

## THE CRIMEAN PALAEOLITHIC: GENESIS AND EVOLUTION BETWEEN 140-30 KYR BP

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**ABSTRACT:** *Two Eemian and four post-Eemian Middle Palaeolithic (MP) industrial traditions are recognised in the Crimea, namely : Late Acheulean, Eastern Taubachian, then Eastern Micoquian (Ak-Kaian), two kinds of para-Micoquian or Micoquian-related Charentoid industries (Kiik-Kobian and Staroselian), and Typical Mousterian (Kabazian). The Crimean MP undoubtedly belongs to the sphere of ideas and logic of development of the European Palaeolithic. However it survived until comparatively late (ca. 30 kyr BP) which adds originality to the process of the local MP / UP transition.*

**KEYWORDS :** *Crimea, Palaeolithic, evolution, genesis, MP/UP transition.*

### INTRODUCTION

The Crimean peninsula lies in the southern part of Eastern Europe and constitutes the north-eastern extreme of the Big Mediterranean. Landscapes of the southern part of the Crimea are formed by three ridges of low mountains and differ sharply from the northern part, which is dominated by steppe. The overwhelming majority of known stratified Palaeolithic sites are connected with rock refuges of the second ridge of mountains which lie, according to modern geographical subdivision, 15-20 km south from the border of the steppe zone. Only a few localities are known within this rather narrow band. The majority of sites lie under 44°48' of N latitude and 33°58' of E longitude with elevations ranged from 400 to 500 m above sea level. (see Fig. 1)

The weakness of Palaeolithic records originating from both the steppe zone and the area of the southern shore of the peninsula can probably be explained in terms of unsuccessful search strategies as well as in terms of a more mobile model of utilisation of these territories. The association of numerous long-term sites with the border belt embracing fringe zones of the two major kinds of landscapes, i.e. steppe and low foothills of the mountains, seems to be deliberate. Such location of sites permitted careful control of different bioniches and, hence, guaranteed more stable surviving. It must be emphasised that the sites are concentrated just along the practically only possible - especially in SW Crimea - passage from steppe and low foothills areas to potential pastures in the mountainous zone, in particular, to depressions between the first and second ridges of the mountains. MP sites of the Crimea show clear concentrations along very short parts of river flows at the places where they broke limestone quarts of the second mountain ridge. The association of available rock refuges, high quality Cretaceous flint outcrops, water springs, availability of various bioresources can be involved as



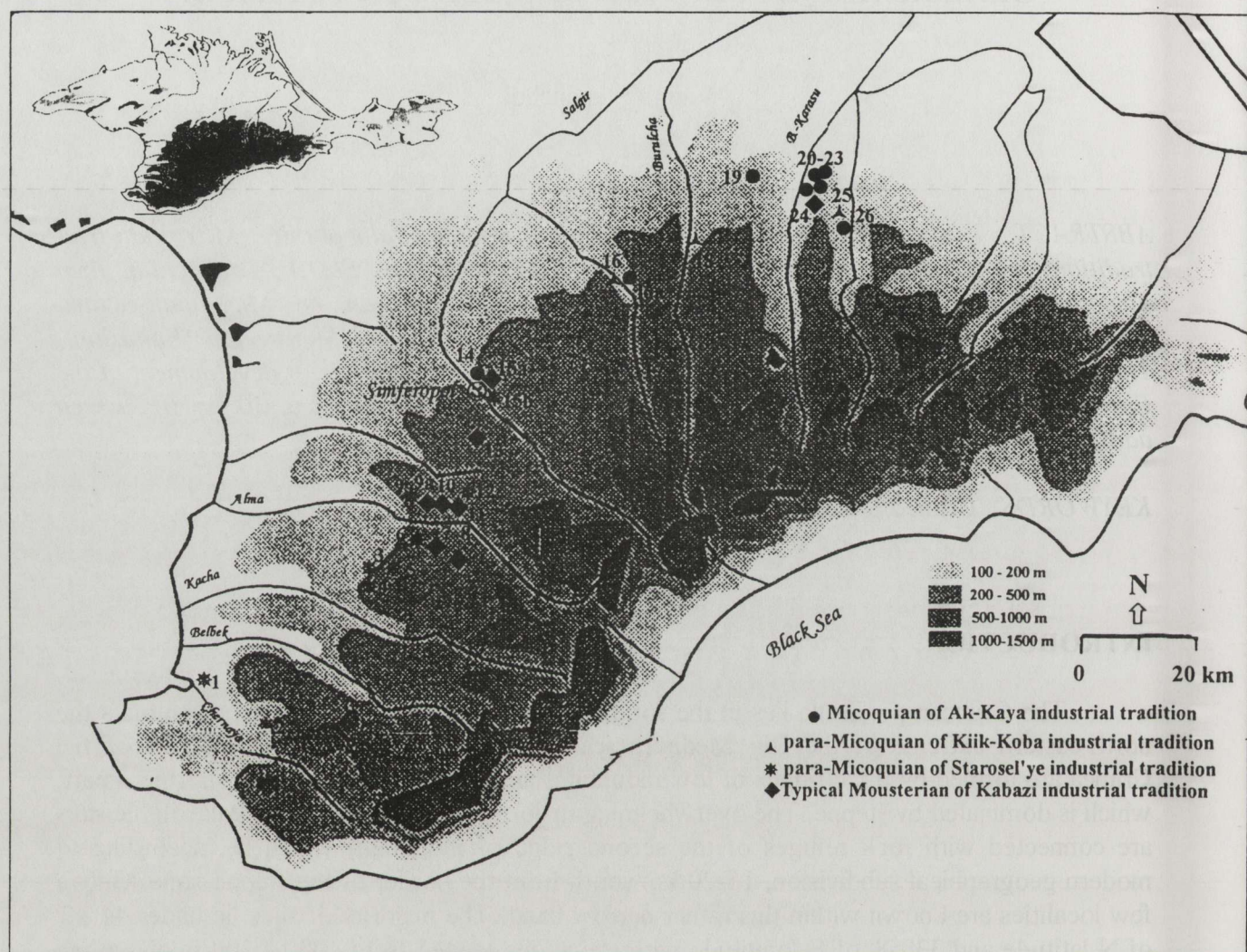


Fig. 1. The map of principal Crimean MP sites aged to the last Glacial. Legend: I Micoquian of Ak-Kaya industrial tradition; II para-Micoquian of Kiik-Koba industrial tradition; III para-Micoquian of Starosel'ye industrial tradition; IV Typical Mousterian of Kabazi industrial tradition. Sites: 1. Alanar, 2. Kokluz, 3. Bakhchisarai, 4. Starosel'ye, 5. Ulakly, 6. GABO, 7. Shaitan-Koba I; 8. Shaitan-Koba IV; 9, 9a. Kabazi II; 10. Kabazi I; 11. Kabazi III; 12. Kabazi V; 13. Kholodnaya Balka; 14. Chokurcha I; 15. Chokurcha II (after O.N.Bader); 15b. Chokurcha II (after A.Stolbunov); 16, 16 a. Volchi Grot; 17. Kiik-Koba; 18. Buran-Kaya III; 19. Sary-Kaya I; 20. Ak-Kaya III; 21. Zaskal'naya V; 22. Zaskal'naya VI; 23. Krasnaya Balka; 25. Prolom I; 26. Prolom II.



obvious reasons of such anormal concentrations of repeated intensive Neandertal occupations. Although there is not enough comparative data, the record nevertheless permits the suggestion that the MP spatial pattern differs rather noticeably from the UP and LP, which show tendencies to open-air sites and wider expansion into both steppe and mountain areas.

Crimea was out of the permafrost zone during glacials, but the assumption about local mountains glaciers is sometimes expressed. Throughout the Pleistocene, the territory of the Crimea was not constant, depending on the varying sea level. In times of transgressions, the peninsula could turn into an island, and, on the contrary, much increased its area, becoming a part of the continent, during regressions. As has been suggested, Crimea had broad terrestrial links with the continent during the Riss, which were later eliminated due to subsequent climate amelioration and the raising of the sea level. As is supposed, climatic changes during Eem resulted in loss of any terrestrial links with the continent. Further broadening of the area took place during the last glacial. Fluctuating changes of the peninsula area are confirmed, among others, by archaeological evidence, e.g. finds of intensively rolled knapped flints of MP appearance that are known along the western shore of the Crimea. The data in hands point to an absence of really crucial environmental changes in Crimea after the last interglacial, despite several climatic shifts. A comparatively mild climate is suggested. Temperature and humidity fluctuations during the post-Eemian period of Palaeolithic development did not lead to cardinal changes of landscape, and steppe still remains dominant (*Arkheologiya i Paleogeografiya* 1978). Open landscapes changing with more/less forested ones were especially characteristic for the whole East European Plain and Crimea during the Late Pleistocene (Grichuk 1989; *Paleogeografiya* 1982; Sirenko *et al.* 1990). Paleo-landscapes of the Crimean Mountains during the Eem/post-Eem transition and through the period of the last glacial were characterised by a decline of deciduous forests and invasion of boreal vegetation. At the same time, Crimea has no data on alpine flora (Didukh 1992). Species well adapted to the steppe dominated among megafauna. The most common are mammoth, woolly rhinoceros, bison, horse, wild ass, and saiga, as well as giant deer, red deer and reindeer. A comparatively high frequency of antelope saiga and deer allows us to distinguish a local type of fauna in the framework of the so-called "Mammoth Complex" (Bibikova and Belan 1979). The major part of Crimean microtheriofauna is represented by steppe species (Rekovets 1994). MP ornithofauna is characterised by dominant forest species (Baryshnikov and Potapova 1992).

## LAST INTERGLACIAL MIDDLE PALAEOLITHIC

### *Late Acheulean of the peninsula*

Late Acheulean localities are known both in the eastern and southwestern parts of the peninsula. The relative chronology is based upon the general geological context, typological peculiarities of tool kits, and certain other forms of indirect evidence. Stratified sites are unknown, if we exclude the quantitatively weak assemblage originating from stratum 14 of Kabazi II (Kolosov *et al.* 1988; Chabai 1996) and the sequence of Zaskal'naya IX which has not been geologically studied (Kolosov 1983). There are also no reliable traces of human activity of related age associated with cave sequences. This probably can serve as the notable



feature of the local Late Acheulean; at least, there is a real difference with roughly contemporaneous Eastern Taubachian sites which show a certain trend toward cave occupation.

The Late Acheulean stone industry can briefly be characterised as oriented to big flake and bifacially treated blanks. Centripetal and discoid cores are preponderant; Levallois of recurrent and preferential types is also represented. Sidescrapers dominate among flake tools, while there are also points, denticulates and notched pieces. Bifacial tools are well represented in materials of several localities, e.g. Shary I-III in southwestern Crimea and Zaskal'naya IX, Lechebnoye in the eastern part of the peninsula. The main types are handaxes and biface-knives (Shchepinski 1979; Kolosov 1983; Stepanchuk 1990; Kolosov *et al.* 1993). There are known assemblages without a bifacial component as well, e.g. Cherna Terlya and Prolom high terrace (Kolosov and Telegin 1978; Cohen 1988).

It is important to note that the known assemblages are far from being uniform with respect to typology and technology. This apparently points to the possibility of further distinction of different facies of the local Late Acheulean but cannot as yet be adequately explained due to scarcity of data needed. Nevertheless, the Micoquian-related character of assemblages with an evolved bifacial component is assumed. The presence of archaic biface-knives or "proto-knives" is regarded as an argument to suggest the so-called Bodrack group of sites (Shchepinski 1979) as the probable ancestor of the post-Eemian Ak-Kaya industrial tradition (Kolosov 1986) and to define it as the local "ancient" Micoquian. It cannot be excluded that certain assemblages which are regarded now as Eemian will change its suppositional chronological position through further studies. It concerns, at the first instance, several assemblages which yielded rare but expressive pebble-tools (Kolosov *et al.* 1993).

#### *The Crimean group of the Eastern Taubachian*

The sites of this industrial tradition form a comparatively notable concentration in the peninsula. They are known mostly in SW Crimea (e.g. Zalesnoye, Kabazi II-IV, and Krasny Mak), but the basic assemblage originated from the lower layer of Kiik-Koba situated in Eastern Crimea. All sites, save for Krasny Mak, constitute stratified localities; two of them are cave sites, and Kabazi represents an open-air occupation of the nearby rock cliff. An Eemian age is argued for Kiik-Koba and Kabazi II-IV. Accompanying fauna are represented by *Bos/Bison*, *Equus latipes*, *Equus hydruntinus*, *Megaloceros giganteus*, *Cervus elaphus*, *Rangifer tarandus* and *Saiga tatarica*. A deficit of lithic raw materials can be stated for the majority of sites (average 15/18 km). Nevertheless, a typical micro-inventory is also known at Kabazi, in the vicinity of which there is reported a row of primary and redeposited flint outcrops. Micro-habitus of both Kiik-Koba MP layers are in accordance with a supposed scarcity of raw materials. On the contrary, the Kabazi II-IV appearance is in contradiction with "normal sized" overlaying assemblages. The lower layer of the site of Kiik-Koba has yielded human remains, defined as *Homo neanderthalensis* (Bonch-Osmolovski 1941; 1954; Yakimov and Kharitonov 1979). The intentional burial of an adult man (?) was accomplished by artificially widening a natural hollow of the cave floor (Bonch-Osmolovski 1940; Smirnov 1991).



