TECHNIQUE AND TYPOLOGY OF STONE ITEMS OF LEVELS I LOWER AND I OF MITOC-*MALU GALBEN*

BY

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Abstract

The paper describes in detail the discoveries of stone items in Aurignacian levels I Lower and I, of the large Paleolithic settlement of Mitoc-Malu Galben, on the Prut, in Botoșani County (NE of Romania). In a previous paper, published in 2015, we described the geo-pedological, stratigraphical situation and a short presentation of the lithic finds of the Aurignacian levels I-III of this site belonging to the Upper Paleolithic of the Carpaato-thian-Dniestrean territory. In this paper we shall analyze in detail the lithic finds of the first two habitation level of the communities of Aurignacians, with the presentation of special elements of technique and lithic typology.

Keywords: *Early Aurignacian, lithic technocomplex, knapping techniques, lithic typology, carinated items.*

General remarks

The pluristratified Paleolithic settlement of Mitoc-*Malu Galben*, situated in the large domain of the east-Carpathian Upper Paleolithic, continues to be the largest Paleolithic site investigated within the entire European space, with more than 600 m^2 studied through systematic research. The Paleolithic layers of this site are contained within a 14-15m stratigraphic profile, with special characteristic features of the Aurignacian and Gravettian habitation levels. Therefore, the stratigraphic probing excavations undertaken by C. S. Nicolăescu-Plopșor and N. N. Zaharia in 1956 and 1957[1], and the archeological research initiated by V. Chirica in 1978, drew the attention of western specialists, so that in the systematic excavations participated, in chronological order, K. Honea (Northern Illinois University, USA), during the period 1984-1988, M. Otte and P. Noiret (University of Liège) and their collaborators, P. Haesaerts (Royal Belgian Institute of Natural Sciences) and his collaborators, between 1991 and 1995[2]. These collaborations were finalized through the printing of an important monographic volume of the site[3]. Starting with 2013, new interdisciplinary research has been organized in cooperation with colleagues P. Noiret, P. Haesaerts and Philip Nigst (University of Cambridge)[4]. As a result of these collaborations, it has been established that, although the settlement of Mitoc-*Malu Galben* was inhabited without interruption between ±33,000 B.P. and ±23,000 B.P, stratigraphically there were identified five Gravettian levels (Gravettian I, II, III, IV and dispersed Gravettian) and five Aurignacian ones (I lower, I, II, III and III upper)[5]. Mention should be made of the fact that it was in collaboration with V. Chirica that P. Haesaerts specified in detail the coordinates of the stratigraphic and chronological framework of the Aurignacian and Gravettian habitation levels, by setting the lithostratigraphic sequences (units 13 – 0) and the fives cycles (*cycles I-V*) with climate interpretations, through the integration of all Aurignacian and Gravettian habitations[6].

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[1] PLOPȘOR, ZAHARIA 1959a: 34-38; PLOPȘOR, ZAHARIA 1959b: 11-16.

[2] CHIRICA 2001: 9-12; CHIRICA, BORZIAC 2009: 104-118; CHIRICA, CHIRICA, BODI, 2014: 34-54; CHIRICA et al. 2014: 81-83, 347-351.

[3] OTTE, CHIRICA, HAESAERTS 2007.

[4] CHIRICA et al. 2014: 81-83, 347-351; CHIRICA et al. 2015: 153-156, 472-478; HAESAERTS et al. 2009: 1-18.

[5] CHIRICA, CHIRICA, BODI 2014: 36; OTTE et al. 2007: 85-135.

[6] HAESAERTS 2007: 15-41.

STRATIGRAPHIC AND CULTURAL-CHRONOLOGICAL CONTEXT

In order to present the elements of interdisciplinary research, we shall take into consideration the sequences (lithostratigraphic units 13 – 0) and *cycles I- V*, established by P. Haesaerts, but we shall refer only to elements of archeological stratigraphy (Aurignacian I lower and I levels), the only of interest in this paper.

H. Laville was the best *reader* of the soils in which the cavern Paleolithic human settlements were contained; now, P. Haesaerts is the best *reader* of the loess in the terrace sites of the entire European space, including Siberia. In his numerous studies, the loess sequences (lithostratigraphic and cultural-chronological sequences) were presented in association with the features of the human habitations (lithic technocomplexes, fauna remains, etc.)[7]. Thus, through intensive and elaborate researches, undertaken in association with local archeologists, it was established that the climate sequences of the continental loess could be compared with climate signals registered including in the ice of Greenland. Thus, the loess sequences of Central and Eastern Europe (Mitoc-*Malu Galben*, Cosăuți, Molodova V) to Greenland (Kurtak) and central Siberia (in the area of Upper Yenisei) were corroborated in order to establish a coherent system or records of the Middle Pleniglacial Age of this huge geographic area[8]. For the correctness of data, it was taken into consideration that the East Carpathian space (the Carpathians-the Prut and eastwards, to the Dniester), provides numerous loess successions with Paleolithic habitations, especially for the interval of time between 33 – 20 kyr[9]. We specify the fact that the period between 33 and 26 kyr is very well represented at Mitoc-*Malu Galben*, and stratigraphic and chronological sequences between 32.6 and 30.4 kyr B.P. are equated to subunits 10-1 and 10-2 of down here. But our scientific interest focuses especially on sequences MG 11 and MG 12, which contain the habitations that belong to Aurignacian I Lower (also named *dispersed* Aurignacian) and I. In addition to that, as we estimate that most human campsites (be them isolated) of Mitoc-*Malu Galben* go down to the first half of *cycle V* (units 13a-b), we shall also consider the features of these stratigraphic zones[10].

Moreover, at Mitoc-*Malu Galben* there is a block of cyclic deposits, about 14 m high, having a rather unique feature in terms of sedimentary evolution, from alluvium deposits (in the lower part of the sequence) to the alluvium – sandy ones in the upper part, their symmetry being parallel to the slope towards the Prut, a fact noticed also by us, during the excavations of 1985-1990, when we reached these depths. Thus, unit 13, with the width of approximately 1.20 m, is formed of light brown clay, having at the base a thick layer of gravels, flints and heterogeneous rolled sands. They overlap directly the limestone of the terrace base, but among the gravels and flints we also found lithic items, made of flint, although they showed traces of rolling. In the upper part a compact brown-grayish humic horizon (**Pl. 1**) was identified. Unit 12, with the width of approximately 1.00m, is represented by stratified clay layers with argillaceous clays intercalated by thin grayish stripes and stains of iron hydroxides (12b), having at the base gravels formed of fragments of limestone and flint; its upper part (12a) consists of a deposit of brownish gray hydromorphic clay, with a low content of humus and with bioturba, with numerous manganese concretions. These two units belong to *cycle V*, characterized by hydromorphic colluvia overlapped by the humic soil specific to the alluvium plain the Prut, testifying to a positive climate episode. Mention should be made of the fact that unit 13 is older than the age of 32,000 and unit 12 is immediately posterior to the first Aurignacian knapping workshops, dated to about 31.500. As noticeable from **Pl. 1,** absolute chronology dates indicate the ages of 32,730 ± 220 B.P. (GrA-1357) (beginning of 12b) and 31.160 ± 530 B.P. (GrN- 20770) (12a). But, since the habitations of Aurignacian I are contained in units 10b final and 11 (**Pl. 2**) it is necessary to present this lower formation too. Therefore *cycle IV* includes units 11 – 7, however this paper deals only with those numbered 11 and 10b (the lower part), dated between 31,000 ± 330 B.P. (GrA-1648) and 31,160 ± 550 B.P. (GrN-20444)[11]. Unit 11 is characterized by the solifluction deposits

[7] CHIRICA, CHIRICA, BODI 2014: 35-42; HAESAERTS et al. 2003: 163-188; HAESAERTS et al. 2004: 33-56; HAESAERTS 2007: 15-41; HAESAERTS et al. 2009: 1-18; HAESAERTS et al. 2010: 106-127.

[8] HAESAERTS et al. 2009: 2.

[9] HAESAERTS et al. 2009: 2-3, fig. 1-3.

[10] HAESAERTS 2007: 31, fig. 11-12, 14-15; CHIRICA, CHIRICA, BODI 2014: 35-36, 44.

