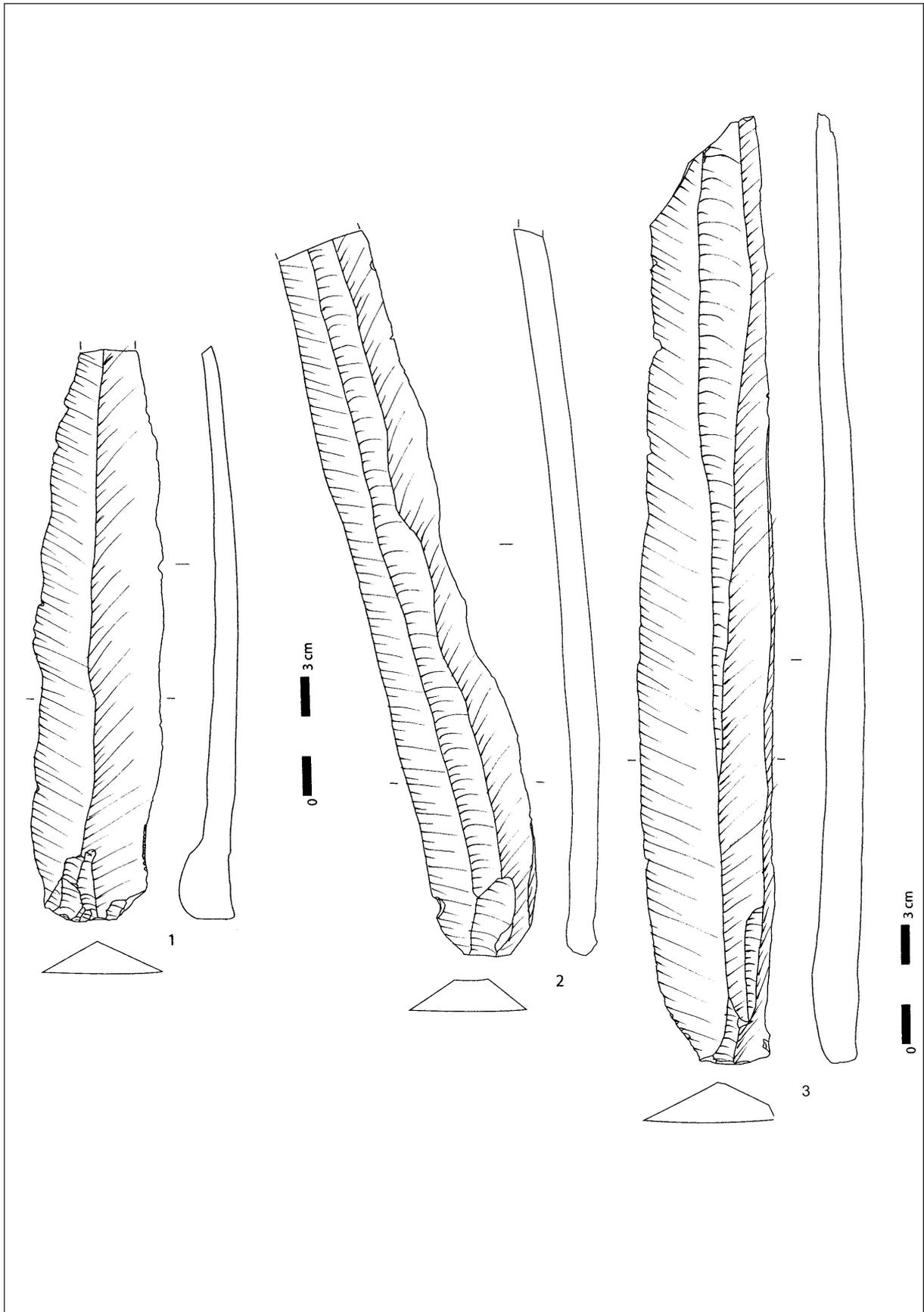


Plate 8. Flint blades.

