

## THE FINAL PALAEOLITHIC OF THE NORTHERN BLACK SEA COAST

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### I. INTRODUCTION

The northern coast of both the Black and Azov Seas is an extensive area in the lower flow of the large European rivers Danube, Dnieper, Dniester, Southern Bug and Don. The territories between the Dniester and the Don to the south 48th parallel fall to a section of the Black Sea coast around extended Eurasian steppes. This territory includes diverse landscape systems: Dnieper hills, coastal lowlands, the Donetsk range, Donetsk lowlands and Crimean mountains (Fig. 1).

The approach used here is based on an ordering of already existing materials as well as the most recent data on ecology, chronology and culture of the main Final Pleistocene sites of this region, particularly the Rogalik-Peredel'sk group on Severskiy Donets and the Skalistiy rock shelter in the Crimea. Existing radiocarbon dates, chronostratigraphical and geological evidence allow one to place the Final Palaeolithic of the Northern Black Sea coast within the limits of the Dryas 2 and Dryas 3 stadials, including the Allerödian rise in temperature. This time span is termed the *Shankobien chronological horizon* within the context of the study region. Previous assemblages of the first half of the Late Glacial fall within Dryas 1 and Bölling, and are placed within the Kamennaya balka chronological horizon (Table 1) (Cohen and Otte 1996).

### II. THE PALAEOGEOGRAPHY

Changes in the palaeogeographical situation in this region were caused by fluctuations in the level of the Black Sea as well as conditions of its hydrologic mode. Modern data indicate that during the maximum cold of Late Würm, the Black Sea reached an extremely low level (-80 m). The subsequent period of stagnation lasted 3,000-4,000 years, while the quick rise in sea level up to a mark (-30 m.) occurred during a chronological span between 16,000 and 7,000 years BP (Scherbakov *et al.* 1977, p.136). The Late Glacial thus coincides with the so-called Novoevksin transgression. The maps in Figure 2 record notable effects of this transgression on Northern Black Sea palaeogeography.

The modern borders of the Azov Sea were formed only about 5,000 years ago and the flooding of its depression started 7,000 years ago (Aleksiev *et al.* 1986, p.213-215). Shelf drilling revealed that the Crimea was not a peninsula during the entire Novoevksin transgression; it was directly attached with the Caucasus through the Cuban' river and with