[11] HAESAERTS 2007: 29, fig. 12; HAESAERTS et al. 2003: tab. 2, p. 174.

that can be noticed at the base of the slope. These are stratigraphically overlapped by subunits 10b – 7b, dated between approximately 31.000 and 26.500 B.P[12]. (**Pl. 2).** Therefore, lithostratigraphic subunit 13b, where, in our opinion, one may discover the oldest traces of Aurignacian habitation, is formed of sandy clay (limons) deposited in the upper part of the limestone at the base of the terrace, characterized through the presence of heterogeneous gravels (including those with rolled flint items). Lithostratigraphic subunit 13a was formed under a grass cover (*couvert herbacé*), in a climatic context of boreal type and can be interpreted through the existence of a mixed vegetation at the edge of the alluvium plain. Subunit 12b contains sandy clays, mixed with gravels derived from gelifluction processes, deposited during a possible chilling of the climate. A slight climate amelioration could take place during the deposits that belong to lithostratigraphic unit 12, with a humid plain vegetation, at the contact with or close to the phreatic waters of the Prut[13]. These were the environmental conditions in which the human communities installed their campsites, which we dated to Aurignacian I Lower and I of Mitoc-*Malu Galben*[14], with the possibility of discovering the oldest traces of habitation in the lithostratigraphic unit 13 (13a and 13b), even though some of them might be in secondary position. In this context we suggest to give up the concept of *dispersed Aurignacian* in favor of what we referred to as *Aurignacian I Lower*, as, based on the excavations and finds of 1990-1992, we believe we shall discover those lithic proofs of the *dispersed Aurignacian* in lithostratigraphic unit 13a and 13b.

THE KNAPPING TECHNIQUE IN THE EARLY AURIGNACIAN (I LOWER AND I)

The complex study of the lithic technocomplexes of Mitoc-*Malu Galben*, included in what we named Aurignacian I Lower and Aurignacian I, was achieved by the entire team of archeologists, based on the discoveries of 1978-1990 (the first series – excavations undertaken by V. Chirica) and 1992-1995 (the second series – excavations undertaken by V. Chirica in association with M. Otte, P. Noiret and P. Haesaerts). The results of these technico-typological characterizations were already published[15]. The existence of these lots of lithic materials of the entire Aurignacian of Mitoc-*Malu Galben* obliges us to return to them in order to publish them in detail. With the occasion of the review of the entire technocomplex for the classification of the movable heritage items of the Institute of Archaeology in Iași, we could notice that in the study of 2007, certain stone items were not included, either within the lot numbers, or in terms of illustration corresponding thereto. Moreover, in 2014 a new probing excavation was performed, within the stratigraphic perimeter of Aurignacian I, and we shall consider also those finds[16].

We should also specify the fact that, through the probing excavations of 1992, we could notice very large differences between the depths (*profondeurs*) of P. Haesaerts and of the Liège team, of approximately 3 m. We can thus notice it is difficult to have a uniform situation of the depths at which the small lithic complexes were discovered[17]. But, for the consistency of our records, we shall have to take into account our recording of the litostratigraphic units, as they were established by P. Haesaerts (the only fully coherent elements[18]), being numbered and specified in the left side of the table.

A general characteristic of all stone finds is the fact that they were grouped and discovered in the form of two essential entities: knapping workshops and smaller or larger groups, in the archeological and habitation level. It is well established the fact that the members of the Aurignacian communities had huge amounts of raw material available to them, bringing it from the deposits situated north of *Malu Galben*, but also near the

[12] HAESAERTS et al. 2003: tab. 2, p. 175.

[13] OTTE et al. 1996: 45-74; HAESAERTS 2007: 31.

[14] CHIRICA, VORNICU 2015: 201-224.

[15] OTTE et al. 2007: 85-135; 185-218; CHIRICA, VORNICU 2015: 201-224.

[16] This is the direction of the present study, reason why we also organized an International Seminar in January 2016 : Les Aurignaciens. Leur création matérielle et spirituelle, sous la dir. de Vasile Chirica, Iasi, 27-31 janvier 2016.

[17] OTTE et al. 2007: 217-218.

[18] OTTE et al. 2007: 200-202; 215-218.

archeological site, at the confluence of the brook Ghireni to the Prut, as through the mechanical action of the Prut waters, especially during the interstadial periods, very large quantities of flint were dislocated from the primary deposits[19] and transported downstream, all along the river (the minor riverbed). Following recent field investigations, of 2014 and 2015, we could notice the existence of two important *series* of flints, deposited in the minor riverbed coming from the middle terrace: *series* of black, blue and gray flints (each with several hues) and brownish flints, which we considered to be of Cretaceous age, respectively Buglovian[20]. Due to the fact that in new excavations we discovered especially black, blue and grayish flint, we are able to notice that at the time of the foundation of the camping sites (including the numerous knapping workshops), the human communities had access only to these categories of raw material (black-grayish flint); in the future, other petrographic studies could establish their geological age (Cretaceous – Buglovian).

Within the study regarding the techno-typological features of the Aurignacian lithic complexes of Mitoc-*Malu Galben*, two special entities were considered: items discovered in knapping workshops and items of the archeological layer. The technical features of the debitage are: *the "oriented" debitage, the "mass" debitage* and the "*preliminary flaking*"[21]. In order to achieve a thorough knowledge of all features of the knapping technique it is absolutely necessary to go through the observations included in the 2007 study, especially those concerning the techno-typological components of the complexes specific to the Aurignacian I Lower and I[22].

The technological detail elements of the *Aurignacian I Lower Complex* are the following:

a) cores with one striking platform or with two opposite platforms;
b) cores of blades (including bladelets) and flakes;
c) the existence of blades and of bladelets, associated, seems to be a feature;
d) attempts of remaking the *striking block* through the removal of the particular elements: rejuvenating tablets of the striking platform, core flanks;
e) carinated elements do not seem to be a feature of the debitage - only two carinated burins on core-shaped flakes were identified;
f) finished tools were made on flat flakes, some of which cortical, without retouches on the sides.

Moreover, according to the statistic, the Aurignacian I Lower Complex contains (based on the excavations of 1978-1995): 1.216 stone items, of which: 17 cores, 60 blades, 27 bladelets, 1.175 flakes, 8 elements of core maintenance, 9 burin spall, 20 finished (retouched) tools[23].

In terms of technology *the Aurignacian I complex* is characterized by:

a) cores created in view of the elongated removals (blades and bladelets), with one or two opposite striking platforms, prismatic or pyramidal; oval cores were also identified, resulting from the removal of flakes; fragmentary or exhausted cores, including core-shaped tools, are also present;
b) tools knapped and retouched on thick flakes, some of carinated aspect;
c) the presence of partial or entire crested blades demonstrate the existence of intentional shaping out elements, prior to the removal of the supports;
d) the existence of flanks and tablets indicate a particular concern with the preparation of the core in order to remove the supports;
e) small lots of *special items* were identified: burin spall, carinated tools, bladelets, deposited as concentrations only in certain lots of stone items.

This lithic technocomplex of Aurignacian I contains: 18.172 artifacts, 119 cores, 1.381 blades, 166 bladelets, 1.609 flakes, 63 core maintenance elements, 234 burin spall, 200 finished tools: 55 scrapers, 96 burins,

[19] CHIRICA, CHIRICA, BODI 2014: 19-33.
[20] CHIRICA, CHIRICA, BODI 2014: 27; fig. 8.
[21] OTTE et al. 2007: 86.
[22] OTTE et al. 2007: 98-113, fig. 1-13.
[23] OTTE et al. 2007: 100-101.

1 scraper-burin, 3 blades retouched, 1 toothed blade, 1 side-scraper on cortical flake, 8 notched items, 23 toothed items, 11 flakes retouched, 1 base of carved item (three-sided peak)[24].

Our details concerning the technological features shall refer to the main products: a) cores, b) unretouched flakes, c) unretouched blades and bladelets, including support items for tools. We should specify one more time that we shall refer only to the items discovered in 2014 and 2015, and also to those which were not recorded in the site Monographic Study, for which we shall also provide the illustration, in most cases.

