



## THE UPPER PALAEOLITHIC INDUSTRIES IN THE DNIESTER ZONE OF MOLDAVIA

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The present work is devoted to a review of taxonomical divisions and cultural arrangements of the Upper Palaeolithic materials from the Moldavian Dniester area (fig. 1 : 1-9). This publication has been possible with the help of N. Ketraru, G. Grigoryeva and I. Borziac, who kindly allowed me to use the great part of the palaeolithic collections.

The materials of the Moldavian Dniester sites was for the first time put into the scientific circulation in connection with N. Moroshanu's concept (1938) and A. Chernysh's multistage development scheme (1959), based on the West-European division into periods and on the idea of the Upper Palaeolithic development by stages. Their concepts were further worked out in N. Ketraru's works (1969, 1973), which involved a wider range of sources. However his critical approach to the primary sources permitted singling out only the two main chronological groups of sites, but the determination of their cultural provenance was limited to correlate some of them into the various development stages of the Molodova archaeological culture (Ataki sites of Moldavia) or to state the industry of the other (Rashkov sites), that developed on the Aurignacian basis.

The worked-out scheme of the cultural and historical development is reflected in G. Grigoryeva's works (1975, 1980). Within the frames of its first stage there are distinguished two development lines, one of them is related to the Dniester industry - Climautsi I. Three technological and typological site groups are marked at the second stage, they are presumably regarded as three archaeological cultures, comprising all the necessary attributes (Rashkov,

Iorjnitsa-Cureshnitsa and Costeshti-Ataki cultures).

The data of the Moldavian Dniester sites were systemised by I. Borziac (1983) and resulted in the division into four stages. Its first chronological group, that falls into two development lines is represented by Climautsi I and Zelyony Khutor II in the Dniester zone. To underline their connection with the Mousterian of this area I. Borziac marks the Aurignacian character of the industries. The sites in the Prut and Reut river basins are characteristic of the second and third chronological groups. The latter group falls into four subgroups, two of them include the Dniester sites of the Ataki and Rashkovo microregions. He sympathized completely with G. Grigoryeva's conclusion on matching up the characteristic features of Ataki I and II and those of Costeshti and the upper layers of Molodova V. The idea of the Late Glacial Rashkov VII age continues to be worked out. Paralels are drawn between the Rashkov industry and the Black Sea steppe sites and the Ivashkovo VI complex is determined as an analogue.

The materials of the zone in question are characterized in G. Grigoryev's (1970), V. Stanco's (1982), A. Rogachev's and M. Anikovich's (1984), I. Sapojnicov's (1994) generalizing works.

The formation of the sources base and the fruitful research essays on the Upper Palaeolithic of the area allow it to elucidate many aspects of the cultural and historic development process. It is embodied in the interaction of the two leading technocomplex (Aurignacian and Gravette ones), which are unveiled by refining the character and dynamics in the evolution of certain archaeological cultures and their variations.

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## AURIGNACIAN TECHNOCOMPLEX

The formation of the Upper Palaeolithic industry in the zone in question can be retraced by the example of the Lower Dniester archaeological culture. In the addition to be specific set of pieces the three basic sites of this culture - Climausti I, Zlyony Khutor I and II (fig. 1 : 5, 27) show a number of peculiarities to assign it to the Aurignacian technocomplex. It is within the frames of this technocomplex that one observes the cultural heritage transformation of the early sites.

The question related to the formation time of the Lower Dniester culture and its genetic roots remains to be answered. Nevertheless its typological criteria relation to the early Upper Palaeolithic provokes no serious objections. The origination of the Climausti I - Zelyony Khutor I and II industry from the Denticulated Mousterian type of Stinka I (ANISYUTKIN 1969) is the most well-reasoned concept among the various approaches to its provenance problem, provided the existence of the broad historical community at the Lower Dniester and Danube in the final Middle - Upper Palaeolithic is stated (ANISYUTKIN 1977; STANCO 1982).

The industries of all the three sites are considerably similar as to the structural order of their collections as well as the stable combination of the typical articles shapes. Of course not all the characteristic cultural parameters are equally available at each site. Taking into consideration that the articles were picked up from the surface it may be well tolerated that certain types of articles are absent at the given site, whereas they are characteristic of the culture as a whole.

For the Lower Dniester archaeological culture the following is typical :

1) Indispensable availability of discoid, globular, cuboid and amorphous cores among a considerable collection of subprismatic shapes, while blank flaking plays the leading role;

2) Numerical superiority of scrapers, abundance of carinate shapes, availability of specific boat-shaped,

massive ogival, thick-nosed, strangled and on striking platforms of flakes;

3) Combination of massive and light points, including the so-called Climausti type points (made on thick flakes with a short massive sting, protracted on both sides, (fig. 2 : 13);

4) Prevalence of denticulated notched and archaic tool shapes, sometimes with prolonged bifaces;

5) Presence of dihedral burins, in the first place multifacial and core-shaped ones, as well as in combination with side-scrapers;

6) Absence of backed bladelets.

In his polemical opposition to V. Stanco, I. Sapojnicov denies the presence of any discoid and globular cores among the materials of Zelyony Khutor I and II, he considerably reduces the percentage of denticulate notched shapes (down to 7 % for Z. Khutor I and to 4,1 % for Z. Khutor II) and considers the bifacial article, published by V. Stanco (1980, fig. 2 : 2) and V. Kraskovski's bifacial tool (1978, fig. 5 : 12) to be a fragment of a prismatic core or a later introduction. While indicating the similarity of the Zelyony Khutor complexes between each other he underlines a large number of side-scrapers in the former one, the availability of carinate strangled and subcircular end-scrapers, angled and core-shaped burins, chisel-shaped and scaled pieces in the latter one, accounting for the possible reason by the less representative collection of Zelyony Khutor I (SAPOJNICOV 1994).

While the numerical relation of carinate end-scrapers, including nosed and ogival ones as well as points and burins is the same, bifaces, blades with Aurignacian retouch, covering their biggest part along the perimetre and bladelets with light lateral retouch can be determined for sure only in Climausti I (BORZIAC 1981).

The further destiny of the Lower Dniester sites was treated in two ways. On the one side V. Stanco tried to concretize the development process through the successive change of three stages by placing the materials of Zelyony Khutor II at the beginning of the genealogical chain. The

process of the autohtonous development was followed up to the Final Palaeolithic, when it was interrupted by the alien traditions of the Greater Akkarzha type (STANCO 1982). V. Stanco's concept, that was severely criticized by I. Sapojnicov (1987), stopped to be actual after the approbation of the new chronological system, which was based on the Southern Bug stratigraphic column that correlates to a number of the Lower Dniester sites (STANCO, GRIGORYEVA, SHVAYCO 1989; SMOLYANINOVA 1990). We shall touch on the rationality of V. Stanco's initial scheme later. Now we would only like to point out the principal interrelation between the Zelyony Khutor complex and a later Kamenka site connected with Usatovo, that is related to Cioburci in its turn.

On the other side the development trend of the Lower Dniester cultural entity was included within the frames of the Aurignacian technocomplex. In the first case the Aurignacian character of the tool set at Climautsi I and the later Rashkovo sites was concretized, the carinate shape analogues were underlined (GRIGORYEVA 1975), but no attempts were made to establish their direct interrelation, due to the absence of an intermediate middle part Upper Palaeolithic link. In the second case the definition of the Zelyony Khutor materials as Aurignacian type ones (SAPOJNICOV 1987) implied possible analogues of the carinated end-scrapers with their Rashkov VII counterparts.

The survey of the Climautsi II site (fig. 1 : 5) partly filled up the temporal gap, existing between the Lower Dniester sites and the Rashkov ones. As a matter of fact a number of the criteria allows it to speak about succession about the regeneration of one into the other. However the detailed comparison revealed an obstacle, that cannot be overcome at present and it does not permit defining their direct cultural transformation.

At first let us produce the evidences that confirm the continuity. They are concerned with the internal order of the objects, which are compared, at the level of categories and subcategories of tools. Their analysis provokes the conclusion that the highest similarity coefficients (similarity coefficient has been calculated for 107 Upper Palaeolithic sites of the area) is observed in the strict sequence from Climautsi I to the

lower layer of Climautsi II, from the lower layer of this site to its upper layer as well as to Rashkov VIII, from the upper layer of Climautsi II to Rashkov VIII, from Rashkov VIII to Rashkov VII. These high coefficients and percentages manifest the concrete conjugary between the complexes, trends in accumulating or reducing the quantitative parameters of an attribute. A number of important tendencies can be also noted without difficulty. Against the background of the gradual decrease in the archaic shapes from 17,4 % in Climautsi I to 0,4 - 0,8 % at the Rashkov sites as well as reducing the percentage of scaled pieces and those with bifacial treatment. It is notable the increase in the number of burins on retouched truncation (from 4,5 to 15,2 - 18,7 %) and micropieces with lateral retouch (up to 12,3 %), whereas the diagnostic component of carinate end-scrapers is stable at the level of 10-15 % (only the upper of Climautsi II shows a lower index). The first phenomenon, related to the gradual disappearance of the previous traditions, as well as the successive ones completely fall into the general development process of the Aurignacian industries in the area, demonstrate the integrity, interrelationship of the progressive development process, the absence of the obvious structural deformations, manifesting to the change of the cultural orientation.

The typological analysis of the lower layer in Climautsi II showed that not less than half of all the pieces with secondary treatment was made on flakes, whereby core-shaped end-scrapers, a carinate end-scrapers and a pointed piece are very expressive, double dihedral multifacial burins and one made on the Aurignacian blade are effective among burins. The number of side-scrapers, including those on flakes with a convex or semicircular edge. There is a single backed bladelet (fig. 3).

The upper layer of Climautsi II bears less similarity to the Lower Dniester sites. It contains prismatic cores in combination with amorphous ones, the relation between flake tools and blade ones is equal, whereas the majority of end-scrapers and burins are on lamellar flakes. This collection is notable for several carinate and nosed endscrapers, for a core-shaped double one, complemented by dihedral multifacial burins and by Aurignacian blades, sometimes with converged base. The number of worked

bladelets is extremely low (fig. 4).

The above enumerated peculiarities of the both complexes do not possess the cultural originality of the Lower Dniester sites. If the presence of core-shaped end-scrapers and a carinate one in the first case and that of carinate and nosed end-scrapers in the second case make the comparison somewhat easier, the absence of ogival and strangled pieces and those on striking platforms, massive points, the superiority of burins in the collection and the prevalence of massive lamellar pieces, the more thorough treatment and the standard tool set, the perfect working of single microtools and the absence of bifacial articles contrast Climautsi II with the earlier sites. Nevertheless there are still criteria enough to confirm the general development trend.

The loss of the characteristic peculiarities by the Lower Dniester sites can not be only accounted for by the temporal development or by the scarce collection of the lower Climautsi II layer (66 tools). The upper layer of the same site yielded 232 tools, but there are no Climautsi type points or boat-shaped end-scrapers. Evidently it can be attributed to the influence of the external factors. Can it be connected with the mass migration of the carriers of the same techniques, for example, from the Central Europe, who considerably transformed the tool set of the zone in question? There are some relevant evidences. Thus, the great intrusion of the Willendorf-Kostenki tradition carriers from the Central Europe to the Eastern Europe is observed exactly from the end of the Bryansk (Stillfried B) interstadial. The cultural attribution of this process, confirmed by a series of radiocarbon dating is beyond any doubt. The Willendorf influence reaches the Middle Dniester area. Layer 7 of Molodova V, dated back to  $23\ 000 \pm 800$  and  $23\ 700 \pm 320$ , yielded shouldered points, scaled blades, corresponding closely with the Kostenki type knives, and blades with notch at upper end, which are similar to the Ragai type knives, but not characteristic of the Molodova culture on the whole. Curiously it was found that the dating of this layer coincides with Berdiju date ( $23\ 430 \pm 180$ ), that is an intermediate link in the chain of the Willendorf-Kostenki type sites, encompassing a wide space.

The formation of the Sagaidak I type industry (STANCO, GRIGORYEVA 1977), whose closest analogue is the complex of Gura Pulavskaya (KRUKOWSKI 1939), can be considered as another evidence for the wide-scale penetration of the Central-European Aurignacian tradition carriers. The analysis of the materials from these two sites together with Muralovka substantiates the conclusion about possible migrations from the territory of Poland within the period of the Ostashkovo glaciation. It should be recognized that the regularity of such migration waves (SMOYANINOVA 1990), which are indirectly determined by the distribution of the Sagaidak-Muralovo points in Anetovka I and II, Zolotvka I, Rashkov VII and VIII, Greater Akkarczha, in layers 4-6 of Vladimirovka (STANCO, GRIGORYEVA, SHVAYCO 1989) is probable. The beginning of this process is determined by the date, obtained for the lower layer of Sagaidak I -  $21\ 240 \pm 200$  B.P.

Therefore, the change in the specific character of the Climautsi II in comparison with Zlyony Khutor II and Climautsi I rises a whole number of problems and cannot be defined by refusing unconditionally from the succession or by recognizing the continuity. It would be preferable to point out to the development predetermination by underlining the correlation between each pair of sites in the chain of transitions from the Lower Dniester complex to the Rashkov one.

The next group of the aurignacian sites, which are correlated with the middle part Upper Palaeolithic and whose cultural originality is enough to single out an archaeological culture, is represented by the Rashkov sites (fig. 1 : 4; KETRARU 1973). The initial determination of their characteristic features led to the conclusion about the existence of a specific technological and typological subdivision (GRIGORYEVA 1975). The further consideration of the Rashkov VII and VIII industry against a wider historical background assigns them a status of an independent cultural phenomenon (ROGACHEV, ANIKOVICH 1984).

