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## THE KIIK-KOBA CULTURE AND SOME QUESTIONS OF THE CRIMEAN MIDDLE PALAEOLITHIC STUDY

*SUMMARY: At least four late Middle Palaeolithic (Mousterian — in terms of former Soviet scholars) cultures and some distinct types of sites are currently known on the territory of the Crimean peninsula. The lithic industries of related cultures well demonstrate the varying degree of differences in both tool typology and technology. The most original industry is represented by the Kiik-Koba upper layer and two layers of Prolom I. Characteristic features of this industry enable us to define it as "Para-Micoquien" and to emphasize its originality in the Crimea and surrounding areas. The data concerning the location of sites with Kiik-Koba industry, stratigraphy, planigraphy, econiche, game hunting specialization, stone inventories, and other specific cultural evidence are reviewed in this paper.*

*KEY WORDS: Ukraine — Crimea — Kiik-Koba — Prolom I — Middle Palaeolithic — Stratigraphy — Planigraphy — Econiche — Chronology — Lithic industry — Cultural process.*

In the former Soviet palaeolithic studies there are various approaches to spatial classification of Palaeolithic sites. The terms "culture", "cultural region", "region", "zone", "province", "variant", "facies", "type", "way of development", and "line of development" have been suggested by different scholars (Boriskovski 1964 & 1984, Zamyatnin 1951, Gladilin 1976, Grigor'ev 1968, Lyubin 1977). Duality of both tasks and results is a concomitant feature of systematization and classification on vast territories. The purely ancillary aspect and the interpretative aspect of such operations are distinguished. The presence of the former manifests itself when a large number of sites are divided according to their signs of similar features. The latter predominates when any particular type of social relations is considered within the groups of sites obtained. All the above mentioned concepts reflect, to a certain extent, such duality,

some of them being initially focused only on the ancillary role.

The concept "archaeological culture" (Anisyutkin 1977, Gladilin 1976, Grigor'ev 1968, Kolosov 1979, Lyubin 1977, Praslov 1968) is a basic instrument with the help of which the search for distinctive elements of sociocultural processes of the Middle Palaeolithic Period is carried out within the framework of individual regions. The concept of culture is also characterized by interpenetration of two conceptual levels, i.e. classificatory and interpretative. The definition of culture suggested by V. N. Gladilin (Gladilin 1976) is the most convenient in terms of classification. The definition proposed by V. P. Lyubin (Lyubin 1977) reveals the specificity of the concept in the socio-cultural sense, having an interpretative content. The term "Middle Palaeolithic Culture" (or "Mousterian Culture" in the former Soviet literature) is under-

stood to refer to a real existence of specific units or communities of the prehistoric sociocultural development. At the same time, distinct traces were left by these units in various aspects of prehistoric man's activities. Typological ranking of such social units remains unclear.

The paper submitted here is intended to present a survey of the Kiik-Koba Middle Palaeolithic Culture in the East Crimea, Ukraine. It includes materials of two cave sites: well known Kiik-Koba and Prolom I.

#### HISTORY OF INVESTIGATIONS

The cave site Kiik-Koba was discovered in 1924 and in the years 1924–1926 it was explored by G. A. Bonch-Osmolovski with the participation of E. V. Zhiron, S. A. Trusova, N. L. Ernst, P. A. Dvoichenko, V. I. Gromov, and others (Bonch-Osmolovski 1926). Excavations uncovered two rich Palaeolithic layers and revealed remains of two individuals of the Neanderthal Man. With the exception of control sections, the whole site was fully excavated under the rock shelter, on the ground in front of the cave, and also by means of a trench on the slope. The results of

field investigations and laboratory treatment of cave material were presented in detail by G. A. Bonch-Osmolovski in a number of papers and monographs (Bonch-Osmolovski 1934, 1940, 1941 & 1954). The discovery of Kiik-Koba provided documentary evidence in support of K. S. Merezhkovski's data about the Crimea settlement in the Quaternary. Purposeful search for new Palaeolithic sites was started.

The cave site Prolom I was discovered by Yu. G. Kolosov in 1973 and investigated by him in the years 1973, 1974, and 1977. Geologist V. P. Dushevski participated in the excavations. The sediments of the cave were completely investigated, and trenches were made in the depth of the cave and on the slope. Numerous remains of the activity of the Neanderthals were uncovered in two layers of the site. Several special publications were devoted to the findings of this cave site (Kolosov, 1978, 1979; Stepanchuk, in press).

#### SITES LOCATION

Both the sites are situated in the East Crimea, in the zone where rivers made their bed between the

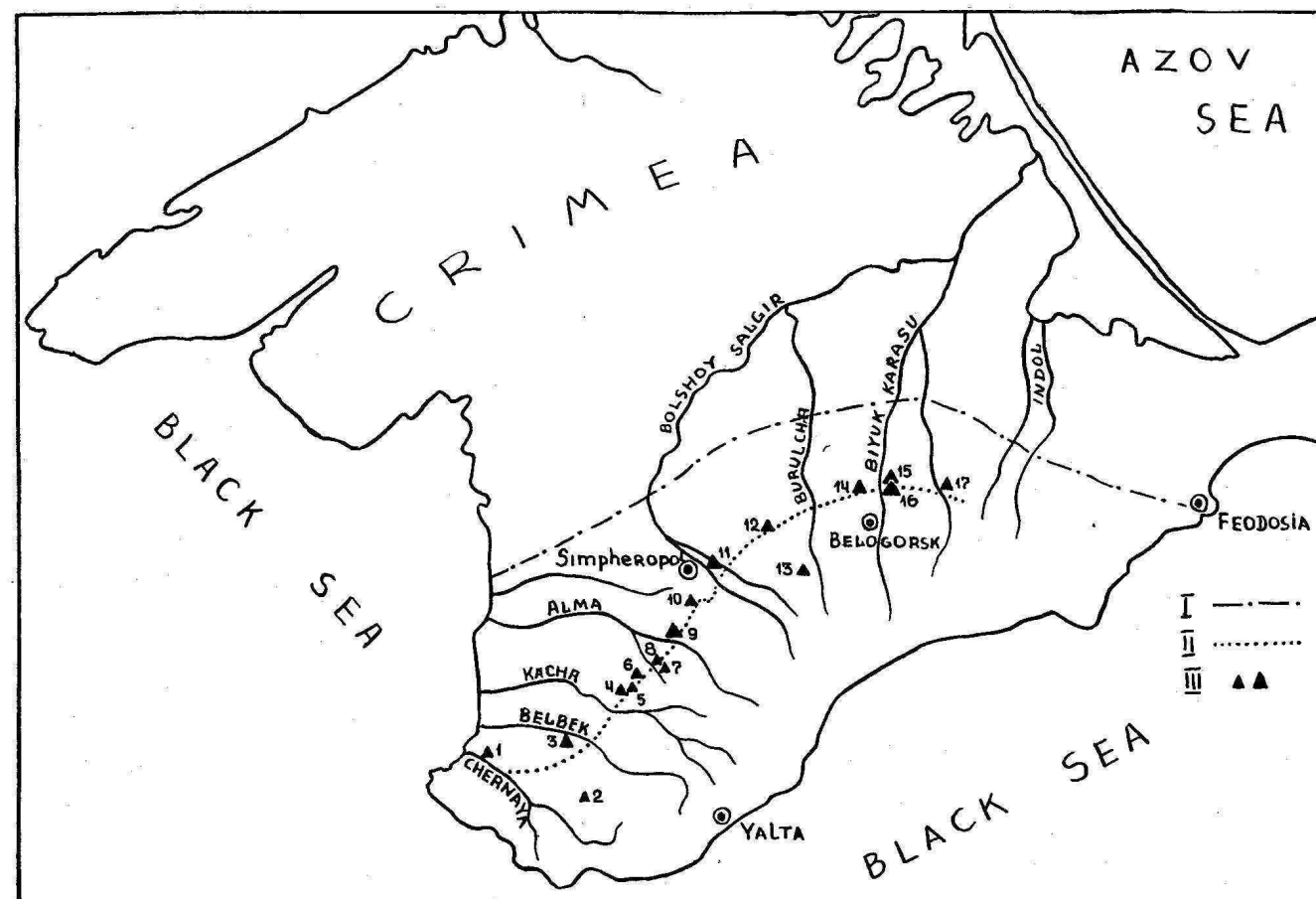


FIGURE 1. The principal map of main sites of the Crimean Middle Palaeolithic. I — The border of the Second Ridge of the Crimean Mts., II — The border of the First (External) Ridge of the Crimean Mts., III — Separate sites and their groups. 1 — Alanar, 2 — Kokluz, 3 — Krasny Mak 1 and 2, 4 — Starosel'e, 5 — Bakhchisarajskaya, 6 — Balakly, 7 — Shajtan-Koba, 8 — Gleb Anatol'evich Bonch-Osmolovski site (GABO), 9 — Kabazi I–VI, 10 — Kholodnaya Balkka, 11 — Chokurcha I, II, 12 — Volchi Grot, 13 — Kiik-Koba, 14 — Sary-Kaya I–IV, 15 — Ak-Kaya I–V, 16 — Zaskal'naya I–IX, 17 — Prolom I and II.

rocks of the Crimean mountains foothills. In accordance with a current geographical subdivision, Kiik-Koba ( $44^{\circ} 58'$  of the Northern Latitude,  $34^{\circ} 20'$  of the Eastern Longitude) lies within the boundaries of the South foothill valley-cuesta region, and Prolom I ( $45^{\circ} 07'$  of the Northern Latitude,  $34^{\circ} 42'$  of the Eastern Longitude) belongs to the North foothill cuesta region.

The cave Kiik-Koba is situated in the valley of the river Zuya, 20 km south-west of Belogorsk, in the system of the river Salgir.