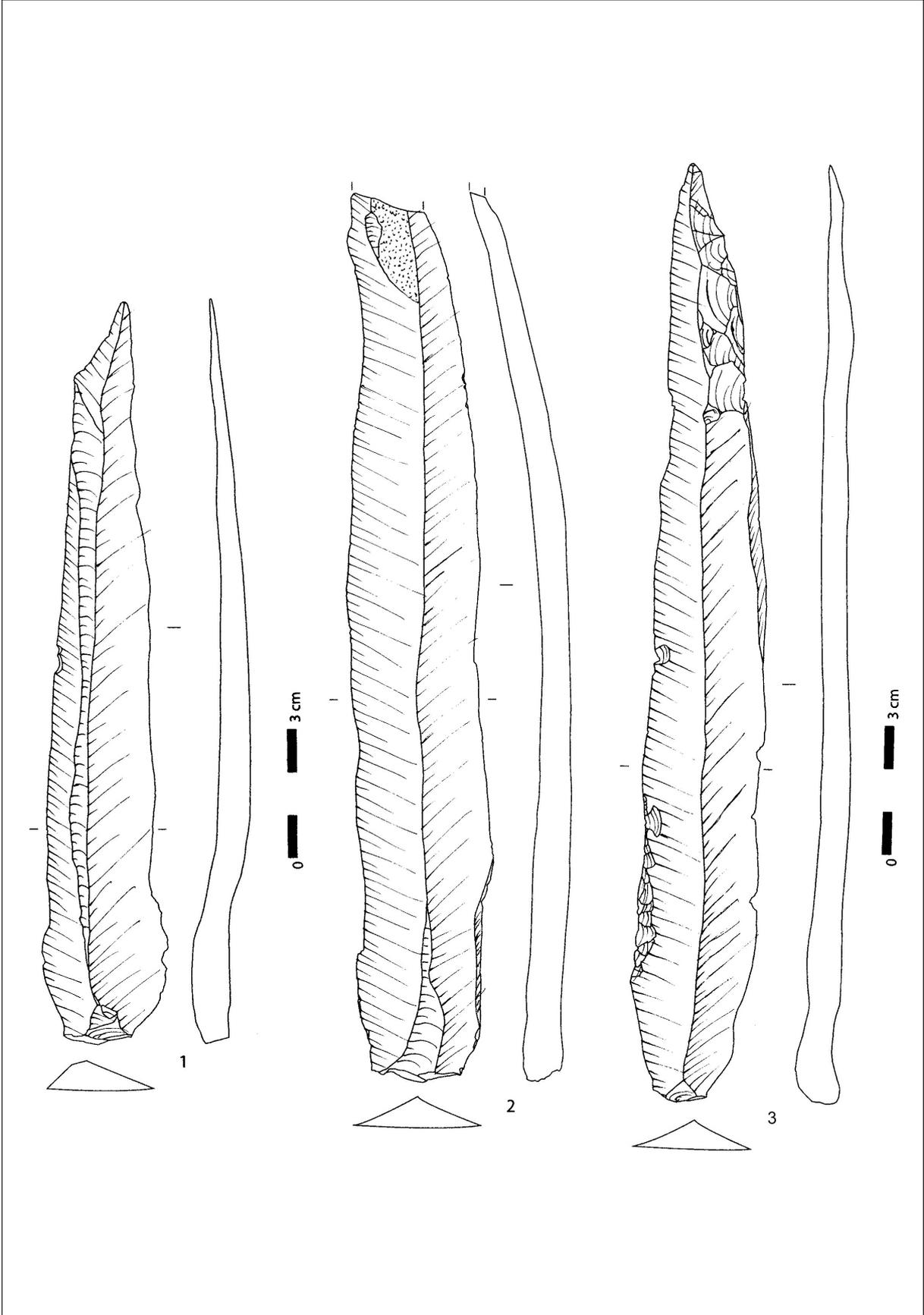


Plate 9. Flint blades.