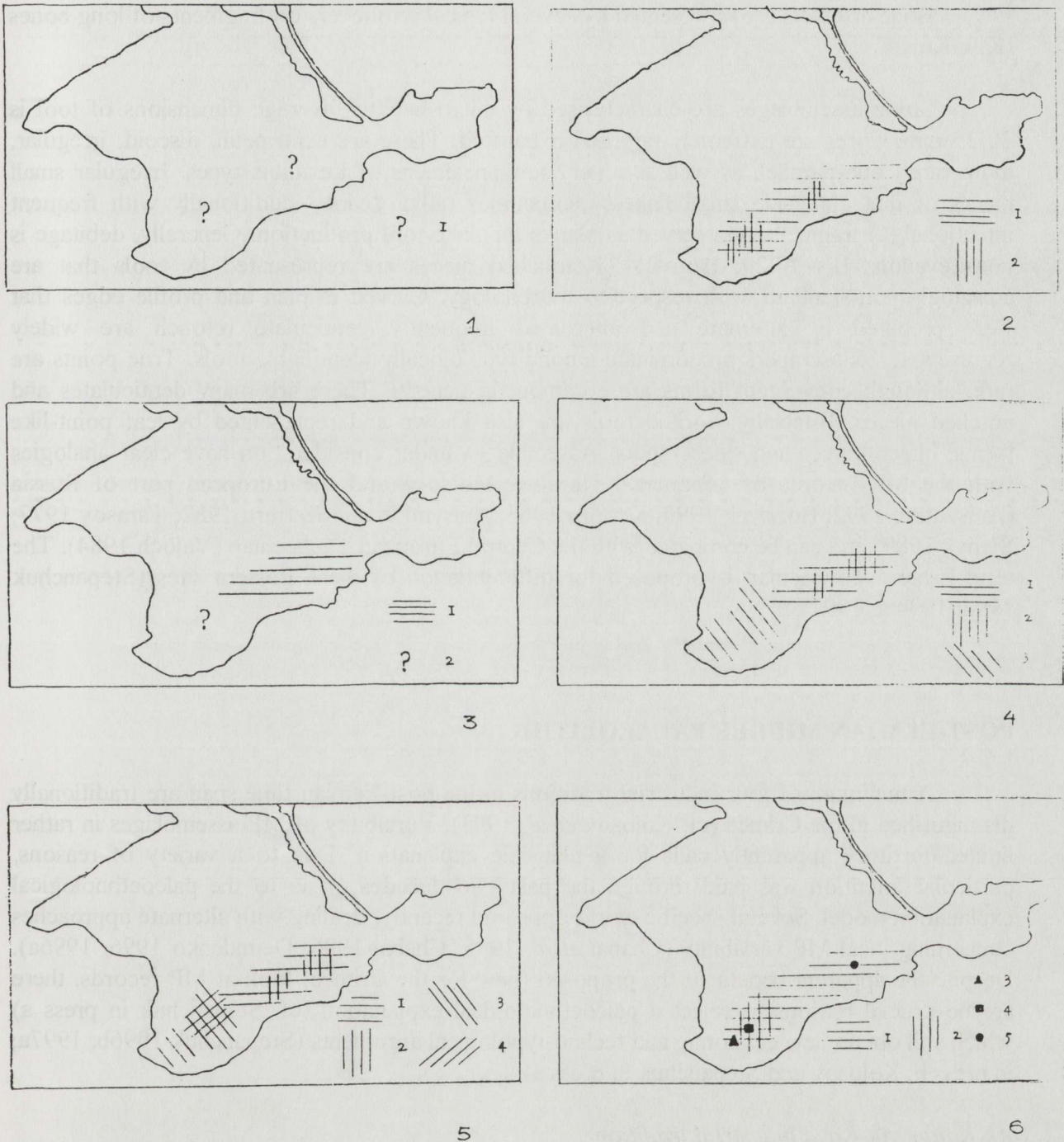


Fig. 2. Suggested dynamic of MP industries evolution in the Crimea. **I. Late penultimate glacial phase:** 1) probable existence of Late Acheuleen industries; **2. Last interglacial phase:** 1) Local Late Acheulean (= "ancient" Micoquian), 2) Eastern Taubachian; **3. Phase before the first Pleniglacial** 1) Micoquian of Ak-Kaya tradition, 2) probable existence of Charentoid industries; **4. End of the first Pleniglacial phase:** 1) Micoquian of Ak-Kaya industry, 2) para-Micoquian of Kiik-Koba industry, 3) para-Micoquian of Starosel'ye industry; **5. Briefly after the first Pleniglacial phase:** 1) Micoquian of Ak-Kaya industry, 2) para-Micoquian of Kiik-Koba industry, 3) para-Micoquian of Starosel'ye industry, 4) Typical Mousterian of Kabazi industry; **6. Shortly before second Pleniglacial phase:** 1) Micoquian and para-Micoquian of Ak-Kaya, Kiik-Koba, and Starosel'ye industries, 2) Typical Mousterian of Kabazi industry, 3) Aurignacian of Syuren' I, 4) Gravettian of Buran-Kaya III, 5) "transitional" (?) industry of Tav-Bodrack I.



Bone artefacts are represented by several typical retouchers on fragments of long bones (Kiik-Koba).

Stone assemblages are characterised by micro-habitus; average dimensions of tool is 20-35 mm. Cores are extremely rare and exhausted. These are centripetal, discoid, irregular, more rarely sub-parallel, as well as a very few specimens of Levallois types. Irregular small pieces of flint alongside small flakes - sometimes rather scars - additionally with frequent intentional (?) fragmentation served as blanks for flake-tool production. Generally, debitage is non-Levallois. IFs=10/20. Ilam=2/4. Retouched pieces are represented by tools that are amazingly non-standard with respect to morphology. Curved in plan and profile edges that were prepared by alternate and alternated frequently denticulate retouch are widely represented. Sidescrapers predominate among typologically identifiable tools. True points are rare, although convergent forms are common, in general. There are many denticulates and notched pieces. Bifacially worked tools are also known and represented by leaf point-like forms, biface-knives and sidescrapers. Assemblages under consideration have clear analogies with the MP records of continental Ukraine, Moldova and the European part of Russia (Anisyutkin 1992; Borziyak 1990; Ketraru 1965; Anisyutkin and Ketraru 1982; Tarasov 1977; Sytnyk 1989) and can be compared with the Central European Taubachian (Valoch 1984). The term Eastern Taubachian is proposed for differentiation of these Eastern sites (Stepanchuk 1994; 1994 a; 1997).

## POST-EEMIAN MIDDLE PALAEOLITHIC

A minimum of four industrial traditions in the post-Eemian time span are traditionally distinguished in the Crimea (cf. Kolosov *et al.* 1993). Variability of MP assemblages in rather limited territory apparently calls for a plausible explanation. Due to a variety of reasons, particular attention was paid through the past two decades or so to the paleoethnological explanation model. Several specific works appeared recently, dealing with alternate approaches concerning local MP variability (Chabai *et al.* 1995; Chabai 1996; Demidenko 1996; 1996a). Despite the apparent benefit of the proposed (new for the Crimea) look at MP records, there are no crucial reasons to reject a paleoethnological explanation (cf. Stepanchuk in press a) which still obtain new economic and techno-typological arguments (Stepanchuk 1996b; 1997a; in press b; Kolosov and Stepanchuk in press a).

### *Ak-Kaian: Ak-Kaya industrial tradition*

This industrial tradition is represented by ca. 20 sites concentrated in the eastern part of the peninsula. Zaskal'naya V and VI, Sary-Kaya I, Krasnaya Balka, Prolom II are among the number of better investigated sites (Kolosov 1983; 1986; 1988; Kolosov and Stepanchuk 1989; Kolosov *et al.* 1993). Chokurcha I can also be referred to as a typical assemblage (Ernst 1934; Kolosov 1960), but, unfortunately, the main part of the collections disappeared during World War II.



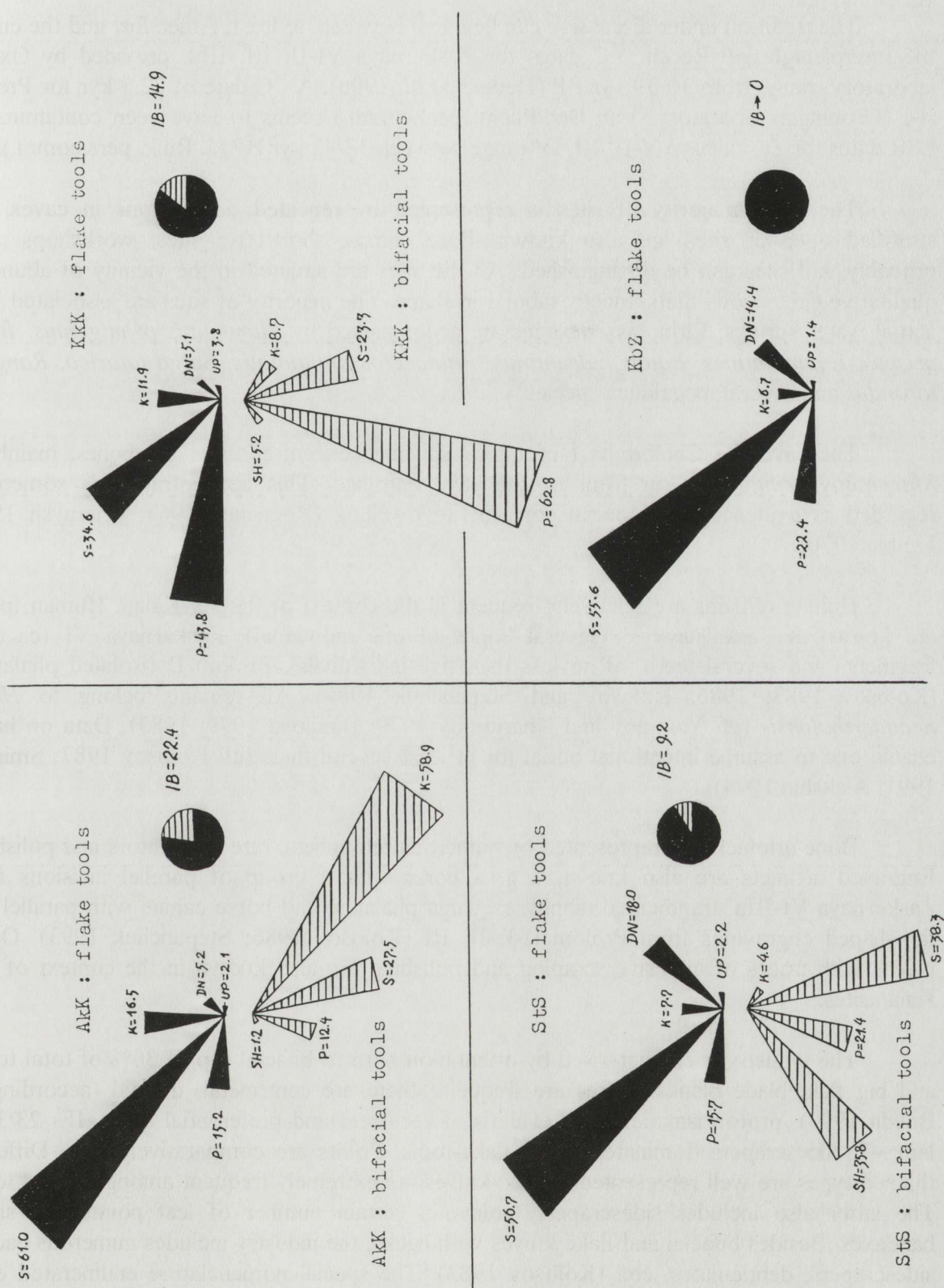


Fig. 3. Post-Eemian MP traditions: intra-industrial diversity on the level of the main groups of types. Key: AkK - Ak-Kaian, KkK - Kiik-Kobian, StS - Staroselian, KbZ - Kabazian; p - points, s - sidescrapers, k - knives (on flakes or biface-knives, respectively), dn - denticulates, up - UP types, sh - bifacial leaf points.



The tradition under discussion can be dated between, at least, Amersfort and the end of the Interpleniglacial. Recent  $^{14}\text{C}$  dates for Zaskal'naya VI-II, III, IIIa, provided by Oxford laboratory, range from 30-39 kyr BP (Hedges *et al.* 1996). A  $^{14}\text{C}$  date of 22.5 kyr for Prolom II-I (Groningen laboratory, Van Der Plicht, pers.comm.) seems to have been contaminated. ESR dates for Zaskal'naya V-II, III, IV range between 32-42 kyr BP (J. Rink, pers.comm.).