Let us render concrete certain peculiarities of the Rashkov culture :

1) The knapping technique is based on unifacial prismatic core. It achieves its perfection by making the bladelets form microcores and secondary cores. Numerous are cores with flattened flake surface and cone-shaped circular cut pieces. Rare are subconiform and discoid cores. The dominant blank is lamellar flake (44 % for Rashkov VII and a little bit less for Rashkov VIII). the proportion of microlamellar blanks is small;

2) Ends-scrapers with continuous abrupt retouch on divergent edges, carinate, microlithic, near-semicircular ones, those on striking platforms of flakes, on prolonged and ribbed spalls, which are often high shapes, deserve attention among a great technological and morphological variety of end-scrapers (fig. 5-7). Common are arched, straight, ogival, sometimes slightly nosed blades or angle ones at the retouched edge. Carinate end-scrapers on primary flakes, including semi-circular and nosed ones are no less variable. Core-shaped end-scrapers consist of circular (including those up to 2 cm long), double with dihedral back side and nosed ones or those with narrow prolonged lamellar edge;

3) Burins on oblique retouched truncation and those on straight retouched truncation are highly standardized and predominant in the group of burins. Serial are articles with retouch gradually passing on to the adjoining edge, sometimes worked along the long arch. Solitary are on retouched truncation with a thorn or angle projection, with massive grooving edge trimmed with one or two flattened burin spalls. Extremely numerous are double, triple, combined shapes, some of them bearing an intensive lateral retouch, other worked to give them the outlines of rectangles and parallelograms. There are also notable core-shaped burins with wide cutting edges, which can be hardly distinguished from secondary cores and dihedral shapes on retouched flakes, including multifacial burins and ones with straight retouched truncation (fig. 8; 9 : 2, 3);

4) Microliths fall into backed bladelets and pieces with light lateral retouch, often only trimming the edge. There are notable miniature articles up to 1 cm long with inverse edge retouch, with flat ventral trimmed edges, including rectangles. The

majority of micro-points, which yielded Sagaydak-Muralovo shapes on scales and narrow portion of burins (32,5 %) and the even smaller proportion of micro-tools (12,3 %). Such a high percentage of end-scrapers can be evidenced on the Gravette site of the Carpathian Moldova (30-45 %), where the proportion of the carinate shapes is insignificant (2-5 % and only in Malushteni IV 10,8 %), microtools are numerous (about 25 %) and burins (10-20 %; CHIRICA 1989) are not so common. There is more structural similarity to the collections of the Lower Dniester sites, such as Calfa, Ciobrucu, Kamenka and the upper layer of Anetovka I.

The relation between the tool categories in Rashkov VIII is somewhat different. Burins make up 60,9 % here, the significance of end-scrapers (24,1 %, where from 10,1 % carinate ones) and micropieces (9,1 %) decreases accordingly. Such distribution at the category level corresponds most of all to that of the Molodova community (50-70 % of burins, 15-20 % of end-scrapers, 1-10 % of microtools, though there is 21,1 % of microliths in layer 7 of Molodova Y), to the lower layers of Cosoutsu and to the upper layer of Climausti II.

The explanation for the essential structural distinctions can be reasonably searched for in the changing influence intensity on the part of the various cultural tradition carriers, who had to migrate to the south in the peak of the Ostashkovo glaciation. We touched on this problem before, while pointing out to the probable influence on some of the Dniester industries by the representatives of the Central-European circle sites. It is not inconceivable that the alien Aurignacian traditions combined with the Aurignacian features of the local complexes and it brought about the formation of the Rashkov VII original vivid expressive phenomenon. However the specific character of Rashkov VIII and that of Climausti II upper layer was formed under the no less strong influence of the already disintegrating Molodova culture traditions. A certain time displacement of these two main processes accounts for the manifestation of the specific Molodova microblades (fig. 11 : 3, 21-23) and microborers with protruded stings, bear light irregular retouch;

5) Borers present a stable component of the tool set. The massive Climausti type

points, carinate borers with thorn-like sting, Rashkov type borer-drills (fig. 10 : 1, 2 ) are expressive. Alongside with them there are angle, oblique, symmetrical points with retouch on two edges, with massive working end, which is similar to that of end-scrapers, as well as borers with short and awl-shaped stings;

6) There are very original combined tools : multifunctional articles with narrowed working edge, in particular, massive nosed or ogival end-scrapers on side-scrapers with arched edge (fig. 9 : 5-9), endscrapers combined with points, borers, burins, single scaled burins;

7) Representative are knife-like blades with continuous aurignacian retouch, partly with facets, passing far on the dorsal surface, with divergent edges, from time to time retouched on ventral surface on one of the ends. There are also articles with retouched truncation on one edge, sometimes on two edges, side-scrapers and notched forms.

Borer-drills with extended thoughly pronounced sting can represent the "fossile directeurs" in the Rashkov culture. Their combination with various core-shaped end-scrapers, end-scrapers with abrupt retouch on edges, carinate ones and those on striking platforms, burins on retouched truncation with arched edge or thorn, Sagaydak and Climautsi points, aurignacian blades create the unique image, an "original code" for determining exactly the cultural provenance.

The structural relations in the tool complex of the Rashkov sites (tabl. 1) merit special consideration. The clear predominance of end-scrapers in Rashkov VII (47,1 % in the tool selection with intentionally predetermined shape), the extremely large proportion of their carinate varieties (29), correlates with the comparatively small prova features beginning from the end of the Early Ostashkovo interval and the Sagaydak type peculiarities in the peak of the glaciation.

The problem relating to the further destiny of the Rashkov culture traditions remains currently central. Some of its technological and typological characteristics can be traced on the Calfa complex (fig. 1 : 9). The industry of this site is based on the

flaking blanks (44 %), end-scrapers, including carinate and core-shaped ones, make up the majority (39 %) among the articles passed through secondary treatment, the number of burins, including on retouched truncation, core-shaped multifacial dihedral ones, is less significant, but the proportion of microtools is comparatively large (19,5 %). However the Calfa cultural specific character, that is poorly expressed by the Gravette microcomplex, including the method of microblade truncation (fig. 12 : 1, 2), solitary shapes of ogival end-scrapers and those with retouch on two edges, Noailles burin does not show the expected manifestation of the Rashkov originality. It cannot be undoubtedly justified by a scare number of articles (2 thousand flints and slightly more than 100 tools). The manifestation of another cultural trend within the frames of the same technological complex is more probable (BORZIAC, COVALENCO 1987). In accordance with the typological analysis of the materials, related to the Lower Dniester sites, and done by V. Stanco (1980; 1982) it is not inconceivable that the development line of the Zelyony Khutor traditions, which are directed through a number of successive stages, including Kamenka, Usatovo, Calfa etc. can be isolated. On the whole there are distinctly more archaic shapes and separate tool types of the Early Upper Palaeolithic, the Gravette microcomplex is expressed in a several stronger way, but without such a diversity. The tradition continuity of these sites group is manifested in Ciobrucci materials (fig. 1 : 10; SAPOJNICOV, 1987) where the proportion of microarticles from the selection with intentionally predetermined form ranges up to 33,8 %, that partially brings it closer to Greater Akkarzha (fig. 1 : 28; GRIGORYEVA 1967).

#### GRAVETTIAN TECHNOCOMPLEX

The elucidation of probable mutual influences and directions for transferring the information, encoded in the tool set, beginning from the earliest Gravette Dniester complexes, suggests the consideration of the correlation between the Molodova sites and a group of sites, scattered to the South and the South East from its area. The negative manifestations of the Ostashkovo glaciation coldest stage, which partly affected the Middle Dniester area (IVANOVA 1977, p.

167) resulted in abrupt decrease in the number of the well-known sites, belonging to this period, that does not rule out the migration of a part of the population to the Lower Dniester. The old technological and cultural traditions of the Molodova culture under new circumstances, in particular by using other sources of raw materials could not be applied in full measure. It may account for the loss of the specific cultural character and in some cases for the inexpressive tool set. With this typological character of the tool set, knapping technique and the blanks used in mind it can be tolerated to make certain correlations between layer 7 of Molodova V, middle layer of Babin I, late Palaeolithic lower layers of Cormani IV (fig. 1 : 14; CHERNYSH 1959, 1977, 1987) on the one side and Ciutuleshti at the Reut river (fig. 1 : 6; KETRARU 1965), Recea at the Ikel river (fig. 1 : 7; KETRARU 1989), layers 7-8 of Vladimirovka at the Siniukha river (fig. 1 : 24; CHERNYSH 1953), Iorjnitsa, Cureshnitsa, layers 14-17 of Cosoutsi in the southern part of the Middle Dniester area (fig. 1 : 2-3; GRIGORYEVA 1975; BORZIAC 1993) on the other side. The first group shows similar elements with Zamostye I at the Tcheremosh river (fig. 1 : 12; AMBROJEVICI, POPOVICI 1938), Rashkov VIII and upper layer of Climautsi II. The age of the majority of these sites is controversial, but a number of observations show that they refer to an earlier period than the postglacial one. As a rule, they are characterized by the typical prismatic striking technique, medium - or big-sized lamellar blanks, leading role of burins, priority of dihedral burins, which are often multifacial or multiple ones, method of shaping the lower tool part as a dihedral burin, indispensable presence of end-scrapers on large long blades, the absence or a relatively small number of microtools. The application of intensive edge retouch is marked therewith in Recea. Ciutuleshti is notable for 10-12 cm long tools, a series of symmetrical points, including a double one on large blade, notched base blades, which are close to the Rgani type, needle-shaped double micropoint on retouched truncation on two edges. The identity with the Molodova culture is out of question, the allusions to an earlier age of these sites are often justified (GRIGORYEV 1970, p. 55), but we consider any other historical scene in the peak of the Ostashkovo glaciation as even more controversial.

The stratigraphic attribution of lower layers (14-17; after the working numeration 6a-6g) of Cosoutsi site to the sediments, accumulated within the peak period of the Ostashkovo glaciation, conforms with their mixed tool set. The above characteristic of the Post-Molodova sites is supplemented in this case by the tool forms that are common for layer 7 of Molodova V - narrow sharpened points, including a needle-shaped one worked on two edges and scaled blades. However the same lower layers yielded micro-blades with slightly concave worked edge, larger pieces with straight or convex retouched truncation, truncated backed microarticles, and narrow rectangles were found in layers 15 and 16. The industries of these layers begin to manifest the features of a new cultural attributes totality. They one their origin to both the partial transfer of the Molodova culture traditions and the influence of their eastern neighbours - representatives of rising Anetovo culture (STANCO, GRIGORYEVA, SHVAYCO 1989; SMOLYANINOVA 1990) with rich and various micro-tool set, retouched burins and bone industry.

The main part of the Cosoutsi cultural layers, that is correlated with the late coldest stage of the Ostashkovo glaciation, is original enough to be singled out an independant cultural variety. Let us state its particularities on the basis of the Cosoutsi layers 6-13 materials (after the working numeration layers 2-5) :

- 1) The rough prismatic knapping technique, aimed at producing lamellar flakes as the leading blank type. The combination of irregular prismatic cores with limited striking front and more variable forms with flattened striking surface, complemented by cores elaborated the largest part of its perimeter and with the base narrowed in the form of wedge. Prevalence of microlithic forms and secondary cores to produce blades;

- 2) The leading role of burins and backed micropieces with the increasing proportion of the latter ones on passing on to upper layers. The small number of end-scrapers, pieces with retouched truncation and borers, scarcity of points, scaled articles and archaic forms;

3) The predominance burins on straight and oblique, often double, retouched truncation, including geometrical rectangular and parallelogram type varieties (fig. 15 : 8, 9) with arched edge. The continuous presence of atypical burins on core-shaped and amorphous spalls and wide cutting edges, which hardly differ from secondary cores. There are solitary multifacial, transverse and flat burins (fig. 14 : 38, 39);

4) The standardization of end-scrapers on lamellar flakes with subparallel or slightly divergent non-retouched edges, some of them with a broken base (fig. 16 : 6-8). The scarcity of end-scrapers with ogival edge, with long divergent retouched edges, on the striking platform of blanks and the absence of double ones;

5) The large number of backed bladelets (fig. 16 : 1-4, 7-16; 14 : 1-5, 9-13, 16-19), mainly with vertical edge retouch, that cuts the whole or the biggest part of its thickness to often form slightly concave outlines of the worked edge. Common is the transverse truncation, sometimes on two ends;

6) The diversity of micropoints, first of all Gravette ones, where double points on concave or straight backed bladelets, including 1,5-2 cm long ones, are the most important. Point on convex or humped backed bladelets, with two worked edges at the prick, prolonged straight truncated triangles, needled-shaped pieces on microblades with two retouched edges, Amvrosiyvka points with prolonged stings and microborers are rare in occurrence. Ventral treatment edges is not typical;

7) Characteristic are blades with arched retouched edge in combination with blades on retouched truncation (fig. 16 : 26, 29, 30).

In addition to it each layer has its own specific character. A prolonged triangle was found in layer 13, narrow rectangles were concentrated in layers 10 and 11, saws denticulate backed bladelets and solitary scaled pieces - in layers 8 and 9, besides there are carinate and lateral end-scrapers in layer 9, subwedge-shaped cores in 7 and 8, and carinate end-scrapers in combination with burins (fig. 15 : 11, 13), burins with thorn and cores with circular spalling system in 6.

The limited tool set of the Cosoutsi complex, the stable relation-ship between its components (tabl. 1) permit to correlate the Cosoutsi variant with any other tool set, that contains the numerically predominant tool groups in the following sequence : burins on retouched truncation and core-shaped ones, micro-Gravette points and backed bladelets, ordinary and shortened end-scrapers. Double micropoints with slightly concave backed edge, naturally convex opposite edge and both sharpened ends, that coincides with segment in its shape (fig. 16 : 5, 17), can serve as an indicator at the type level. Its microlithic analogue permits to dissociate it from the well-known Mezine tools with sharpened ends (SHOVKOPLYAS 1965). The microlithic complex of Anetovka II, that is notable for a diversity of shapes (GRIGORYEVA 1987) does not show within one piece the simultaneous combination of four parameters : concave worked edge, both ends sharpened, segment shaped of bladelets, used with straight profile.

What is intriguing is that the Cosoutsi materials correlate closely with Anetovka II ones. It manifests the highest similarity index (98,5 % in Cosoutsi layer 9 at the category level, 42,7 % at the type level). The majority of the sites, having such a high similarity index, are characterized by monoculture. In the case of concrete example it is ruled out and it is only probable to point out to a closer relation of the Cosoutsi cultural variety with the steppe zone sites. A considerable larger proportion of microtools in Anetovka II and accordingly a somewhat smaller one of burins, the absence of serial selections of points and scaled tools in Cosoutsi can be considered as a distinction from Anetovka II. There are no Sagaydak-Murallovo type micropoint and double end-scrapers in Cosoutsi, end-scraper on retouched blades and dihedral burins are not typical for it. In its turn core-shaped burins and on the whole amorphous and core-sharped blanks are not charactersitic of Anetovka II. At the same time there is no doubt in the identity of many burin shapes, their retouched truncation varieties, including double and geometrical ones, scrapers together with shortened varieties and microtools, in particular Gravette and retouched backed ones. It seems that the similarity of the Cosoutsi variety to the Anetovo community is determined by the similarity elements and the considerable influence, exerced at the early stage of the

## Cosoutsi community formation.

The analogue of the Late Molodova sites merit special consideration. Mainly it concerns layers 1A and 2 of Molodova V, Aktai II, two Late Palaeolithic upper layers of Molodova I. The leading role of burins, which are as a rule on retouched truncation or their varieties, the large number of double ones, the presence of core-shaped, transverse ones and those with arched retouched edge, evidences of Gravette and Akkarzha points, micropoints with slightly concave backed edge or sharpened ones, backed microblades with retouched truncation, irregular prismatic cores (dominating), primitive conic and flattened ones make these sites similar to Cosoutsi. Let us point out to the presence of rectangulars in layers 10-11 in Cosoutsi and in layers 1, 1A, 2 in Molodova V, wide rectangles in layer 5 of the same site, to method of transverse truncation of microblades in upper layers of Molodova I. The repeated correlations of the Cosoutsi layers with "the late stages of the Molodova culture development" (BORZIAC, DAVID 1986; BORZIAC 1993) are as matter of fact acceptable in many respects. But the similar correlations cannot be perceived within the frames of monoculture. You should not forget such peculiarities of the Late Molodova sites as the wide use of lamellar blanks, sometimes up to 7-9 cm long, for all that large proportion of dihedral burins, lesser diversity of micropoints, presence of lamellar points, double truncated pieces in some layers, more advanced knapping technique, while the number of discoid shapes is not considerable (CHERNYSH 1982; 1987). The difference in the percentage of micropieces (4-12 % of the Late Molodova and 24-38 % of Cosoutsi), the absence of specific Cosoutsi micropoints make this relationship conjectural. Alongside with it you cannot totally exclude the thesis of the probable Cosoutsi influence on the formation of the Late Molodova culture.