The shelter with two tunnel-like passages is located on the right side of a canyon in a Jurassic limestone wall. The dimensions of the main cave are as follows: 9 m in height, 11 m in width, and 9 m in depth. It is exposed to the south-east, the height above the river level being 150 m.

The cave Prolom I is situated on the left slope of the river Kuchuk-Karasu valley (also the river Salgir system), 10 km north-east of Belogorsk. The shelter with a south-east exposure is connected with nummulitic limestone of the Middle Eocene age. The cave consists of two chambers having formed a single cavity in the ancient times. The large chamber is 4 m high, 5 m long, and 7 m wide, the smaller one is 1.5 m, 5.0 m, and 2.5 m, respectively. The cave height above the water level is 12 m.

#### STRATIGRAPHY AND PLANIGRAPHY

According to G. A. Bonch-Osmolovski, differences were found in the sequence of sediments on the ground, slope, and tunnel-like passages. During the site excavations twelve stratigraphic layers (including local horizons) were distinguished. General stratigraphic situation can be described in the following way: The set of morphologically similar bright yellow loamy soils is covered with the upper contemporary layer of hearths. The differences within the loamy soils manifest the tendency towards almost stable increase of the number of gravels in the direction to the thickness surface. The thickness is divided by two Palaeolithic cultural layers. Cave sediments contain traces of two-fold inundation. The material mentioned in the present paper comes from the upper cultural layer. Thorough examinations carried out by G. A. Bonch-Osmolovski enabled him to determine such features of the cultural layer as, for example, the outline of the dwelling place, the presence of hearths (?) inside it, the occurrence of utility pits, and burial evidence. The sharp interruption of cultural remains allows the existence of a protective construction to be assumed along the eastern, and possibly also along the southern boundaries of the dwelling place (Lyubin, 1969). At first G. A. Bonch-Osmolovski presumed that there was a relation between the remains of the adult Neanderthal Man and the lower (Tayacian) cultural layer. Later he asserted the pertinence of the burial to the period of the upper cultural layer. It was mainly due to his false assessment of a more ancient

age of the lower layer. Factual data make it necessary to adopt the initial dating (Gladilin 1979). Stratigraphic circumstances of the infant's burial (?) are less questionable. However, the opinion attributing this burial to the upper layer was also expressed (Smirnov Yu. 1987, 1991).

Yu. Kolosov and V. P. Dushevski discovered 7 lithological horizons in the sediment sequence of the cave Prolom I. The set of sediments can be subdivided into two separate parts, i.e. the upper one with large quantities of limestone debris, and the lower one containing nummulitic sands with a small amount of debris. On the excavated area, the upper part of the sand is cemented with a thin carbonate crust. Limestone slabs — the remains of the cave roof — were fixed on a separate part of the area. They also divided the lower and upper parts of the sediments. Cultural remains of Middle Palaeolithic were discovered both in the humus loam soil with debris (the upper layer) and in the layer of nummulitic sand (the lower layer). The only unquestionable object of the site — the hearth — was situated in the lower layer. Palaeolithic findings were almost completely absent under the rock shelter inside the cave. This area was cleared from sediments in the Middle Ages.

#### FAUNA AND ECONICHE

Faunistic data make it possible to carry out an analysis aimed at two objectives:

a) to clarify the specificity of hunting activities, and

b) to ascertain the features of econiche which was characterized by the established species pattern. Only game species were taken into account in the assessment of hunting activities. In the Kiik-Koba upper layer, 65.5 per cent of game animals are represented by the giant deer, horse, and saiga. The remaining 34.5 per cent are made up of eight species, and namely the mammoth, ass, bison, woolly rhinoceros, red deer, bear, wild boar, and ram. Apparent disproportion in the species distribution was found out also in the cave site Prolom I. Thus, 54.6 per cent of the total number of animals are represented by the saiga and giant deer. The remaining 45.4 per cent are constituted by the red deer, reindeer, wild horse, mammoth, and bison.

Specificity of the share of dominating species was confirmed by its comparison with seventeen faunistic complexes belonging to different cultural traditions. Unobjectionable correlation between the specificity of the tool set and the faunistic list was assessed, and, in this case, fauna composition establishes the character of hunting activity. This conclusion is being proved by analogical observations carried out for the Ak-Kaya Middle Palaeolithic culture (Kolosov 1983, 1986) and for the South-West Crimea sites (Chabay 1990).

The Kiik-Koba upper layer and both layers of the Prolom I cave are characterized by prevalence of the giant deer, saiga, and horse. This particular trait,



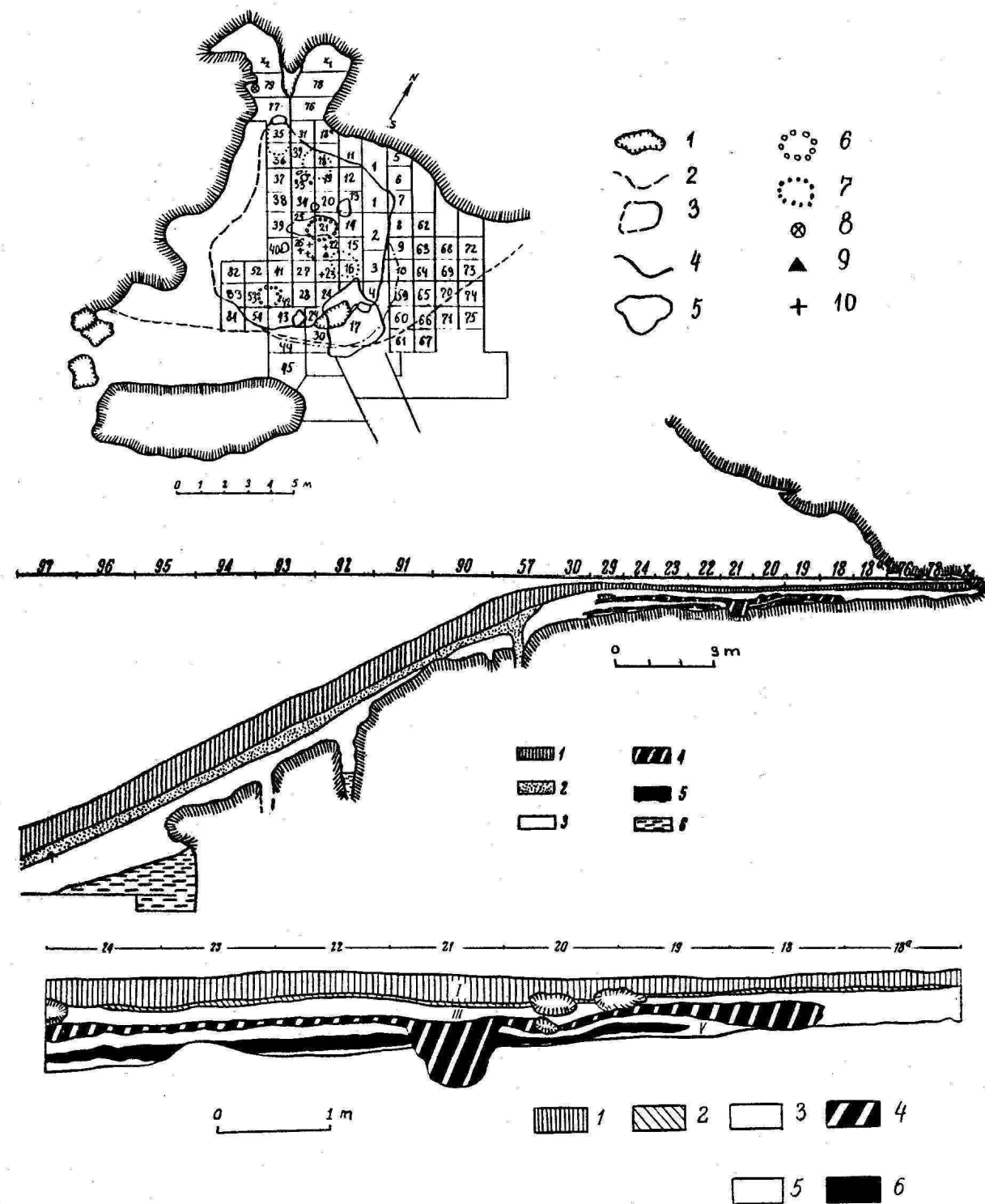


FIGURE 2. Kiik-Koba (according to G. A. Bonch-Osmolovski).  
The plan of the cave on the level of the upper cultural layer.  
1 — slabs of limestone, 2 — dropped line, 3 — the borders of the upper cultural layer, 4 — the border of single findings, 5 — the burial pit, 6 — the outline of deep pits, 7 — hearths, 8 — the finding of unsplit bones, 9 — the tooth of an adult Neanderthal, 10 — the falanges of a hand of an adult Neanderthal.  
Longitudinal cross-section of sediments from SE to NW.  
1 — modern humus layer, 2 — limestone sandy loam soil of grey colour, 3 — yellow loamy soil including gravel, 4 — upper cultural layer, 5 — lower cultural layer, fundamental solid green clay.  
Sediments on the ground of the cave. Profile SE to NW.  
1 — modern black layer, 2 — brown layer, 3 — yellow overhearth layer, 4 — upper hearth layer, 5 — dividing layer, 6 — lower hearth layer.