The great majority of sites is represented by repeated occupations in caves, but stratified open-air sites are also known. Base camps, short-term sites, workshops, and, probably, kill sites can be distinguished. All the sites are situated in the vicinity of abundant qualitative Cretaceous flints, mostly tabular in shape. The majority of sites are associated with actual water springs. Lithic assemblages are accompanied by *Mammuthus primigenius*, *Bison priscus*, *Equus latipes*, *Equus hydruntinus*, *Rhinoceros antiquitatis*, *Saiga tatarica*, *Rangifer tarandus* and several megafauna species.

The cave site Chokurcha I produced specific concentration of big bones, mainly of *Mammuthus primigenius*, in front of the cave entrance. This concentration is sometimes regarded as evidence of a special construction/dwelling (Rogachev 1964; Chernysh 1965; Lyubin 1970).

Human remains are relatively frequent in the context of the Ak-Kaian. Human fossils are known at Zaskal'naya V (several bones of one individual), Zaskal'naya VI (ca. 100 fragments and several teeth, of no less than five individuals), Prolom II (isolated phalange) (Kolosov 1983; 1986; Kolosov and Stepanchuk 1989). All remains belong to *Homo neanderthalensis* (cf. Yakimov and Kharitonov 1979; Danilova 1979; 1983). Data on hands enable one to assume intentional burial for at least several finds (cf. Kolosov 1987; Smirnov 1991; Alekshin 1994).

Bone artefacts are represented by numerous retouchers, rare perforators and polishers. Engraved artifacts are also known, e.g. a borer with a group of parallel incisions from Zaskal'naya VI-IIIa; fragmented diaphyses, saiga phalange and horse canine with parallel and fan-shaped engravings from Prolom II-I, II, III (Kolosov 1986; Stepanchuk 1993). Ochre pieces with traces of intensive scraping and polishing are also known in the context of Ak-Kaian sites.

The industry is characterised by orientation both to bifacial (up to 30% of total tools) and big flake/blade blanks. Cores are frequent; there are centripetal, discoid (according to Boëda 1993), protoprismatic, and Levallois of recurrent and preferential types. IFs 23/30; I lam ~7. Sidescrapers dominate among flake-tools. Points are comparatively rare. Different thinned types are well represented. Biface-knives are extremely frequent among bifacial tools. The latter also includes sidescrapers, points, a certain number of leaf points and single handaxes. Besides bifacial and flake knives with backs, the industry includes numerous backed sidescrapers, denticulates, etc. (Kolosov 1983). The special nomenclature enumerated eight types of bifacial backed knives. Several types of flake knives are distinguished as well (Kolosov 1978; 1983; 1986).



An apparent similarity with the technology and typology of Central European Micoquian assemblages allows us to regard the Ak-Kaya industry as a local Micoquian (Kolosov and Stepanchuk in press a, b; cf. Valoch 1988).

#### *Kiik-Kobian: Kiik-Koba industrial tradition*

The sites of this industrial tradition are known in the same area as the Ak-Kaian, in the eastern part of the Crimea. These are Kiik-Koba (IVth layer), Prolom I (two layers), the upper MP layer of Buran-Kaya III, and, probably, the middle layer of Volchi Grot (Bonch-Osmolovski 1940; Kolosov 1979; Stepanchuk 1994; Yanevich *et al.* 1996; Yamada 1996; Bader and Bader 1979).

As has been suggested, the Kiik-Koba tradition can be dated from Brorup (Kiik-Koba) to Hengelo/Moershoofd (Prolom I) (for arguments and references, see Stepanchuk 1991; 1991a). The recently discovered Kiik-Kobian at Buran-Kaya III has several  $^{14}\text{C}$  dates which lie ca. 33 kyr BP (Hedges *et al.* 1996; Yanevich *et al.* 1996).

All of the known sites constitute occupations in caves and, apart from, probably, Volchi Grot, are base camps near water flows. All sites are situated comparatively far from qualitative raw materials, hence, under constraints of a limited raw material supply; but in this concern, the fact must be stressed that the availability of local cherts in the very vicinity of the Prolom I had no sizeable influence either on strategy of raw material procurement or on typology and technology (Stepanchuk 1991a; Stepanchuk in press b). Associated megafauna are represented by predominantly *Megaceros giganteus*, *Cervus elaphus*, *Equus latipes*, and *Saiga tatarica*.

The existence of special defense construction, identified by a sudden interruption in the normal intensity of finds in the cultural layer, is suggested for the Kiik-Koba-IV occupation (Lyubin 1969).

There are no human fossils clearly associated with this industrial tradition; nevertheless the Kiik-Koba-IV provenance of infant Kiik-Koba-2 cannot be excluded (Smirnov 1987). Its *Homo neanderthalensis* appearance is revealed by Vlcek's examination (Vlcek 1976).

Bone artifacts are not rich but are represented by retouchers, rare perforators, and a polisher. On the contrary, there is a considerable number of retouchers on pebbles which show a complicated system of criteria of selection from a natural series of pebbles (Stepanchuk 1990a).

The industry is oriented to the manufacture of big flakes and to bifacially worked blanks (up to 15%). The deficit of high quality raw materials led to intensive utilisation of lithic resources and resulted in micro-habitus of tool-kits, abundant multi-edged tools, rare and exhausted cores, and an extremely high quantity of waste by-products from tool retouching and resharpening. Bifacial working waste flakes were widely used for tool manufacture. There are centripetal, discoid, amorphous, and protoprismatic cores. IFs 25; I lam ~10. Various types of points on flakes are extremely frequent, déjeté types are common; sidescrapers and flake



knives are sub dominant. Thinned pieces are common; there are several specific types, namely Kiik-Koba points and so-called triangles. Bifacial tools are represented by points, sidescrapers, rare leaf points of specific shape and single, rather atypical, biface-knives.

This tradition can be defined as para-Micoquian or Micoquian-influenced Atypical Charentian.

*Staroselian: Starosel'ye industrial tradition*

The sites of this tradition are found only in southwestern Crimea. These are Starosel'ye, Kabazi V and II-III, Bakhchisaray, GABO-I, probably Kabazi I and the assemblage of Chokurcha IIa (Formozov 1958; 1959; Chabai 1992; Kolosov *et al.* 1993; Krainov 1979; Kolosov *et al.* 1993a; Stepanchuk 1994c; 1996; unpublished materials stored in the Public Archaeological Museum, Simferopol).

<sup>14</sup>C dates provided for Starosel'ye by Oxford laboratory range roughly from 36-42 kyr BP (Hedges *et al.* 1996;). An ESR date for the industry under discussion is 35.6+/-3.9 (Marks *et al.* 1997). Marks *et al.* distinguished four different occupations at Starosel'ye, discovered through recently renewed excavations at the site. The lowermost (4th) and 3rd occupation levels are said to be technologically different but are not yet characterised. Level 3 is dated by ESR to ca. 42 kyr BP; levels 3 and 4 provide U-series dates, respectively ca. 46 and ca. 104 kyr BP (Marks *et al.* 1997). Kabazi V-III ESR dates are ca. 38 and 56 kyr BP (McKinney and Rink 1996; Yevtushenko 1995). The redeposited, according to V. Chabai, Staroselian industry of Kabazi II-I has a <sup>14</sup>C age ca. 35 kyr BP (Hedges *et al.* 1996), and Kabazi II-III has rather discordant U-series (ca. 117 kyr) and ESR (ca. 82 and 84 kyr BP) dates (McKinney and Rink 1996). GABO-I provided a <sup>14</sup>C date ca. 32 kyr (J. Van Der Plicht, pers.comm.) and ESR dates range from 42-48 kyr BP (J. Rink, pers.comm.).

Staroselian sites represent a predominant occupation of open-air areas situated nearby actual or buried questa rock walls. Abundant flint outcrops and water springs are known in the vicinity of almost all sites. Accompanying megafauna is represented mainly by *Equus hindruntinus*. *Equus latipes*, *Saiga tatarica*, *Cervidae* etc. are known but subdominant.

A. Formozov's excavations of the site of Starosel'ye produced well documented remains of at least one individual and several separate human bones. As soon as the Starosel'ye infant is regarded as *Homo sapiens sapiens* and proclaimed to be in association with an MP occupation, it becomes outstanding not only among Crimean human fossils (Formozov 1958; Alekseev 1985; Smirnov 1991; Alekseeva 1997; etc.). The MP association of the Starosel'ye child has already long been the subject of certain scepticism (cf.: Klein 1969; etc.). The recent discovery of medieval burials at the site adds to this scepticism (Marks *et al.* 1994; 1997), but the ultimate solution can be achieved, if possible, only through dating of a bone sample extracted immediately from the fossil remains under question.

The bone industry is represented by abundant retouchers (Gvozdover and Formozov 1960; A. Yevtushenko, pers.comm.).



Assemblages of the industrial tradition under discussion are less uniform than the above-described post-Eemian MP evidence. The industry is oriented mainly to big flake and bladey flake production; bifacial blanks are not numerous (up to 5%). Centripetal, protoprismatic (sometimes semi-volumetric), as well as Levallois centripetal and preferential knapping techniques were applied. IFs 15/23; I lam 5/20. Sidescrapers, especially simple and double, constitute the majority of flake tools. Points are represented; there are *à dos aminci* pieces and limaces. The overwhelming majority of bifacial tools is represented by elongated slightly asymmetrical leaf points.

Taking into consideration rather broad analogies of this tradition (cf. Lumley 1969; Pañescu 1993; Desbrosse and Tavoso 1970; Ulrix-Closset *et al.* 1988; etc), it can be defined as one more kind of para-Micoquian or Eastern Charentian rich in bifacial leaf points.

#### *Kabazian: Kabazi industrial tradition*

Until recently, all sites of this tradition were known only in southwestern Crimea, i.e. Kabazi II-II, Kholodnaya Balka, Chokurcha II, Shaitan-Koba I (Formozov 1959; Kolosov 1972; Bader 1979; Kolosov *et al.* 1993). Some years ago, comparable assemblages were discovered in Eastern Crimea (Kolosov 1994; Kolosov and Stepanchuk 1997).

To date, absolute dates are known only for the Kabazi II-II sequence. The lower part of that sequence is dated to ca. 47.7 and 51.6 kyr BP (U-series and ESR, correspondingly), whilst the uppermost cultural horizons unanimously date to between 30-32 kyr BP by AMS, ESR, and U-series methods (Hedges *et al.* 1996; McKinney and Rink 1996; Chabai 1996).

Both occupations in caves and open-air sites nearby rock cliffs are known. The majority of sites are base camps with limited duration of habitation nearby actual water flows. Good quality raw materials are readily accessible and abundant in the vicinity of the sites. *Equus hydruntinus* is dominant among megafauna, but *Equus latipes*, *Bison priscus*, *Saiga tatarica* as well as *Cervidae* and *Mammutus primigenius* are also represented.

Human remains are not known in the context of the Kabazian.

Bone artifacts are represented by a few retouchers and single specific pieces (polishers?).

The industry is oriented exclusively to production of flake blanks that can be described as big, elongated, bladey flakes. Levallois recurrent (dominate) and preferential, as well as centripetal, sub parallel, and irregular techniques were applied (Kolosov 1972; Kolosov *et al.* 1993; Chabai and Sitlivy 1993). Chabai suggests three technologically argued stages in the development of the Kabazian (in his terms, the West Crimean facies of unifacial Mousterian or West Crimean Mousterian (Chabai 1990; Chabai and Sitlivy 1993). A clear tendency toward laminar reduction is documented (Chabai 1992; 1994) and the final stage is characterised by IFs ranging from 30 to 50 and the I lam index reaches 37 (av. 20-30). Bifacially worked tools are practically unknown in the context of the Kabazian. Sidescrapers, mainly simple and double forms, dominate among flake tools. Points are rather numerous (10-20%). Kabazian typology



is uniform and essentially differs from the Ak-Kaian and Kiik-Kobian but is similar to the Staroselian, save for the absence of bifacial tools. As a preliminary approach, two groups of Kabazian sites can be differentiated both on typological and technological grounds. The first group is represented by Shaitan-Koba I, Shaitan-Koba IV, and Alyoshin Grot (Bonch-Osmolovski 1930; Kolosov 1972; Stepanchuk, unpublished materials; Kolosov and Stepanchuk 1997). This group is characterised by Levallois *centripète* and *préférentielle* and certain Charentoid features in the typology, e.g. tools à *dos aminci*, bifacially retouched sidescrapers and limaces. The second group includes Kabazi II-II, probably Chokurcha II, Kholodnaya Balka, and Kabazi III (Kolosov *et al.* 1993; Bader 1979; Formozov 1958; Kolosov *et al.* 1988). In the latest stage of its development, the second group is characterised by prevailing Levallois laminar technology and lightly retouched sidescrapers and points similar to types known elsewhere, e.g. in the Near East (Copeland 1985; Meignen 1995).