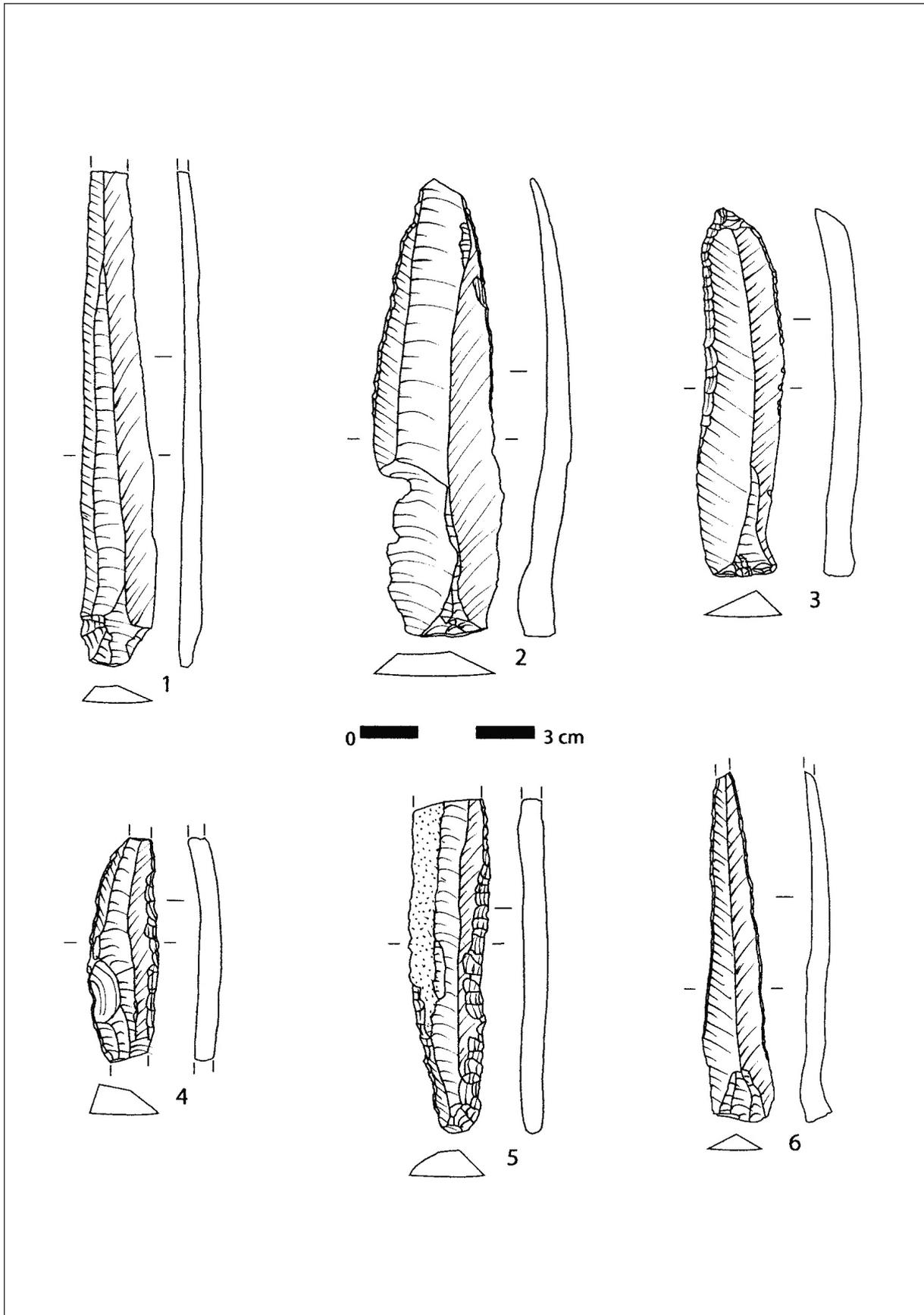


Plate 10. Flint blades.