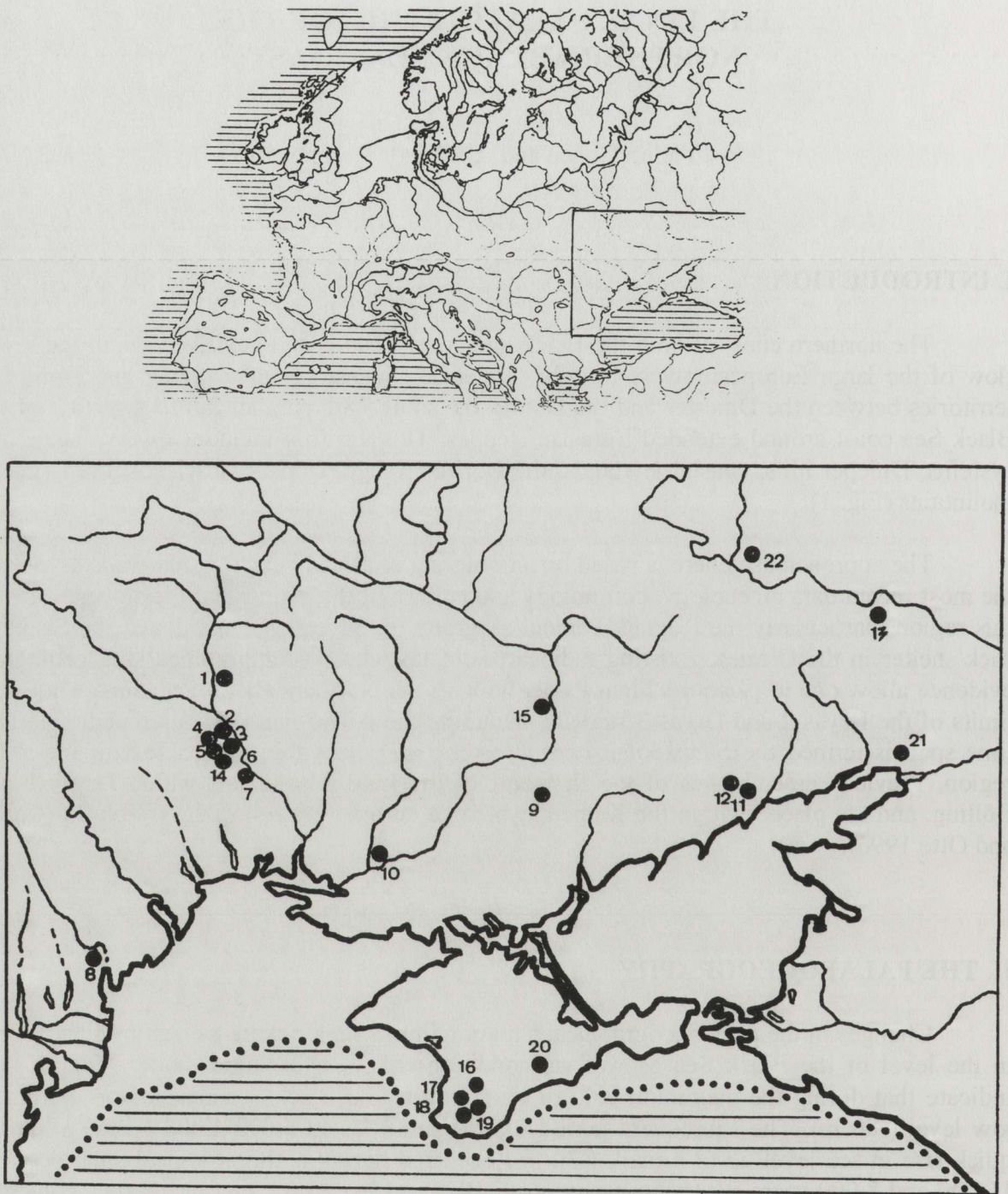


Fig. 1. Map of the Late Glacial sites considered in this study. 1, Vladimirovka; 2-3, Ivashkovo VI; 4, Tzarinka; 5, Sredinniy gorb; 6, Gavrilov Yar; 7, Anetovka; 8, Beloles'e; 9, Kashtaeva balka; 10, Leont'evka; 11, Fedorovka; 12, Yanisol'; 13, Govoruha; 14, Chervona greblya; 15, Osokorovka; 16, Skalisti; 17, Siuren II; 18, Shan-Koba; 19, Fat'ma-Koba; 20, Vishennoye; 21, Kamennie balki; 22, Rogalik-Peredel'sk group.



the Caucasus coast on a coastal line. It is quite reasonable to assume that direct areas of both formation and contacts of various cultural groups, and the most probable paths of migration, are now flooded. Hence, the known sites and cultural realities appear to be scattered and fragmented. Obviously, the Novoevksin transgression coincides with the beginning of Late Glacial Palaeolithic on the Northern Black Sea coast and it indirectly defined dynamics of cultural change.

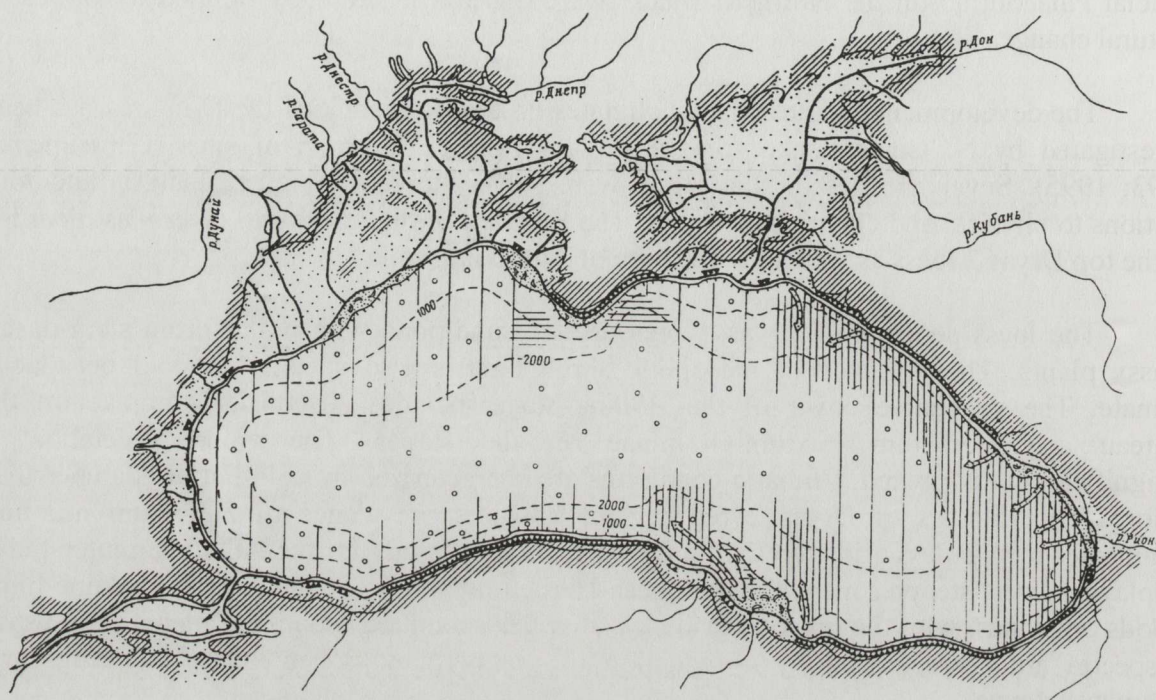
The development of Late Glacial climates on the right bank of the Don area has been investigated by N. Gerasimenko for the Rogalik-Peredel'sk group of sites (Gerasimenko 1993; 1995). Seven profiles of this group were subject to palynological analysis and four sections to physical and chemical analyses. The Final Palaeolithic cultural layer was recorded in the top Dryas 2 loess as well as in the base of Allerödian soils.

The loess deposits of Dryas 1 present arid conditions with pollen from semi-desert grassy plants. The presence of mesophile shrub birches also specifies a cold periglacial climate. The vegetative cover of the Bölling stage includes *Artemisia*-Graminae on the plateau and *Herbetum mixtum*-Graminae on the slopes. The wood vegetation is insignificantly distributed. Climatic conditions are characterized by cold but are damper than before. Thin loesses of Dryas 2 register the absolute prevalence of *Herbetum mixtum*-Graminae steppe, less arid than that in Dryas 1. Palaeoecology for the Allerödian interstadial displays a forest-steppe zone with Gramineae-*Herbetum mixtum* on the plateau and pine-birch woods on slopes, with the obvious evidence of wider submitted broad-leaf plants. The Dryas 3 spectra are characterized by a reduction of grassy plant pollen - *Herbetum mixtum*-Gramineae steppe.