Moreover, the technology of the preparation of the support items for being transformed into tools, by retouching (knapping), is the following:

A. cortex removal of the rognons: for the removal of the cortex areas and revealing of the cores. Most of the cores were oval, resulted from flake removals (Pl. V. Pl. VI)
B. the removal of flakes produces prismatic and/or pyramidal cores, with one or two striking platforms and traces of the removal of blade-like items, as supports for finished tools, most of them being carinated. We could also notice the usage of exhausted cores, or of supports of the type of core-shaped flakes for being transformed in typical tools. We should also specify the fact that, through the usage of flake or blade knapping techniques, crested flakes were removed, most of which had not been turned into tools.

After the printing of the Monographic Study[25], only in 2014 and, partially, in 2015, systematic excavations allowed the research of habitation complexes belonging to the Aurignacian I, which we consider for the argumentation of our observations (tables 1 and 2). There were researched squares belonging to the *sedimentary unit 11a* in the systematization of P. Haesaerts[26] (Pl. III/1). In squares H-I 10 there was identified a large concentration of flints (knapping workshop), with numerous cores and other debitage products (Pl. III/2; Pl. IV/1). This Aurignacian I is represented, through the 2014 excavations, by several flint workshops, identified in squares A 11, H 11, K 10, I 10 and I 11, but they seem to extend also outside the perimeter investigated by us during that year (Pl. IV/2).

The Cores discovered in 2014 are oval, some amorphous; only those transformed into tools, or which preserve the negatives of blade-shaped removals are prismatic and pyramidal. Some are large, preserving the cortex and show a preparation start for other removals (I 11, 106, the typological list elaborated by P. Noiret's) (Pl. V/3). Another large core was abandoned after the removal of the blade-shaped cortical elements (K 10, 269) (Pl. V/4 an attempted blade-shaped removal is noticed on core (I 11, 190), also abandoned, but it preserves the blade-shaped negatives of the removals on a third striking plan (Pl. V/2). Another core (K 10, 247) also has three striking platforms, probably in the attempt of obtaining blade-shaped removals (Pl. V/1). There were also identified exhausted cores, considerate as having only two opposite striking plans[27], but the two ends could be also be used as burins or hand axes.

In this phase of the Aurignacian, which is represented through the habitation level and the agglomeration of stone items, the blade-knapping technique is not abandoned not even when the cores become small or when they are exhausted (**Pl. VI/1-3**). One of these items seems to be a prototype of the scraper – as prototype of the high carinated scraper (**Pl. VI/1**). We also identified cores which, through the special preparation of a striking platform, could be used as knapping tool (Pl. VI/4) or scraper (*rabots*) (Pl. VI/5). There are also abandoned cores, as it was noticed that the knapping could not be controlled, so that secondary debitage elements could not be removed, either for being transformed into finished tools, or for being finalized through a core necessary to the future removals of the supports. There were identified exhausted cores, which could be used in different domestic activities (Pl. VII/2), or abandoned, but with a possible usage as angle burin (Pl. VII/3).

The raw material is represented by the local black or gray flint, from the deposits the *Malu Galben* community had access to, which were situated in the minor riverbed of the Prut, at 300-400 m downstream

[24] OTTE et al. 2007: 101, 107.

[25] OTTE et al. 2007.

[26] HAESAERTS 2007: 15-41.

[27] OTTE et al. 2007: 104, fig. 2/3.

from the camping sites installed there. The cores discovered in 2014 typologically belong to the categories specific to the early European Aurignacian[28]. There were also identified hammers, intact or smashed during the knapping of the *rognons* and of the cores.

The unretouched **flakes** are of a very wide variety of types, shapes and sizes, including cortical ones, although our intention here is not to provide a rigorous classification. On the edges of certain flakes one can notice the attempt of turning them into tools, by retouching, hovever, in this phase of the Aurignacian, the members of the human community of Mitoc-*Malu Galben* were not yet fully experienced in retouching. It is interesting to notice that macrolithic flakes –halves of large and very large cores were identified in association to microlithic even pygmy flakes, and also with finished items, atypical: burin dihedral (Pl. X/4) one flake very toothed on the ventral surface (Pl. X/2). We found no flakes with dihedral talon or facetted, but some preserve *crested* portions. The unretouched **bladelets**, like the flakes, are of large variety of types and shapes, and in terms of sizes, there are microlithic blades (even pygmy), average and macrolithic, and many of these are cortical or partially or fully *crested* (Pl. VIII/1) There were also discovered few unretouched sandstone blades, which according to us represent allogeneic elements (Pl. VIII/2).

Apart from these types of debitage products, there were also collected (with the aim of providing statistics elements and for weighing purposes) primary debitage products (amorphous flakes, without a butt and percussion bulb, resulted from the initial striking of the *rognon*, or from the preparation of the striking platform in view of the further removal of other categories of debitage elements).

TYPOLOGY OF FINISHED ITEMS OF AURIGNACIAN I LOWER AND I

In the monographic study of the Paleolithic settlement of Mitoc-*Malu Galben*, as well as in our study of 2015 we published the categories of finished tools, simple or multiple[29], discovered within systematic excavations. We believe that we can add the following types and subtypes of tools (although some were exemplified in the two studies specified above):

- in association to the great majority of primary debitage products, we also identified finished but atypical items: one dihedral burin (Pl. X/4), one flake very toothed on the ventral surface (Pl. X/2), one scraper on macrolithic blade, with oblique active side, created through very fine retouches (Pl. X/1) and another scraper on flake, also with the active part not finished through the Aurignacian retouches (Pl. X/3).
- borer on average flake with retouches on both sides. On the back, the item preserves the negatives of prior flake removals (Pl. VIII/4).
- macrolithic cortical flake, with the right side slightly bowed and retouched (Pl. IX/1).
- macrolithic blade fragmentary, with retouches on the right side (Pl. VII/5).
- double convex scraper , on cortical flake (Pl. VIII/5).
- carinated scrapers (Pl. VII/2; Pl. IX/2), of which one on cortical flake, another one being knapped on cortical flake, core-shaped; one carinated scraper was retouched on a fragment of exhausted cortical core[30]; one carinated scraper was interpreted and illustrated wrongly, giving the impression of a double scraper [31].
- carinated burins, on fragmentary, massive, core-shaped flake (Pl. VII/1, 4) on average flake.

[28] BON et al. 2010: 50-54.

[29] OTTE et al. 2007: 85-135; 185-218; CHIRICA, VORNICU 2015: 201-224.

[30] OTTE et al. 2007: 108, fig. 5/3.

[31] OTTE et al. 2007: 108, fig. 5/4.

- fragment of an exhausted core (Pl. VII/6) or on average fragmentary blade (Pl. VIII/3), on cortical flake average[32]; in the monographic volume other carinated burins, on flakes, some of which cortical, were also illustrated so that, statistically, we can notice an increase in numbers[33].
- angle burin, on average blade, on the truncation resulted from the preparation of the striking plan of the core (Pl. VIII/7) there are also burins on retouched truncation on average cortical flake[34], or on truncated but not retouched blade[35], on average cortical flake[36], and also dihedral burins, on average, slender blade[37].
- simple convex scraper, on average flake with arched finely retouched right side (Pl. VIII/6).
- simple convex scraper , on average blade average with retouched sides[38]; through the nature of the raw material – dark grayish flint with whitish core in the median and distal area, it seems to not originate in the local deposits.
- exhausted core, of microlithic sizes, which could though be used also as carinated scraper (Pl. VII/2).
- large convex scraper , on average cortical flake[39]; this type of scraper is very rare within the Aurignacian typology, as the active part was not retouched in the distal part of the cortical flake, but to the continuation of the left arched side, (core-wards); one scraper on average slender blade[40], it is very rare within the typology of this initial phase of the Aurignacian, but typologically it is present in the technocomplexes of the Upper Aurignacian[41].
- one nosed scraper was knapped on a cortical, core-shaped flake, with both sides retouched[42]; another one is, in fact, a carinated scraper combined to the nosed type, on thick core-shaped cortical flake, with the active parts situated on two not convergent ends[43].
- one carinated scraper, which is not included in the typology of the early Aurignacian, was considered only as a core with bladelets[44]; also, another carinated very high scraper was created on a massive, core-like, cortical flake[45].
- exhausted core, used as planer or high carinated scraper, considered also core with bladelets[46]; through the nature of the raw material – very fine, mat black flint, it seems not to belong to the local deposits in the area of the Middle Prut.