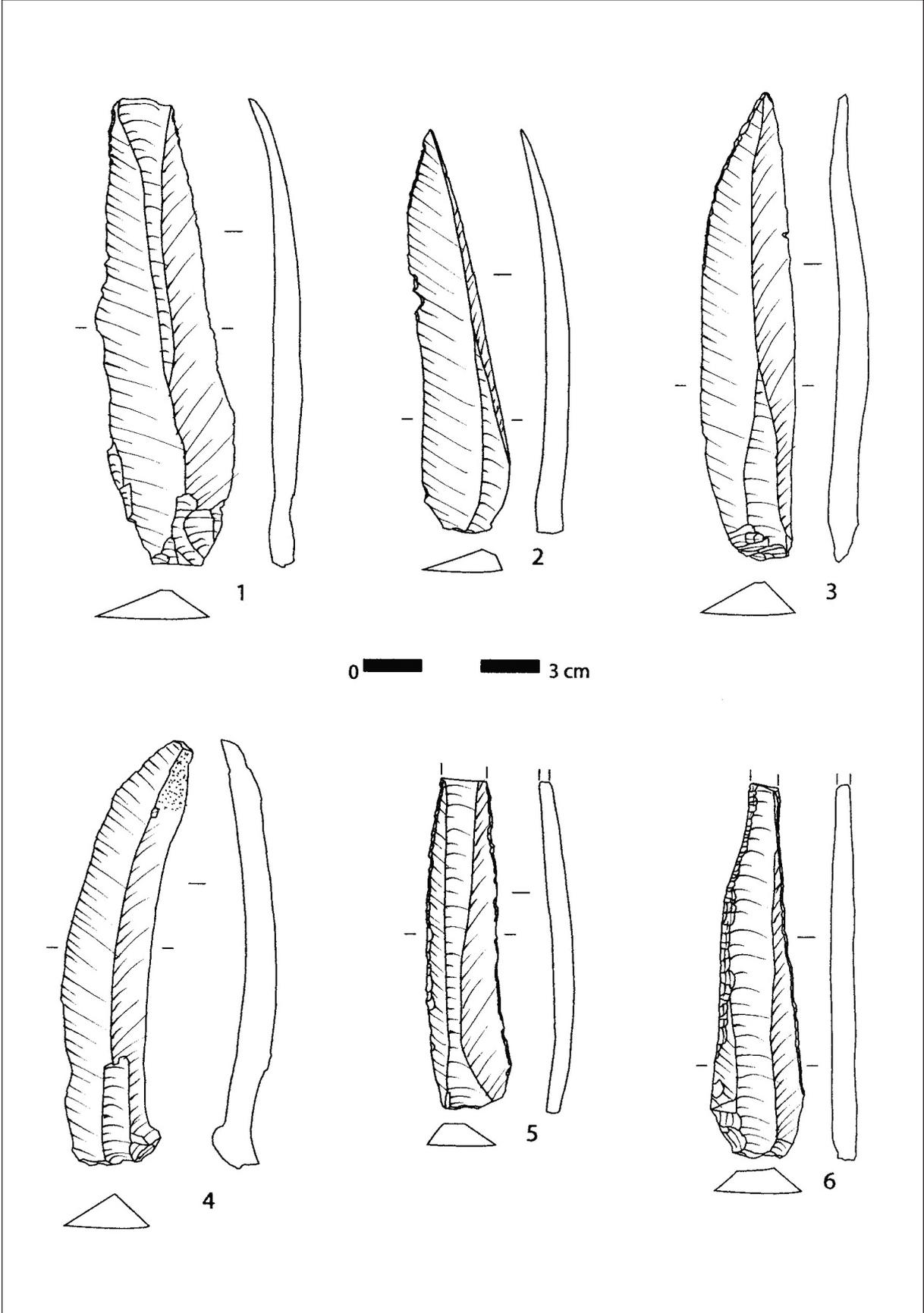


Plate 11. Flint blades.