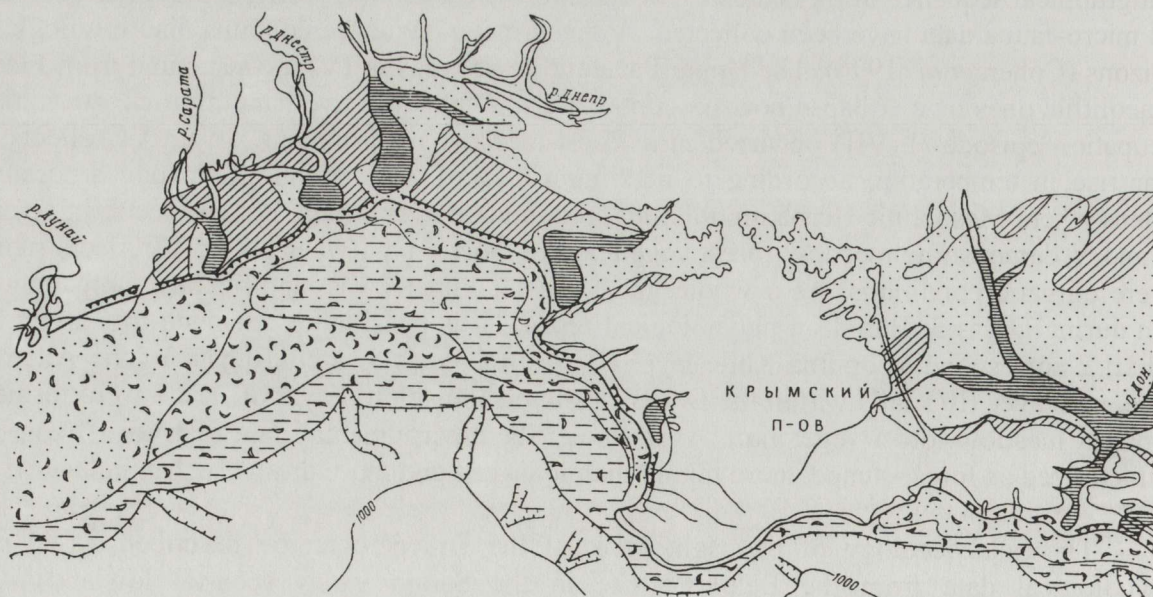
The Crimean Final Pleistocene environment can be described on the basis of the stratigraphical sequence of the Skalistiy rock shelter where lithology, palynology, radiocarbon and micro-fauna data have been collected. A seven-meter sequence contains nine lithological horizons (Cohen *et al.* 1996). The Upper Palaeolithic layers (I to IV) are separated from Final Palaeolithic ones by a collapse horizon containing rockfall from overhanging rock. An initial occupation episode (I. VII) occurred in a forest-meadow environment. Layer VI reflects a clear rise in temperature according to maximum taxa of AP and minimum nun arboreum pollens where Mesophilic *Herbetum mixtum* predominate over others. Pollen spectra in layers IV and V demonstrate meadow-forest vegetation of Boreal type where layer V reflects more severe climatic conditions. As a whole, the Dryas 1 climate was significantly more humid than during Dryas 3. Based on palynological results, it is possible to conclude that layers II and III/2 correspond to optima while layer III/1 corresponds to a cold phase of the Alleröd stage, and layer III/3 falls within the Dryas 2-Alleröd transition. Layers II and I were formed among a meadow-forest vegetation. As a whole, the environmental data of layer III can be characterized as forest-steppe, more humid than in layer I and more droughty than in layer II.

The palaeoecology of the right bank of the Dnieper can be described based on palynological data from the Beloles'e site in the Sarata valley (coastal lowland). G. Pashkevich argues for stratigraphical deposition in an interval of Late Pleistocene-early Holocene, generated under the prevalence of steppe landscapes (Pashkevich 1981).





**A. Fig. 2. The Palaeogeographical situation of Northern Black Sea coast in the beginning of Novoevksin transgression (17000 years BP) (after Alekseev and al., 1986).**



**B. Fig. 2. The Palaeogeographical situation of Northern Black sea coast in the end of Novoevksin transgression (7000 years BP) (after Alekseev and al., 1986).**