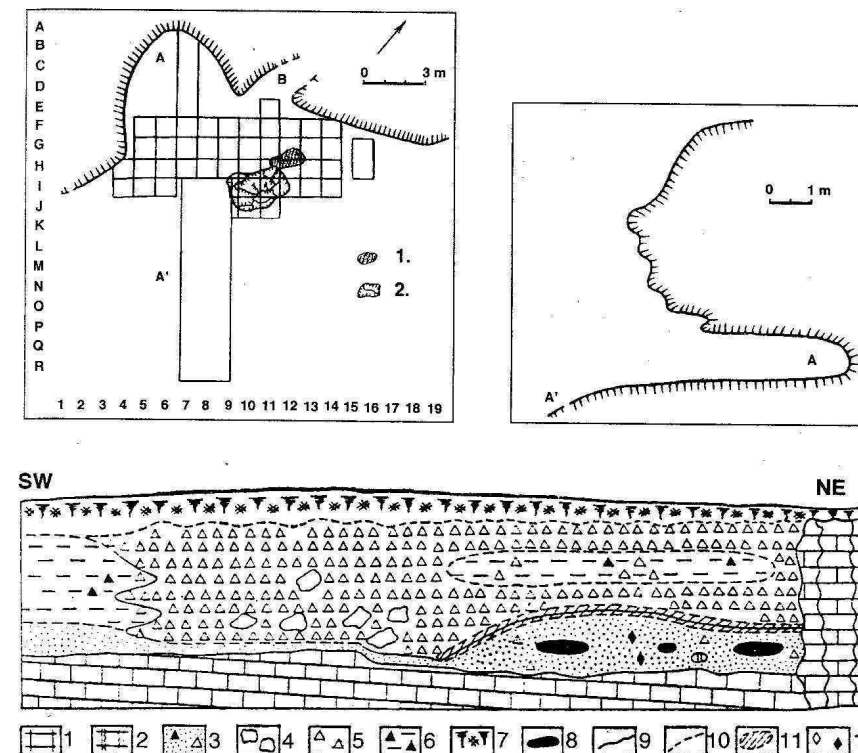


FIGURE 3. Prolom 1 (according to Yu. G. Kolosov).  
The plan of the investigated area in the cave.  
1 — hearth, 2 — limestone slabs fallings from the rock roof of the cave.  
Transverse section of the cave.  
SW to NE profile of the sediments on the ground of the cave, squares 6/7 ZZE.  
1 — maternal Nummulitic limestone of Middle Eocene, 2 — aslab of Nummulitic limestone, 3 — medium-grained bright yellow Nummulitic sand, 4 — single limestone plates, 5 — limestone rubble, 6 — humus soil with rubble, 7 — chernozem mixed with loamy soil, 8 — carnivora holes filled with soil, 9 — strict border between layers, 10 — unclear border between layers, 11 — carbonate cortex, 12 — unworked flints (according to V. P. Dushevski).

on the one hand, manifests undoubted resemblance of the sites. On the other hand, it reveals distinctive differences from other, in the broad sense synchronous, Crimean sites. Explanation of the specificity of the game species list may be found in the particular orientation of hunting activities. Such phenomenon may be indicated as the beginning of specialization in hunting activities.

The study on palaeobiography of Europe during the last glaciation (Musil 1985) was made use of as a basis for the determination of fundamental features of the site econiche. All species having relatively limited area were considered. Several indexes were calculated which made it possible to clarify the balance of various natural zones, such as tundra; subarctic forests, including taiga; arctic steppes, forest-steppes, steppes; temperate forests, meadows. Such balance makes it possible to draw conclusions about the most probable zone which may be characterized by the faunistic composition revealed.

The Kiik-Koba upper layer fauna list makes it possible to arrive at a conclusion that the site was located in the zone of temperate forest-steppe characterized by developed forest communities. This conclusion, as a whole, is confirmed by flora evidence (samples of charcoal, palynological analysis — Gammerman 1934, Lyublin 1971).

Materials from Prolom I, taken as a whole, may fix a colder and drier forest-steppe, the forest fauna component being less developed than that in the Kiik-Koba region at the time of the upper layer sedimentation. More detailed specification of the fauna list for the upper layer of Prolom I makes it possible to come to the conclusion about the climate worsening in comparison with conditions of the lower layer of Prolom I.

#### CHRONOLOGY

Direct data for the clarification of the exact chronological position are missing both for Kiik-Koba and for Prolom I. Under such circumstances, the data of relative chronology acquire decisive significance. Stratigraphical, palaeozoological, and palaeobotanical data can be made use of. Indices of collagen heating, determined according to I. G. Pidoplichko's method, serve as an important support. Palaeoseismoarchaeological method of relative dating, suggested by Yu. G. Kolosov, can be regarded as an essential correlator. The role of a traditional techno-typological method is still of weight.

Completely different geological dating was suggested by various investigators for the Kiik-Koba upper layer, ranging from the end of the Mindel-Riss up to the Early Würm (Bonch-Osmolovski 1934, 1940, Gromov 1948, Ivanova 1965). The Early Würm age is the most unanimously accepted dating at present (Velichko et al. 1969, Ivanova 1983, Kolosov 1983, Gladilin 1976, Velichko 1988). Coming out of specific lithological features, there are grounds for sharing the view of V. N. Gladilin that the layer is related to a warm period within the Early Würm (Gladilin 1971). Palaeozoological and palaeobotanical findings are not in contradiction to the above mentioned dating. It is possible to assume the Brörup age of the Kiik-Koba upper layer.

The layers of Prolom I were attributed to the middle and late Würm I by Yu. G. Kolosov (Kolosov 1983). The following facts are essential to determine the chronological position of the site. Methods of collagen heating and techno-typology give evidence of a certain divergence between Prolom I and the Kiik-Koba upper layer. Lithology and fauna record and fix

obvious climatic changes. Thus, the Prolom I lower layer manifests climatic conditions that were relatively favourable, but, at the same time, colder than in the Kiik-Koba upper layer. The Prolom I upper layer is characterized by further deterioration of the climate. In view of this, it is possible to place the cultural layers of Prolom I into the Würm I/II. Such dating can be confirmed using the method proposed by M. N. Grischenko (Grischenko 1971). This method consists in conversion of collagen indicators into absolute dates through drawing a curve of relationship between these indexes. The absolute date of Prolom I cultural layers can be determined. Obtained collagen dates (42,800 and 42,300 years) generally correspond to the Würm I/II, which includes Moershoofd and Hengelo interstadials. There is no doubt that these dates are not so reliable as, for example, C-14 dating. At the same time, however, these dates may serve as auxiliary indications when chronological position of sites is being determined.

#### STONE INDUSTRY

##### General characteristics

The Kiik-Koba upper layer (21 cores, 615 finished tools) is characterized by predominance of radial knapping (77.3 per cent of cores). There are irregular and protoprismatic cores (9.1 per cent) and one Levallois core. IF strict is 21.9. IF large is 41.9. I lam is 11.6. Index of bifacially worked tools is 14. Secondary working was carried out by retouching, and, sometimes, by the burin spall technique. Dorsal, semiabrupt, and flat, often deep, scaly retouching predominates. Core-like thinnings are widely spread. Alternative retouching occurs quite frequently. On the other hand, bifacial retouching is rare. Bifacially worked tools, as a rule, possess flat-convex cutting, retouching on such tools is placed mainly on the convex surface. Typological structure of flake tools is as follows:

- 38.9 % of tools represented by points, more than half of which are canted;
- 32.5 % of tools represented by side scrapers, among which there are numerous canted and longitudinal retouched tools;
- 4.7 % of flake knives;
- 2.3 % of tools of Upper Palaeolithic types;
- 10.2 % of notched and denticulate tools, which are quite numerous;
- 3.6 % of flake tools — with core-like ventral thinnings;
- 4.2 % of tools characterized by alternatively retouched edges.

Among bifacially worked tools, points (45.4 per cent) prevail. They are followed by side scrapers (18.6 per cent) and backed knives (5.8 per cent). Subtriangular and almond-shaped tools are widespread

among bifacially worked tools. Almost one third of flake tools are also of subtriangular shape. Sublaurel and subsegmentoidal tools are also represented. The specificity of the industry lies in the prevalence of pointed tools, large proportion of canted forms, presence of distinctive uni- or bifacially worked triangular side scrapers/points. A great typological variability of flake tools may be regarded as a specific feature of the Kiik-Koba upper layer industry. The level of denticulate and notched tools is relatively high. General microlithic character of the inventory is typical, too. Bone, stone and flint retouchers, the fragment of a bone awl, and some other findings were also discovered in the Kiik-Koba upper layer.

The Prolom I lower layer (25 cores, 318 tools) demonstrates the abundance of radial cores (71.4 per cent). Irregular (19 per cent) and protoprismatic (9.5 per cent) cores are well represented. IF strict is 25.7. IF large is 39.5. I lam is 12.4. Index of bifacially worked tools is 14.8. Retouch on tools is basically modifying, dorsal, flat or semiabrupt, rarely abrupt. Artifacts with deep, scaly retouch and ventral thinning are frequent. Bifacially worked tools have, as a rule, flat-convex cutting and retouch on them is often connected with a more convex surface of a tool. Typological structure of flake tools is characterized by a high proportion of points (35 per cent), almost 57 per cent of which being canted forms. Index of side scrapers is 29.2 per cent, canted and simple side scrapers prevail, 39.0 and 5.3 per cent of all the side scrapers, respectively. Index of knives is relatively high — 14 per cent. Upper Palaeolithic types make up 3 per cent. The proportion of denticulate flakes is only 2.2 per cent. Notched flakes are even less numerous — 0.7 per cent. The method of thinning on a ventral surface is widespread (6.6 per cent of the tools on flakes), particularly the method of basal ventral thinning. Index of alternative retouching is 0.4 per cent. Points (31.9 per cent), side scrapers (14.9 per cent), backed knives closely resembling the Middle-European types (2.1 per cent) are well represented among bifacially worked tools. Materials well demonstrate the tendency towards making triangular shaped tools, both on flakes and on bifacially worked blanks. At the same time, segmentoidal and beak-shaped forms become more numerous in comparison with the Kiik-Koba upper layer. It is possible to see the specificity of the Prolom I lower layer industry in the following features: the abundance of points, a large number of canted forms among flake tools, widespread core-like ventral thinnings, and large quantities of backed tools. The high degree of typological variability of points and side scrapers, and the microlithic habitus are characteristic of the Prolom I lower layer industry. Stone, bone, and flint hammerstones and retouchers were also discovered.