The tradition under discussion can be defined as Typical Mousterian and has clear analogies with the Mousterio-Levalloisian (Kozłowski 1992) of Eastern and Southeastern Europe.

## EARLY UPPER PALAEOLITHIC EVIDENCE

Despite a long history of Palaeolithic study in the Crimea, UP evidence is very scarce. The majority of UP sites are dated to terminal Pleistocene (Bibikov *et al.* 1994, with references) and only a few of them are potentially significant for the problem of local MP/UP transition. Among the latter, there are Syuren' I, Buran-Kaya III, and, probably, Adzhi-Koba I and Tav-Bodrack I (Vekilova 1957; Yanevich, unpublished materials; Bonch-Osmolovski 1933; Stepanchuk, unpublished materials).

Old excavations of Syuren' I provide a mixture of MP and UP features in the lowermost layer. The MP series can principally be compared with all of the known post-Eemian MP traditions with bifacial tools but is probably more similar to the Kiik-Kobian, owing to the presence of small-sized bifacial points and canted flake points including the typical *Kiik-Koba* point with dorsal thinning. The UP series includes Dufour bladelets, burins and carinated endscrapers which permit the definition of the assemblage as Aurignacian. Recent excavations at the site (Otte *et al.* 1996) provided a series of absolute dates, the more reliable among them range around 29 kyr BP. The nature of MP mixture remains unexplained and the homogeneity of the assemblage needs serious additional argumentation.

For the first time in the Crimea, the site of Buran-Kaya III provides an archaeologically rich sequence of several MP and UP occupation levels. A Gravettoid industry dating to about 29 kyr BP overlies the Kiik-Kobian occupation which dates to ca. 33 kyr BP (Hedges *et al.* 1996). There are certain indications of the probable presence of a mixed assemblage characterised by both MP and UP features but the nature of this mixture is still unclear (Yanevich, pers.comm.).



The superposition of a Gravettoid assemblage above the MP occupation - in this case, likely Ak-Kaian - is reported for Adzhi-Koba I, but this sequence is not supported by absolute dates (Bonch-Osmolovski 1933; Kolosov 1965a). A similar situation was also discovered in Kosh-Koba cave (Bonch-Osmolovski 1926).

The recently discovered site of Tav-Bodrack I reveals at least three horizons of "cultural remains". The lower two yielded MP evidence comparable to the Kabazian. The uppermost horizon provides prevalent UP (light endscrapers on flakes; burins) and MP (fragmented bifacial leaf point (?), sidescraper, point) tools. The industry is based on flake production; there is a flat sub-parallel core. A  $^{14}\text{C}$  date for this horizon is ca. 31 kyr BP (J. Van Der Plicht, pers.comm.). The data at hand is too scarce and needs further accumulation. As a very preliminary interpretation; two possibilities can be suggested, namely that this assemblage is due to mechanical mixture or that it represents an original industry of transitional character.

## DISCUSSION

### *The question of pre-Eemian Palaeolithic development*

To date, there are no indirect data which could be useful for the study of evolution leading to the development of the Eemian MP. Several surface pebble tool assemblages were discovered recently on the high marine terraces of the southern shore of the Crimea (Klyukin *et al.* 1990; Shchepinski and Klyukin 1992; Zuk 1995). However, they provide no technological and typological links with the materials under discussion. It cannot be excluded that certain surface assemblages originated mainly from a fringe of the steppe zone and combined pebble and flake tools and bifaces can be regarded as intermediate (Shchepinski 1979). At any rate, the available evidence is very limited.

### *Eemian Palaeolithic development*

This development can be described in terms of parallel and independent evolution and the coexistence of two spatially overlapped industrial traditions, namely the Eastern Taubachian and the Late Acheulean. Crimea was included in a zone intensively influenced by processes which took place in Central and Southeastern Europe. As a very preliminary view, the notion about non-Crimean origins of the local Taubachian and autochthonous roots of the local Late Acheulean is suggested. The latter, due to basic technological features, seems to be the likely ancestor of the post-Eemian Micoquian.

### *Eem/post-Eem transition*

This period is marked by the disappearance of Taubachian assemblages and further evolution of the Late Acheulean tradition, which resulted in the Ak-Kaian of Eastern Crimea. A Late Acheulean influence cannot be excluded for the Kiik-Kobian and Staroselian but it seems less likely than early Ak-Kaian impacts on the process of formation of the latter two



traditions. As a preliminary interpretation, certain Taubachian influence on Kiik-Kobian is presumed.

#### *Post-Eemian Palaeolithic development*

The Ak-Kaya industrial tradition seems to be the earliest post-Eemian MP in the Crimea and survived up to 30 kyr BP. It has presumably local roots (cf. Kolosov 1986) and its sites constitute a local Micoquian province. I am inclined to define it as Eastern Micoquian due clear typological, technological and geographical difference with Central European Micoquian as understood by G. Bosinski. Non-Crimean origins of the Ak-Kaian are sometimes suggested as well (Gladilin 1976). The Kiik-Kobian suggests a less prolonged succession, although it survived to roughly the same date as the Ak-Kaian. It must additionally be stressed that its lower supposed limitation (Brorup) needs new supporting arguments. It has a different tool kit and technology and is characterised by sizeable Micoquian and Charentian features. A certain Micoquian "nuance" is also recognisable in Staroselian assemblages which are basically "Charentoid", too. Its development occurs around 40 kyr and terminates around 35 kyr BP.

For the Crimea, only the Ak-Kaian industrial tradition can be defined as Eastern Micoquian. This definition is based on the presence of numerous biface-knives, bifacially worked points and sidescrapers, and single handaxe-like tools. As for the two other kinds of Crimean MP with bifacial tools, namely the Kiik-Kobian and Staroselian, such definition can hardly be proved, as they have practically none of the most typical Micoquian tools, i.e. biface-knives. At the same time, a certain "Micoquian nuance" is tangible in their tool-kits, due to, at least, a developed bifacial blank technology, and odd, rather atypical, biface-knives (Kiik-Kobian) and leaf-points (Staroselian). These "non full-fledged" Micoquian or, in other terms, Micoquian-influenced industries, can be defined as para-Micoquian.

The nature of the Micoquian "nuance" can be rather various. It can result from convergent development, and can be explained in terms of immediate Micoquian influence. As could be suggested, the southwestern, and, very likely, the whole southern area of Eastern Europe from the beginning of the last glacial or from the end of Eem, represented a vast contact zone between European Micoquian, Balkanian Charentian, Levallois-Mousterian and the local substrate. Industrial traditions which appeared here are characterised by advanced bifacial technology and their tool-kits include single and/or atypical biface-knives, points, sidescrapers, sometimes numerous leaf-point-like pieces, as well as developed flake-tools with a significant number of points, diverse sidescrapers, including limaces and thinned pieces. These traditions combine, as can be seen, both Micoquian and Charentian features. Keeping in mind the chronological framework of the Crimean para-Micoquian discussed above, and the supposed history of its formation, it cannot be excluded that further studies on the peninsular Palaeolithic will provide evidence of an early Charentian-related intrusion into the area in question.

The Staroselian seems to have appeared in the Crimea before the first Pleniglacial and survived up to Denekamp. Another SW Crimean tradition, i.e. the Kabazian, seems to have been intrusive (Balkans?: cf. Kolosov 1972) and probably appeared on the peninsula during or shortly after the first Pleniglacial. Its upper chronological limit is dated again to about 30 kyr



BP. It is worthy to note that the earliest stages of the Kabazian and Staroselian produce a rather high level of similarity of basic technologies and recognisable Charentoid features.

The post-Eemian MP shows independent development and - on the latest stages - coexistence of at least four distinct paleotraditions of which three are in different degrees related to the Micoquian but with rather different origins, and the latter seems to be purely intrusive. The almost unanimous gravitation of terminal dates of all varieties of local MP toward 30 kyr BP must be particularly stressed.

#### *The question of local MP/UP transition*

Absolute dates for the Crimean terminal MP do not represent something outstanding (cf. Allsworth-Jones 1986; Debenath 1990; etc). On the other hand, new dates for local early UP show a nearly complete chronological coincidence with terminal MP dates concentrated around 30-32 kyr BP. It concerns equally the Aurignacian occupation at Syuren' I (ca. 29 kyr BP), the Gravettian occupation at Buran-Kaya III (ca. 29 kyr BP), and the supposedly transitional assemblage of Tav-Bodrack I (ca. 31 kyr BP). As I argued elsewhere (Stepanchuk 1996a), there are grounds to suggest a comparatively late date of intrusion of modern humans into Crimea, which was a Neanderthal refugium between 40-30 kyr BP, i.e., at the time of progressive dispersion of *Homo sapiens sapiens* throughout Western and Central Europe and of the emergence of specific transitional industries (Allsworth-Jones 1986; 1990; Farizy 1990; Valoch 1990; Mellars 1992; 1996; Kozłowski *et al.* 1992; Banesz and Kozłowski 1993; Carbonell *et al.* 1994; Straus 1994; Hedges *et al.* 1994; 1996; Bar-Yosef *et al.* 1996; Damblon *et al.* 1996; etc), known also in Eastern Europe, e.g., the Bohunician-like assemblage of Kulychivka in Western Ukraine or EUP sites of the Kostienki region in Russia (Savich 1987; Praslov and Rogachev 1982; Anikovich 1991; 1992).

If we do not take into account rather doubtful evidence on assemblages with mixed MP and UP features, i.e. Syuren' I lower layer, after G.A. Bonch-Osmolovski, and Tav-Bodrack I, we are apparently faced in the Crimea with a situation that might adequately be described by the so-called "replacement" model. The Late Crimean MP shows no signs of a locally inspired MP/UP transition, despite highly developed blade technology in the late Kabazian inventories and certain "progressive" shifts in technology and typology of other variants of the Crimean MP. Thus, the EUP *sensu lato*, i.e. dated to >35 kyr BP, is not represented in the Crimea. Moreover, owing to late survival of the local MP, it must be stated that the phenomenon of a chronologically late MP/UP transition was inspired by roughly contemporaneous waves of Aurignacian and Gravettian ca. 30 kyr BP. The presumable existence of assemblages reflecting "acculturation" model of transition to UP cannot be rejected and the transitional appearance of the Tav-Bodrack I assemblage is probably in accordance with this scenario.

Local MP traditions until 30 kyr BP show no signs of regress and appear to be quite prosperous. Adjacent territories provide evidence which allows us to suggest a dispersion of the Crimean population toward Northern Caucasia, Middle Dniepr, and, probably, the Dniestr basin (Stepanchuk 1991; Lyubin 1994). Early UP assemblages of the Don basin, i.e. those ascribed to Streletskaya and Gorodtsovskaya cultures, has well recognisable features of MP technology comparable with the Crimean Micoquian and para-Micoquian (Praslov and



Rogachev 1982; Sinitsyn 1996; Rogachev and Anikovich 1984), and likely emerged due to acculturation of exactly the Crimean MP tradition, or, at least, of any of the Eastern Micoquian varieties. The Crimean terminal Micoquian-related MP, or minimally one of its varieties, is associated with *Homo sapiens neanderthalensis*, as revealed by discovery of human fossils in Zaskal'naya VI-III, IIIa, dated by  $^{14}\text{C}$  to ca. 35 and 39 kyr BP, respectively (Hedges *et al.* 1996). As suggested the *Homo sapiens sapiens* association with the late Staroselian needs, as was already stressed, additional argumentation.

## CONCLUSION

The proposed review of the evolution of the Crimean MP in the period between 140-30 kyr BP has shown the following. There is no reliable evidence of Palaeolithic evolution dated to the late penultimate glacial period; hence, exact data which concerns local origins (if any) of the Crimean group of Eastern Taubachian of Eemian age or of local Late Acheulean (which more plausibly seems to be hypothetically characterised as autochthonous) are absent. The last interglacial period provides evidence of roughly contemporaneous micro-assemblages of Eastern Taubachian of which development seems to be restricted to the range of interglacial and Late Acheulean, one of the variants of which constitutes the forerunner of the local Eastern Micoquian tradition (Ak-Kaian). The latter seems to be the earliest MP of the last glacial period. Two other Micoquian-related - or para-Micoquian - traditions (i.e. Kiik-Kobian and Staroselian) appeared probably due to the interaction between Charentian and Micoquian before the first Pleniglacial and for a long time coexisted alongside the Ak-Kaian and Kabazian. The Typical Levallois Mousterian appearance of the latter tradition seems to be intrusive and appeared in the peninsula during or shortly after the first Pleniglacial. All of the four post-Eemian MP traditions survived up to ca. 30 kyr BP, if we assume the reliability of absolute dates at hand. Available data on the Crimean early UP, whether it is Aurignacian, Gravettian, or very questionable "transitional" assemblages, points to roughly the same date of about 30 kyr. This evidence, along with the absence of crucial signs of internal development of the local MP toward UP technology, allows us to suggest the hypothesis of a chronologically late local MP/UP transition inspired by roughly contemporaneous waves of Aurignacian and Gravettian ca. 30 kyr BP.