The collection of the fourth Cosoutsi layer is deliberately excluded from the consideration within the frames of the Cosoutsi variety. With the similar tool set, including even some typical forms of this variety, the materials of this layer clearly shift the emphasis in the structural correlation of the tool complex, show new types of articles and more close relations with the steppe sites of Greater Akkarzha type.

The typological character of Cosoutsi layer 4 (after the working numeration - 1) is defined by a number of parameters :

1) The knapping technique was more characterized by cores, produced on the basis of circular spalling system, microcores for making bladelets and by boat-shaped forms with two striking platforms. The percentage of the blanks used changed. If layers 6 and 9 yields 37 % of flakes, 20 % of blades and 37 % of microblades, so layer 4 shows 26 %, 25 % and 38 % of blanks accordingly;

2) The proportion of microtools increased (up to 36,8 %), where sections and fragments of microblades with vertical backed edge have a dominant role. The method of transverse truncation continues to be used on microliths, including narrow rectangles and a prolonged triangle. The specific Cosoutsi type of micropoints is less pronounced, but at the same time needle-shape and Amvrosyevka varieties, microborers with pronounced heads and Gravette forms on bladelets, sometimes retouched on ventral surface of the point are shaped more clearly (fig. 14 : 19-35);

3) The decrease in the percentage of burins brought about the nomenclature impoverishment, but it did not only affect the range of core-shaped forms that joined the numerous group of secondary cores. The burin spall is used by shaping the back of knife-like articles;

4) The typological differentiation of end-scrapers, that are made on ribbed blanks, retouched flakes and to a lesser extent on shortened blades, increased. Serial are the end-scrapers with slightly divergent abruptly retouched edges on lamellar flakes. The working ends are variously shaped, including truncation and straightening (fig. 13 : 1-12);

5) The group of borers with short and extended stings became the stable component of the tool set (fig. 13 : 14-20). Articles with abrupt truncation (fig. 14 : 17, 18), with retouched truncation and carelessly worked point appeared.

On the whole the abundance of retouched micropoints, narrow rectangles, microblades Gravette cross-sections, shortened end-scrapers with intensive edge retouch, serial borers, core-shaped burins and burins on retouched truncation can be considered as the distinctive features of Cosoutsî layer 4.

Now let us turn to the Late Glacial sites of the Moldavian Dniester area, that can be correlated with the Late Molodova culture on a number of criteria. The first two complexes Ataki II and Vadu-Rashkov (fig. 1: 1, 5), that are similar to them, fall within the correlation dependence system, that brings the materials of Molodova V layers 1A and 2, in coincidence with two upper Late Palaeolithic layers of Molodova I (CHERNYSH 1982, 1987). The totality of these sites, that make up the first subgroup of the Late Molodova community, differs somewhat from the other more amorphous subgroup, represented by the materials of Molodova V layers 1, 3-5, "mesolithic" Molodova I layer, those of Vrublevtsi and by a site within the Moldavian territory - Ataki I (fig. 1: 1).

The established idea of the integrity and the specific character of the Late Molodova culture can be confirmed by correlating it with the sites of the adjoining territories only on the basis of the relationship between the main tool categories and the choice of the primary blank. Its typological analysis determines the following features of the Late Molodova sites:

1) The predominant use of lamellar middle - and small-sized blanks, which are produced from prismatic and cone-shaped cores with correct cutting, which are supplemented by secondary and microlithic cores for making microblades, whose proportion is comparatively small;

2) The leading role of burins, that are superior in number (more than 50 %) over the other tool varieties taken together. The predominance burins on retouched truncation and double, including geometrical and grooved burins-chisels (for the first time was defined by M. Anikovich) in the first subgroup and the equal percentage of the main forms in the second one;

3) The developed Gravette set of a comparatively small number of microtools. The prevailing truncation of both ends, which is especially characteristic of narrow rectangles and prolonged triangles. The presence of articles with arched retouched back;

4) The abundance of simple end-scrapers forms, from time to time with straightened, truncated, ogival working end or shortened base. Retouched edges are not typical. But if they are found they are only characteristic of end-scrapers with parallel abruptly retouched edges or of short end-scrapers with slight divergent edges;

5) The component stability of blades with retouched edges or on concave retouched truncation and in some cases combined with lamellar points.

Truncated backed bladelets (the so called "extended rectangles"), which were at first perceived as the types determining the culture, were subsequently discovered on a number of sites outside the Dniester zone. Only rectangles on extremely prolonged microblades with correct cutting, where the relation between the length and width is equal to 7 : 1, that is found in layers 1, 1A and 2 of Molodova V (CHERNYSH 1987, fig. 35) is strictly localized. It can be relatively correlated with the finds from layer 5 of Ceahlau-Dirtsu (CHIRICA 1989) and with those of Kamennyie Balki (BORISKOVSky, PRASLOV 1964). However in the given examples they don't have the proper retouched truncation along the whole thickness of a blank and the dimensions are a little bit smaller than the Late Molodova ones. The analogies can be only admitted with the identical microarticles from the site of Yama (NEPRINA, ZALIZNIAK, KROTOVA 1986).

Any other type of articles ("extended triangles", "prolonged trapezes", "Azilian points") cannot pretend to play the role of the key element in determining the culture due to its formal instability or its identifiable counterparts in the other cultural complexes.

The comparative correlation of one-type complexes of related sites helps up to perceive the significance of the Late Molodova community as a specific cultural

phenomenon. The definition of the Late Molodova culture as a Gravette one (ANIKOVICH 1992) predetermines its relationship with the sites of the Carpathian forest-steppe zone. As to A. Paunescu (1984, p. 261-262), he admits synchronizing layers 1-3 of Molodova V with layer 6 of Bistricioara-Lutarie, layer 5 of Ceahlau-Dirtsu, layer 2 of Ceahlau-Bofu Mic, etc. After having supplemented this list of sites, which are correlated with the Late Glacial period, with layers 3 and 5 of Ceahlau-Podish, Dorohoi, Topila, Udeshti (CHIRICA 1989), let us dwell on formulating the counter-arguments, that exclude the probability of their including into the Late Molodova group of sites, though I. Borziac (1983, p. 58) proposes exactly this interpretation of the Carpathian sites of Moldova and G. Grigoryeva's and N. Ketraru's attitude (1983, p. 86-87) is close to it. In our opinion, the cultural similarity of the Carpathian and Late Molodova sites manifests itself in a limited set of common attributes, which are characteristic of "Eastern Gravettian" on the whole. The structural order of the tool sets are in the main incompatible. Let us mention some of them :

1) End-scrapers and micropieces are predominant in the Carpathian tool set, burin are less numerous. The ratios of end-scrapers and burins vary considerably (90 and 65 in Dorohoi, 57 and 28 in Dolhasca) or are close to parity (Topila, Buda);

2) The quality of end-scrapers, which are produced mainly on flakes, including massive and carinate ones is different (in Topila and Dolhasca their ratio exceeds 5 % from the total number of tools), as well as circular, microlithic or thumbnail-shaped ones, pieces with abrupt retouch on both edges;

3) The Gravette component is represented more clearly in one of the most numerous tool categories, the range of tools is more various, the pieces with arched retouched back and extra sharpened micropoints are considerably more numerous.

We have a weighty reason to define an independent archaeological culture on the basis of the Late Glacial sites from the Carpathian zone of Moldova. In this connection we would underline V. Chirica's

(1989, p. 133) conclusion on the distinctness of the above group of sites among the Gravette sites of Rumania.

If we examine the Late Molodova community from the viewpoint of a probable "reservoir", that is able to encompass a number of Gravette sites of Moldavia - Vadu-Rashkov (fig. 1 : 5), Ataki I and II (fig. 1 : 1), we should not confine ourselves to the research, aimed at revealing the independent archaeological cultures. The inclusion of the latter ones in the same community with the well-studied Late Molodova culture must brisk up the research process at the level of detailed distinctions. In this connection let us touch on the specific character of Vadu-Rashkov, Ataki I and II.

The Ataki I complex shows the clearly expressed type of cone-shaped core, backed along the biggest part of its parameter, a fairly considerable amount of secondary cores. The numerically superior group of burins is characterized by the equal ratios of the main groups, whereas dihedral burins, which are sometimes flattened and multifacial and have intensive retouch on both edges. The majority of end-scrapers have a straightened working edge, there are a few carinate pieces with abrupt retouch on edges. The backed pieces and saws are rare. There are a scaled blade and a fragment of a biface with a single convex base.

The Ataki II collection (fig. 17-19), while reflecting in general the similar knapping technique with that of Ataki I, contains coneshaped core varieties and a group of microcores. The numerically superior burins are notable for transverse ones, including Suponev burins on lateral notch, the end-scrapers are notable for two core-shaped ones, one of which is narrow and prolonged. The ogival end-scrapers are clearly shaped. The microcomplex includes a narrow rectangle, a prolonged triangle and Gravette points, in addition retouched on ventral surface. Saws and lamellar points are also met (KETRARU 1973).

The specific character of the Vadu-Rashkov materials is conditioned by a set of small lamellar points with abrupt retouch on edge, in one case it is convex, as well as by micropoints on straight retouched truncation along the whole thickness of a relatively massive blank with straight ventral retouch,

in combination with needle-shaped pieces with convex retouch on edge (fig. 20). Taking into consideration the proximity of Vadu-Rashkov to the Lower part of the Middle Dniester, the diversity of the Gravette set, the prevalence of points, truncated pieces, we shall not insist on its unconditional relationship only with the Late Molodova centre. The new data must throw the light on the existing uncertainty.

## CONCLUSION

The comparison and analysis of the data, accumulate by now in respect of the Upper Palaeolithic sites of the Moldavian Dniester area permits considering the process of cultural and historical development in this area on the basis of the contacts between two large technological and typological formations, represented by the Aurignacian and Gravette technocomplexes. Inside the former one it is outlined the cultural and genetic continuity from the Lower Dniester archaeological culture (Climautsi I, Zelyony Khutor I and II) along two lines : from Climautsi I to the lower and then to upper layer of Climautsi II, continue in Rashkov VIII and VII, and from Zelyony Khutor II to Kamenka, Usatova and Calfa. The loss of the cultural specific character by the early sites at the middle development stage (Climautsi II) is due to the influence of the Molodova cultural traditions carriers, forced to migrate under the circumstances of the increasing stadial fall of temperature. The penetration of the representatives from the Central European circle of the Sagaydak type sites into the zone of Southern Russian steppes is observed by the end of the Early Ostashkovo period. In the Dniester area the alien Aurignacian traditions are superimposed on the local industry, that functions within the frames of the same technocomplex. This process results in the formation of the original Rashkov culture with a developed Aurignacian tool set.

The different line of the Upper Palaeolithic development in the Dniester zone is reflected in the materials from the sites of Gravette technocomplex. The earliest ones from them probably precedes the coldest stage of the Ostashkovo Glacial period. The decrease in the number of the well-known sites in the Molodova archaeological culture

area and the presumed outgoing of the population to the Southern part of the Middle Dniester area and to the valleys of the rivers Reut, Ikel and other tributaries of the Lower Dniester are observed by the beginning of this period. The migration of the Molodova cultural tradition carriers was reflected in the inadequate reproduction of its peculiar features. It is confirmed by the insignificant cultural character by defining the sites of the Iorjnitsi, Cureshnitsi, Ciutuleshti, Reci and other types. A number of features, inherited from the Molodova community are met with the Cosoutsu cultural variety, that was under the strong influence of the Anetovo cultural tradition carriers at the stages of its formation and successive development. The continuation of the Gravette traditions can be retraced in the peculiar character of the Late Molodova culture, whose perception variability allows it to include the sites of Vadu-Rashkov, Ataki I and II, that are close to it in their culture, within its sphere.