The Prolom I upper layer (36 cores and 649 tools) is no more based on radial knapping. Only 52.8 per cent of cores belong to the radial principle. Almost one third (30.5 per cent) of cores are protoprismatic, irregular cores are represented by 16.7 per

In general, the Kiik-Koba industry is characterized by the following features. The basic principle of knapping is radial. Cores are not numerous. Wastes of bifacial tools manufacturing were often used as blanks for making flake tools. IF strict is 25.0. IF large is nearly 40.0. I lam is nearly 10.0. The method of bifacial preparation of tool blanks was frequently adopted (15 per cent of tools). The main distinctions of the tool set consist in its typological structure.

Thus, nearly 40 per cent of flake tools and approximately 50 per cent of bifacially worked tools are represented by a variety of typologically different points. There are 30 and 40 per cent of side scrapers, respectively. Flake knives make up nearly 10 per cent and bifacially worked backed knives about 5 per cent. Average index of denticulate and notched flakes is not high. The index of Upper Palaeolithic types (end scrapers, burins, and perçoirs) is about 2 per cent. The specificity of the Kiik-Koba industry can be seen in the following:

The high percentage of flake points, where 60 per cent are canted forms; large quantities of tools with ventral thinnings and backs; the predominance of subtriangular and almond-shape pieces among bifacially worked tools, and subtriangular, trapezoidal and segmentoidal shapes among flake tools. The high degree of typological variability and microlithism of the inventory are typical, too.

Technical and typological indices of the assemblages compared are very similar, but taken as a whole, they are not identical. From the Kiik-Koba upper layer to the Prolom I upper layer, the following changes can be recorded: decrease of the total share of faceted striking platforms, and, simultaneously, increase of IF strict. The volume of radial knapping is reduced but the number of protoprismatic cores and blanks is higher in Prolom I. Levallois cores disappear. The number of tools with ventral thinnings is growing, while alternative retouching is being substantially reduced. Bifacially worked tools become more numerous. The number of side scrapers, notched and denticulate flakes is lowered, the total share of canted points and side scrapers falls markedly. At the same time, Upper Palaeolithic types and flake knives increase in number. The tendency of asymmetrical tools preparation, as well as production of preferably convex retouched edges, can be also well traced. The above mentioned changes are neither abrupt nor uneven, but they are unquestionable and more significant in case of transition from the Kiik-Koba upper layer to the Prolom I lower layer.

The changes given above make it possible to distinguish two stages in the development of Kiik-Koba industry. To the first (early) stage, the Kiik-Koba upper layer can be attributed. Both layers of Prolom I belong to the second stage. This conclusion is partly confirmed by natural science data which give certain grounds for determining the differences in the chronological position of the sites concerned.

cent. IF strict is 26.0. IF large is 34.4. I lam is 10.4. Index of bifacially worked tools is 17.3. Secondary working was carried out by the help of dorsal, edge, flat, semiabrupt, deep scaly, and scarcely stepped retouch and, in single cases, by burin spalls. Core-like ventral thinning was used. Occurrence of bifacial and alternative retouch is rare. In general, bifacially worked tools do not possess asymmetrical cutting. Retouch on them can be localized not only on the more convex surface. Alternatively or bifacially retouched edges and/or parts of edges sometimes occur. Structure of flake and bifacial tools is similar to that mentioned in connection with the Kiik-Koba upper layer and Prolom I lower layer. Points occupy the first place among flake tools (36.3 per cent). Out of the number of points, the proportion of canted forms is 55.9 per cent. Side scrapers make up 28.9 per cent. There is a large number of simple (27.1) and canted (25.8 per cent) tools within the class of side scrapers. Backed knives on flakes form 11.6 per cent. Notched tools are missing, the proportion of denticulate pieces is 2.1 per cent. Total index of the Upper Palaeolithic types is 4 per cent. Total index of various thinnings on flake tools is 7.6 per cent. Index of alternative retouching is 1.1 per cent. Points (35.7) predominate among bifacially worked tools. Points are followed by scrapers (14.3 per cent), then by spear points and backed knives with 6.3 per cent each. Subtriangular forms take the leading place in the distribution of tools according to shapes. The share of segmentoidal tools is sufficiently high. Quite a large proportion is represented by other symmetrical and asymmetrical forms. Specificity of the industry can be observed in the following: high proportion of points in both flake and bifacially worked tools, constantly large number of canted forms among flake tools, high index of core-like thinnings on the ventral side of flake tools, high occurrence of backed forms, varied typology of side scrapers and points, and general microlithism of the industry. There are findings of flint, stone, and bone retouchers and hammerstones in the upper layer. A pendant (?) of a cave bear ear bone was also discovered.

#### INTERNAL SIMILARITIES AND DIVERSITIES OF KIIK-KOBA INDUSTRY

Two major conclusions can be drawn on the basis of comparison of the sites material. Firstly, assemblages of the sites in question are undoubtedly very similar to one another, and sometimes even identical. This conclusion results from techno-typological comparison and it is also confirmed by the application of related index ranges. Remarkably high degree of correspondence between assemblages makes it possible to suppose the existence of original Kiik-Koba industry. Secondly, there are certain differences between these assemblages which give evidence of continuous evolutionary changes.





FIGURE 4. Kiik-Koba, upper layer. Different points on flakes (1—18).

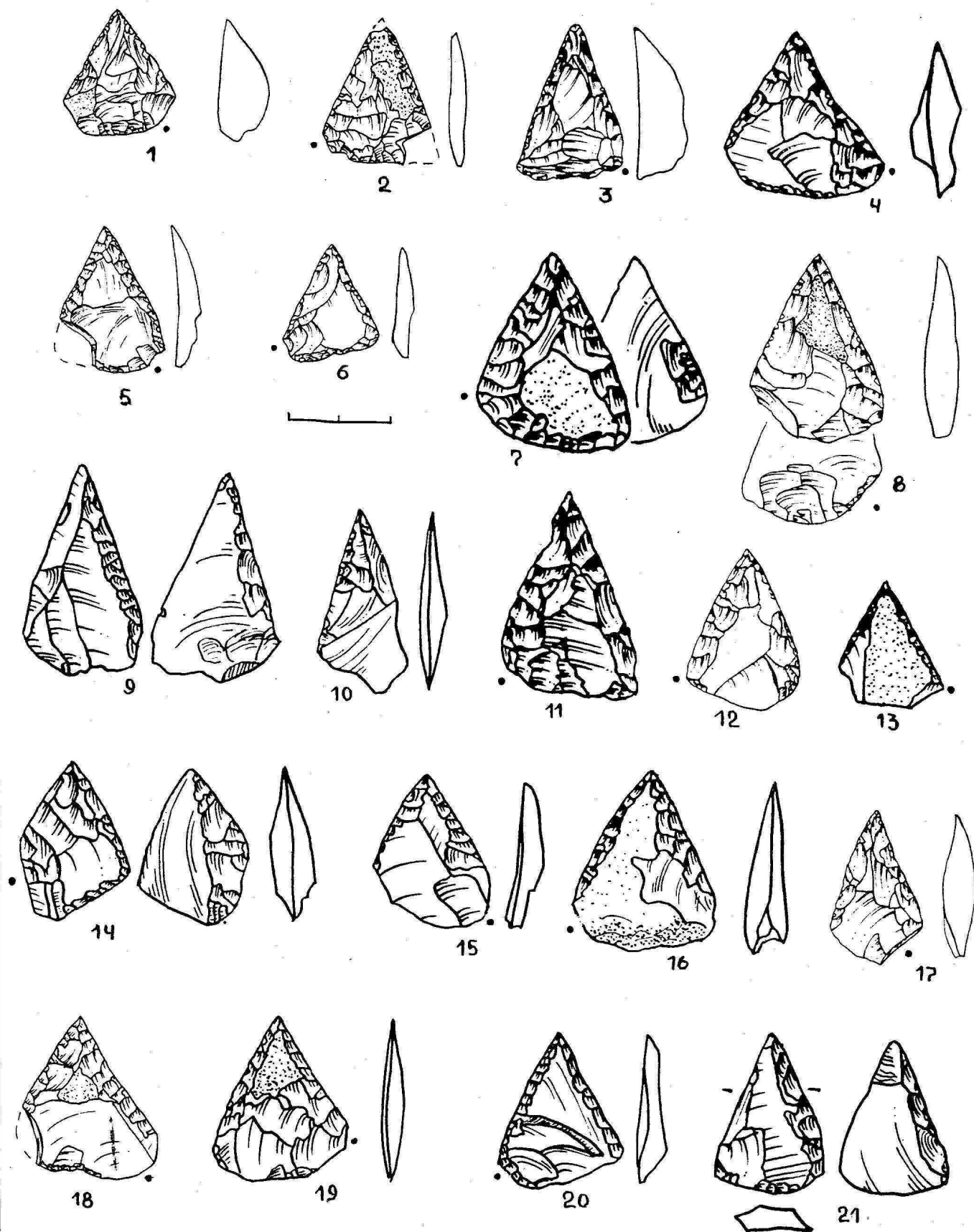


FIGURE 5. Kiik-Koba, upper layer. Different canted points on flakes (1—21).