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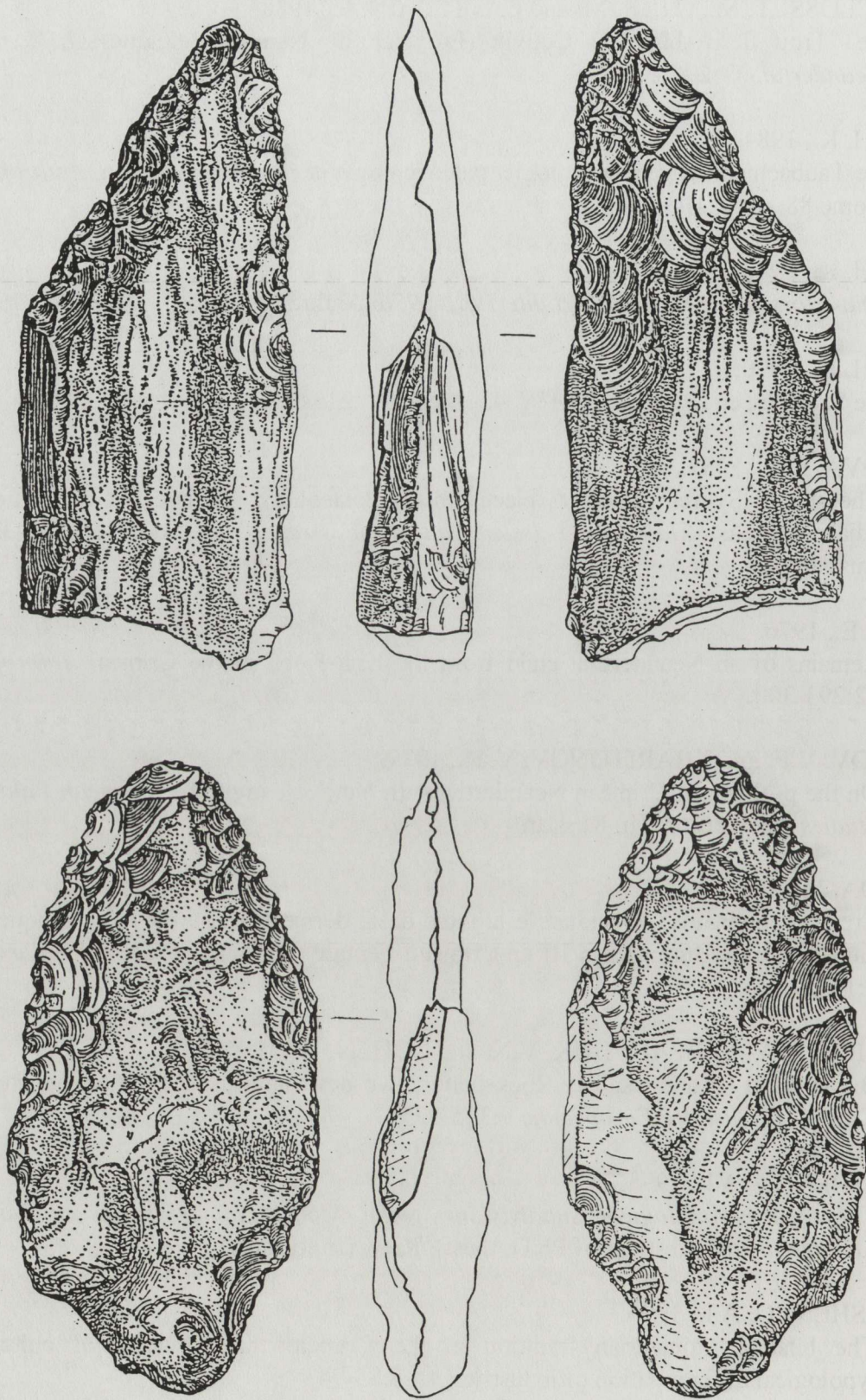


Fig. 4. Crimean Late Acheulean. Zaskal'naya IX (after Kolosov 1983).



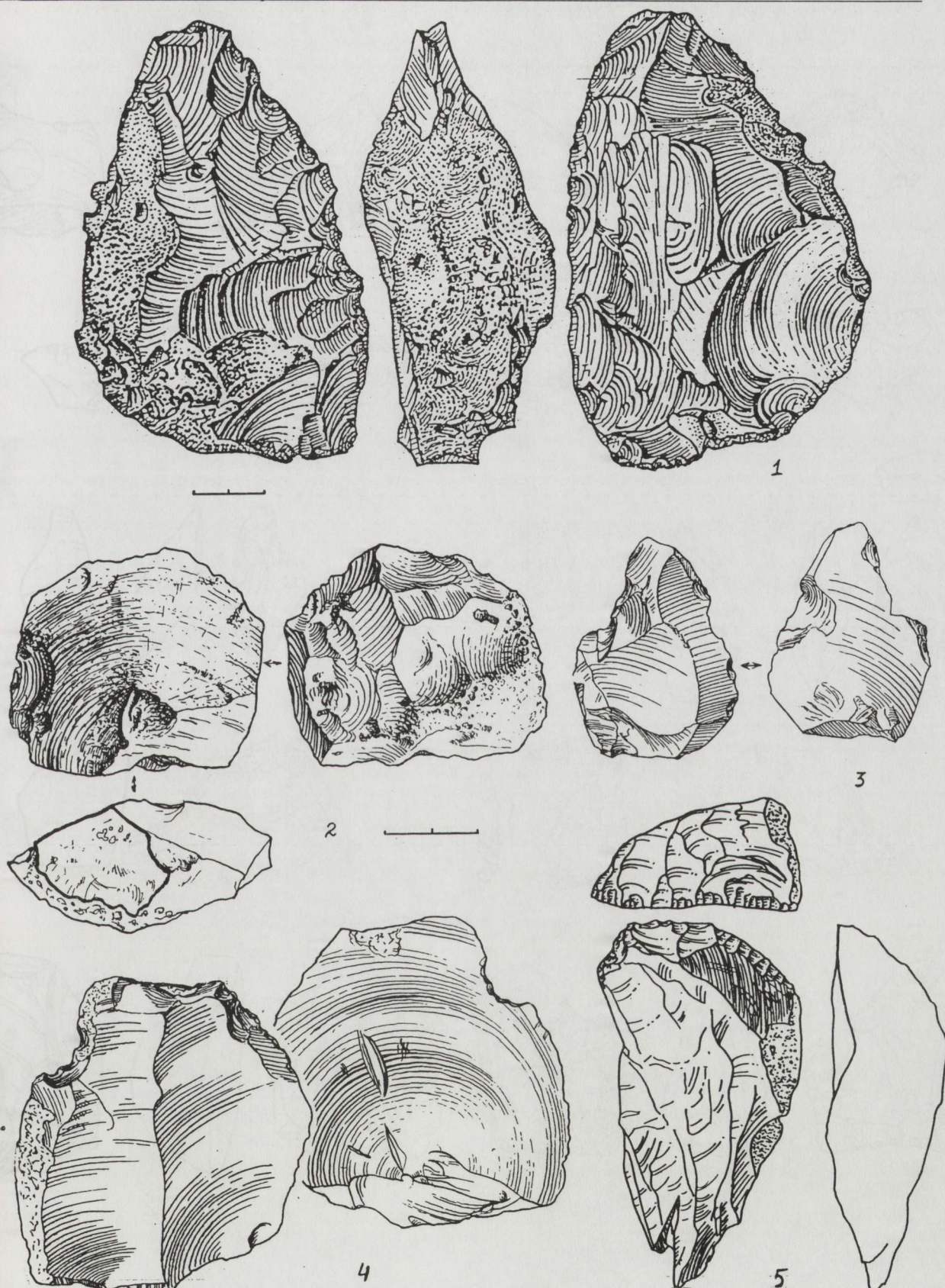


Fig. 5. Crimean Late Acheulean. 1. Shary III (after Kolosov 1986), 2-5. Cherna Terlya (after Kolosov *et al.* 1993).



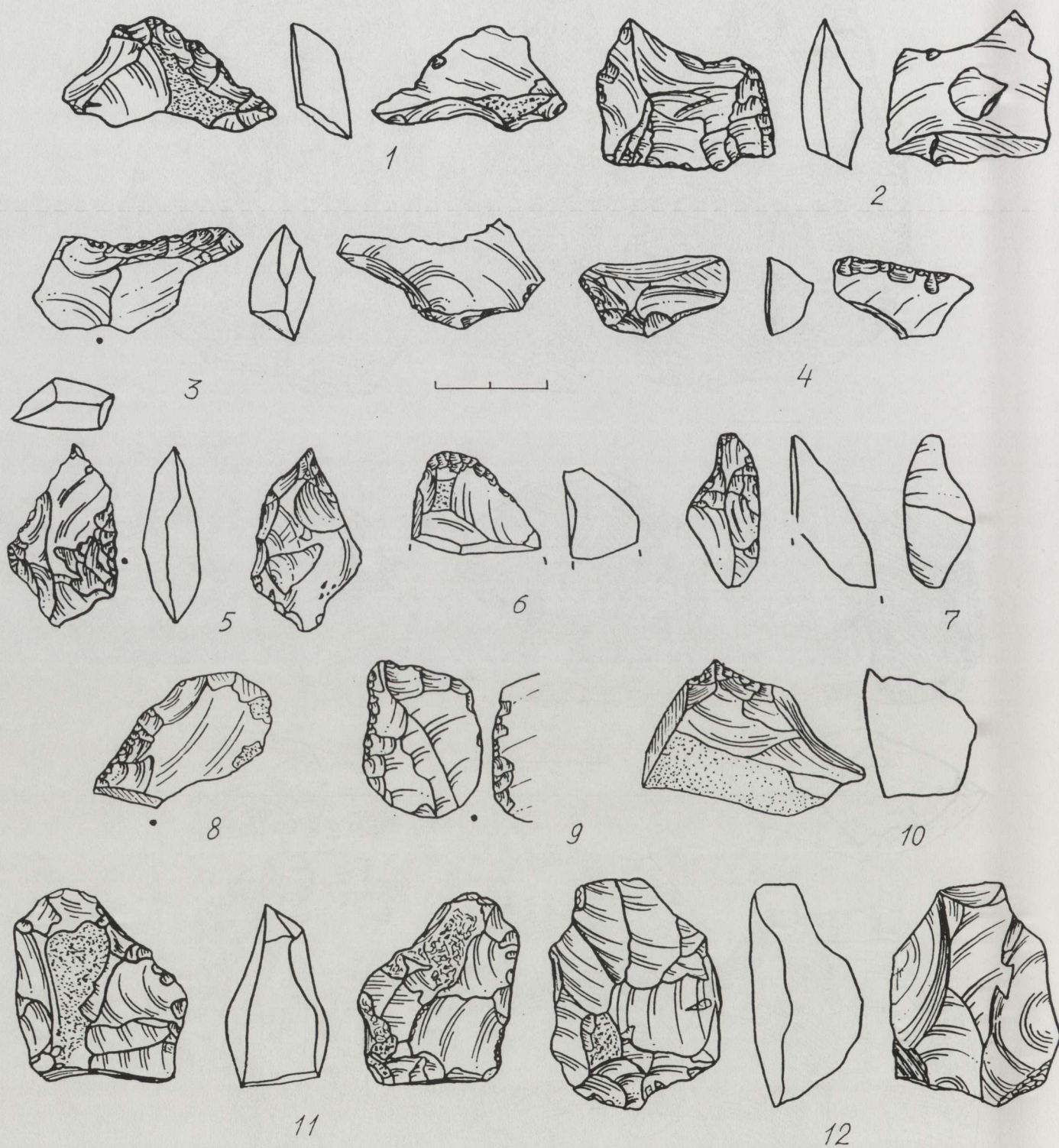


Fig. 6. Crimean group of Eastern Taubachian. 1-12. Kiik-Koba lower layer (after Stepanchuk and Stupak, in press).