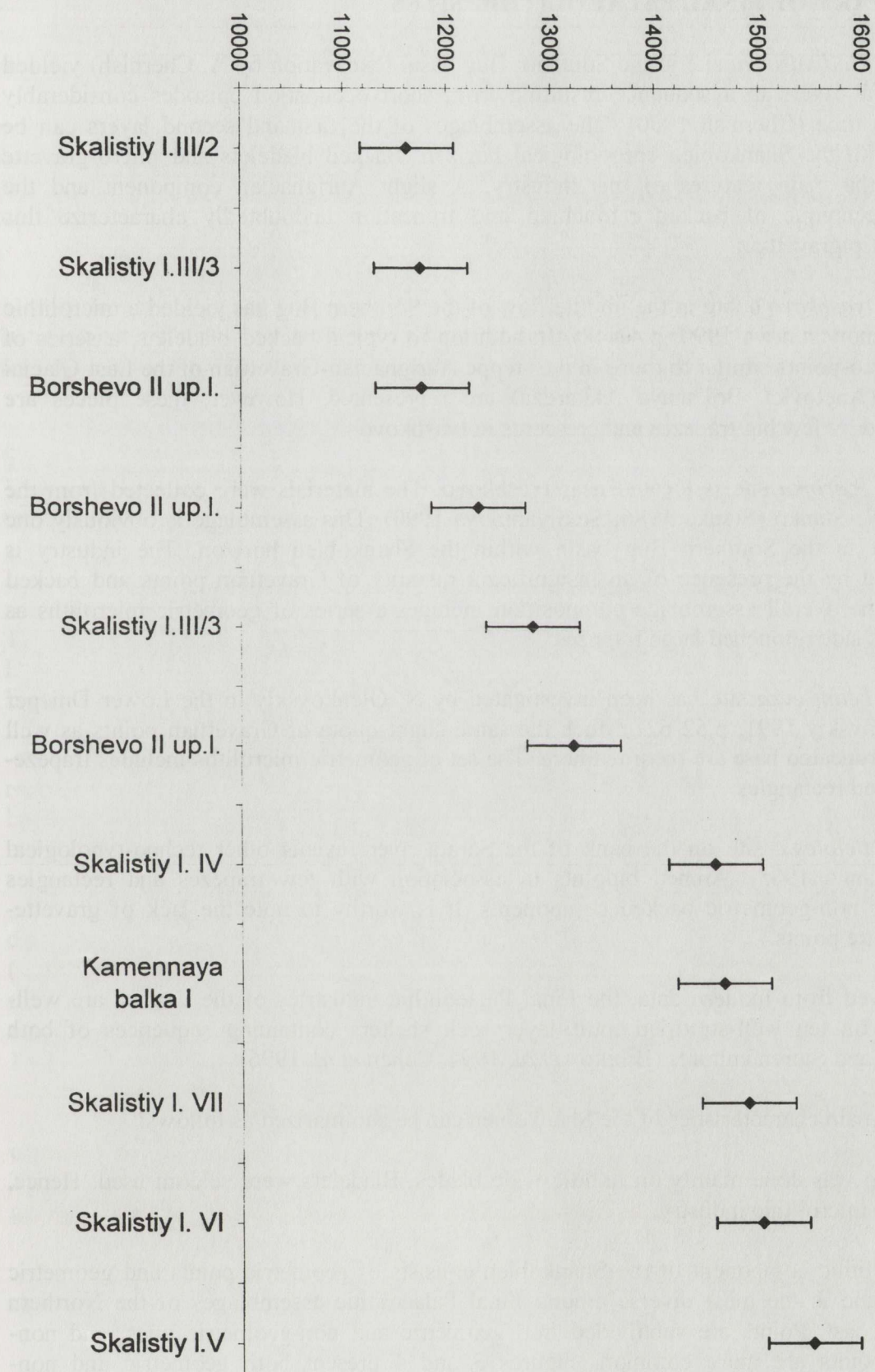


Table 1. Late Glacial Upper Palaeolithic of the Northern Black Sea Coast (radiocarbon dates).



### III. SUMMARY OF FINAL PALAEOLITHIC SITES

The *Vladimirovka* site in the Southern Bug basin (excavation by A. Chernish) yielded eight cultural layers in a sequence resulting from short occupation episodes considerably stretched in time (Chernish 1950). The assemblages of the first and second layers can be affiliated with the Shankobien chronological horizon. Backed bladelets and micro-gravette points are the main features of this industry. A slight Aurignacian component and the advanced technique of backed retouching and truncation undoubtedly characterize this industry as Epigravettian.

The *Ivashkovo 6* site in the middle flow of the Southern Bug has yielded a microlithic industry (Smolyaninova 1990, p.42-48). In addition to typical backed bladelets, a series of chipped micro-points similar to those in the steppe Aurignacian-Gravettian of the Last Glacial Maximum (Anetovka, Bol'shaya Akkardza) are represented. However, these pieces are accompanied by few big trapezes and crescents in Ivashkovo.

The *Tzarinka* site is located near Ivashkovo. The materials were collected from the surface by V. Stanko (Stanko 1986; Smolyaninova 1990). This assemblage is obviously one more recent in the Southern Bug basin within the Shankobien horizon. The industry is characterized by the presence of an insignificant quantity of Gravettian points and backed bladelets. The overall assemblage composition includes a series of geometric microliths as well as short side retouched large trapezes.

The *Leont'evka* site has been investigated by N. Olenkovskiy in the Lower Dnieper area (Olenkovskiy 1991, p.52-62). Much the same slight quota of Gravettian points as well those with truncated base are recorded here. The set of geometric microliths includes trapeze-rectangles and rectangles.

The *Beloles'e* site on the bank of the Sarata river reveals other techno-typological features (Stanko 1985). Arched bipoints in association with few trapezes and rectangles prevail over non-geometric backed components. It is worthy to note the lack of gravette-micro-gravette points.

Viewed from modern data, the Final Palaeolithic industries of the Crimea are well-represented on ten well-stratified multi-layer rock shelters containing sequences of both Shankobien and Siuren cultures (Bibikov *et al.* 1994; Cohen *et al.* 1996).