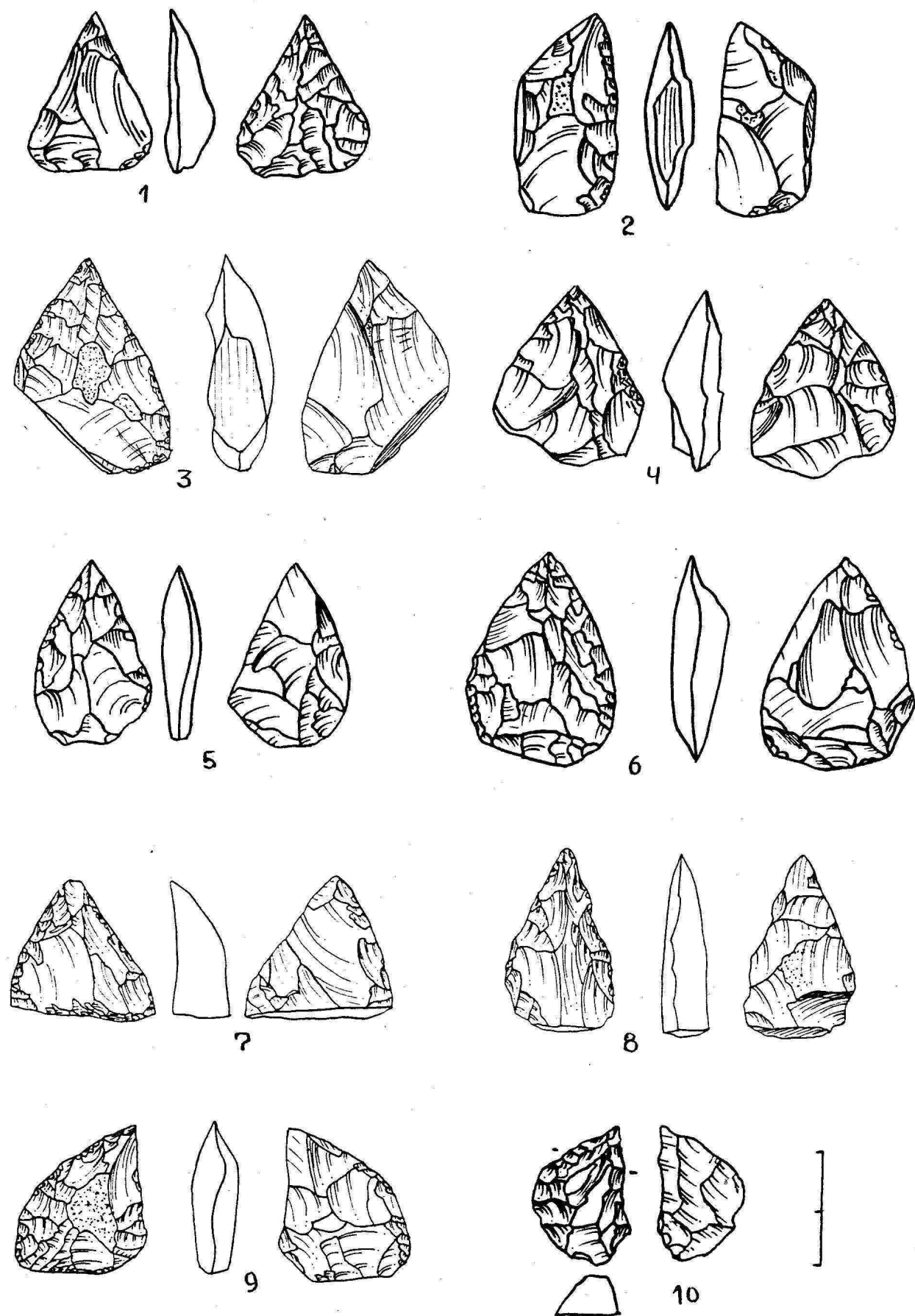


FIGURE 6. Kiik-Koba, upper layer. Bifacially worked points of different types (1, 4—10) and backed knives (2, 3).

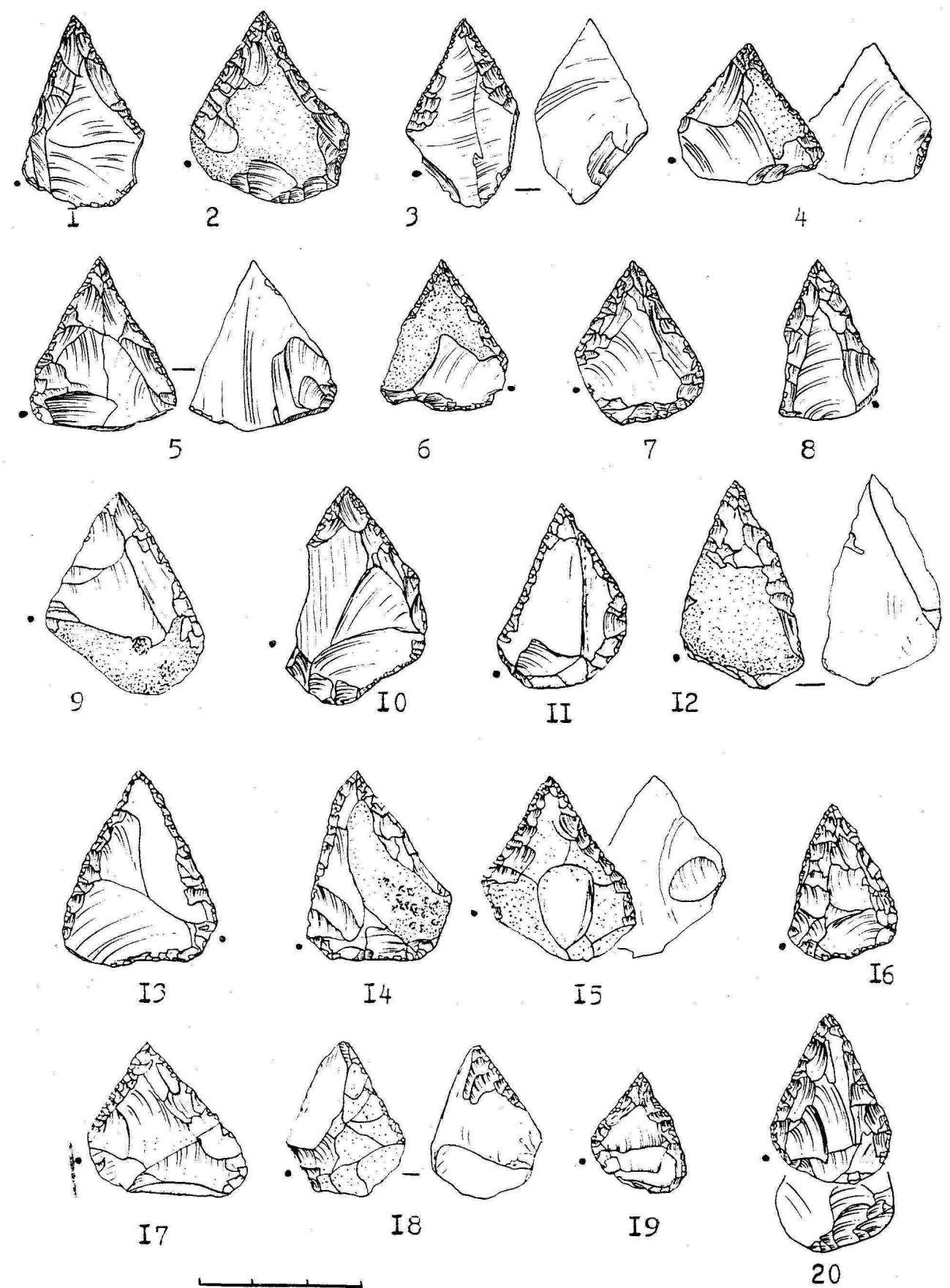


FIGURE 7. Prolom 1, different canted points on flakes. Lower layer (9—20), upper layer (1—8).