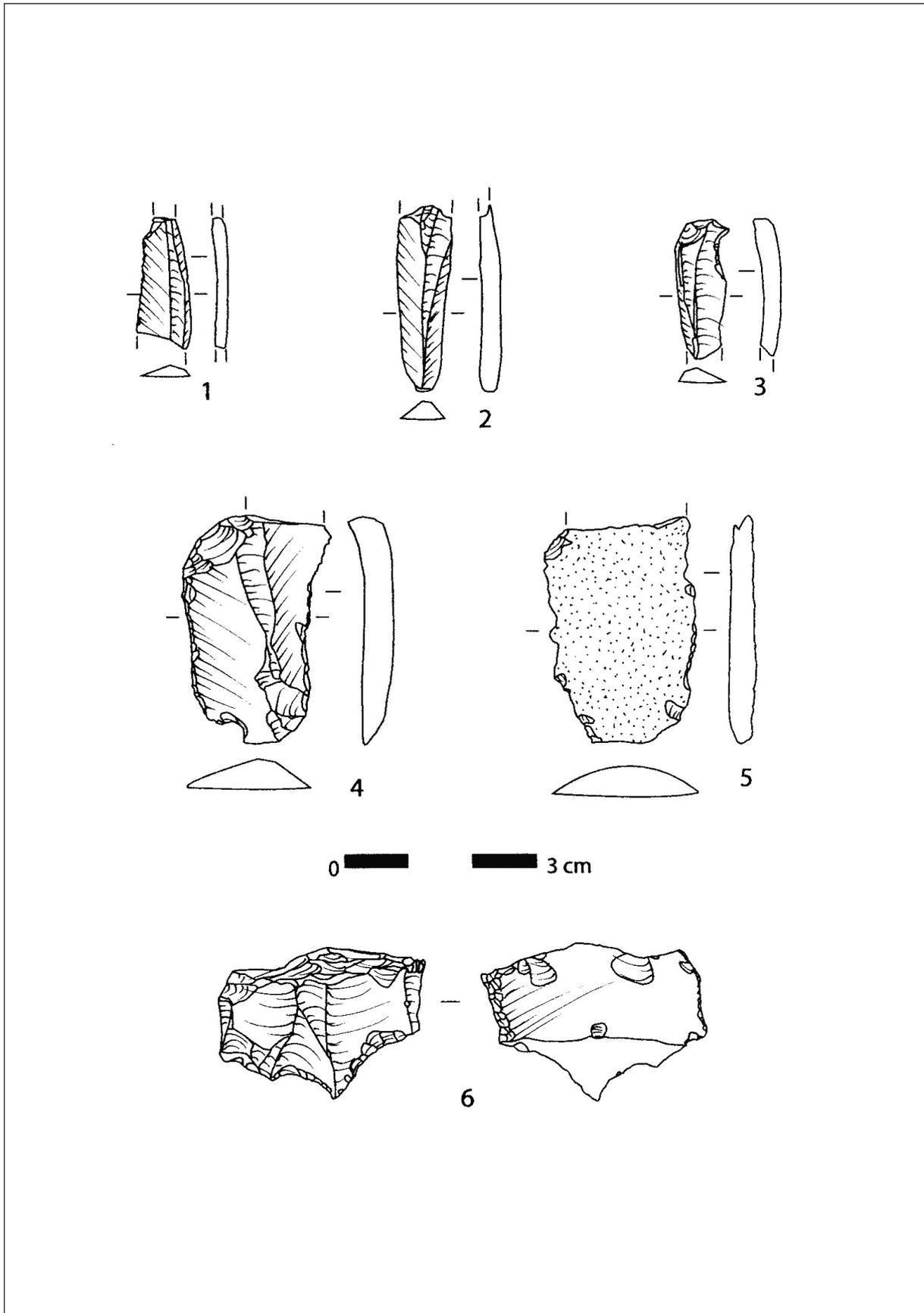


Plate 12. Obsidian artefacts: blades (1-2, 6); flakes (4-5), unidentified blank (3).

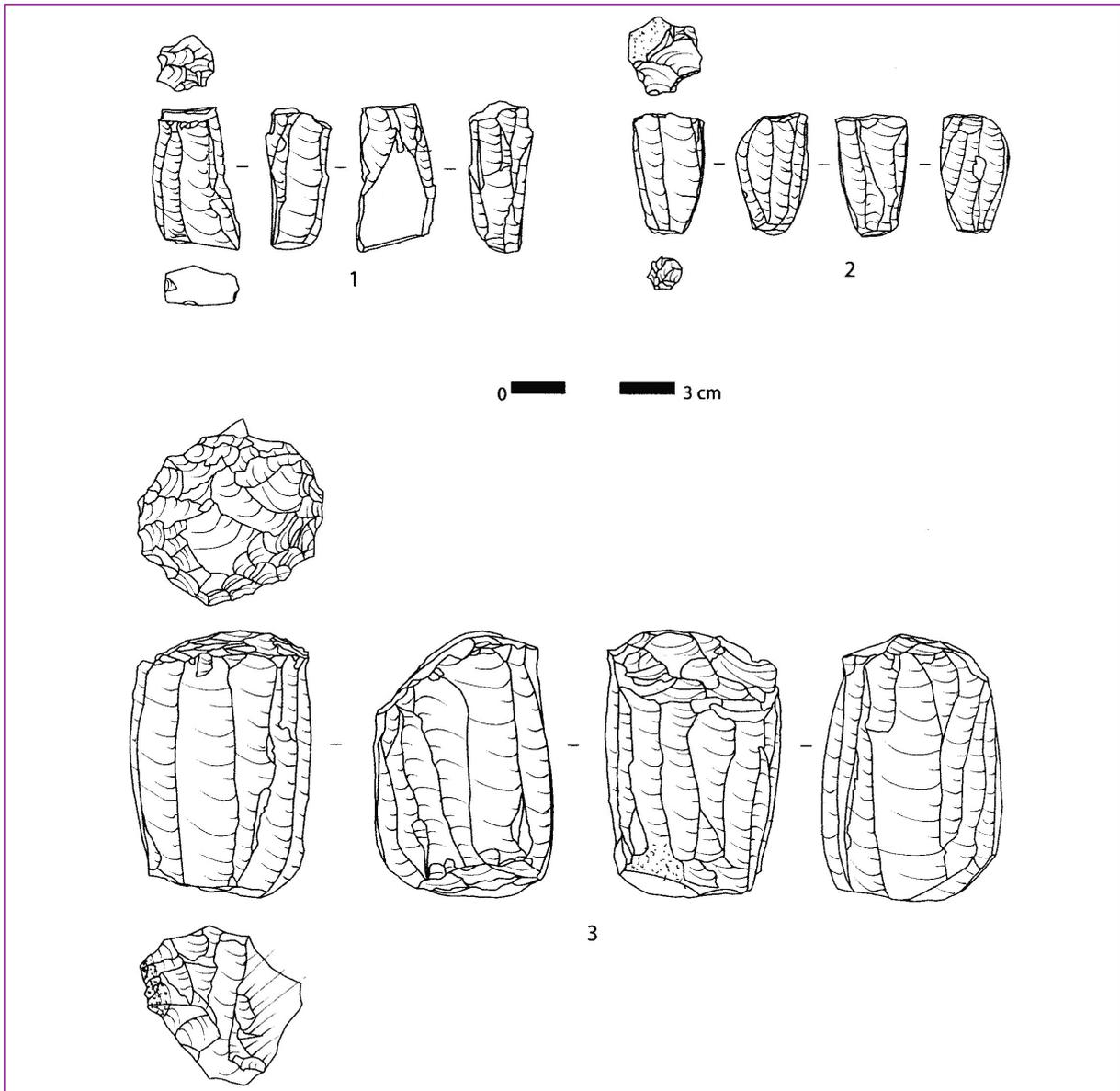


Plate 13. Obsidian cores.