The main characteristics of the Shankobien can be summarized as follows:

- Retouching was done mainly on middle-wide blades. Bladelets were seldom used. Hence, this is a non-microlithic industry.
- The main lithic component of the Shankobien consists of geometric points and geometric microliths, and is the most diverse among Final Palaeolithic assemblages of the Northern Black Sea coast. Points are subdivided into geometric and non-geometric ones, and non-geometric points are more common. Figures 3 and 4 present both geometric and non-geometric points in a quantitative distribution within Shankobien assemblages: 1) characteristic or usual types (Fig. 3) and 2) specific or rare types (Fig. 4). The first group



includes arched bipoints and double oblique truncated points representing significant variability in shaping details. The specific types are dominated by the backed points group, which is accompanied by an insignificant quantity of backed bladelets in some cases.

- In addition to geometric points, the Shankobien includes diverse geometric microliths: lunates, triangles and trapezes. The lunate dominates during the entire sequence except during the last stage, where triangles are more numerous. Trapezes are always individual as well as rectangles.

It is noteworthy that a quantitatively restricted set of trapezes includes all types widespread in the Final Palaeolithic of the Northern Black Sea coast except for trapeze-rectangles of Tzarinka type. Large and massive pieces are dominant. The micro-burin technique was almost never used in the Shankobien.

Another industry was spread in the Crimea during the Dryas 3 stage, the so-called Siuren culture (Siuren II, 1. 2,3 and Buran-Kaya III, 1.4) (Vekilova 1966; Cohen 1995; Yanevich, Stepanchuk and Cohen 1996). The assemblages combine different technological traditions: arched bipoints, trapezes, triangles, backed points and leaf swiderian points.

The Final Palaeolithic of the right Don bank connects with a compact group of sites in the Rogalik-Peredel'sk region. This group consists of 22 sites in the Severskiy Donets basin. Techno-typological analysis reveals two broad different units: the "Eastern Final Epigravettian with geometric microliths" or "Eastern Epimagdalenian" and the "Eastern Final Epigravettian without geometric microliths."

The first group is a non-microlithic industry (Fig. 5). Geometric microliths are represented mainly by low trapezes-rectangles. Both gravette and micro-gravette points and backed bladelets are individual. An appreciable role of the micro-burin technique must be noted (Gorelik 1986; 1993; 1996).

The brightest feature of this cultural group is a collection of mobile art objects discovered at several sites. The overall assemblage includes a pendant on perforated shell (coming probably from the Black Sea) (Fig. 6: 3-6); a female image engraved on the surface of a slate retoucher (Fig. 6: 7); two stylized stone female statuettes, one with two sides engraved with geometric symbols (Fig. 6: 8), the other without any additional images (Fig. 6: 1); and a sandstone «amulet» with one side solar composition (Fig. 6: 2).

The second group of industries - without geometric microliths - differs by the high content of microlithic pieces (up to 25%) (Fig. 7). As a whole, it is a microlithic industry. There are serially submitted micro-gravette points associated with various truncations. Both geometric microliths and mobile art are absent.

It is indicative that the sites of different cultural traditions have strip holding distribution on territory within the Rogalik-Peredel'sk area.



#### IV. CONSIDERATIONS

Data analysis shows that the stable manifestations of both similarities and distinctions among regional groups in the Final Palaeolithic of the Northern Black Sea coast can be defined on the basis of the following criteria:

- presence/absence of geometric microliths;
- microlithism/non-microlithism of the lithic industries;
- correlation between backed bladelets and gravette points on the one hand and geometric microliths on the other;
- presence/absence of local Aurignacian-Gravettian typological components.

Based on these criteria, the Final Palaeolithic of the Northern Black Sea coast can be subdivided into several technocomplexes including various cultures with specific development of items (Table 2).

1) *Eastern Final Epigravettian with geometric microliths* - some of the sites of the Rogalik-Peredel'sk group, Leont'evka, Tzarinka. The technocomplex includes similar industries, which are defined as the Osokorovskaya culture or the Rogalik-Tzarinka unity. Lithic industries spread within two territorial groups: the Donets group and the Lower Dnieper-Southern Bug group. These non-microlithic industries contain a monotype set of geometric microliths - big trapezes-rectangles. Both backed blades and gravette points are rare. A special attribute is the presence of mobile art. The study of the origins of this technocomplex puts forward two principal questions 1) about the degree of similarity between it and industries of the Shankobien chronological horizon and 2) about the anticipated genetic predecessors of this group.

The territorial groups recognized within the framework of this technocomplex also have some distinctions. Sites of the Lower Dnieper-Southern Bug group have not presented evidence of the micro-burin technique; additionally, the number of backed pieces is appreciably greater. In fact, the assemblages record two stages of development of the same industry - early stage (Leont'evka) and late stage (Tzarinka).

The search of genetic roots of this unity is a more debatable problem. Supposedly, a wide list of sites within Middle and Lower Dnieper, Desna and Don - Osokorovka III-v, Gontsi, Mezirich, Mezin, Dobranichevka, Vorona, and Borshevo II (up.l.) - must be taken into account in this context. Viewed from various appraisals, all of them are placed within the chronological interval of the Kamennaya balka horizon - Dryas 1 together with Bölling.

Industries of Mezin, Mezirich and Dobranichevka with backed bladelets and gravette points show a high degree of similarity within the Eastern Epigravettian group similar to those in the Molodova V sequence and different from the Black Sea coast sequence. It seems that both Osokorovka III and Borshevo 2 fill in a chronological gap between the Mezin culture and the Rogalik-Peredel'sk group. However, there is no sufficient basis to consider these both as parts of one technological chain connecting the Eastern Epigravettian in the Northern Ukraine and the Final Eastern Epigravettian with geometric microliths of the Northern Black Sea coast, since they not only differ from this last but also vary between themselves. Assemblages of the Rogalik-Peredel'sk group did not include Federmesser and Tjongern



points, while the presence of these last in Borshevo II undoubtedly specifies other cultural and spatial characteristics. The Osokorovka industry with an insignificant backed component and huge trapezes can be possibly affiliated with the proposed group, but it remains excluded from a traditional Gravettian context. So, the new data testify that the Eastern Final Epigravettian with geometric microliths of the Northern Black Sea coast ascends to the tradition of the Eastern Epigravettian of Northern Ukraine which is similar to those in the Dniester basin.