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Table I. Frequencies of flint pieces from Moldavian Dniestr sites.

| Artefacts Sites       | Total number of flint artefacts | including tools | Scrapers | including carinate/core-shaped | Burins | including on retouched truncation | Backed bladelets | including micro-points | Points/borers | Truncated pieces | Scaled pieces |
|-----------------------|---------------------------------|-----------------|----------|--------------------------------|--------|-----------------------------------|------------------|------------------------|---------------|------------------|---------------|
| Ataki I               | 1109                            | 124             | 17       | 3                              | 60     | 14                                | 2                | 1                      | 5             | 2                | 1             |
| Ataki II              | 2749                            | 185             | 37       | 2                              | 92     | 35                                | 16               | 6                      | 6             | 3                | -             |
| Iorjnitsa             | 4078                            | 181             | 48       | 5                              | 49     | 13                                | 7                | 4                      | 8             | -                | 4             |
| Cureshnitsa           | 2558                            | 111             | 28       | 2                              | 24     | 8                                 | 5                | 2                      | 5             | -                | -             |
| Cosoutsî layer 4      | 18322                           | 229             | 26       | -                              | 52     | 16                                | 89               | 25                     | 12            | 4                | -             |
| Cosoutsî layer 6      | 12425                           | 328             | 22       | 1                              | 106    | 40                                | 123              | 46                     | 8             | 1                | -             |
| Cosoutsî layer 7      | 767                             | 32              | 2        | -                              | 4      | 1                                 | 20               | 2                      | -             | -                | -             |
| Cosoutsî layer 8      | 10907                           | 163             | 49       | -                              | 49     | 29                                | 33               | 16                     | 1             | 4                | 1             |
| Cosoutsî layer 9      | 35462                           | 482             | 37       | 2                              | 195    | 79                                | 149              | 60                     | 15            | 17               | 1             |
| Climautsi I           | 3680                            | 519             | 46       | 23                             | 37     | 7                                 | -                | -                      | 10            | -                | 3             |
| Climautsi II, layer 1 | 4503                            | 232             | 28       | 5                              | 92     | 18                                | 3                | -                      | 1             | 4                | 3             |
| Climautsi II, layer 2 | 597                             | 66              | 13       | 6                              | 27     | 4                                 | 1                | -                      | 1             | -                | 3             |
| Vadu-Rashkov          | 7013                            | 150             | 26       | -                              | 52     | 16                                | 18               | 5                      | 7             | 6                | -             |
| Rashkov YII           | 51212                           | 2407            | 1043     | 642                            | 759    | 336                               | 142              | 27                     | 68            | 22               | 8             |
| Rashkov YIII          | 8770                            | 763             | 113      | 47                             | 282    | 87                                | 40               | 7                      | 13            | -                | 6             |
| Calfa                 | 1911                            | 113             | 32       | 7                              | 24     | 5                                 | 16               | -                      | 2             | 3                | 1             |
| Ciobruçi              | 11360                           | 475             | 97       | 9                              | 53     | 21                                | 98               | 19                     | 15            | 13               | 4             |

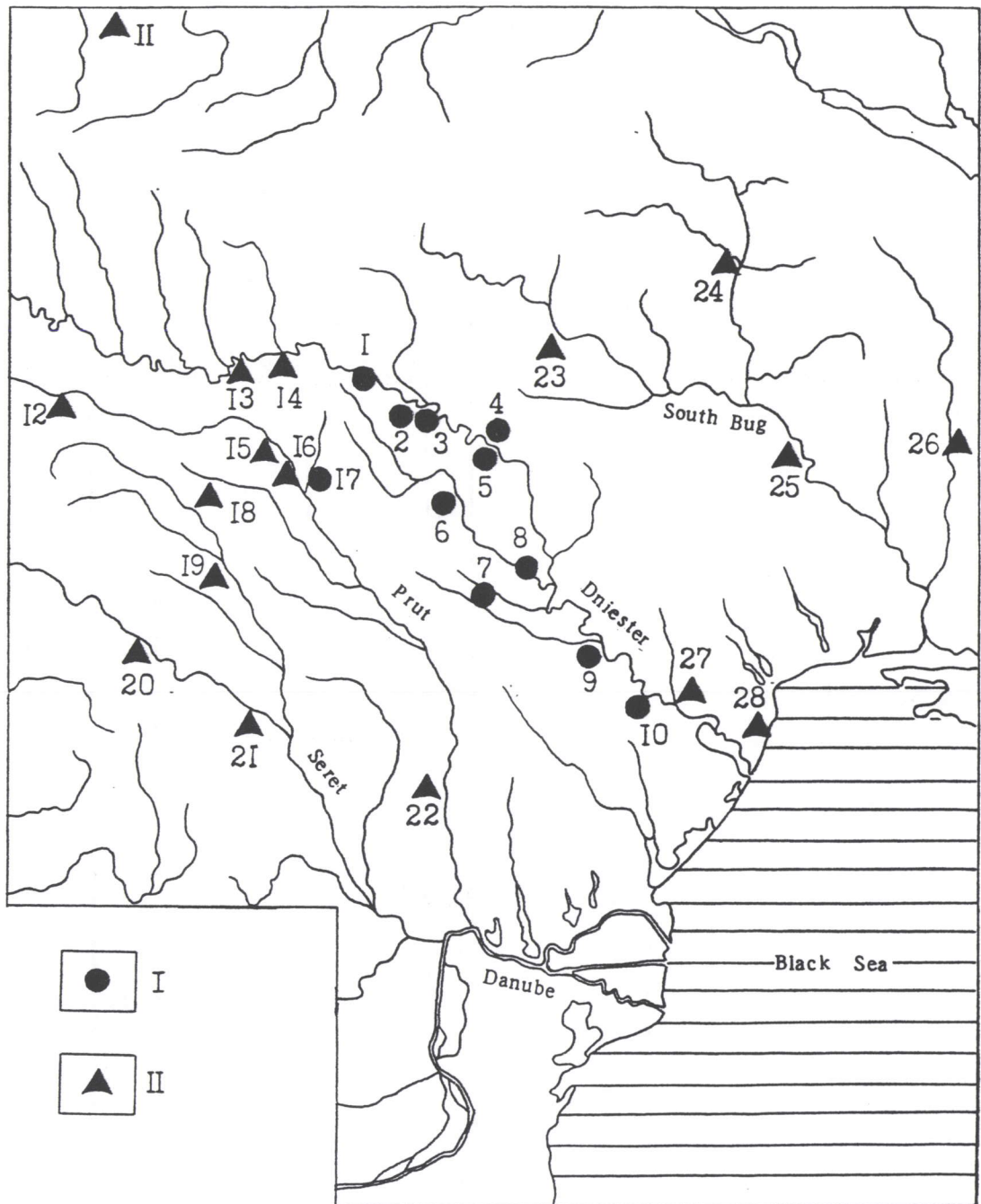


Figure 1. Map of the Upper Palaeolithic sites of the Moldavian Dniester area and the adjacent territories.

I - Sites of Moldavia; II - Sites of Ukraine and Rumania.

- |                                       |                               |
|---------------------------------------|-------------------------------|
| 1 - Ataki I and II;                   | 15 - Mitoc;                   |
| 2 - Iorjnitasa, Cureshnitsa;          | 16 - Ripiceni;                |
| 3 - Cosoutsy;                         | 17 - Costeshti;               |
| 4 - Rashkov VII and VIII;             | 18 - Dorohoi;                 |
| 5 - Vadu-Rashkov, Climautsi I and II; | 19 - Udeshti;                 |
| 6 - Ciutuleshti;                      | 20 - Ceahlau;                 |
| 7 - Recha;                            | 21 - Buda;                    |
| 8 - Scoc;                             | 22 - Malushteni;              |
| 9 - Calfa;                            | 23 - Leski, Ivashkovo VI;     |
| 10 - Ciobrucy;                        | 24 - Vladimirovca;            |
| 11 - Culichivca;                      | 25 - Anetovka I and II;       |
| 12 - Zamostye I;                      | 26 - Sagaydak I;              |
| 13 - Molodova V, Babin I;             | 27 - Zelyony Khutor I and II; |
| 14 - Molodova I, Cormani IV;          | 28 - Greater Akkarzha.        |

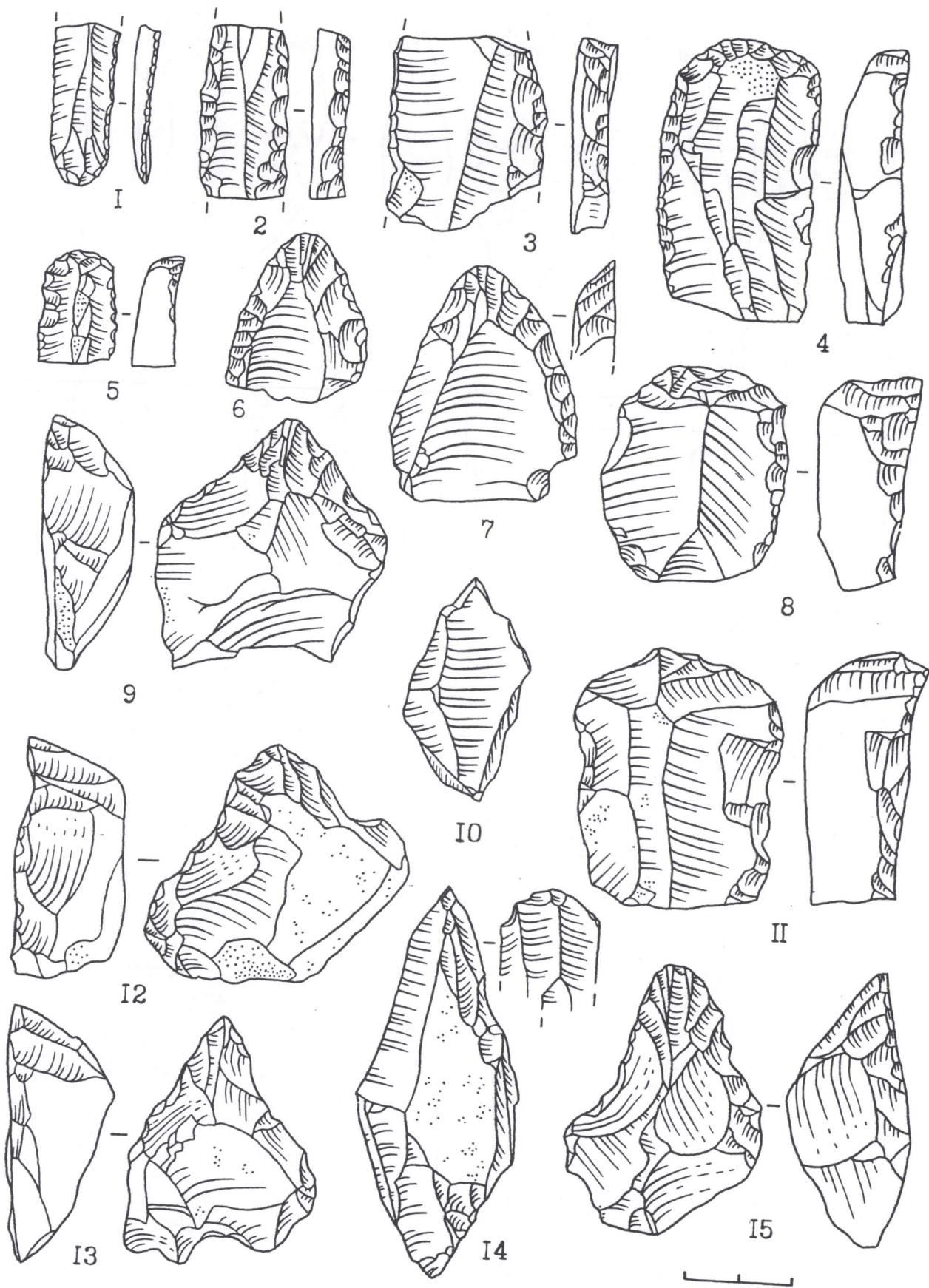


Figure 2. Flint tools from Climausti I (after I. Borziac).

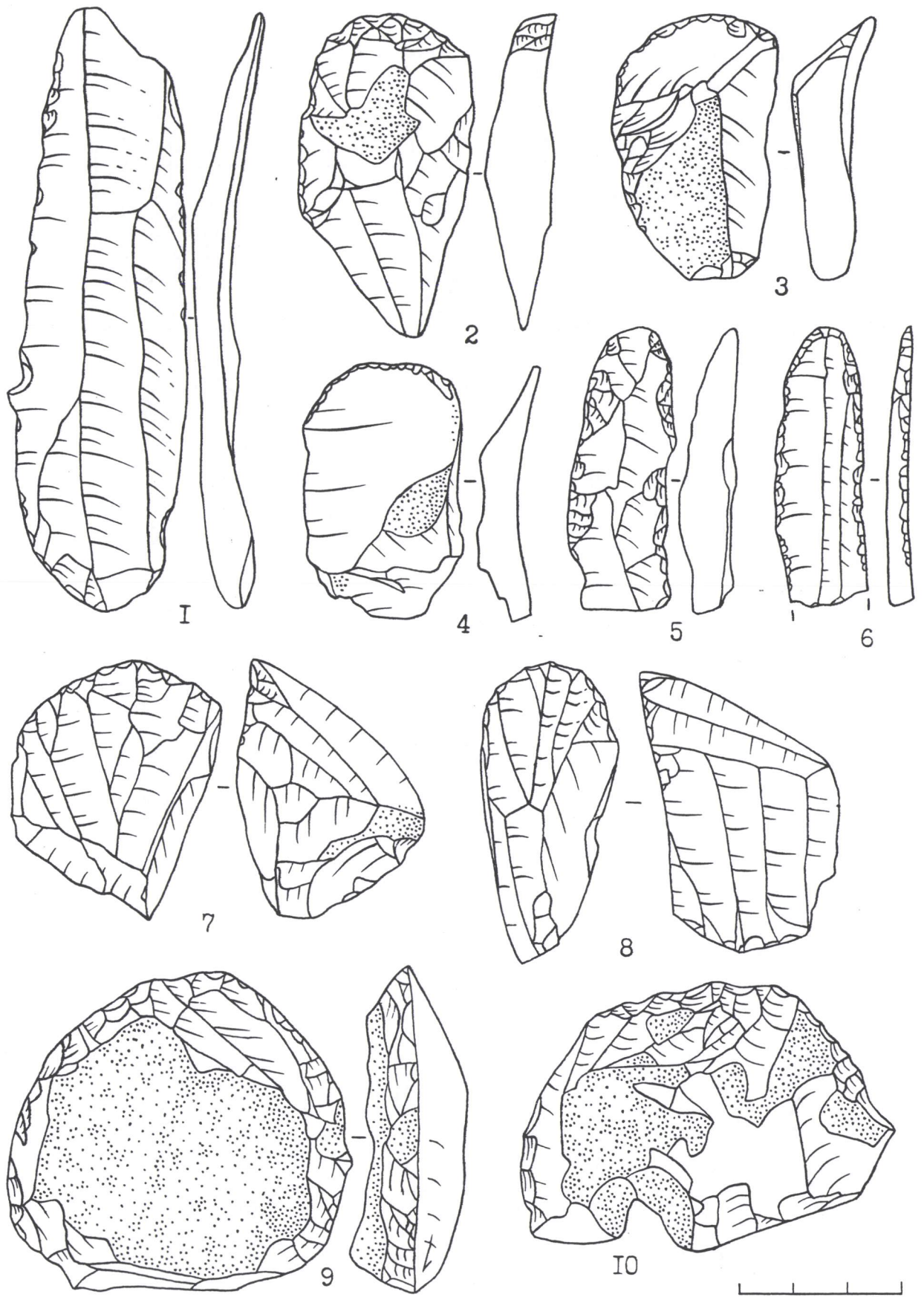


Figure 3. Flint tools from Climatsi II, layer 2 (after I. Borziac).