CONCLUSIONS

Through systematic excavations, we could notice that the Aurignacian I of Mitoc-*Malu Galben* can be considered the richest habitation level among those identified and researched within this large Paleolithic settlement of the East- and Central-European (Carpatho-Dniestrean) space. We identified stone items – finished tools, which either were not considered when elaborating the chapter regarding the lithic tools of *Malu*

[32] OTTE et al. 2007: 115, fig. 12/7.
[33] OTTE et al. 2007: 112- 115, fig. 9/8, 10/4, 12/9, etc.
[34] OTTE et al. 2007: 112, fig. 9/3.
[35] OTTE et al. 2007: 112, fig. 9/1.
[36] OTTE et al. 2007: 112, fig. 9/2.
[37] OTTE et al. 2007: 111, fig. 8/7.
[38] OTTE et al. 2007: 106, fig. 4/9.
[39] OTTE et al. 2007: 106, fig. 4/8.
[40] OTTE et al. 2007: 106, fig. 4/11.
[41] BON et al. 2010: 53, fig. 2d.
[42]OTTE et al. 2007: 110, fig. 7/3.
[43] OTTE et al. 2007: 110, fig. 7/6.
[44] OTTE et al. 2007: 106, fig. 4/4.
[45] OTTE et al. 2007: 109, fig. 6/2.
[46] OTTE et al. 2007: 106, fig. 4/3.

Galben from the site's monograph, or were only mentioned (some of them in an erroneous manner), without being illustrated and presented in detail.

Through the present completions, our intention is to provide the necessary contributions, meaning to complete the specialized lower formation, especially those concerning the Aurignacian lithic inventory, as the Aurignacian technocomplexes of *Malu Galben* stand out as technological and typological elements unique within the Aurignacian of the considered geographic space.

It is true that we shall never be able to know the mentality of the Aurignacians – creators of tools, according to the *rules* of each phase – period or according to the knapping technique. We could notice though the fact that at Mitoc-*Malu Galben* the rules of the tool knapping and retouching techniques were complied, although each stone item transformed into a final product, has specific features unique within the respective technocomplexes.

Throughout the geographic space situated between the Carpathians and the Dniester, we identified a typologically very wide range of cores that belong to the ancient phases of the evolution of the Aurignacian knapping technique: discoid, with traces of circular knapping; sub-discoid, with several striking platforms; prismatic and sub-prismatic with one or several percussion plans; amorphous, but with several striking plans (Brânzeni I/3)[47]. In the same geographic area, at Bobulești VI there were identified the same types, including the spherical (globular), discoid and polyhedral cores[48], noticing that the blade knapping technique was prevalent. Subtypes of these core variants were identified also in the technocomplexes belonging to the Early Aurignacian or to the entity that we name the *Prut Culture* (especially subvariants of the striking platforms of the prismatic and sub-prismatic cores came out).

At Mitoc-*Malu Galben* we could notice a more homogeneous range of core variants, with the prevalence of the discoid ones resulting from flakes, which become prismatic cores while the flakes are being removed, through the volumetric decrease of the items, the removal of the flakes being even partially replaced with the removal of blades. In spite of that, as we could notice, a large part of the lithic tools is composed of flake supports. The existence of blade supports transformed into finished tools demonstrate the large time span of the existence of habitation levels I lower and I in the camping site of Mitoc-*Malu Galben*, and the motivation of this impressive continuity of habitation was represented by the richness and variety of resources of raw materials, food items, environment features, which human communities found close to the confluence of the Prut and the brook Ghireni.

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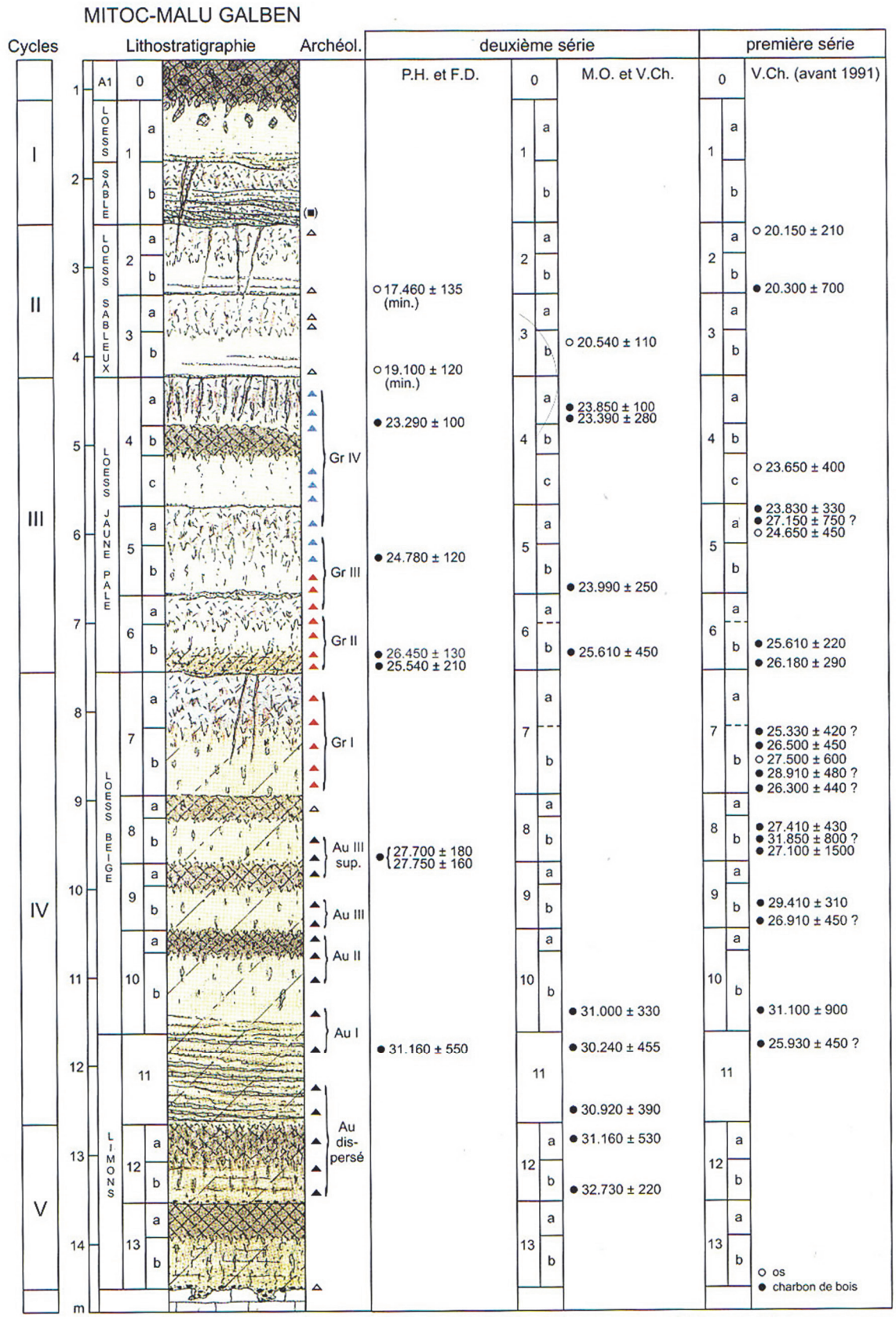
Pl. X. Mitoc-*Malu Galben*. Aurignacian I. 1-6, stone items: 1, atypical scraper on macrolithic blade; 2, toothed blade; 3, atypical scraper on blade; 4, dihedral burin on cortical blade; 5-6, flint nodules with started knapping.