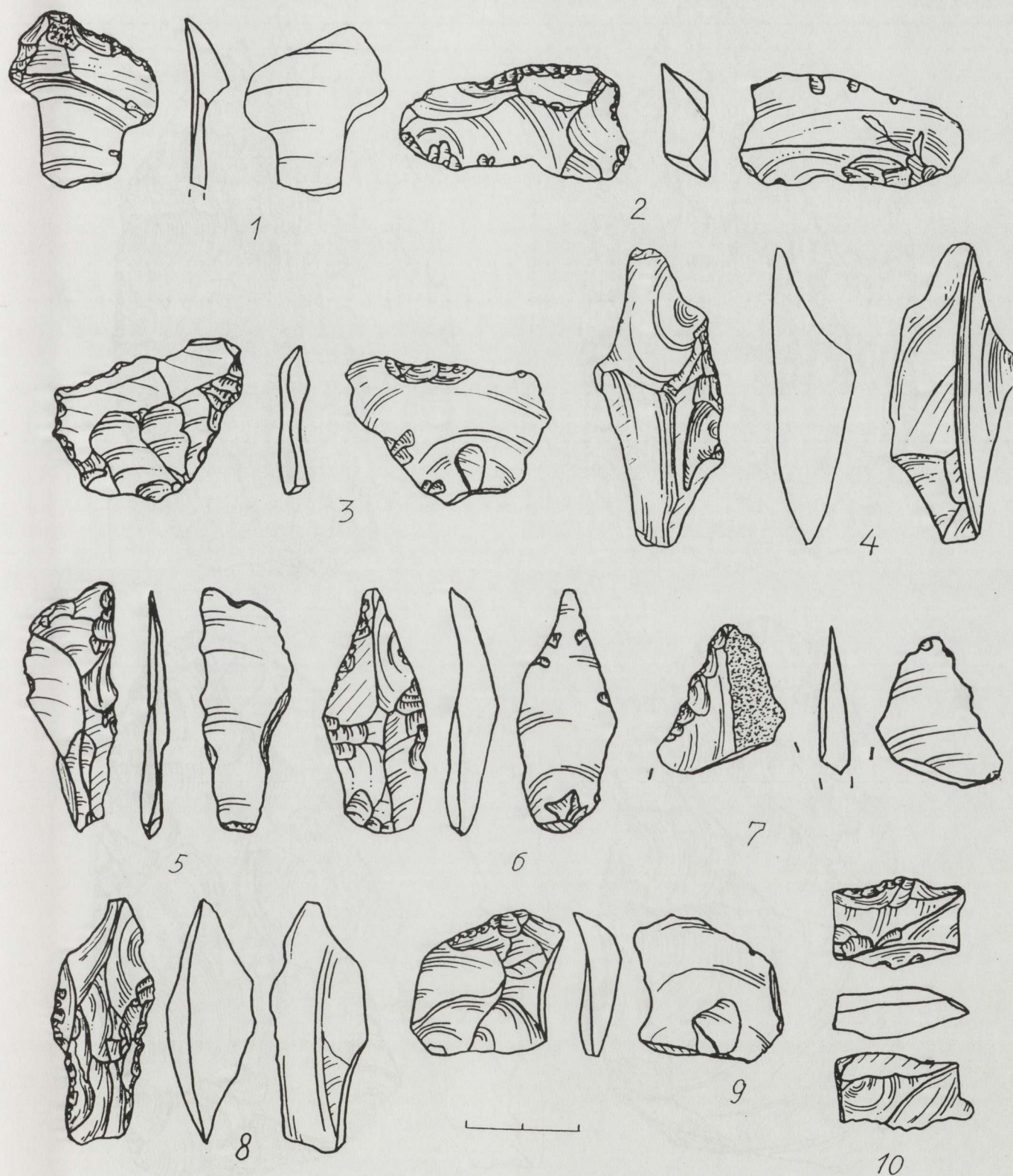


Fig. 7. Crimean group of Eastern Taubachian. 1-10. Kiik-Koba lower layer (after Stepanchuk and Stupak, in press).



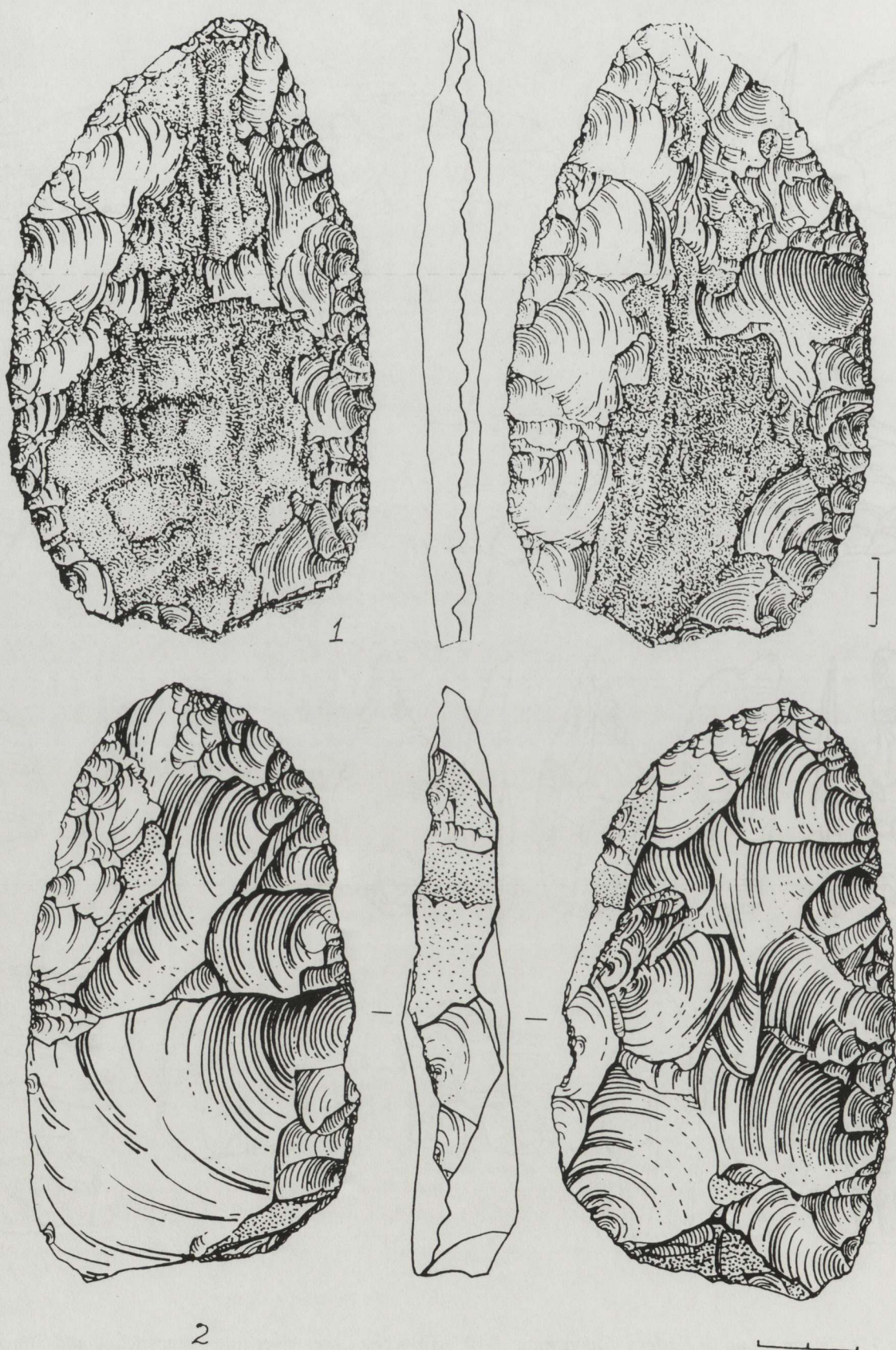


Fig. 8. Crimean Micoquian: Ak-Kaya tradition. 1, 2. Zaskal'naya V layer II (after Kolosov 1983).



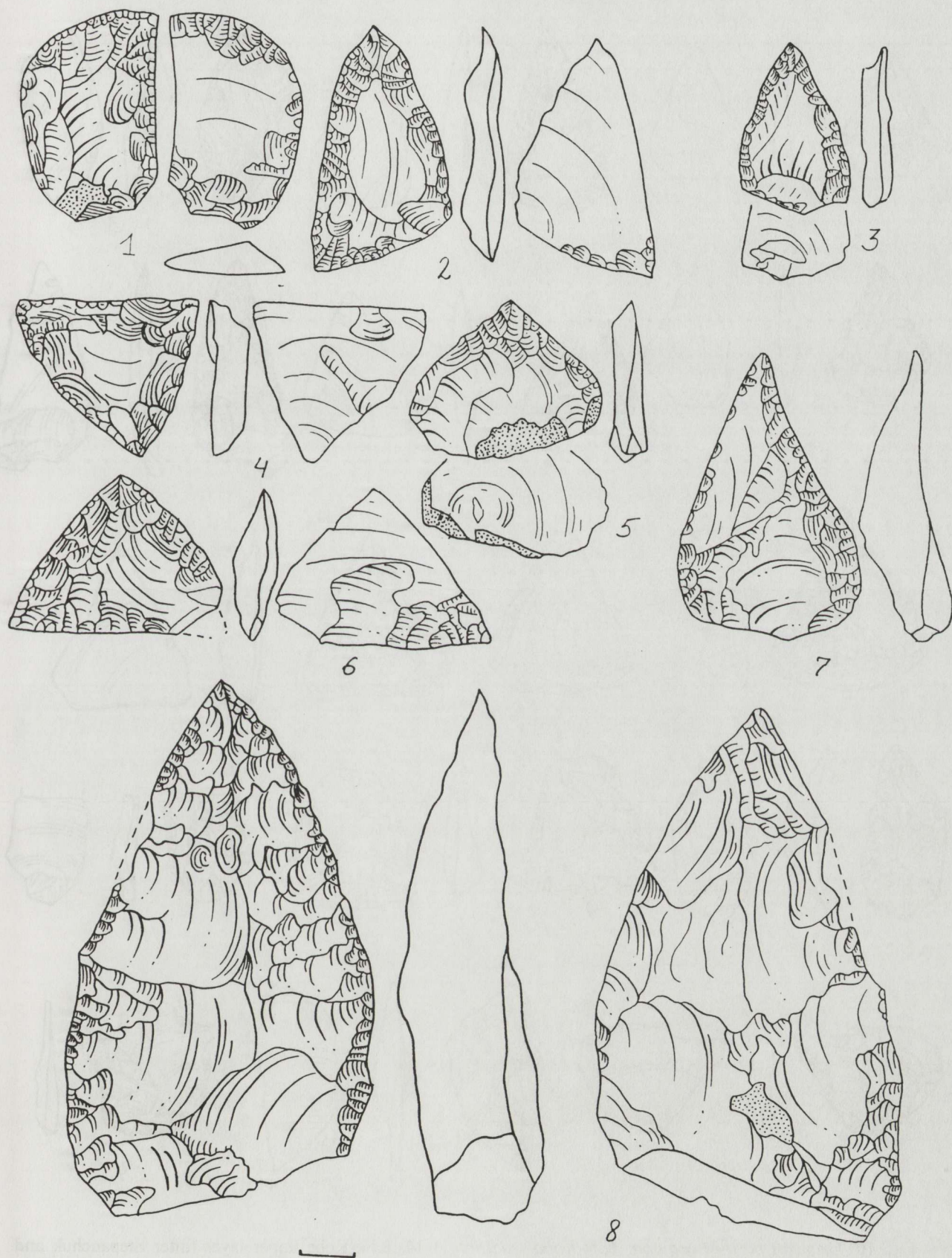


Fig. 9. Crimean Micoquian: Ak-Kaya tradition. 1-8. Chokurcha I (after Ernst 1934).