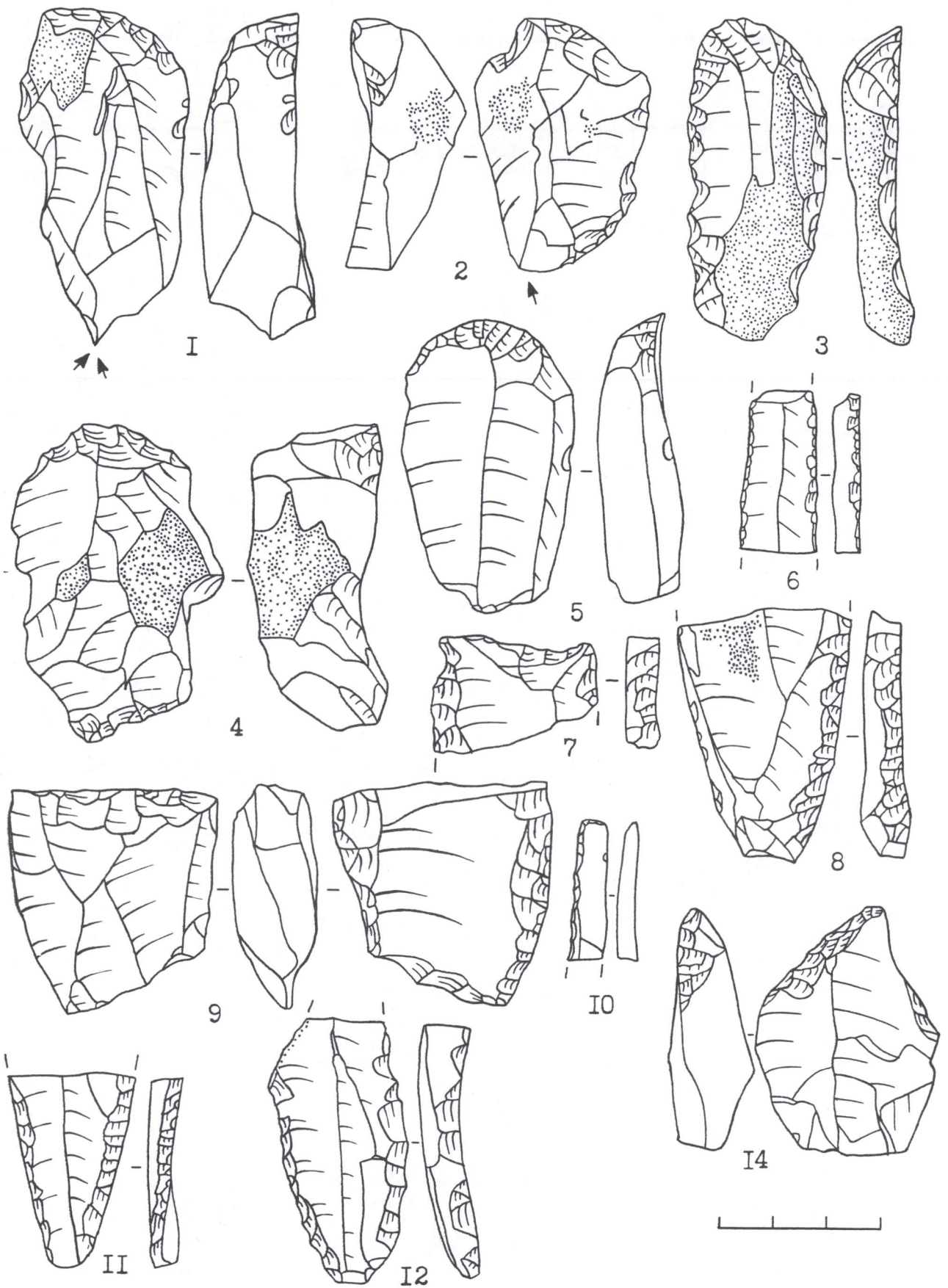


Figure 4. Flint tools from Climautsi II, layer 1 (after I. Borziac).

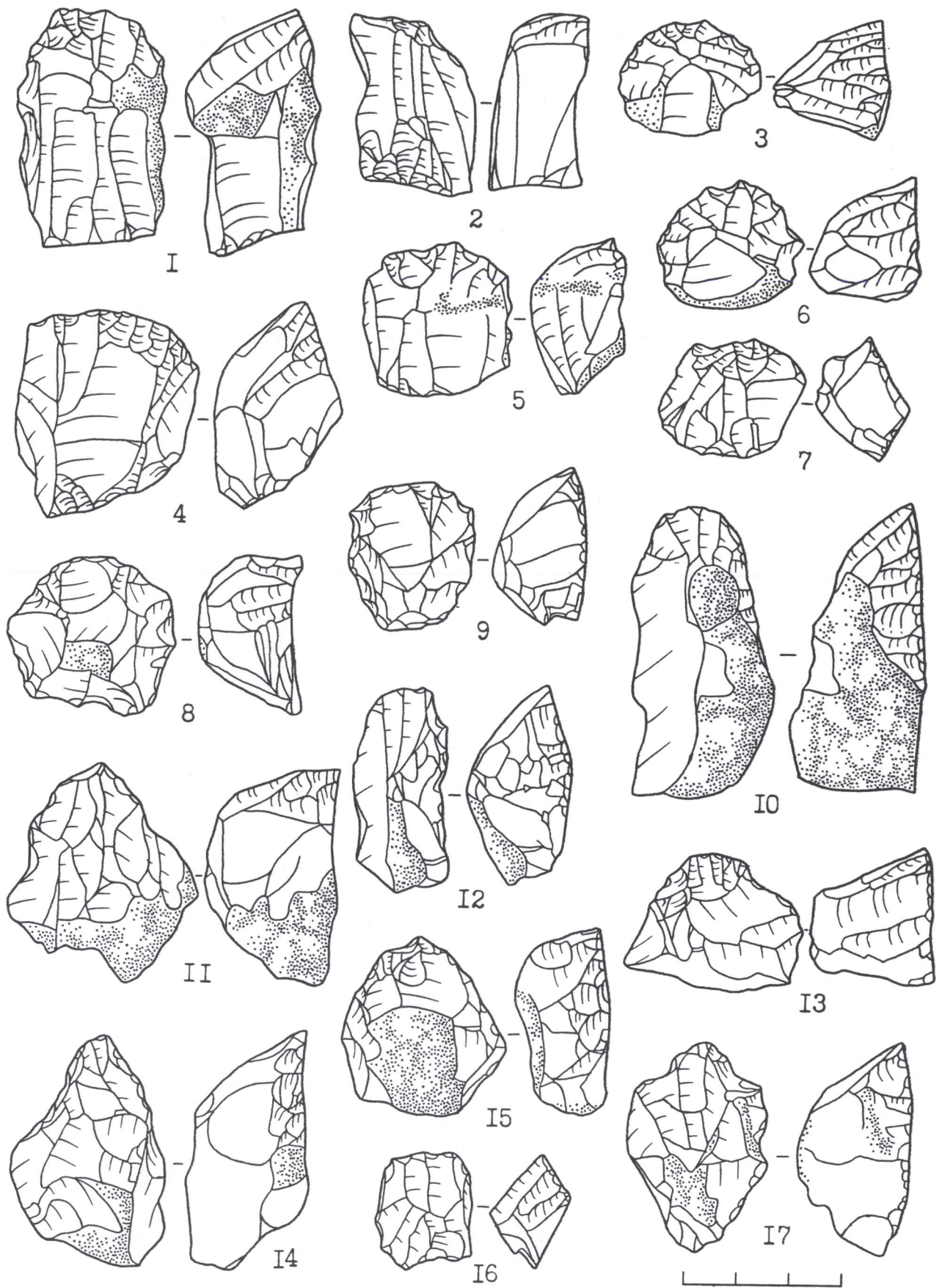


Figure 5. Flint tools from Rashkov VII (after N. Ketraru).

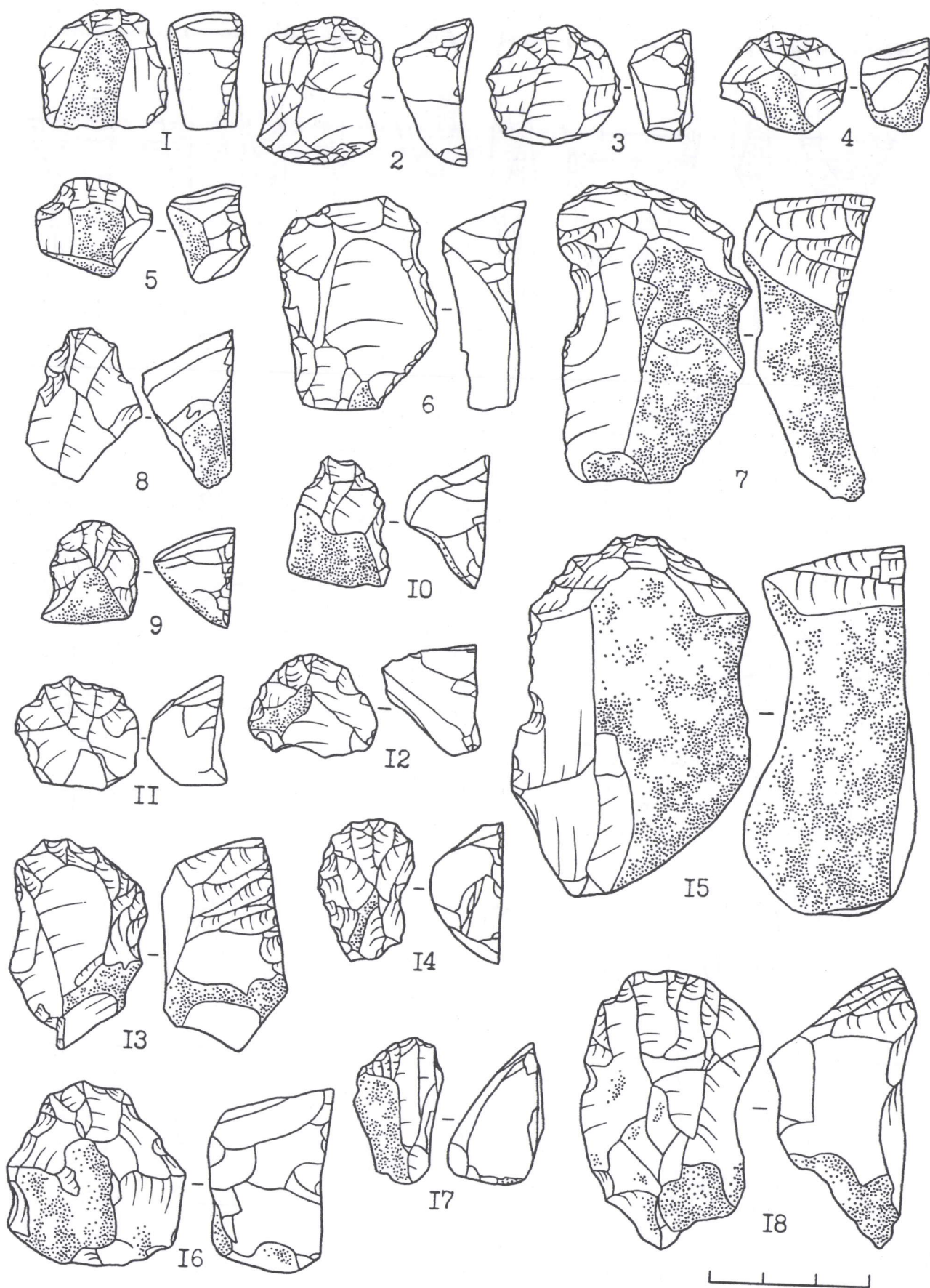


Figure 6. Flint tools from Rashkov VII (after N. Ketraru).

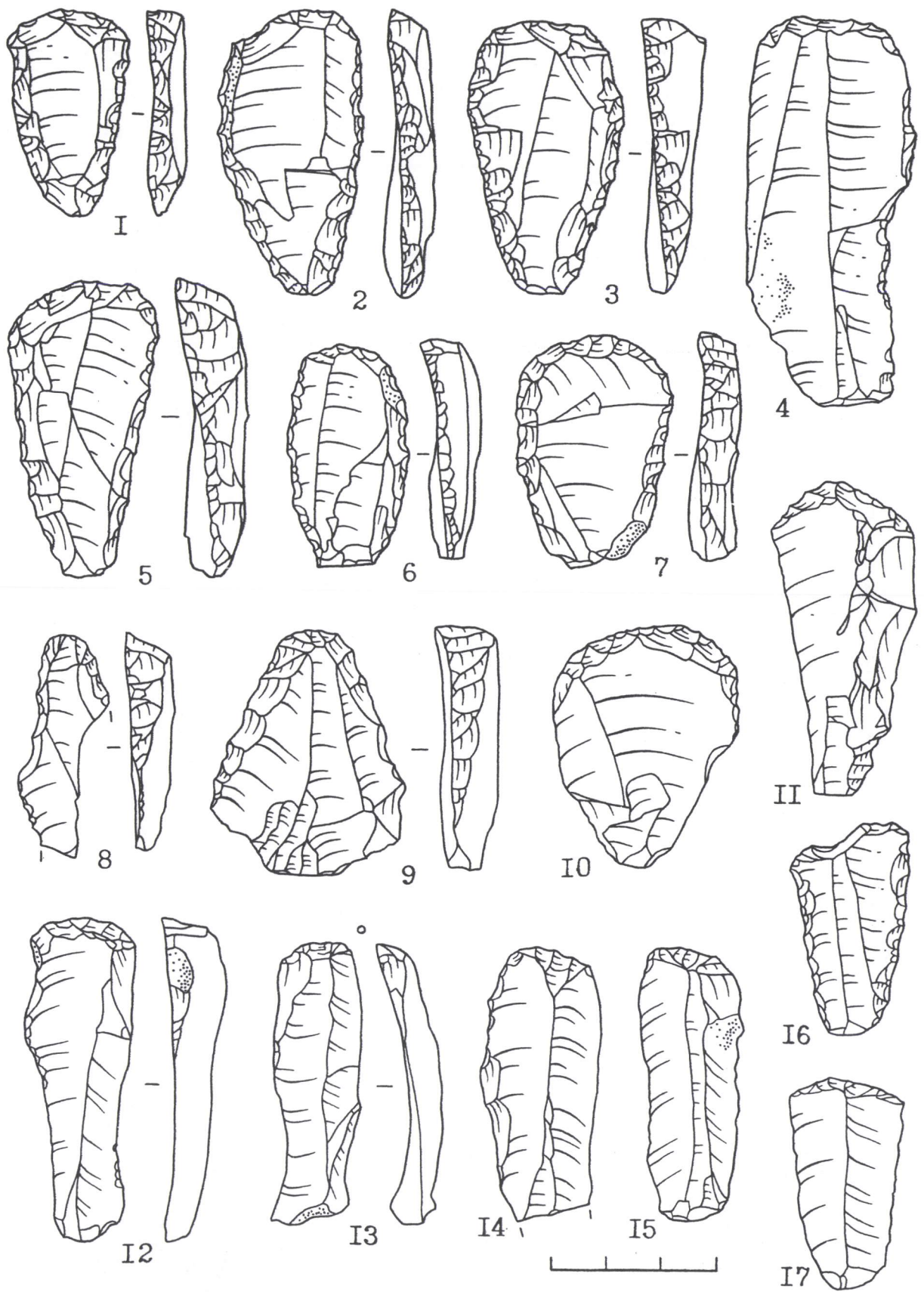


Figure 7. Flint tools from Rashkov VII (after N. Ketraru).