Raw material	**number**	**%**
Flint	1604	95,59
Stone	68	4,05
Bone	3	0,18
Charcoal	2	0,12
Total	**1677**	**100**

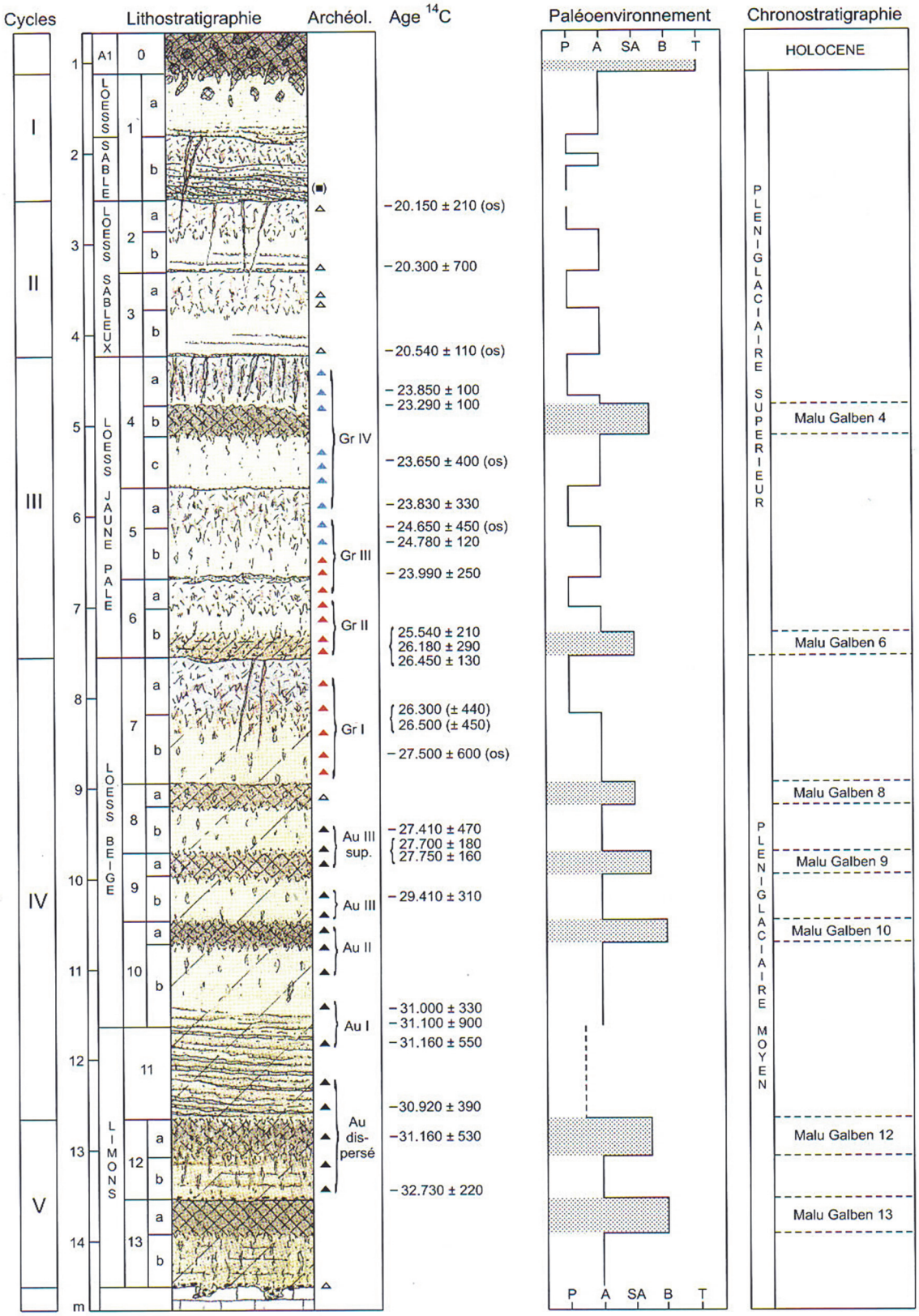
Table 1. Finds of lithic items, bone and charcoal, made in 2014:

Square	**Aurignacian I**
H 10	18
H 11	2
I 11	59
I 10	104
I 8	1
K 11	129

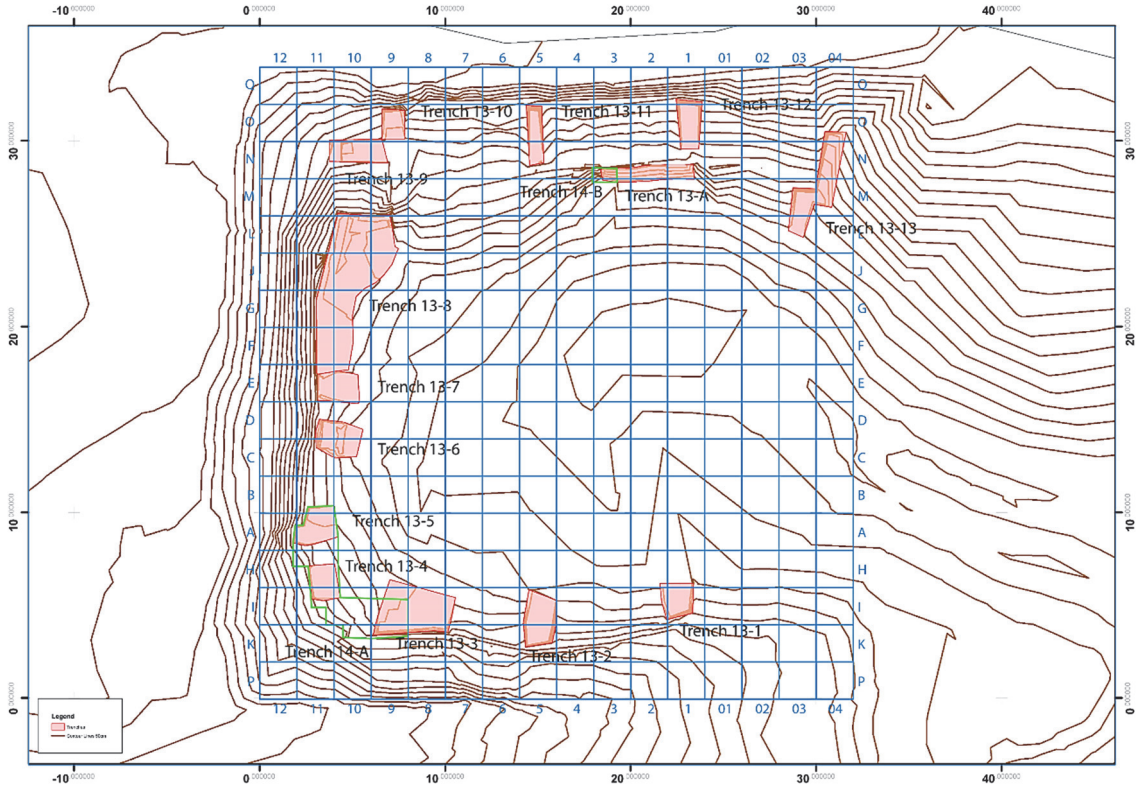
Table 2. Finds of lithic items, in 2015:



Pl. I. Mitoc-*MaluGalben*. Lithostratigraphy, archaeology, radiocarbon dates and palaeo-environnement



Pl. II. Mitoc-*MaluGalben*. Lithostratigraphy, archaeology, and palaeoenvironnement.



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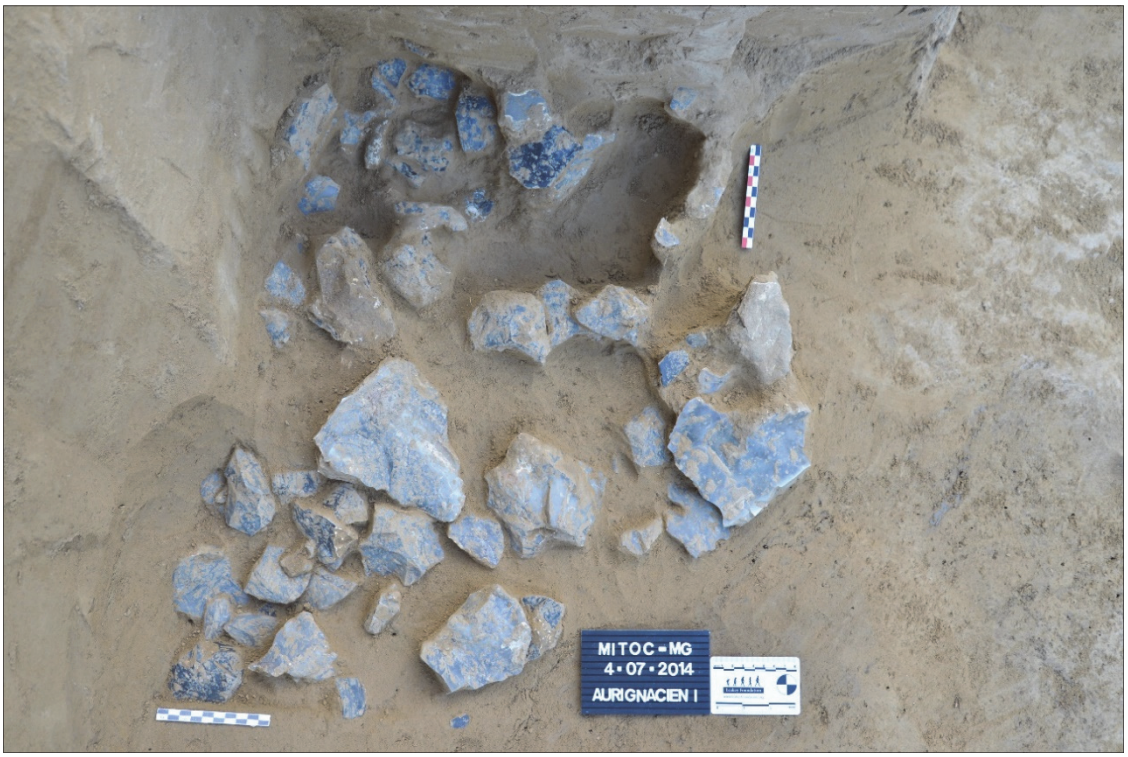