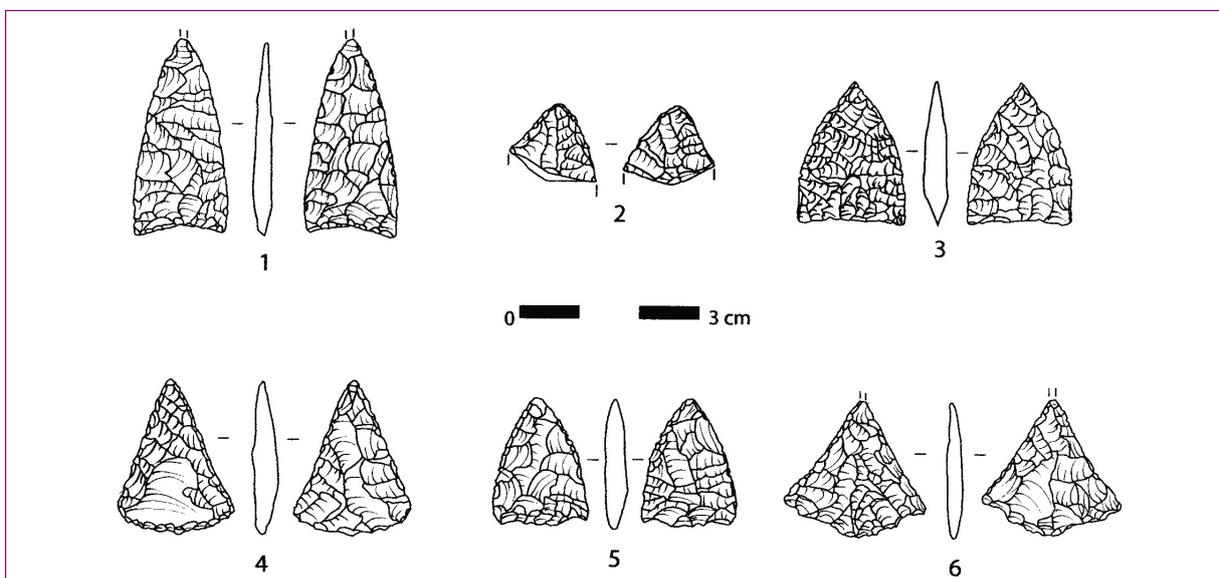


Plate 14. Obsidian arrowheads.