Recently discovered female images confirm this viewpoint. This artistic theme (and, probably, accompanying ritual behaviour) is strongly connected with the Gravettian tradition where it first developed and was distributed around 29,000 years ago. It seems that the Rogalik-Peredel'sk images are the youngest of those known among the Eastern European Gravettian-Epigravettian, taking into account the age of the female statuette from Cosautsi, l. 2a - about 17,000 BP, and Molodova V, l.3 - about 13000 years BP (Borziac and Chirica 1996, Fig. 1,4; Damblon *et al.* 1996, Fig.12; Ivanova (ed.) 1987, Fig. 14). On the one hand, mobile art of the considered group completely corresponds to the artistic context of the Late Glacial, with a sketchy, complex geometric pattern (compare with Mezin, Mezirich, Dobranichevka, Cosautsi, Molodova V, Eleseevichi). As well, it confirms the stability of this ancient stylistic canon - a solar symbol on an amulet as well as the inclined head of the female image (compare with Willendorf, Kostenki 1 etc ...).

2) *Eastern Final Epigravettian without geometric microliths.* The technocomplex involves two different cultural phenomena: Vladimirovka l. 1, 2 and Epigravettian of the Rogalik-Peredel'sk group. The first concludes the tradition of the local Eastern Epigravettian without geometric microliths in the Southern Bug region. The second one is comparable to a Kamennaya balka circle in particular to the Federovka industry.

The Final Epigravettian of the Rogalik-Peredel'sk group as well as the Fedorovka and Kamennaya balka differ from Lower Dnieper assemblages (Somova balka, Kashtaeva balka, Solenoye ozero 9) by the presence of narrow arched bipoints, while these last are well expressed as both scaled and notched pieces. It is quite reasonable to suppose that three local groupings of Dryas 1-Bölling, termed Lower Dniester, Azov and Lower Don are different cultures of the same unity. Thus, the Eastern Final Epigravettian without geometric microliths of the Rogalik-Peredel'sk group concludes the development of one of them (Fedorovka culture) at the end of Late Glacial.

3) *Eastern Final Epigravettian of Aurignacian-Gravettian tradition.* The Ivashkovo VI industry represents this tradition in a chronological span of the Shankobien horizon. According to both typology and technology, it ascends to Aurignacian-Gravettian of the Northern Black Sea coast during the second half of the LGM. However, the essential chronological gap between them should be marked. The Yanisol' site probably partially covers this gap; meanwhile, both sites originated from different local realities of the steppe: the first one to Amvrosievka (Azov group) (Krotova, 1986), the second one to Anetovka Akkardza (South Bug group). Obviously, the occurrence of trapezes in Ivashkovo VI is caused by processes of borrowing.



Technocomplexes	Territories	Sites
<b><i>Shankobien Chronological horizon</i></b>		
Eastern final Epigravettian with geometrical microliths	Donets group	Rogalik-Peredel'sk area
	Low. Dnieper - Southern Bug group	Leont'evka, Tzarinka
Eastern final Epigravettian without geometrical microliths	Donets group	Rogalik-Peredel'sk area
	Southern Bug group	Vladimirovka I.1, 2
Eastern final Epigravettian of steppe Aur.-Gr. tradition	Southern Bug group	Ivashkovo VI
Eastern Azilian	Crimean group	Shan-Koba I. 6,5; Fat'ma-Koba, I.6, 5; Skalistiy, I. III/3-I, Siuren 2 up.I., Buran-Kaya III I.5; Buran-Kaya r.sh., Zamil-Koba I low.I.
	group of area between Danube and Dniester	Beloles'e
Heterogeneous cultures	Crimean group	Siuren 2 low.I.; Buran-Kaya III, I.4
<b><i>Kamennaya balka Chronological horizon</i></b>		
Eastern final Epigravettian with geometrical microliths	Crimean group	Skalistiy I.VII-IV
	Dnieper group	Osokorovka III v
Eastern final Epigravettian without geometrical microliths	Southern Bug group	Vladimirovka I.III
Eastern final Epigravettian of steppe Aur.-Gr. tradition	Azov group	Yanisol'
Unity of Middle East - Cacausus origin	Azov group	Fedorovka I.2,1
	Low. Dnieper group	Kashtaeva balka, Somova balka, Solenoye ozero 9
	Low. Don group	Kamennie balki I, 2
	Crimean group	Vishennoye
Industries with Federmesser - Tjongern points	Don group	Borshevo II up.I.

Table 2. Technological and territorial variability in the Late Glacial Upper Palaeolithic of the Northern Black Sea Coast.



4) *Eastern Azilian*. In the Northern Black Sea coast, this technocomplex unites numerous and well stratified sites of the Crimean group and Beloles'e in the area between the Dniester and the Danube. The main distinction of the Eastern Azilian from the Eastern Epigravettian is a slight quota of backed blades, gravettes and micro-gravette points and, above all, dominance of diverse large geometric points accompanied by rare massive trapezes and high crescents.