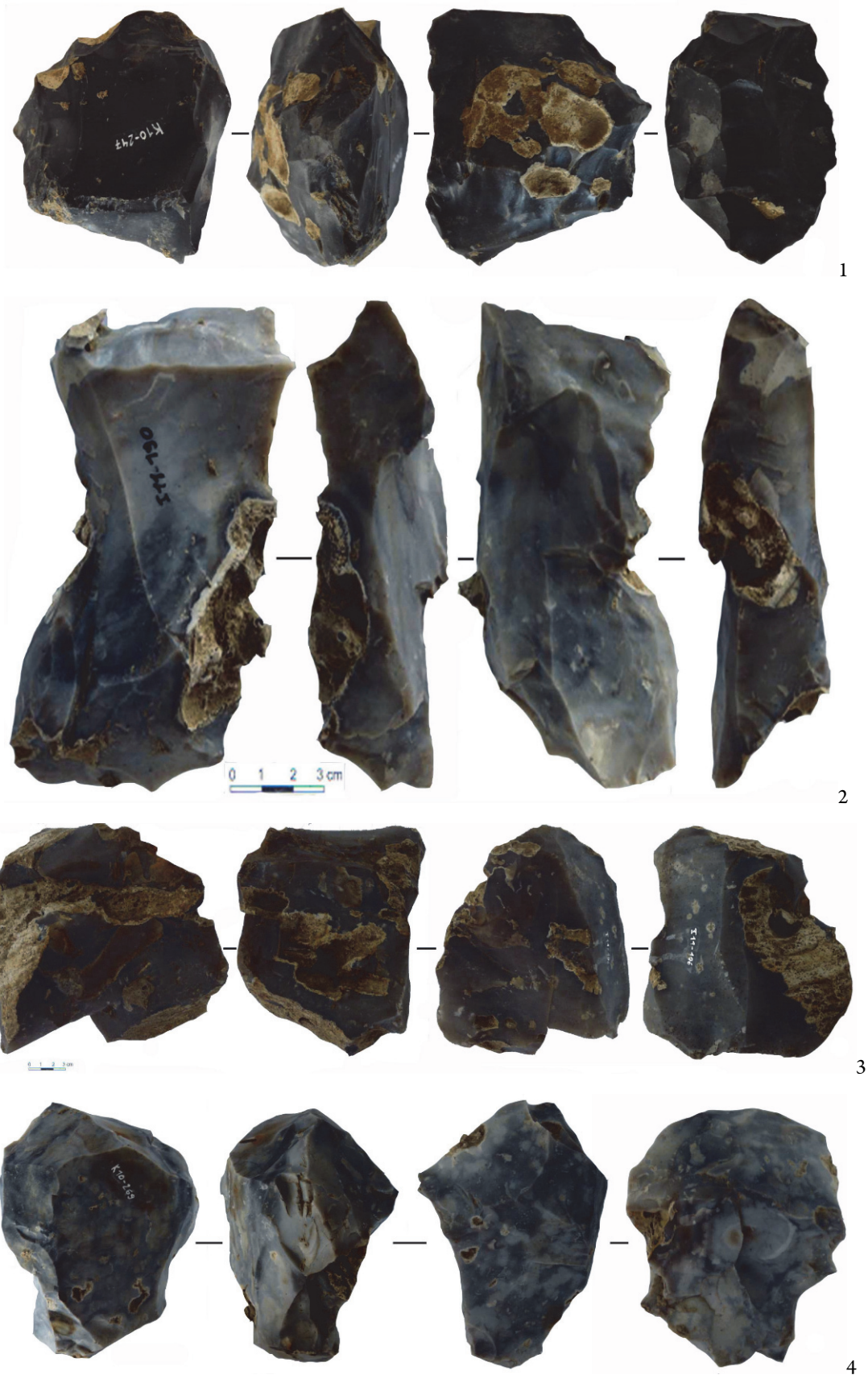
2

Pl. III. Mitoc-*MaluGalben*. Aurignacian I. 1, positioning of the probing excavations of 2014; 2, knapping workshop.