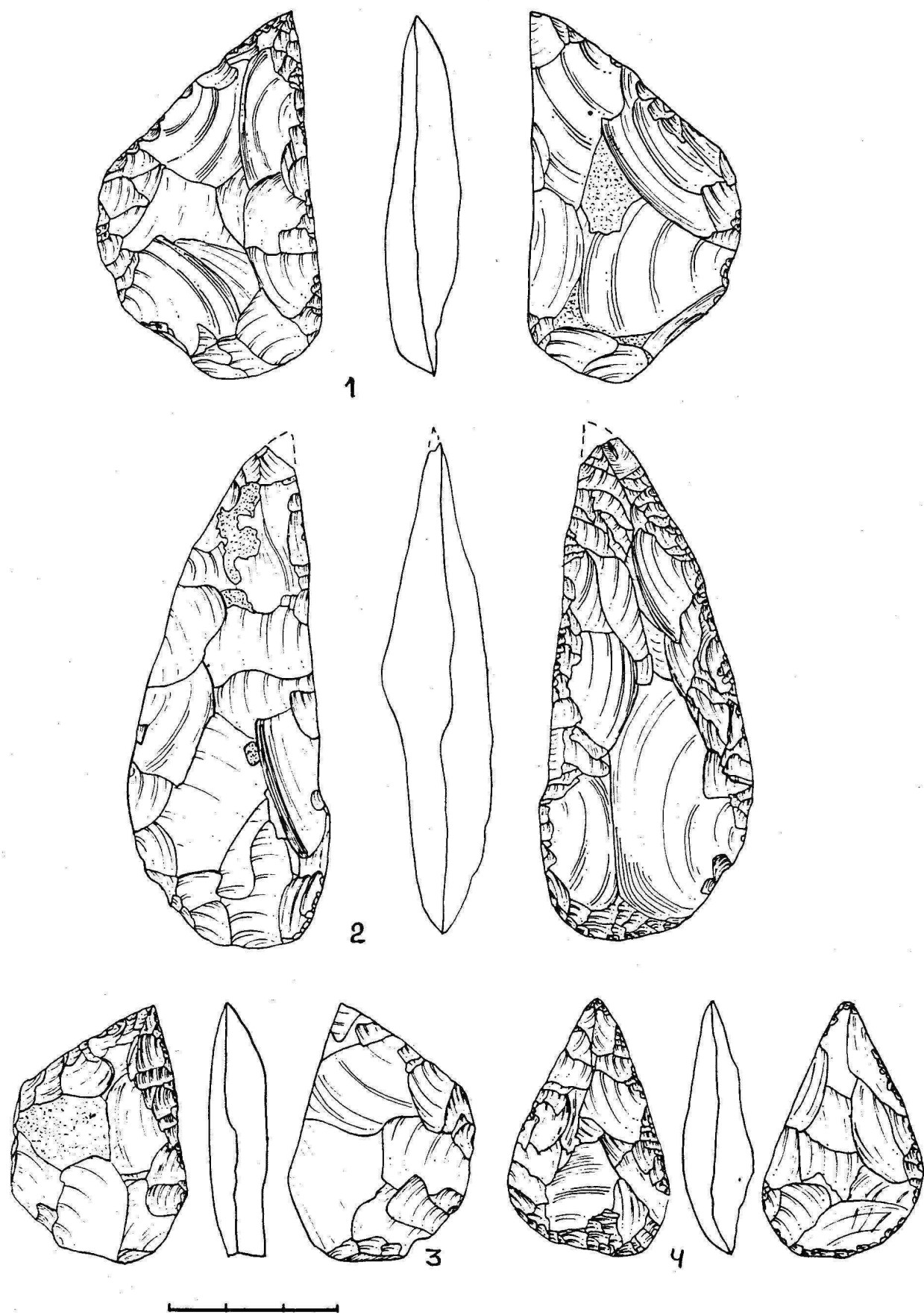


FIGURE 8. *Prolom 1, lower layer. Different types of bifacial points.*

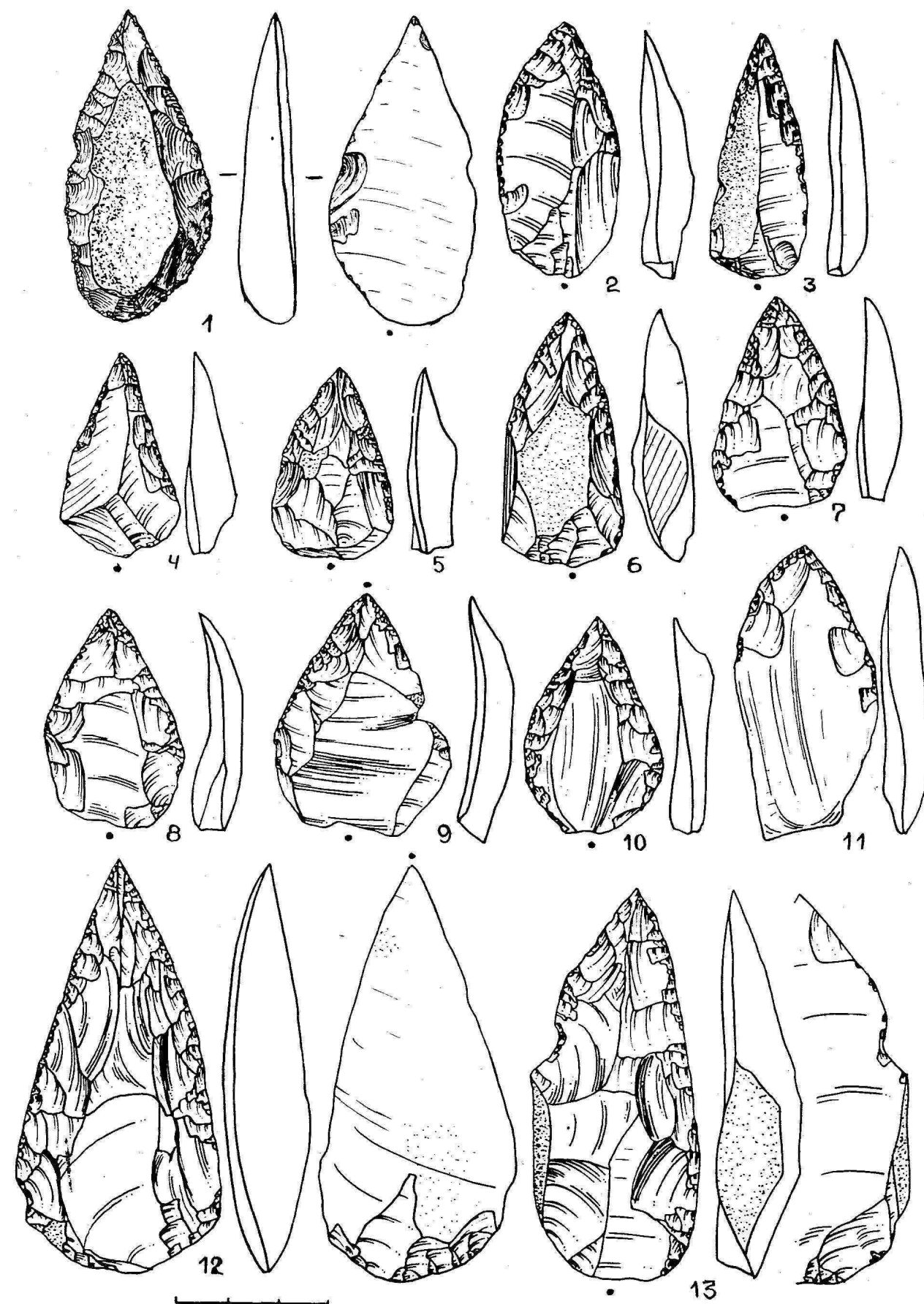


FIGURE 9. *Prolom 1, lower layer. Different points on flakes.*

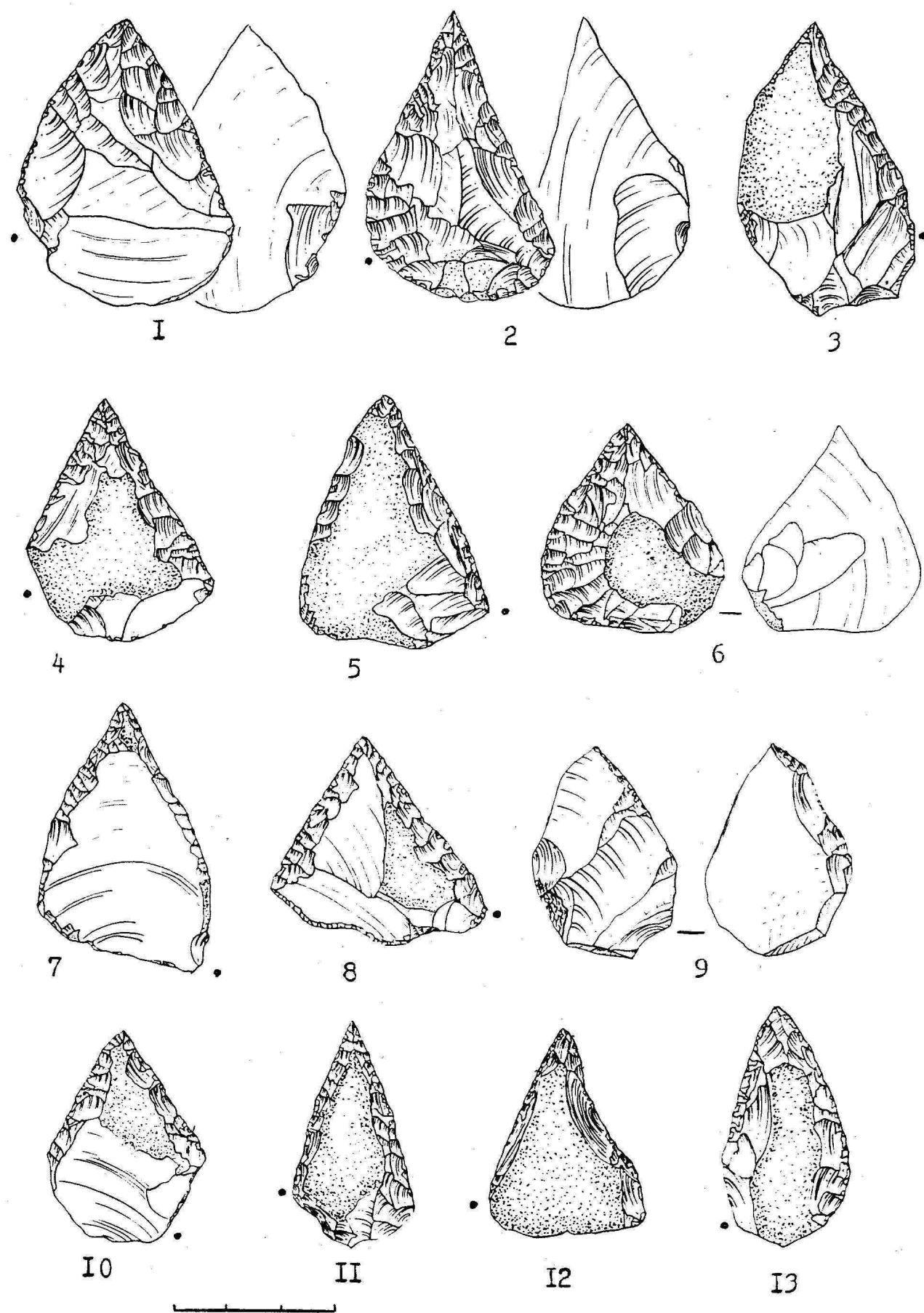


FIGURE 10. *Prolom 1, lower layer. Different canted points on flakes.*

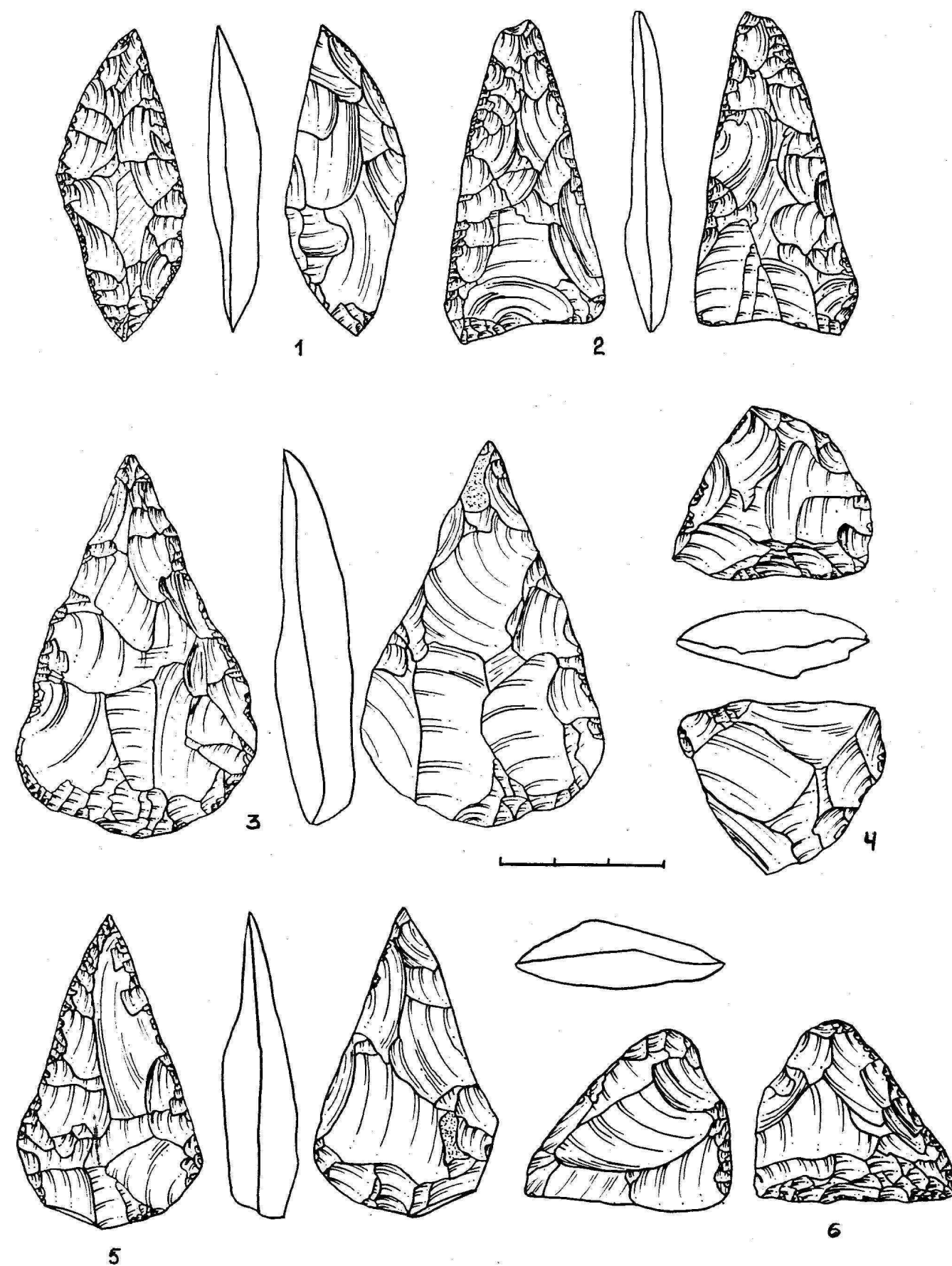


FIGURE 11. *Prolom 1, lower layer. Bifacially worked spearheads (1, 2), points (3, 5) and sidescrapers (4, 6).*



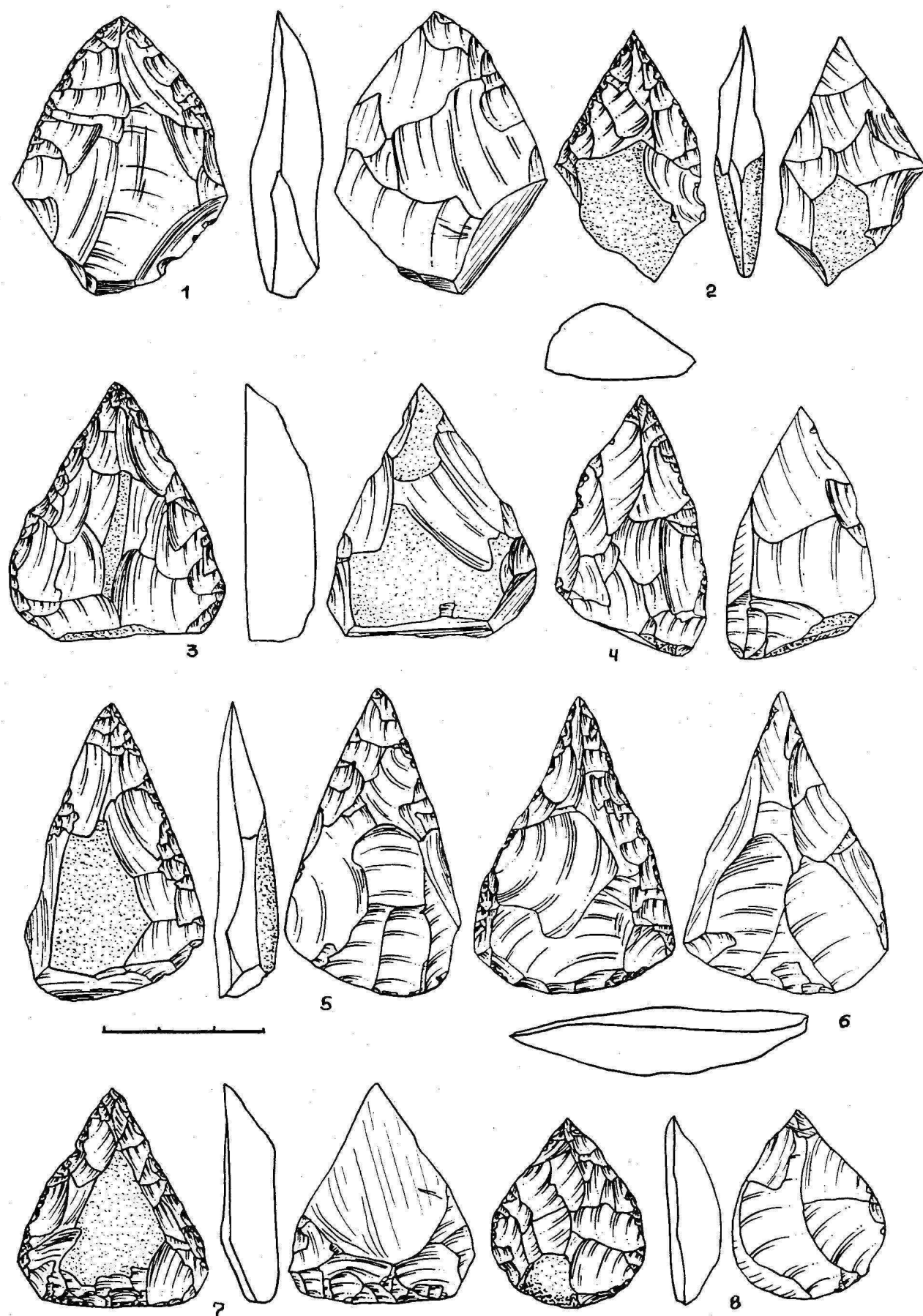


FIGURE 12. Prolom 1, lower layer. Different types of bifacial points (1-8).

Indices	KkK	AkK	StS	KbZ	GABO
Radial and irregular cores (so called index of primitive technique)	81.4	32.5	27.5	17.6	87.6
protoprismatic cores	16.4	63.9	71.5	82.0	21.0
IF large	38.6	43.0	41.6	55.4	51.8
IF strict	24.6	26.7	19.8	31.3	30.0
I lam	11.5	6.3	16.3	25.5	4.9
FLAKE TOOLS, including:	85.1	77.6	80.08	100.0	95.2
points	43.8	15.2	15.7	22.4	9.2
sidescrapers	34.6	61.0	56.7	55.0	31.4
knives	11.9	16.5	7.7	6.7	6.7
denticulates, notched	5.1	5.2	18.0	14.4	49.0
Upper Palaeolithic types	3.8	2.1	2.2	1.4	3.2
BIFACIAL TOOLS, including:	14.9	22.4	9.2	-	4.8
spearheads	5.2	1.2	35.8	-	60.0
points	62.8	12.4	21.4	-	-
sidescrapers	23.3	27.5	38.3	-	33.4
backed knives	8.7	58.9	4.6	-	6.6

TABLE 1. Some main technical and typological indices of Kiik-Koba (KkK), Starosel'e (StS), Ak-Kaya (AkK), Kabazi (KbZ) and GABO industries (average means).