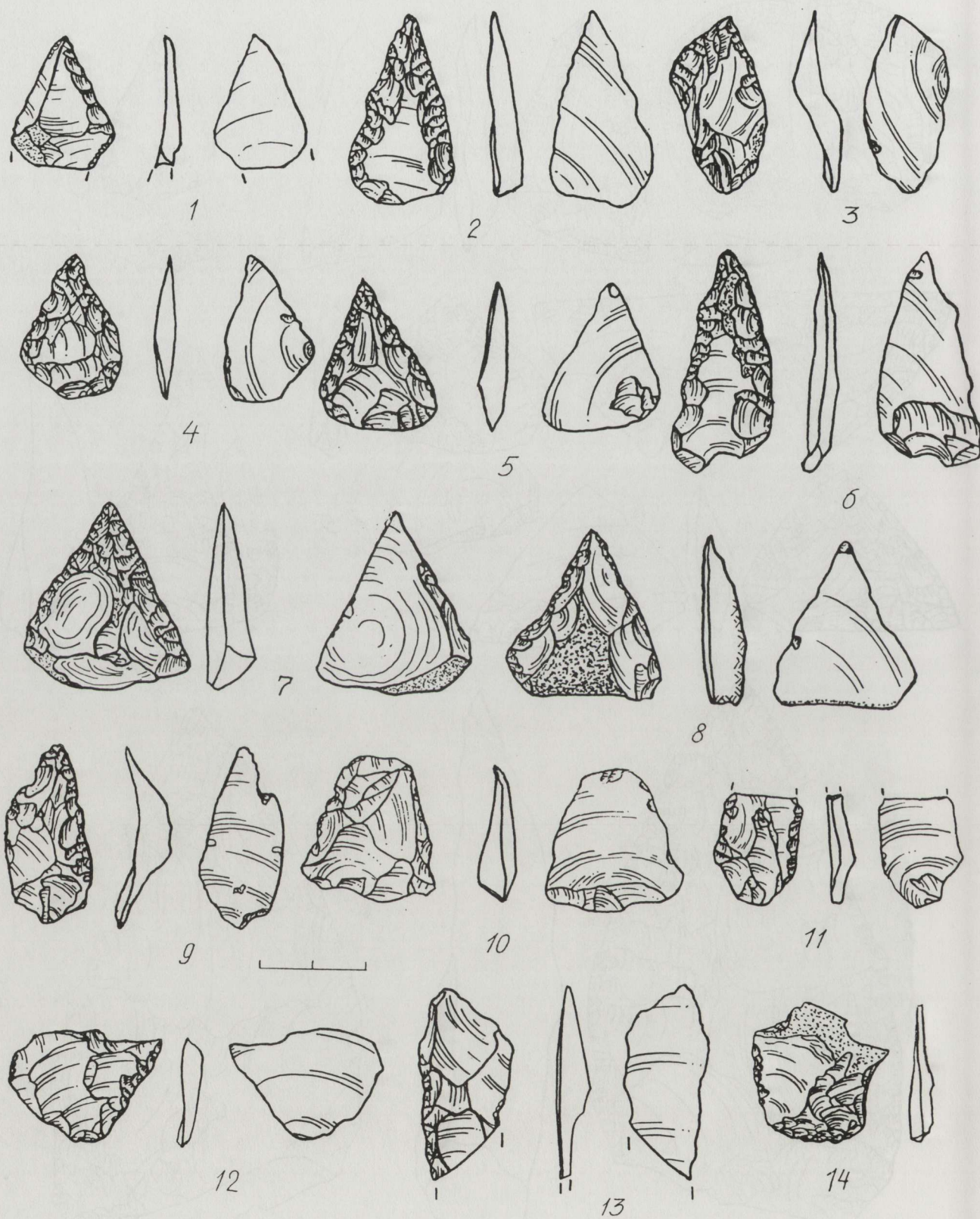


Fig. 10. Crimean para-Micoquian: Kiik-Koba tradition. 1-14. Kiik-Koba upper layer (after Stepanchuk and Stupak, in press).



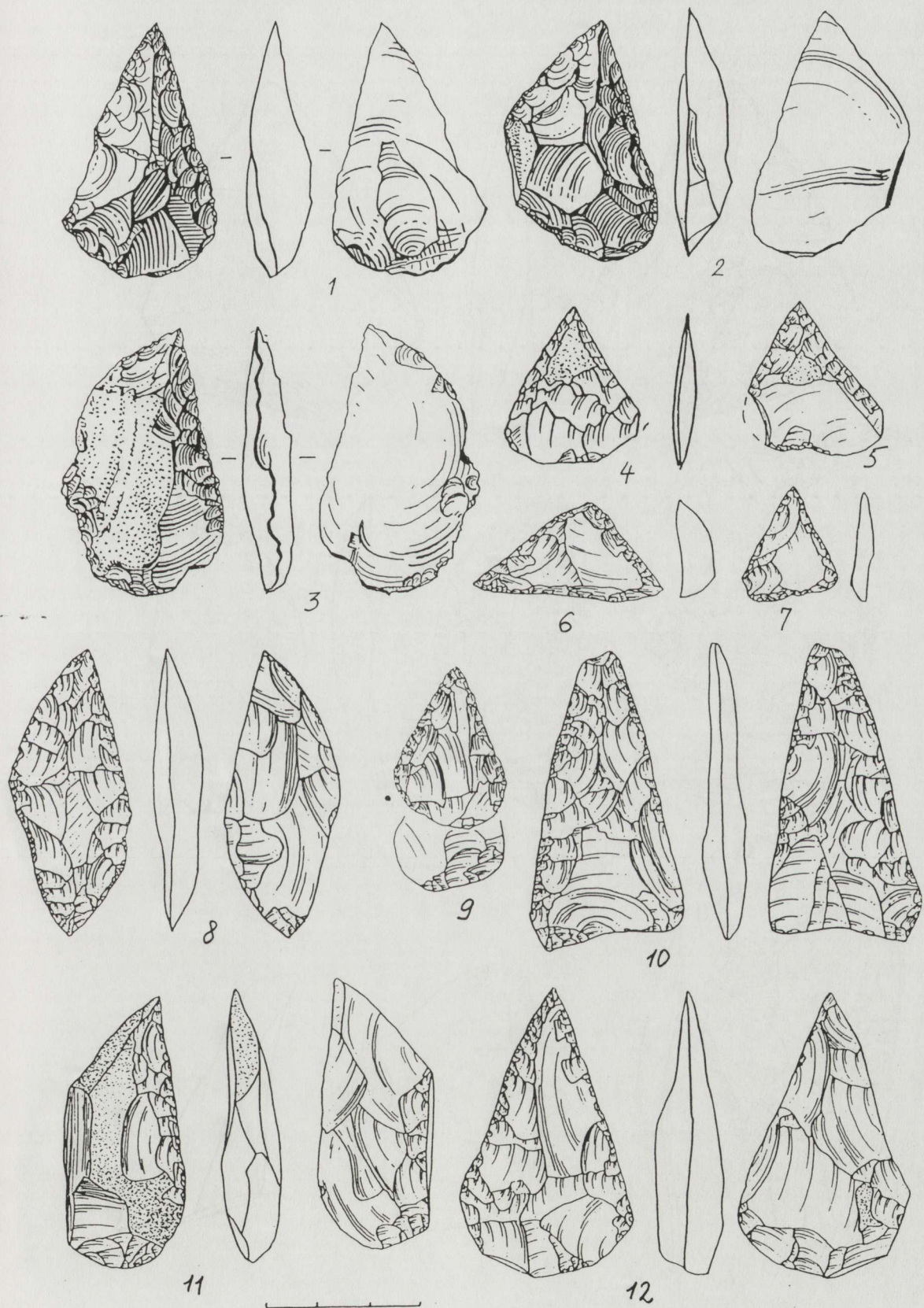


Fig. 11. Crimean para-Micoquian: Kiik-Koba tradition. 1-3; 8-11. Prolom I, 4-7. Kiik-Koba upper layer (after Stepanchuk 1991a).



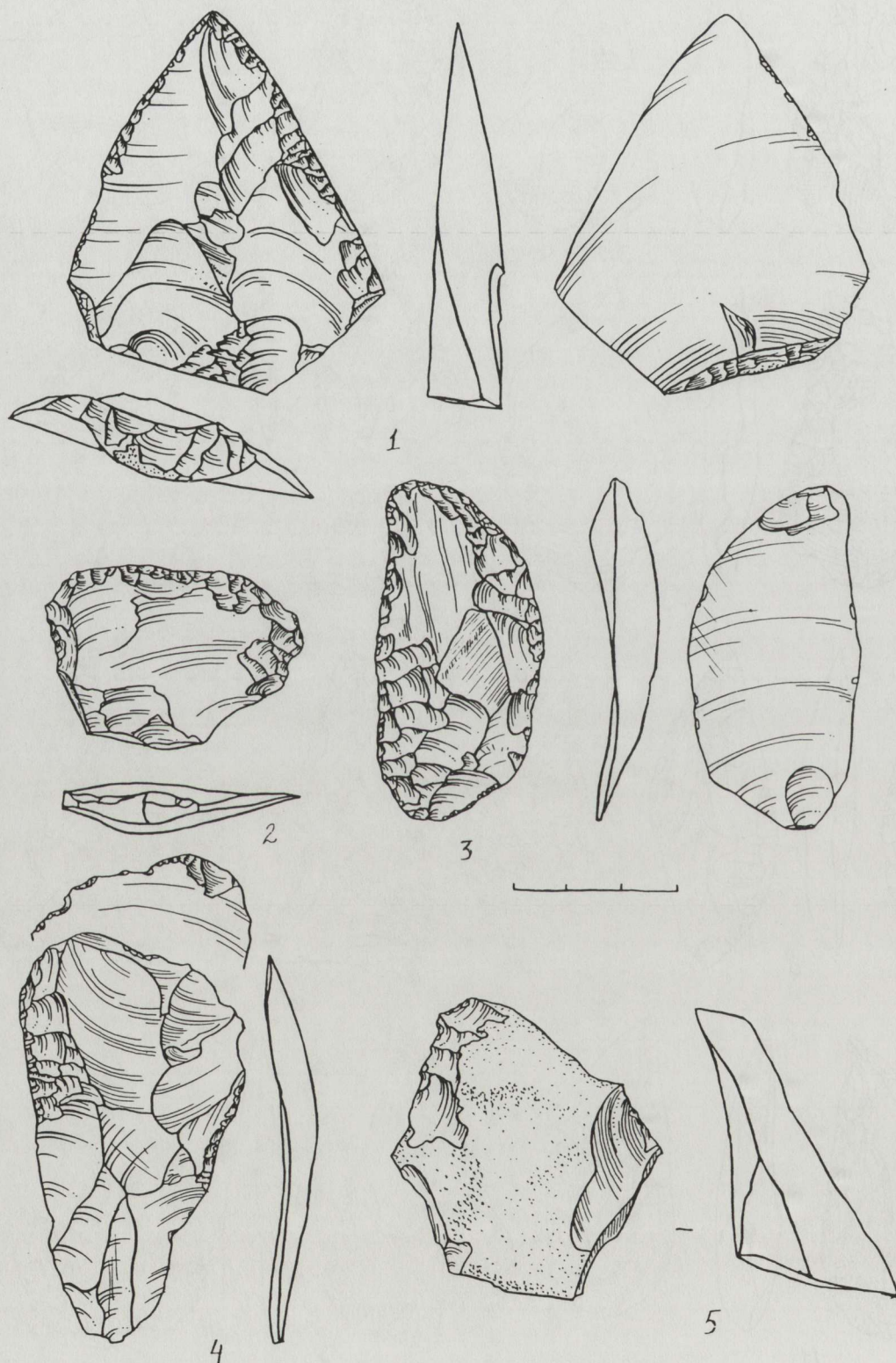


Fig. 12. Crimean para-Micoquian: Starosel'ye tradition. 1-5. GABO - I.



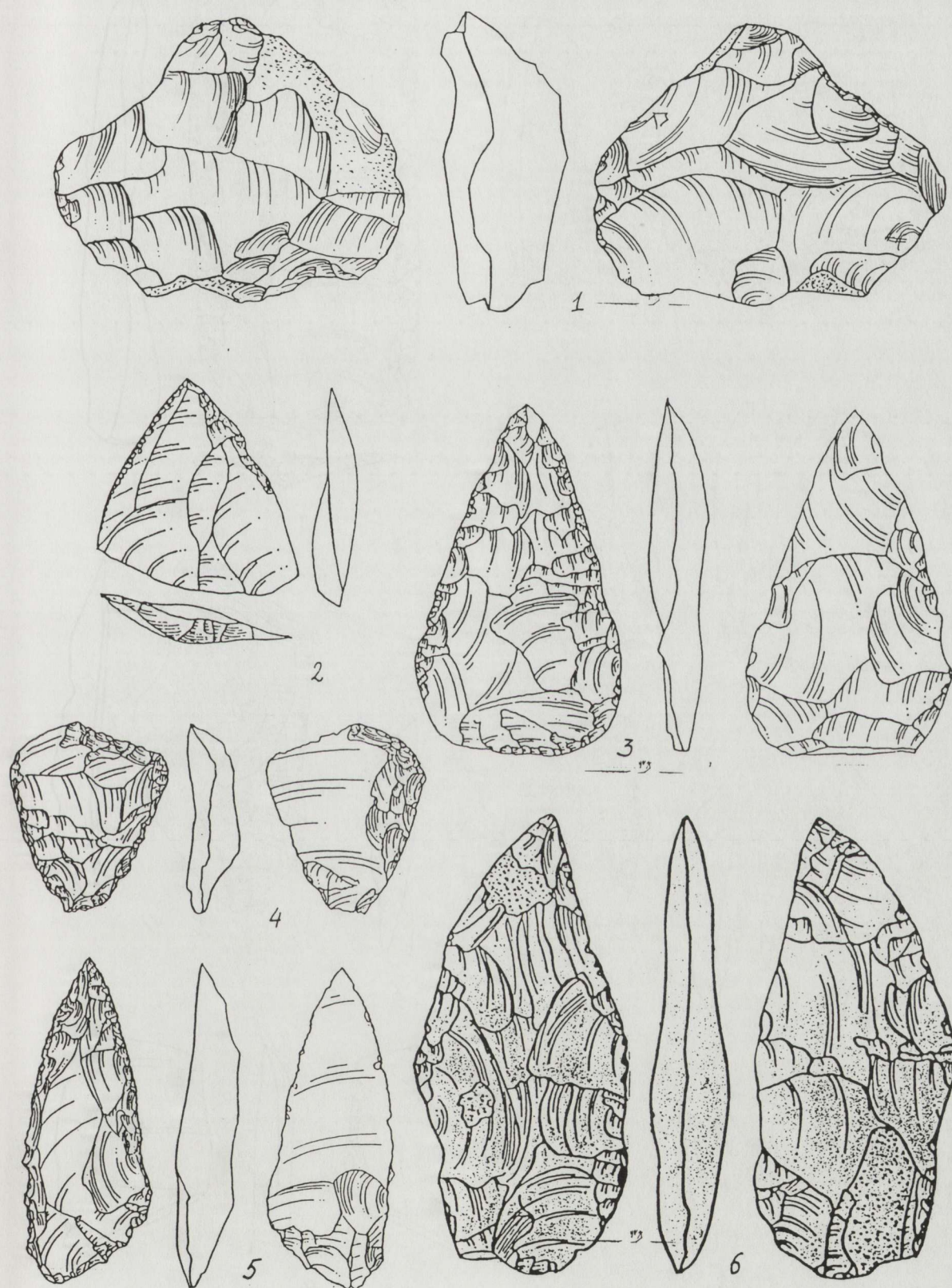


Fig. 13. Crimean para-Micoquian: Starosel'ye tradition. 1-6. GABO - I.