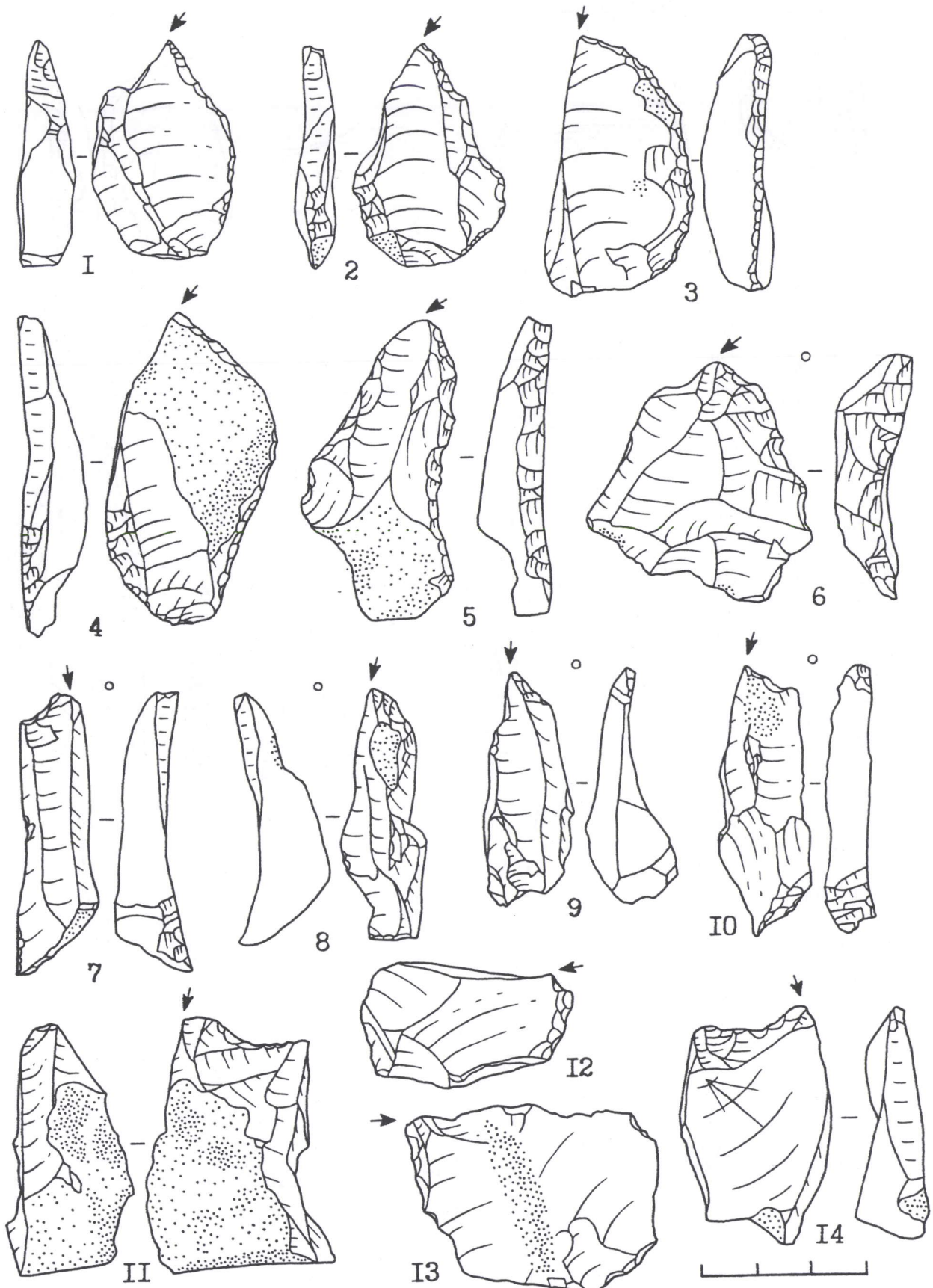


Figure 8. Flint tools from Rashkov VII (after N. Ketraru).

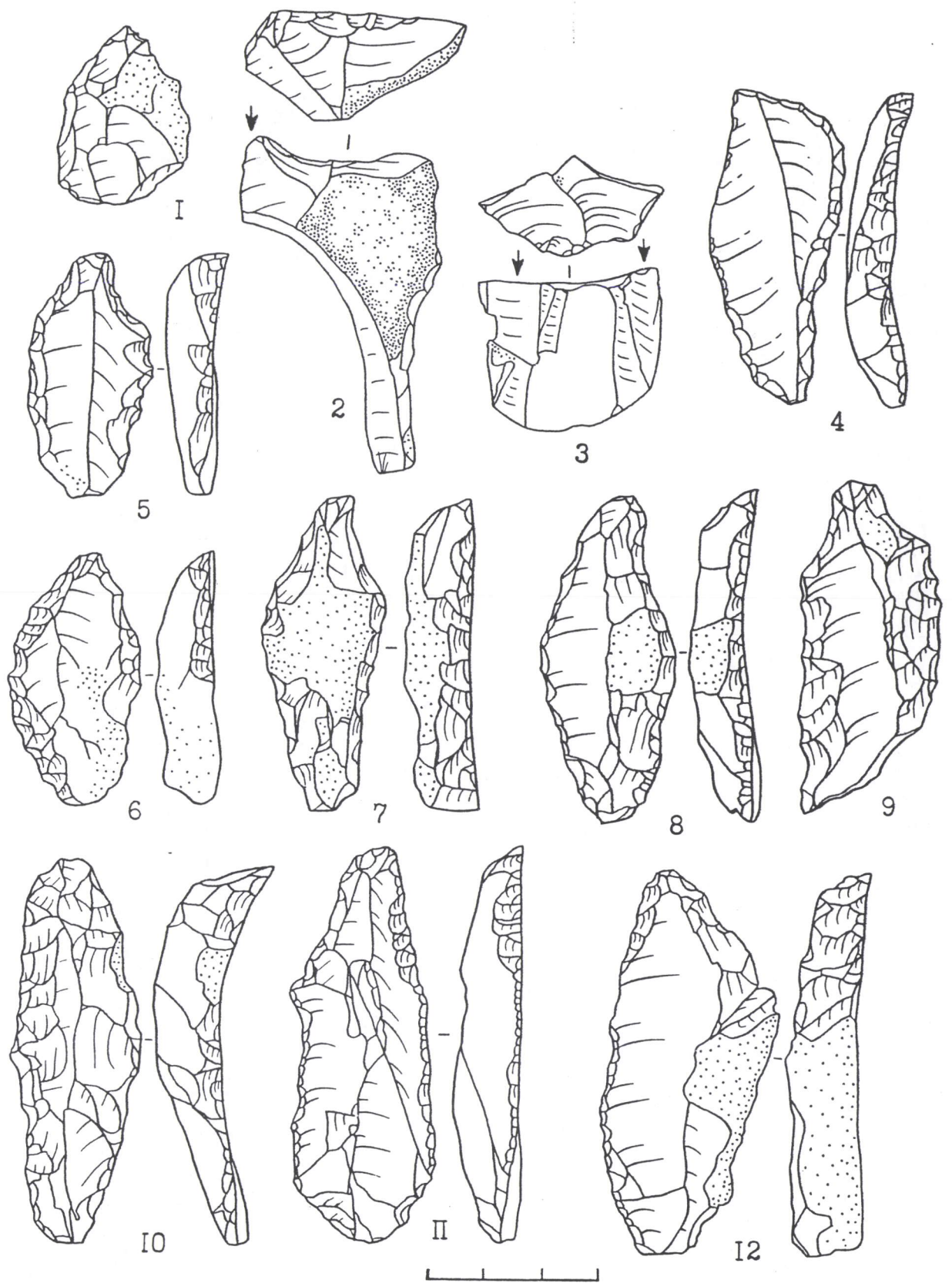


Figure 9. Flint tools from Rashkov VII (after N. Ketraru).

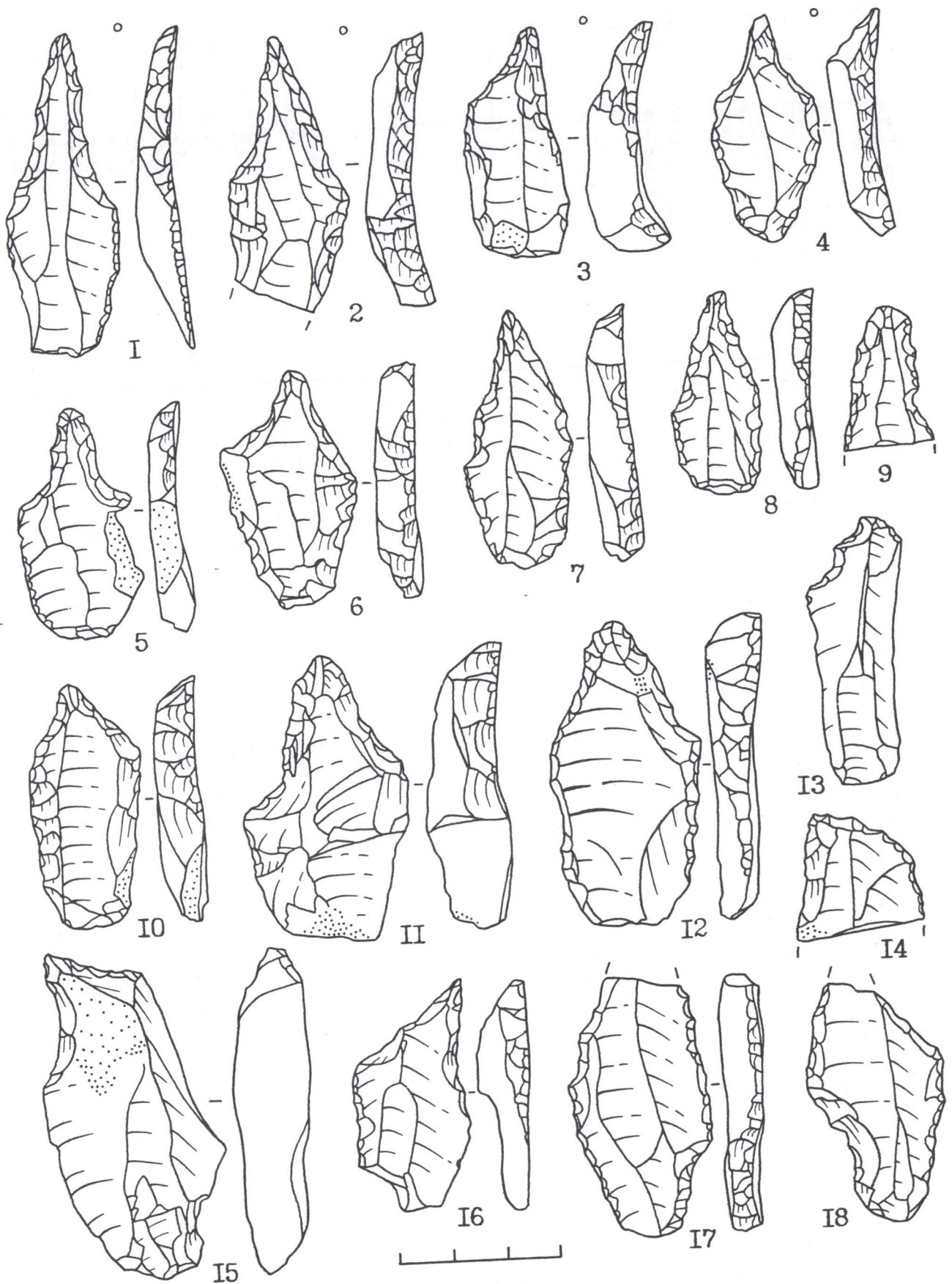


Figure 10. Flint tools from Rashkov VII (after N. Ketraru).



Figure 11. Flint tools from Rashkov VII (after N. Ketraru).

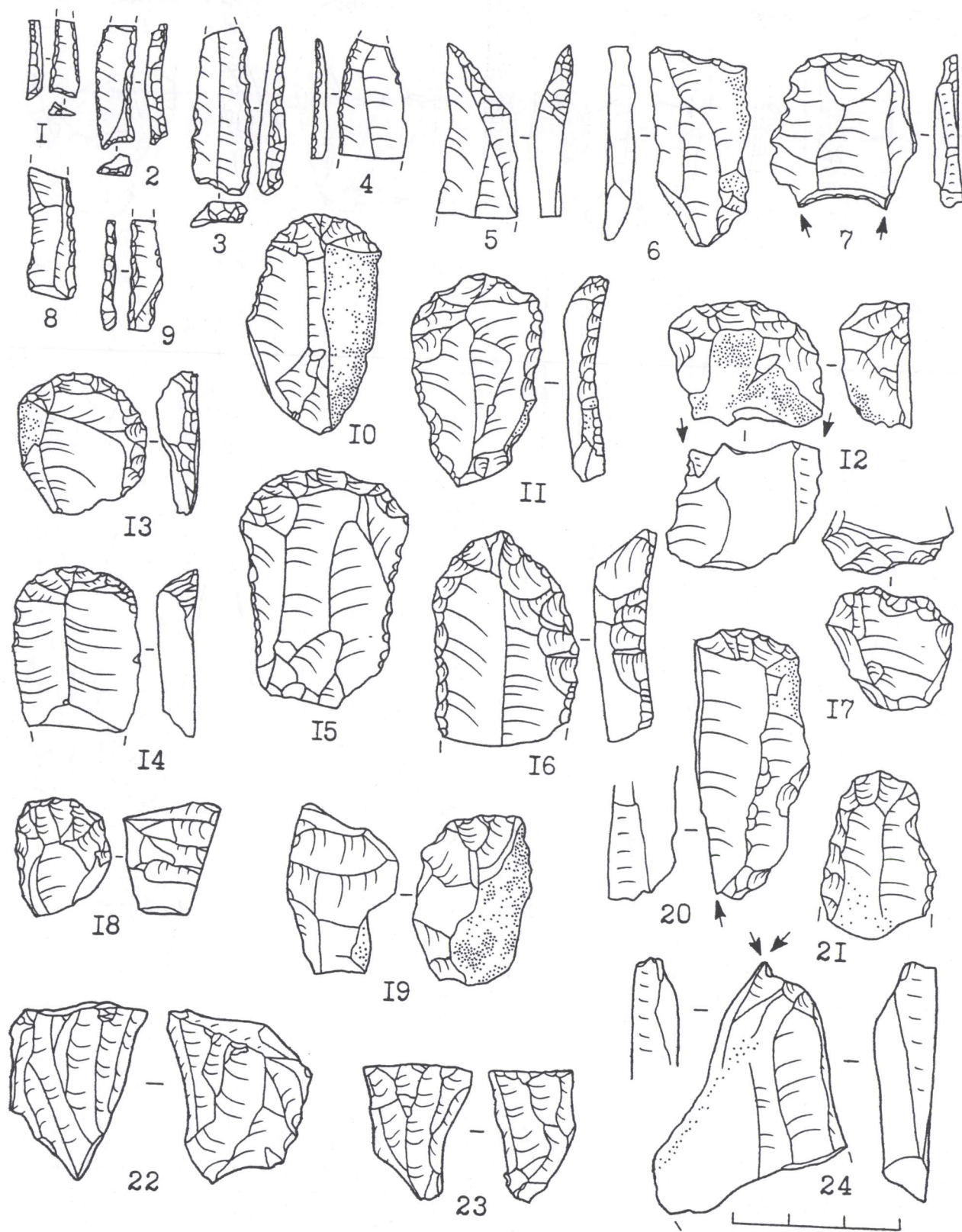


Figure 12. Flint tools from Calfa.