#### KIIK-KOBA INDUSTRY WITHIN THE FRAMEWORK OF CRIMEAN MIDDLE PALAEOLITHIC

Comparison with a number of the most typical sites that represent all techno-typological facies of the Crimean Middle Palaeolithic was carried out (Table 1). Thirteen Middle Palaeolithic complexes were included. They represent three distinct industries, which are, to a varying degree, homogeneous. They are as follows:

Ak-Kaya industry (or cultural tradition) (Zaskalnaya V, the second and the fourth layers; Zaskalnaya VI, the second and the third layers), Starosel'e industry (Starosel'e, the lower and upper layers; Kabazi II, the first layer; Kabazi V, the first layer), Kabazi industry (Kabazi II, some horizons of the second layer; Kabazi I; Bakhchisaraiskaya, the third layer), and a distinct type of site (Gabo cave site).

Synthesis of typological characteristics of the complexes mentioned above enables two important conclusions to be drawn. Firstly, a high level of inner correlation is fixed in the typological structure of assemblages which belong to the Kiik-Koba, Ak-Kaya, and Kabazi industries. Secondly, the highest degree of techno-typological differences between individual industries is fixed for the Kiik-Koba industry. Then, it is followed by Ak-Kaya, Kabazi, and Starosel'e industries, in correlation with the level of differences. Gabo

site occupies a special place owing to its unusually large number of denticulate and notched flakes. Other traits of the Gabo site assemblage enable certain parallels to be found in Starosel'e industry.