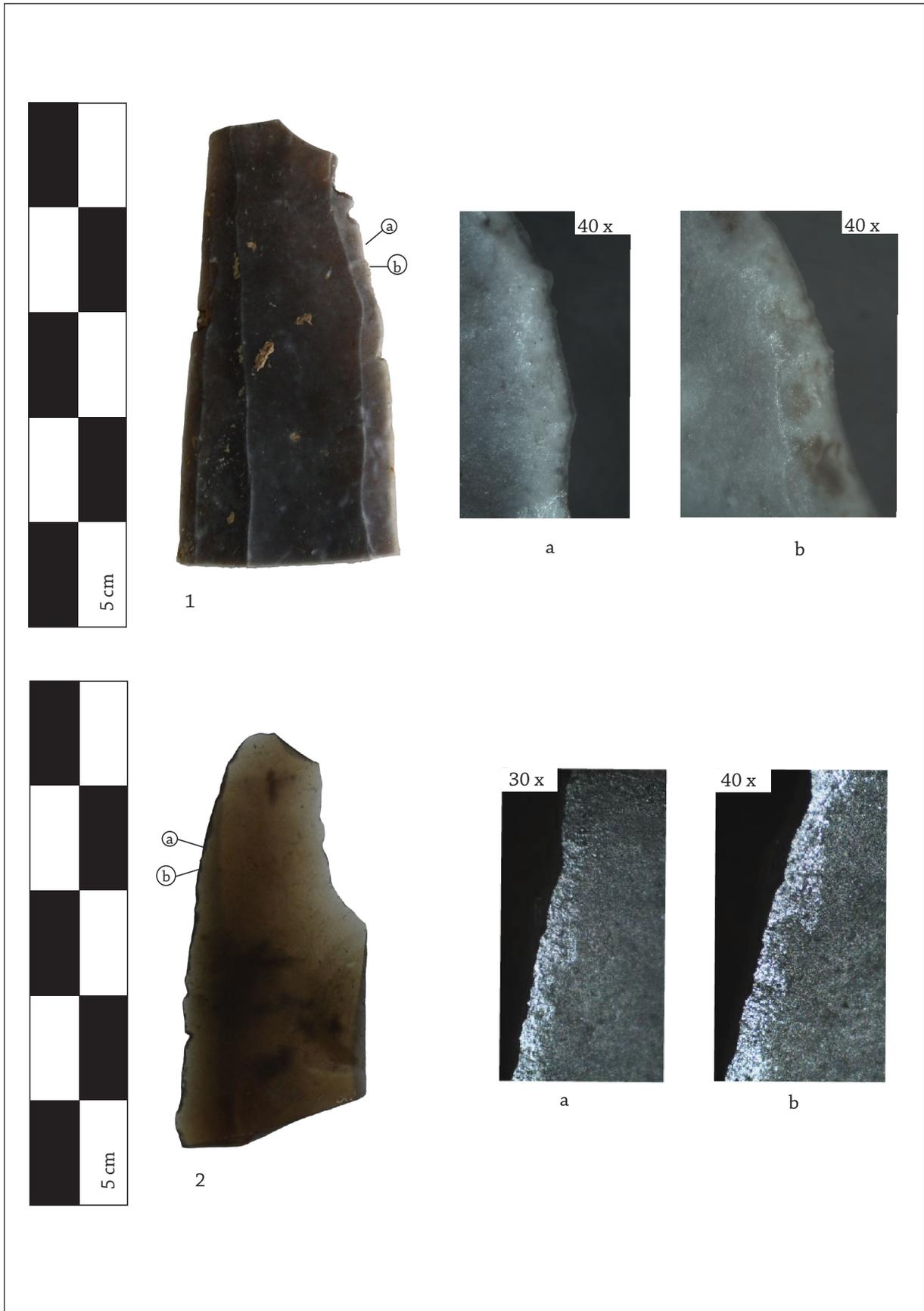


Plate 15. Details with traces of wear: 1. Item with usage retouches (the upper side – a; the lower side – b); 2. Item with usage retouches (the lower side – a and b).