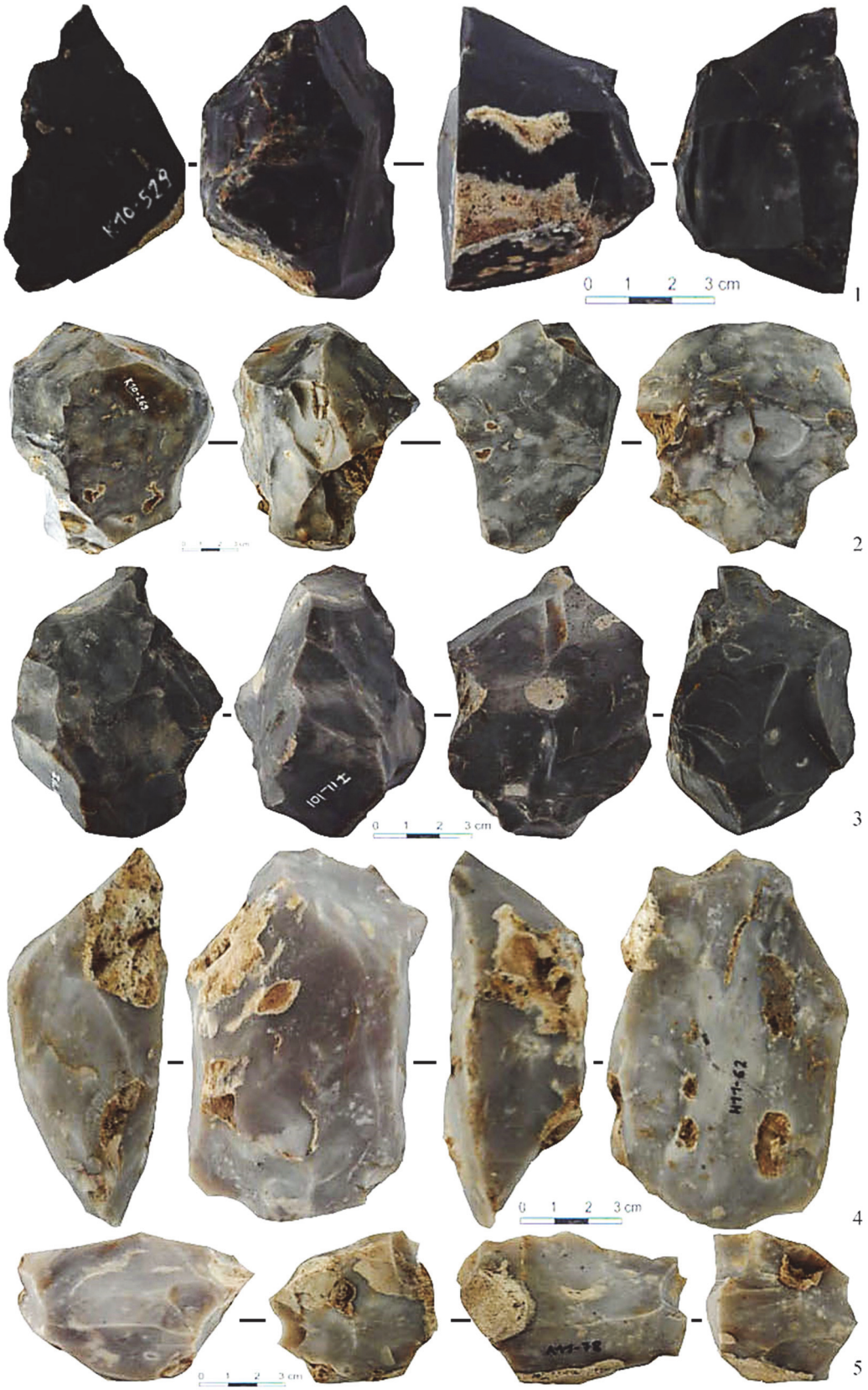
1

2

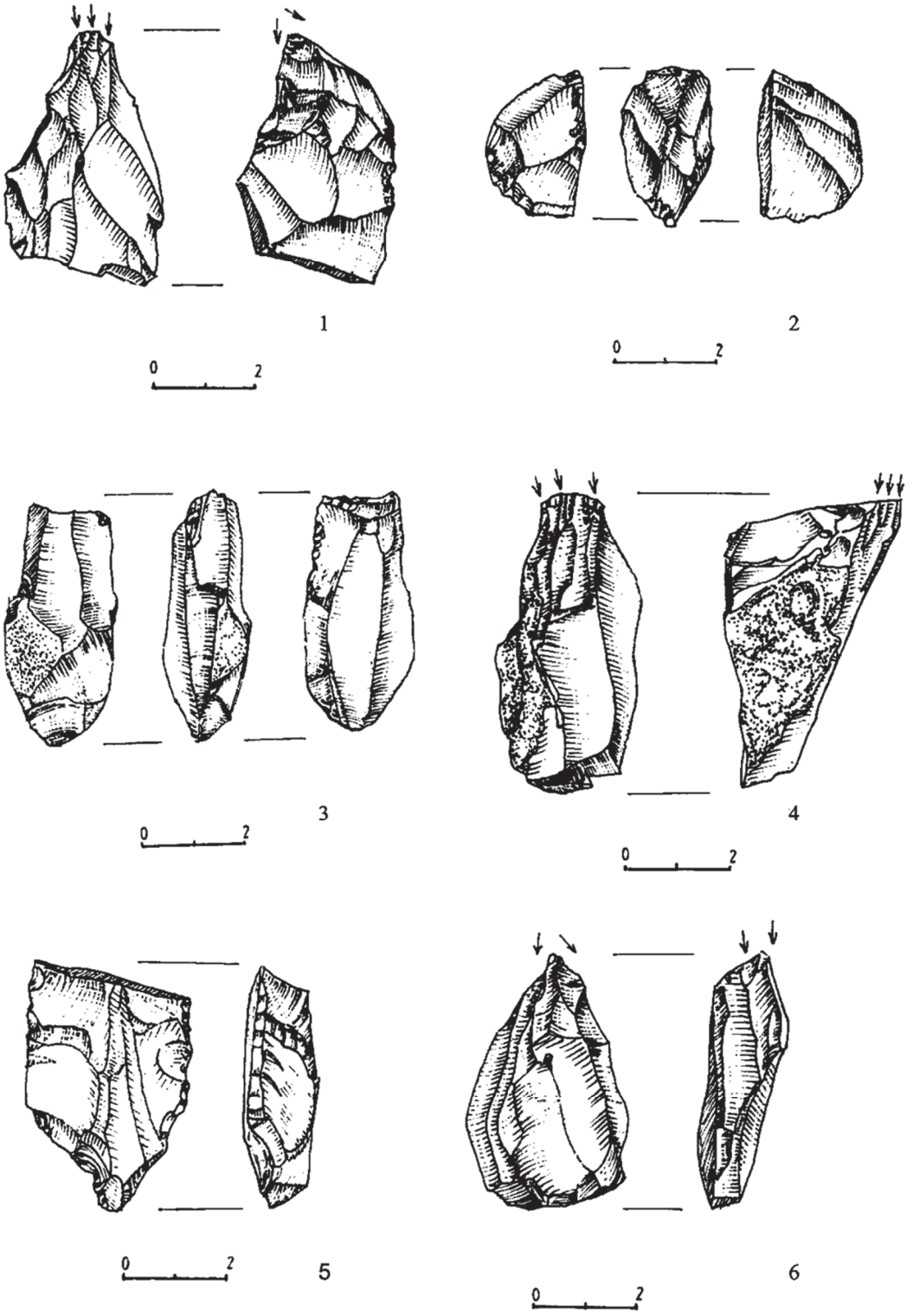
Pl. IV. Mitoc-*MaluGalben*. Aurignacian I. 1, knapping workshop; 2, habitation level .



Pl. V. Mitoc-*MaluGalben*. Aurignacian I. 1-4, cores.



Pl. VI. Mitoc-*MaluGalben*. Aurignacian I. 1-5, cores.



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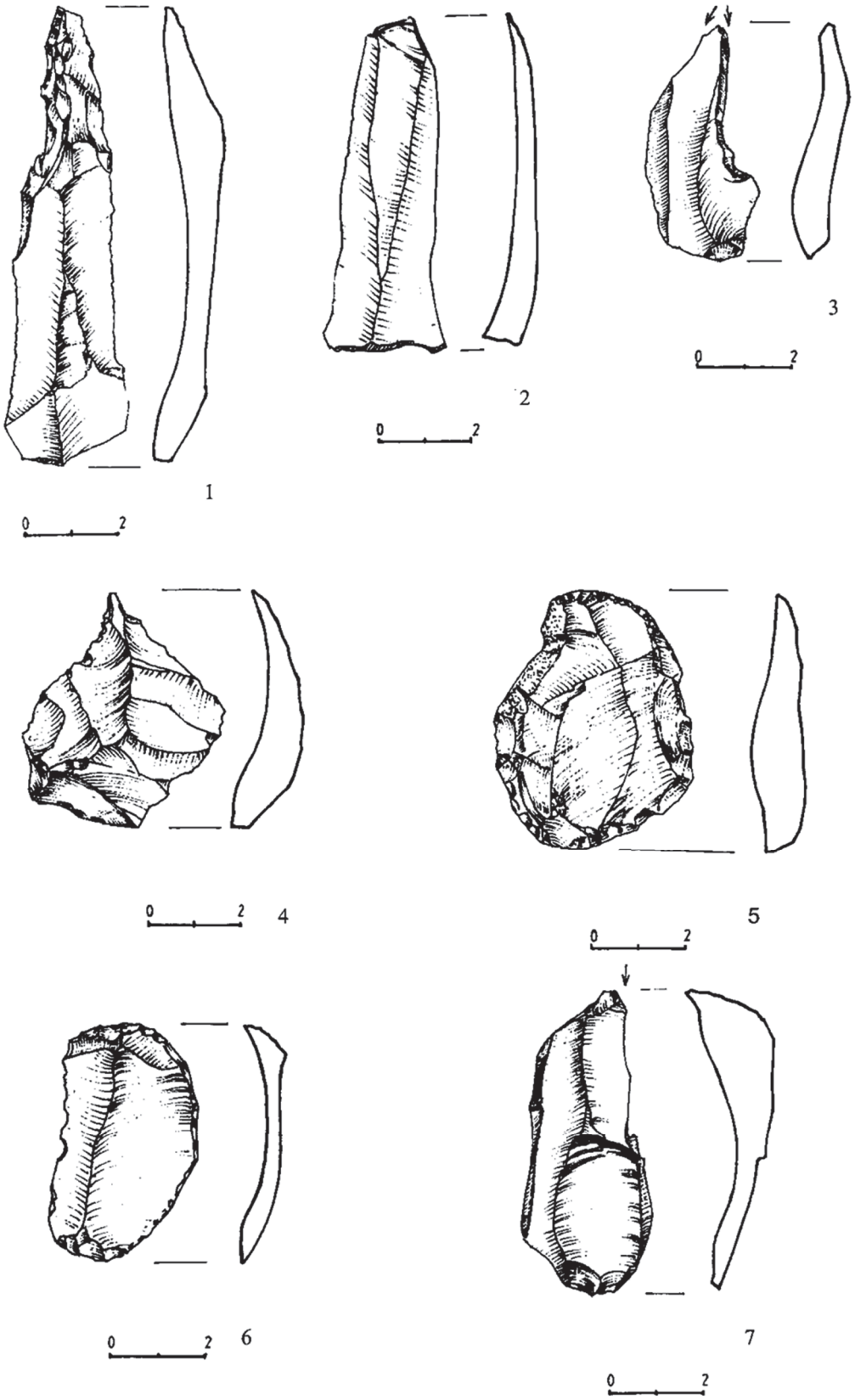