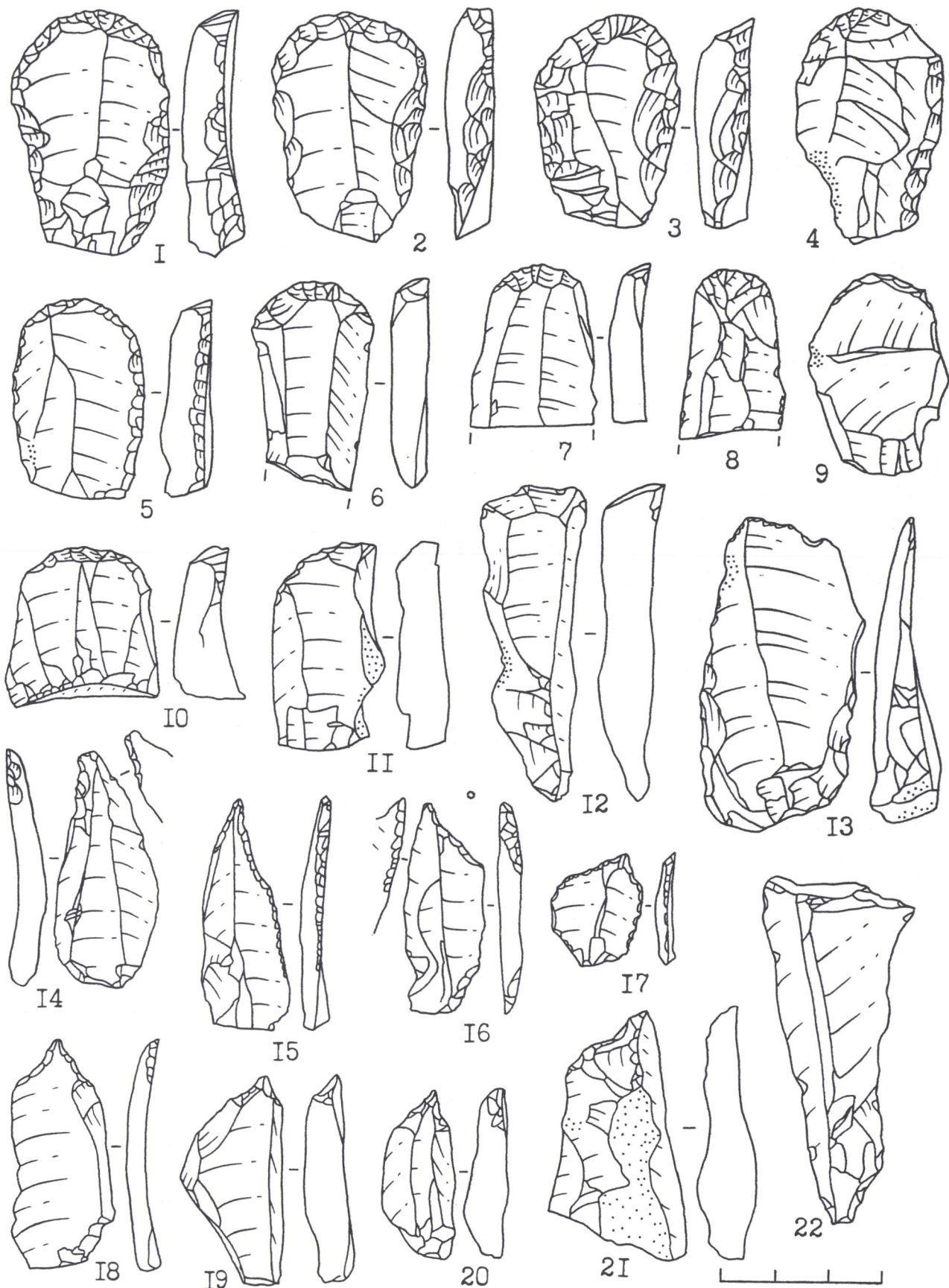


Figure 13. Flint tools from Cosouts, layer 4 (after I. Borziac).



Figure 14. Flint tools from Cosoutsí, layers 7 (1-16), 4 (17-37) and 6 (38, 39).

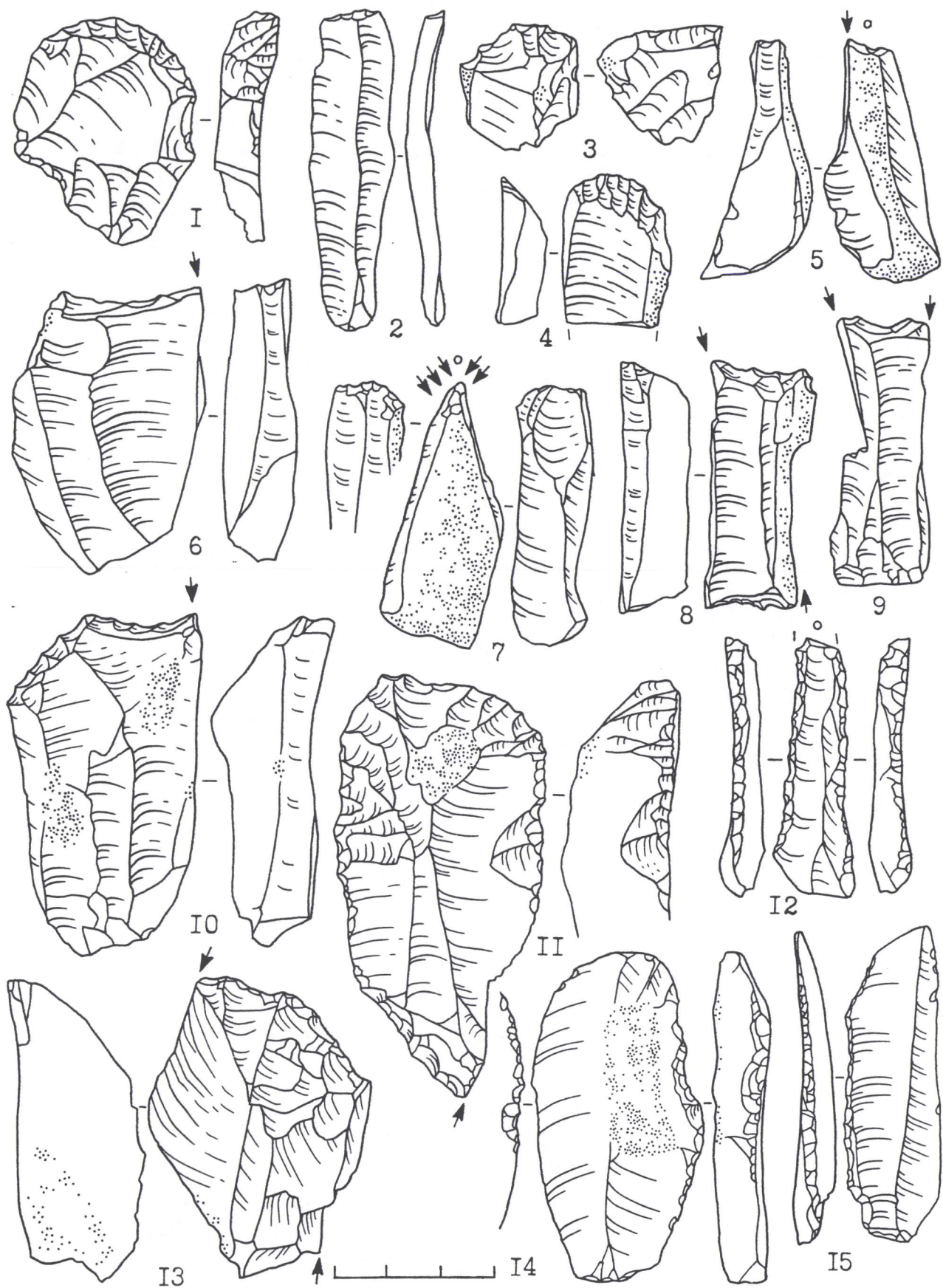


Figure 15. Flint tools from Cosouts, layer 6 (after I. Borziac).

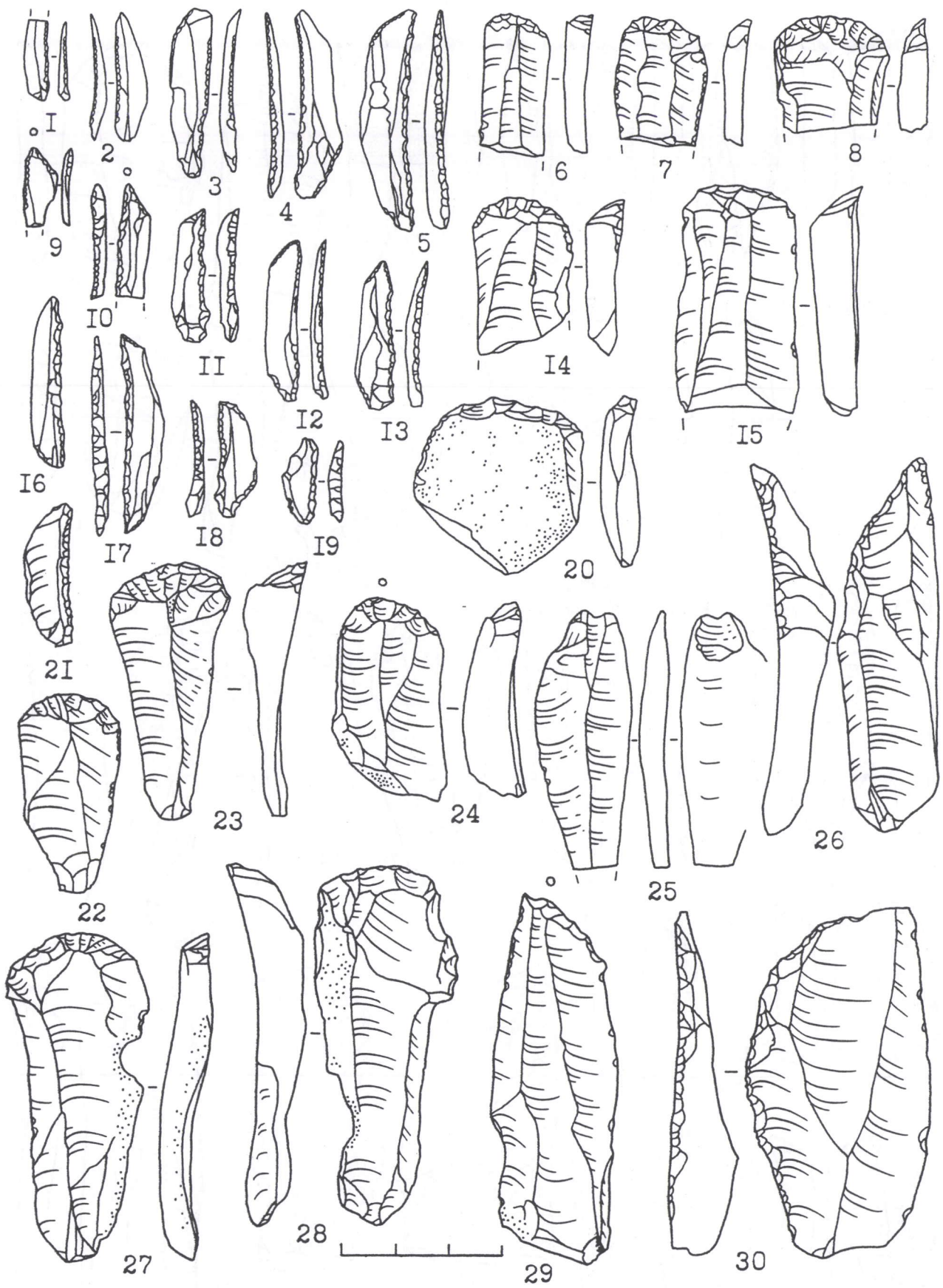


Figure 16. Flint tools from Cosouts, layer 8 (after I. Borziac).