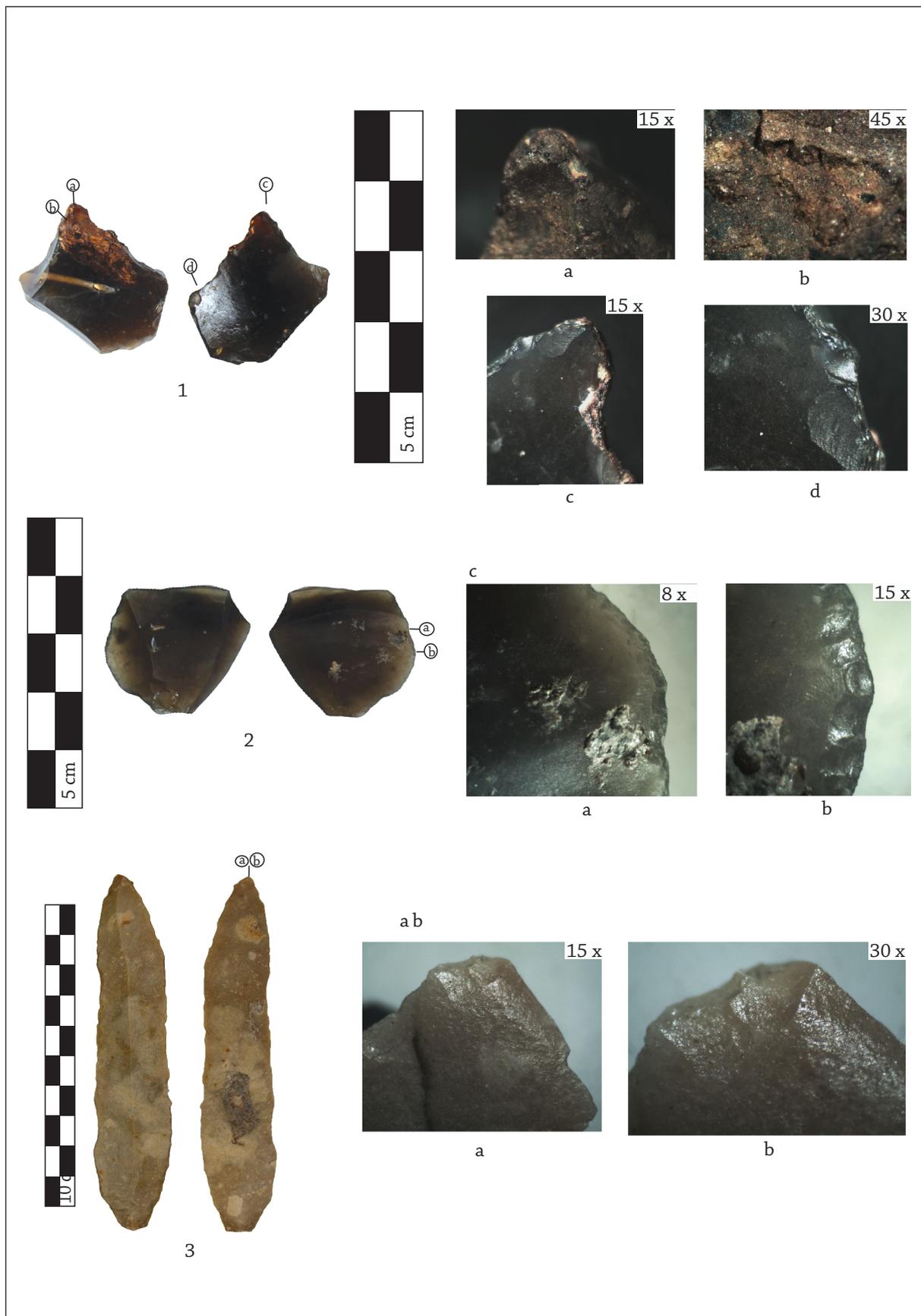


Plate 16. Microscopic details with traces of wear: 1. The active part of a drill – upper side (a and b) and lower side (c and d); 2. Item with usage retouches; 3. Point– detail with the fractured active part.



Plate 17. Details from the surface of items with several types of active parts designed on the same blank: 1. *Coche* and end-scraper front; 2. *coche* and end-scraper front (a); end-scraper front (b); marginal retouches (c) and usage retouches (d).

Abbreviations

AAASH	Acta Archaeologica Academiae Scientiarum Hungaricae, Budapesta.
AAC	Acta Archaeologica Carpathica, Cracovia.
Alba Regia	Alba Regia. Annales Musei Stephani regis, Székesfehérvár.
Angvstia	Angvstia. Sfântu Gheorghe.
Arabona	Győri Xántus János Múzeum, Győr.
ArchÉrt	Archaeologiai Értesítő, Budapesta.
ArchHung	Archaeologia Hungarica, Series Nova, Budapest.
ArhMold	Arheologia Moldovei. Iași.
Arheologija/Archeologiya	Arheologija/ Archeologiya. Sofia.
Apulum	Acta Musei Apulensis – Apulum. Alba-Iulia.
AMN	Acta Musei Napocensis, Cluj-Napoca.
AMP	Acta Musei Porolissensis, Zalău.
BAM	Brvkenthal Acta Mvsei. Sibiu.
BHAB	(Museum Banaticum Temesiense) Bibliotheca Historica et Archaeologica Banatica.
BMMK	A Békés Megyei Múzeumok Közleményei. Békéscsaba.
BMA	Bibliotheca Memoriae Antiquitatis, Piatra Neamț.
BMN	Bibliotheca Musei Napocensis.
BudRég	Budapest Régiségei. Budapest.
CCA	Cronica Cercetărilor Arheologice din România, București.
CRSCRCR	Coins from Roman sites and collections of Roman coins from Romania.
Dacia N.S.	Dacia. Revue d'archéologie et d'histoire ancienne. Nouvelle serie. București.
EphNap	Ephemeris Napocensis. Cluj-Napoca.
Ethnographia	Ethnographia. A Magyar Néprajzi Társaság Folyóirata. Budapest.
FADDP/GMADP	Führer zu archäologischen Denkmälern in Dacia Porolissensis/Ghid al monumentelor arheologice din Dacia Porolissensis
FolArch	Folia Archaeologica. Budapest.
Hesperia	Hesperia: The Journal of the American School of Classical Studies at Athens. Athens.
MCA	Materiale și Cercetări Arheologice. Bucharest.
MFME	A Móra Ferenc Múz. Évkönyve. Szeged.
MFME SE	Móra Ferenc Múzeum Évkönyve: Studia Ethnographica. Szeged.
MFME-StudArch	A Móra Ferenc Múzeum Évkönyve, Studia Archaeologica. Szeged.
MGTSZ	Magyar Gazdaságtörténeti Szemle. Budapest.
MMA	Monumenta Avarorum Archaeologica, Budapest.
Mousaios	Mousaios. Buletin Științific al Muzeului Județean Buzău, Buzău.
NyJAMÉ	Jósa András Múzeum Évkönyve. Nyiregyháza.
OM	Orbis Mediaevalis, Arad.
PAT	Patrimonium Archaeologicum Transylvanicum. Cluj Napoca.
PBF	Praehistorische Bronzefunde. Berlin.
PeuceS.N	PEUCE. Studii și cercetări de istorie și arheologie. Serie nouă. Tulcea.
RI, SN	Revista Istorică, Serie Nouă. București.
RMM-MIA	Revista Muzeelor și Monumentelor. seria Monumente istorice și de artă. București.
SA	Sovietskaia Arheologija. Moscova.
SCIV(A)	Studii și Cercetări de Istorie Veche. București.
SlovArch	Slovenská Archeológia. Nitra.
SPMA	Studies in Post-Medieval Archaeology. Prague.

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