The Eastern Azilian borders are widespread outside the modern Northern Black Sea coast. Based on preliminary comparative analysis, unfortunately not always confirmed by absolute chronology, the Abkhazian group of sites (Apiancha 1.3, Holodniy grotto), the Sosruko group on the Northern Caucasus and, probably, the Eastern Caspian group (Damdam Cheshme 2) can be ascribed to this affiliation.

The various regional groups of the Eastern Azilian represent the same knapping technique as well the same structure of retouched pieces. However, the parity between tool classes fluctuates. Both Apiancha and Beloles'e correspond to the overall assemblage composition of a late Shankobien sequence, and register a growth in mobility, change and development of settlement pattern and settling of new areas. Hypothetically, the Shankobien dispersion could cover western and eastern parts of the Black Sea coast not yet covered by sea in the Final Pleistocene. It is obvious that the Eastern Caspian group and the Shankobien have a convergent origin. We argue that both high trapezes and crescents were adopted in Shankobien technology under influences of Caspian tradition where, probably, transverse arrow heads was an idea conceived earlier.

The origin of the Shankobien is a complex and ambiguous question. According to modern data, we can simply outline cultural components taking part in its development:

- The Upper Siuren culture of the Crimea (rock shelter Skalistiy I. VII up IV), where a few geometric points and slight backed blades are fixed;
- The Vishennoye culture in the Crimea (narrow arched bipoints);
- The Pribalanskaya culture in the East Caspian (high trapezes).

## CONCLUSIONS

The data analyses allow us to make some general conclusions:

- The Upper Palaeolithic of the Northern Black Sea coast marks chronological continuity and cultural discontinuity as well as the growth of cultural diversity.
- Since the Late Glacial (Kamennaya balka chronological horizon), cultural continuity is observed more precisely.
- The background of the Late Glacial Palaeolithic of the Northern Black Sea coast made on the basis of radiocarbon dates, palynology, chronostratigraphy and typology, can be summarized as follows (Table 2). First, there are two chronological horizons: Kamennaya



balka and Shankobien. Second, the industries classify into several technocomplexes with more or less distinct territorial grouping of sites.

- The nature of this structure ascends to three basic events in the Upper Palaeolithic of Eastern Europe: a widespread Aurignacian-Gravettian in southern steppe areas during the LGM, the Eastern Epigravettian distribution along the Russian Plain and the formation of cultures originating from the Middle East-Caucasus area at the beginning of the Late Glacial.

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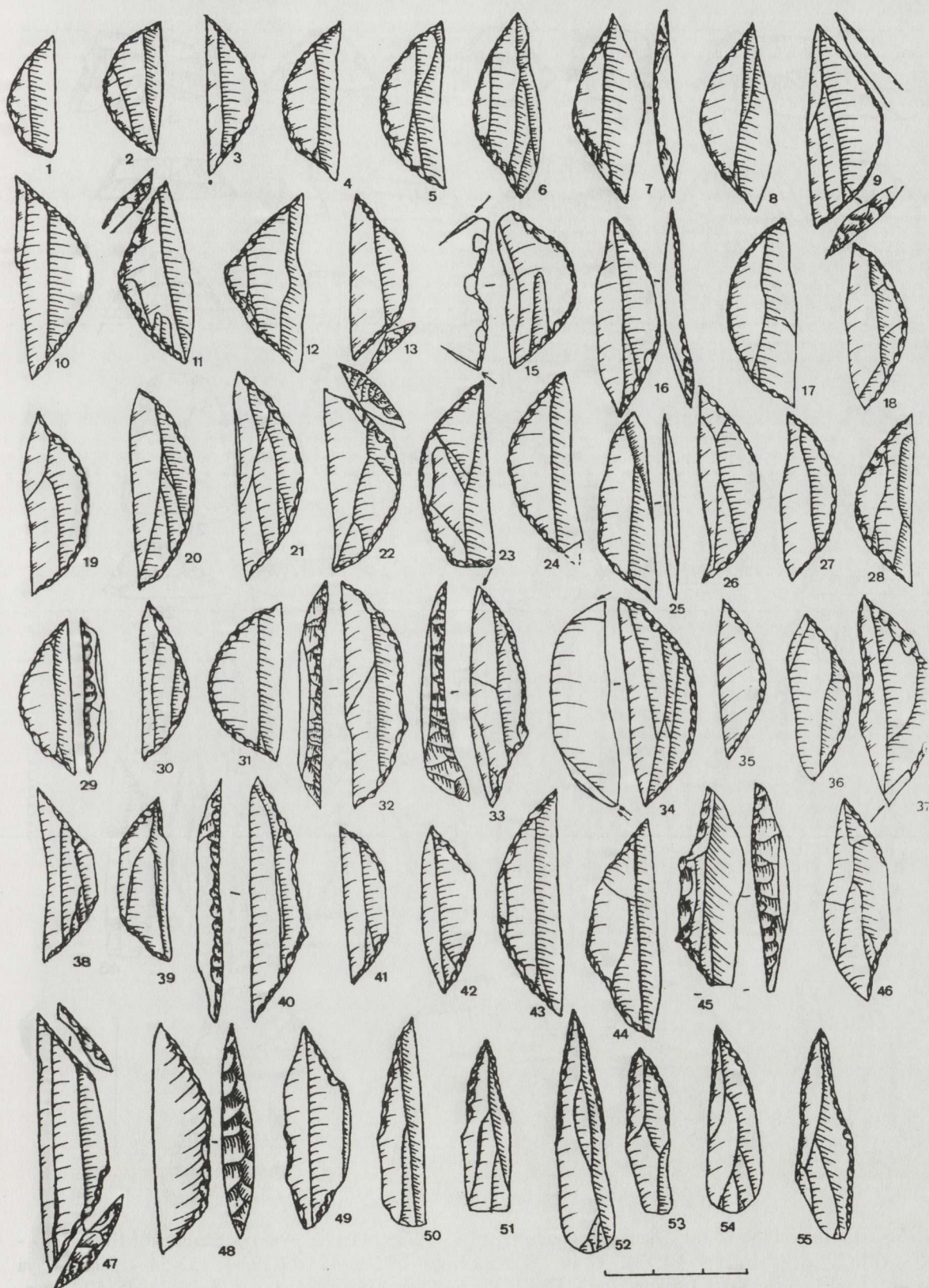