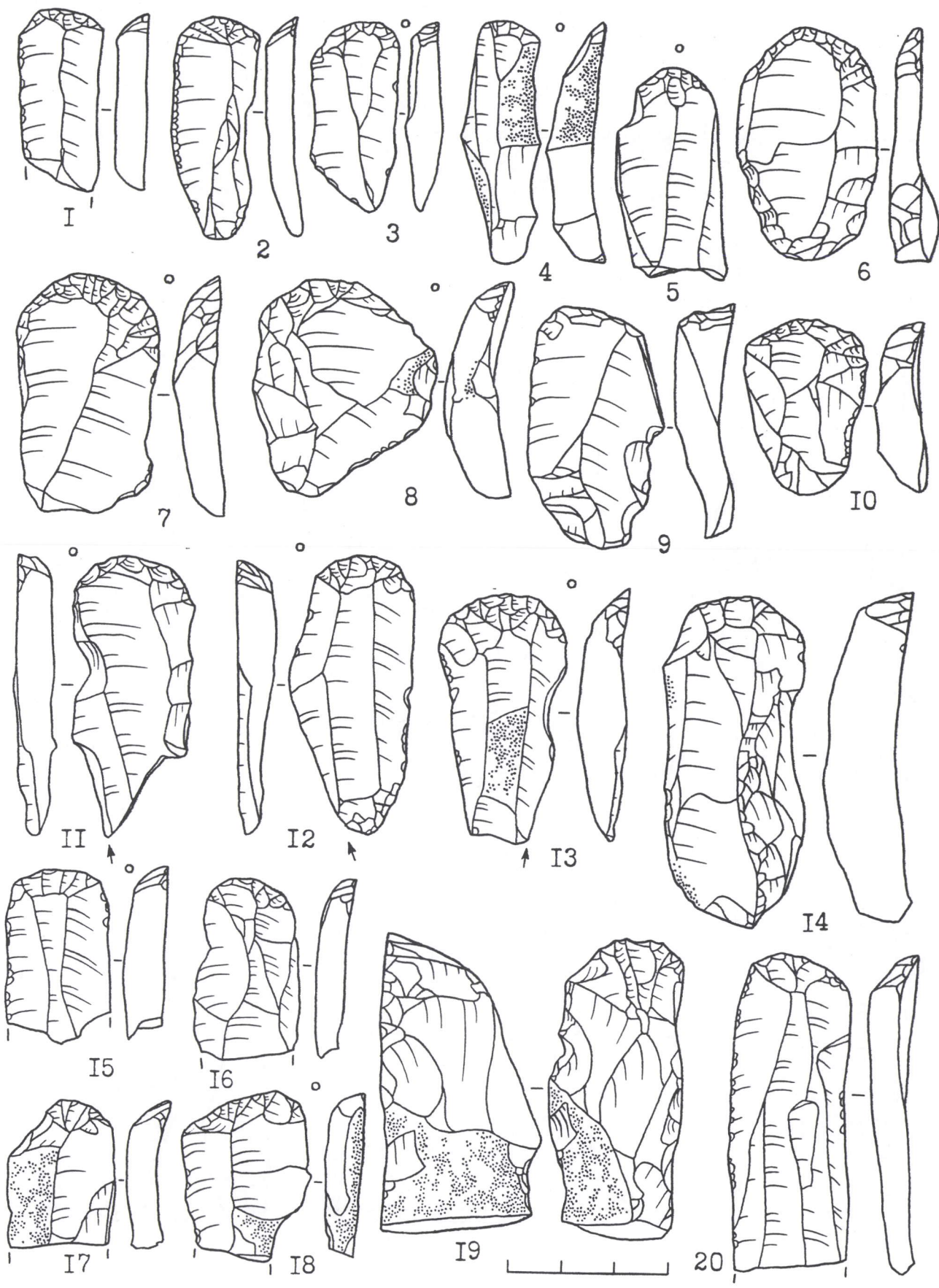


Figure 17. Flint tools from Ataki II (after N. Ketraru).

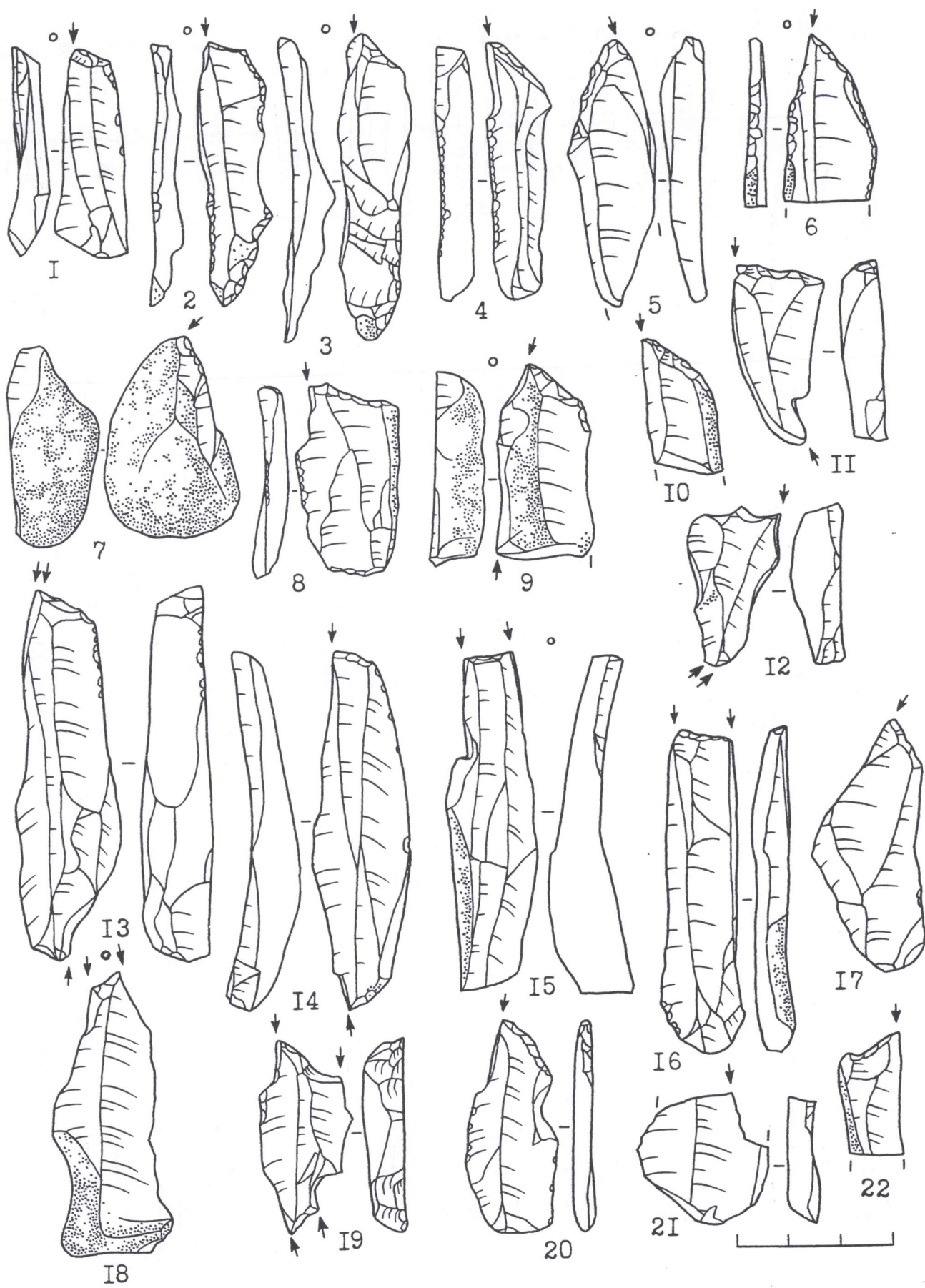


Figure 18. Flint tools from Ataki II (after N. Ketraru).

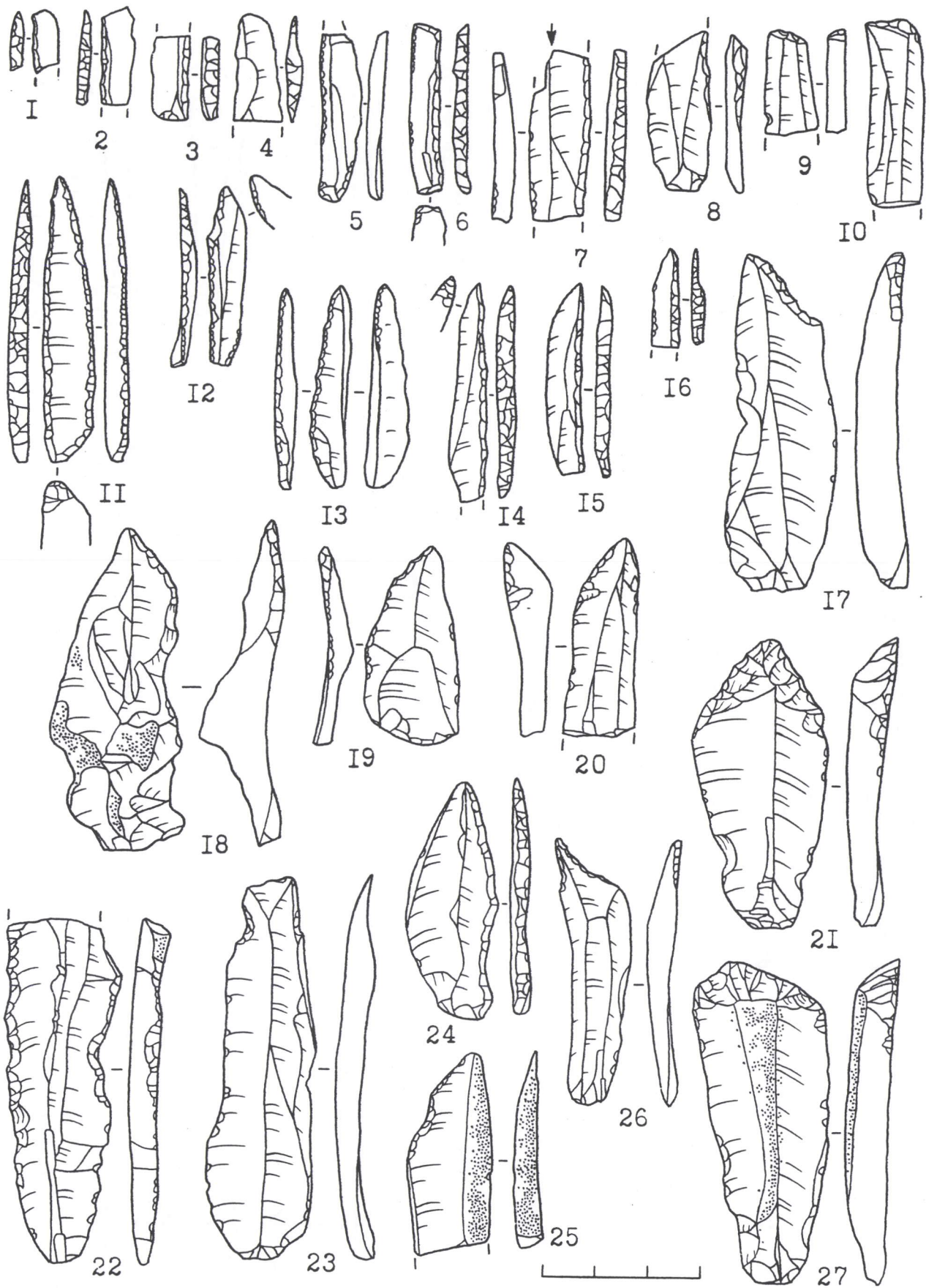


Figure 19. Flint tools from Ataki II (after N. Ketraru).

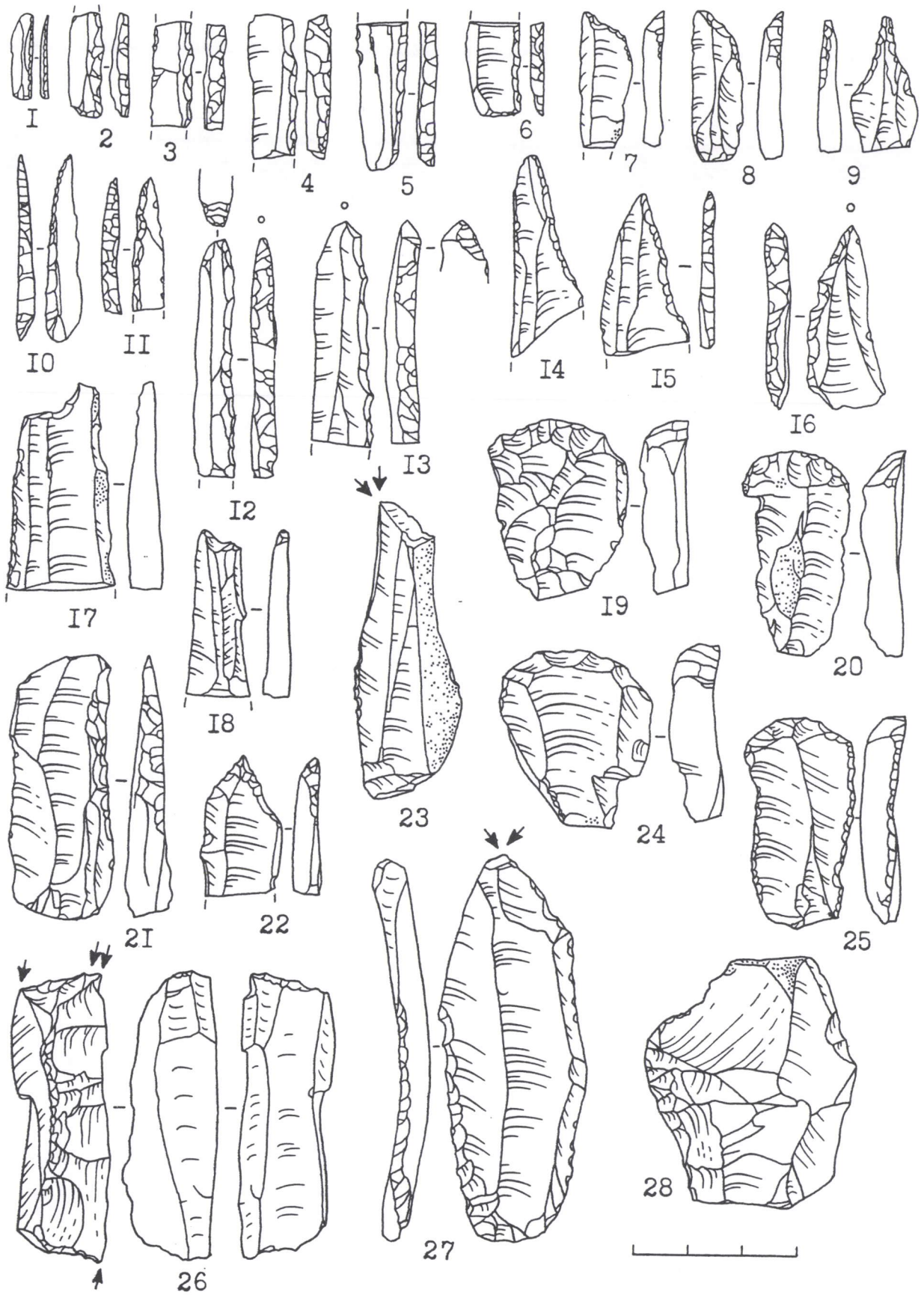


Figure 20. Flint tools from Vadu-Rashkov (after N. Ketraru).