#### EXTRA-INDUSTRIAL SPECIFICITY OF SITES WITH KIIK-KOBA TYPE OF INDUSTRY

The following features can be mentioned: limitation of the territory where such sites were found (the river Salgir basin, the East Crimea); specialisation of hunting activities (predominating species are: the giant deer, saiga tatarica, and wild horse); presence (?) of burial places (the infant Kiik-Koba II); intensive use of bones and pebbles in life activities (there are large series of hammer stones, retouchers, anvils as well as single awls, and polishers); occurrence of nonutilitarian bone artefacts (the cave bear bone pendant from the Prolom I upper layer); specialisation in the supply of stone raw materials which reflects an original tradition of ignorance of a particular kind of raw materials (Prolom I, both layers: practically absolute neglect of cherts, which are abundant in the vicinity of the site); evidence of complex constructions on the sites (the Kiik-Koba upper layer). All the specific features mentioned above indicate various life activities of people who lived in Kiik-Koba and Prolom I cave sites. Strictly speaking, these data are incomplete and scrappy. Nevertheless, they are sufficiently clear and original in their composition to establish extra-industrial individuality of the sites with the Kiik-Koba type of industry. Special comparison was carried out which revealed substantially high degree of differences between the sites of the Kiik-Koba industry and those of other industries in terms of their extra-industrial characteristics.

Thus, the Kiik-Koba industry sites well demonstrate high degree of similarity both in technology and typology as well as in extra-industrial features. This fact makes it possible to confirm the objectivity of the real existence of a distinctive Kiik-Koba culture of the Middle Palaeolithic (Kiik-Kobian), in accordance with the definition of culture that was made by former Soviet archaeologists (Gladilin 1976, Lyubin 1977).

#### QUESTIONS OF KIIK-KOBA MIDDLE PALAEOLITHIC CULTURE ORIGIN, CONTACTS AND EVOLUTION

Pre-Würmian sites on surrounding territories do not give a better possibility of finding a supposed ancestor than the search among the Crimean sites of corresponding age. Several types of sites of Acheulean age are known in the Crimea. They are as follows: Tayacian (Kiik-Koba, the lower layer; Kabazi II, the fourth layer; Zalesnoe), Clactonian (?) (Cherna Terlya; Prolom, the high terrace), true Acheulean (numerous sites discovered by A. A. Shchepinski, the East and South-West Crimea; Zaskalnaya IX, reuti-



lized flints from Zaskal'naya sites). The sites discovered by A. A. Shchepinski (the Bodrack Acheulean culture according to V. N. Gladilin and A. A. Shchepinski) can be the first candidates for a Kiik-Koba industry ancestor as well as the ancestor of other Crimean Middle Palaeolithic assemblages with bifacially worked tools. The inventories of this culture do not appear to be too homogeneous, neither in time nor in space. Certain correlation can be traced between the early Kiik-Koba industry and Tayacian sites. It applies, particularly, to the high percentage of denticulate and notched flakes, developed alternative retouching, single Levallois cores, and bifacially worked leaf-like tools. The principle of ascent was also adopted for the determination of a supposed ancestor. Hypothetically modelled ancestral industry is characterized by the following features: low I lam and IF strict; small number of bifacially worked tools; relatively large number of denticulate and notched tools; very large (relatively) number of tools with alternative retouching; high typological variability both among bifacially worked and among flake tools. The analogy of these features can be found in inventories of the true Acheulean as well as in Tayacian complexes. Consequently, as it can be seen, the search for the ancestor of the Kiik-Koba industry among existing sites of the peninsula and the use of the ascendant method makes it possible to see probable origins of the Kiik-Koba culture in the sincrithism of true Acheulean and Tayacian traditions. The influence of the former was considerably more vigorous.

Findings of objects which were made according to a particular industrial and cultural tradition in the context of another cultural tradition may serve as undoubted evidence of intercultural contacts. Specificity of the Kiik-Koba tool set is manifested especially in the original composition of common types, and therefore, to trace contacts of the Kiik-Koba culture is a very difficult task. Apparently, Zaskal'naya, the fourth layer, may serve as an example of such contacts. The fourth layer inventory, most of all, has the appearance of the Ak-Kaya industry, at the same time, however, there are marked differences in the structure of flake tools. There are some features which place the collection of flake tools closer to the Kiik-Koba industry than to that of Ak-Kaya. In this respect, certain typological similarity is meant, and namely, a large number of canted forms, presence of relatively high amount of subtriangular shapes, well expressed microlithism of the inventory, and a lot of other specific features. Merger of the bearers of Kiik-Koba industry with the people of the Ak-Kaya industry may be regarded as a possible explanation. The fact that a distinctive Ak-Kaya bifacial tool set was found in Zaskal'naya V, the fourth layer, does not seem to be accidental, particularly if the connection between such bifacial set and hunting activity is taken into account (the concept argued by Yu. G. Kolosov — Kolosov 1986).

The second (late) stage of the Kiik-Koba culture directly precedes the time of wide spreading of Upper

Palaeolithic industries. It requires the search for typologically similar inventories among early Upper Palaeolithic sites. In the Crimea, only Syuren I, the lower layer, has a series of survival Middle Palaeolithic tools. This inventory may be deduced from each variant of the Crimean Middle Palaeolithic with bifacially worked tools, including the Kiik-Koba industry. The survey of Upper Palaeolithic cultures of the European part of the former Soviet Union leads to the conclusion that there is a high degree of similarity between the Kiik-Koba industry and archaic tools of Kostenki-Streleckaya culture (Bader 1978, Matyukhin 1990). Analogies are not only confined to the correspondence of triangular bifacially worked points, but, in addition to it, they also consist in a number of other signs, such as: the presence of points of "poplar leaf" type, some other types of bifacially worked tools, similar forms of flake tools, wide spreading of ventral thinnings, etc. However, the degree of revealed similarity is not sufficient to assert that there is a cognate relationship between the complexes in question. At the same time, the statement about southern Middle Palaeolithic roots of the Kostenki-Streleckaya culture (Rogachev 1957, Bader 1978, Amirkhanov et al. 1980) receives new confirmation. Therefore, it is possible to suggest two hypotheses in order to account for the supposed evolution of the Kiik-Koba culture in the time which is close to the Hengelo interstadial, and namely: evolutionary transition into the local Upper Palaeolithic and migration to remote territories.

The data concerning typologically similar Middle Palaeolithic sites on adjacent territories are directly related to the problems of the origin, contacts, and evolution of the Kiik-Koba culture. It may be said, in a broad sense, that there is an affinity between the Middle Palaeolithic of the Crimea and the Russian Plain (Gladilin 1969, 1976, Lyubin 1971, Praslov 1984, Formozov 1959, 1977). Some materials from Middle Dnepr and Couban regions (Skelya Orel, Il'skaya I and II, etc.) manifest a more detailed similarity (Bodyanski 1960, Smirnov S. 1973, Zamyatin 1934, Praslov 1964, Anisyutkin 1968). The sources of such analogies are not clear at present. It is equally possible to assume both independent but convergent development and descent from a related Acheulean ancestor with following parallel development.

#### KIHK-KOBA CULTURE AND MICOQUIEN

G. A. Bonch-Osmolovski compared the Kiik-Koba upper layer inventory with inventories of Okiennik, Klausennische, Kösten, and La Micoque. This comparison remains to be valid even at present. The above mentioned sites, as well as many others situated on the territory of Middle Europe, but chronologically placed in the Early Würm, and characterized by a wide use of bifacial tools — are grouped together by modern investigators to form the Middle European Micoquien (Bosinski 1967, Chmielewski

1969, Gabori 1976, Valoch 1988). Russian Plain sites with the tradition of bifacial working of tools find, on the one hand, analogies in European sites, and, on the other hand, in Crimean sites. These sites, along with Romanian sites, are linked together by some investigators and referred to as East Micoquien.

Both Central and East European regions of Micoquien extension are identical in their basic characteristics, i.e. they are not monolithic but multifacial in the cultural sense and they are found within the same chronological framework. The technique of bifacial working of tools and a series of technical and typological correlations may serve as connecting elements. There are numerous analogies to the so called Micoquien in the inventories of the Crimean bifacial Middle Palaeolithic. In particular, in the Kiik-Koba inventory, there are knives of Bockstein, Klausennische, and Königsau types; there are found "Halbkeile", "Faustkeilblätter", "Faustkeile type x", and "Blattspitzen". Typological similarity, which is well traced for numerous sites on a broad territory, may be explained by means of a whole spectrum of various causes, for example, migrations, parallel development from a genetically related basis of, possibly, convergent evolution. The Ak-Kaya industry is closer to the Micoquien complex, presumably owing to its emergence from the kindred Proto-Micoquien, Early Middle Palaeolithic sub-basis (Kolosov 1976). Later impulse from Central Europe is likely to have taken part in the appearance of the Starosel'e industry. The specificity of the Kiik-Koba industry can be accounted for by its origin in the Acheulean sub-basis, identical with that on which the inventories of the Ak-Kaya type arise, and, furthermore, in the Tayacian cultural complex, the roots of which can be found in the Early Middle Palaeolithic of Central and South Europe. Consequently, it is possible to define the Crimean bifacial industries (including the Kiik-Koba industry) as local variants of the East European Micoquien (or "Para-Micoquien"). Technical and typological closeness of Micoquien and "Para-Micoquien" industries is likely to involve the closeness of cultural traditions rooted in a distant genetic relationship. The term "East European Micoquien" is understood to designate common features which actually existed as a result of their genetic affinity, but, simultaneously, were not fully recognized in social practice.

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