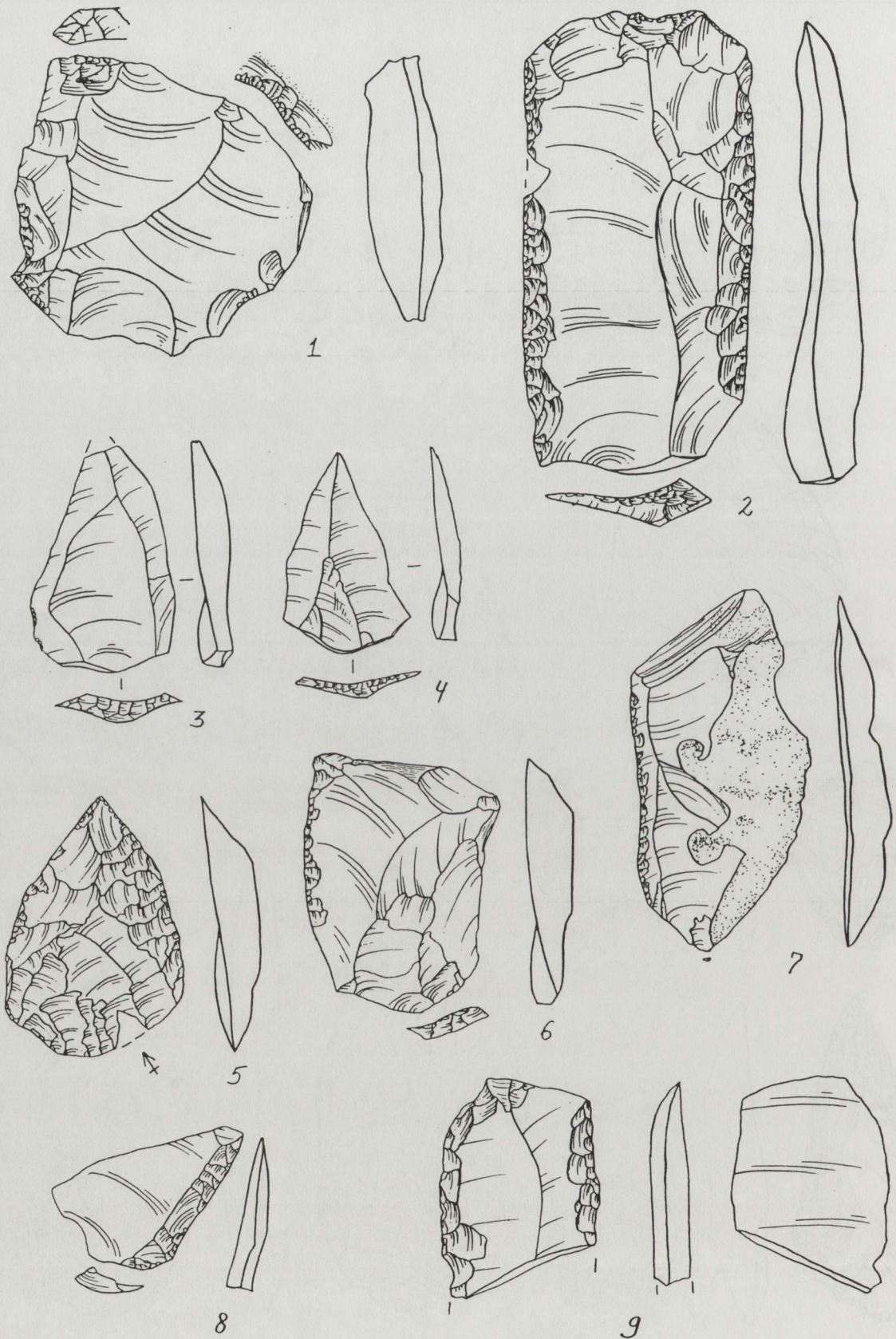


Fig. 14. Crimean Typical Mousterian: Kabazi tradition. 1-9. Alyoshin Grot (after Kolosov and Stepanchuk 1997).



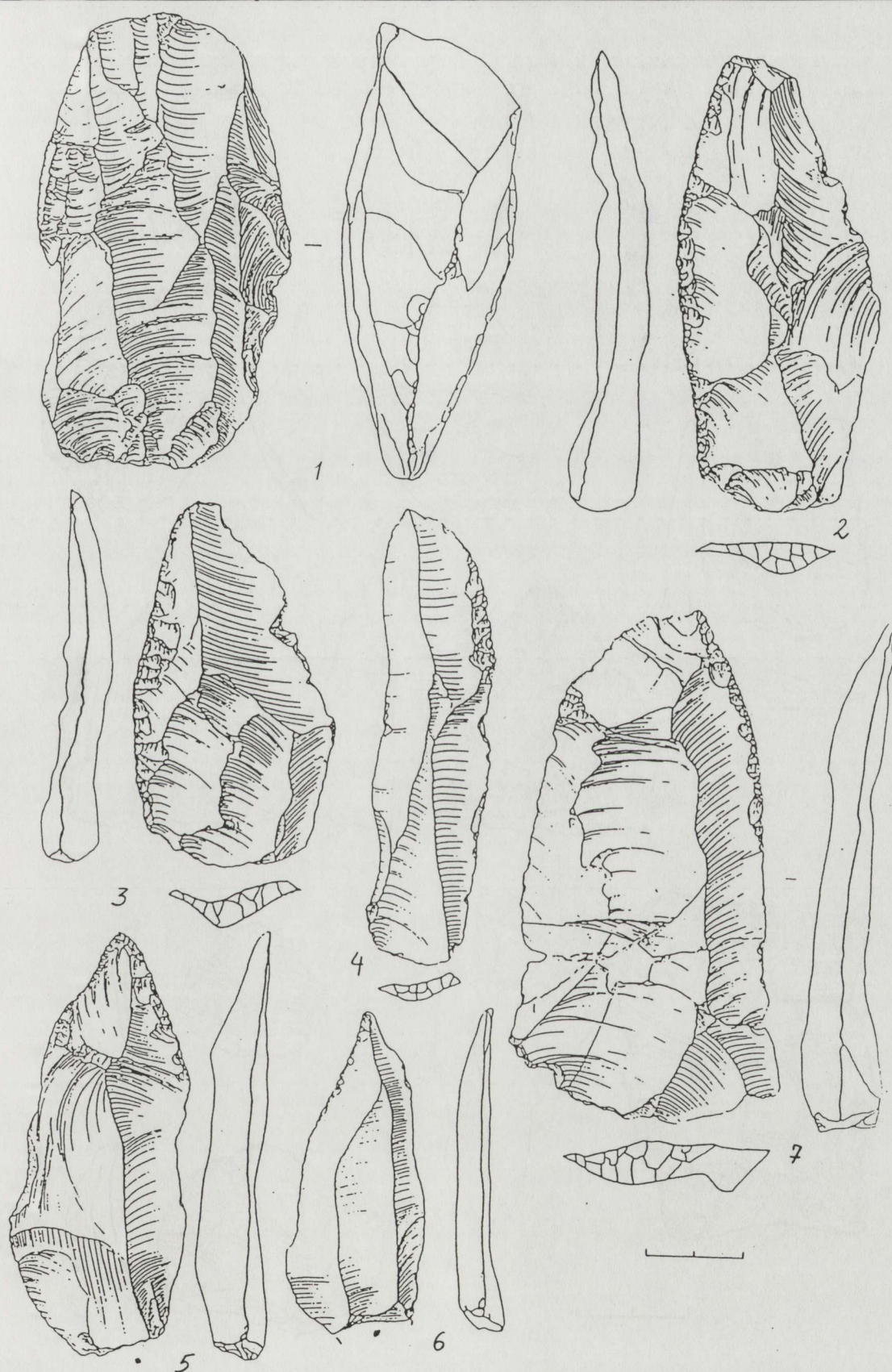


Fig. 15. Crimean Typical Mousterian: Kabazi tradition. 1-7. Kabazi II - II (after Chabai and Sitlivy 1993).



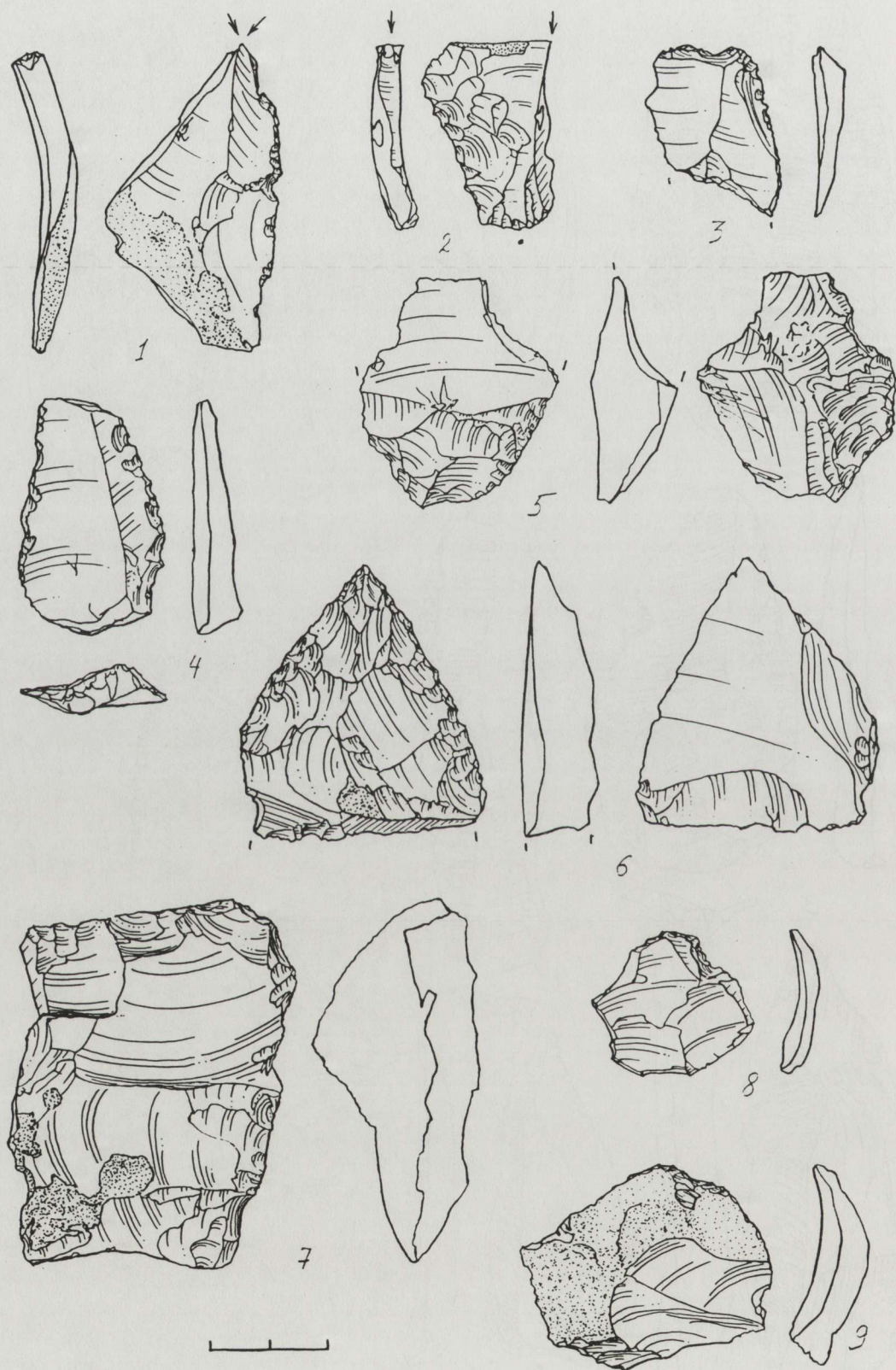


Fig. 16. "Transitional" (??) industry of Tav-Bodrack I - I.