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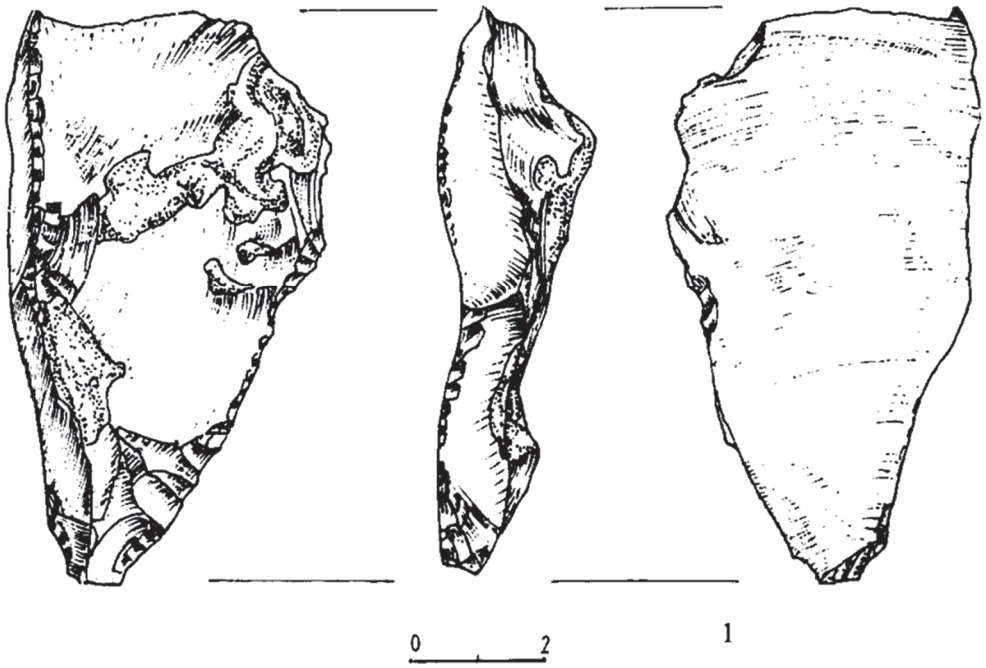

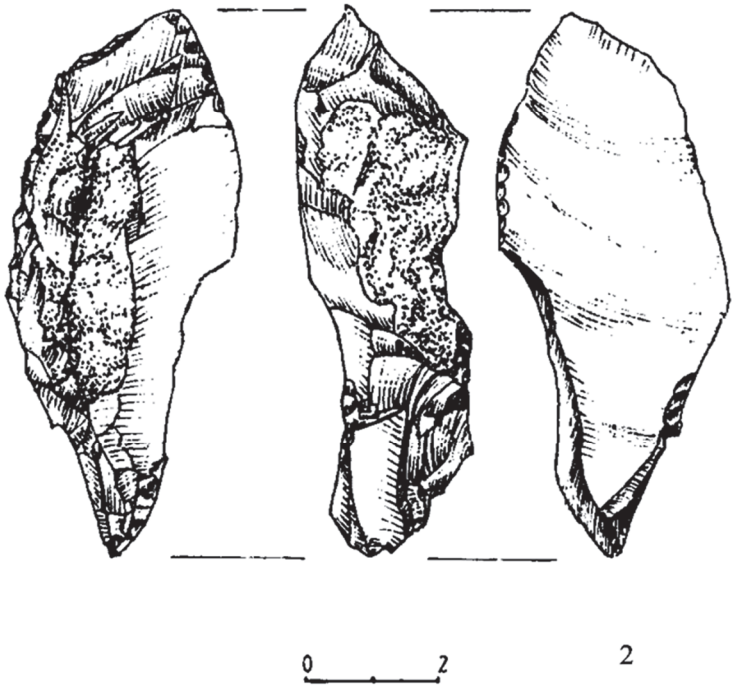

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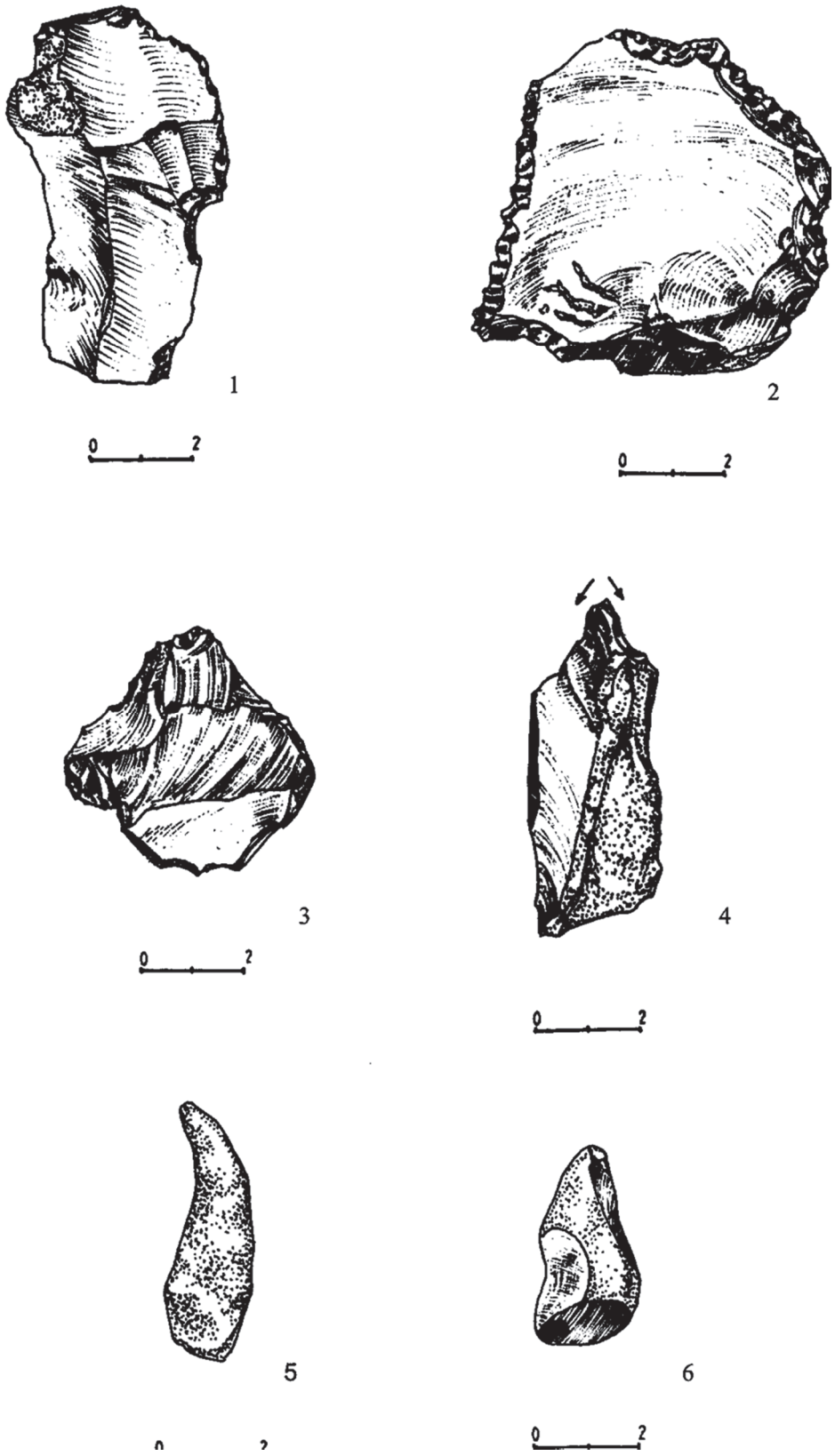

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