Fig. 3. Typical microliths of the Shankobien industry. 1-22, 41-46, 55 - Skalistiy 1.III/3; 23-28, 47-54 - Skalistiy 1.II; 29-33 - Buran-Kaya (rockshelter); 36 - Fat'ma-Koba 1.5,6; 34 - Shan-Koba 1.6/6, as. 1; 35, 37 - Shan-Koba 1.6/3, as. II; 48 - Shan-Koba 1.6/2, as. III; 51 - Shan-Koba 1.6/0, as. IV; 49 - Shan-Koba 1.V.



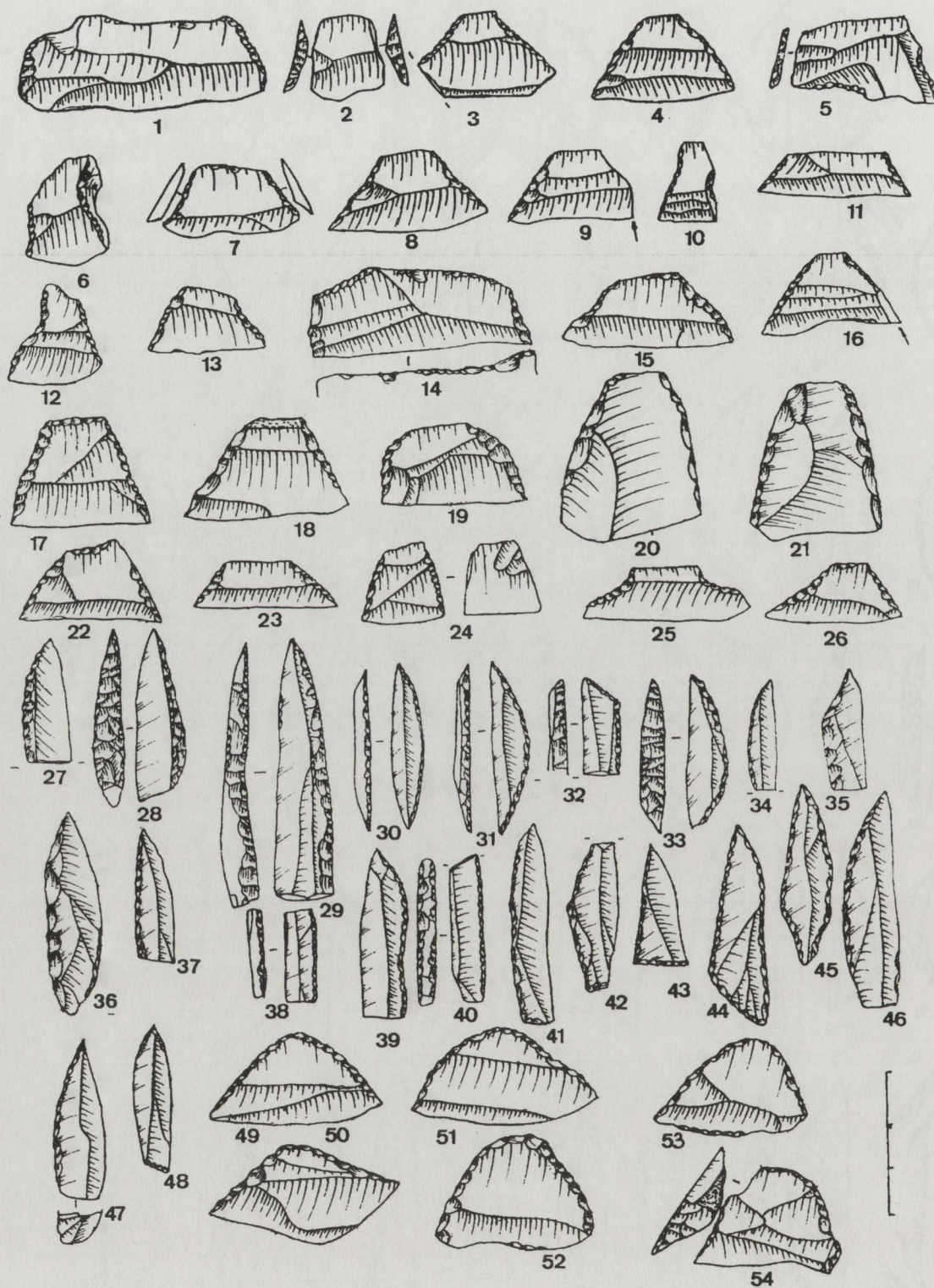


Fig. 4. Specific microliths of the Shankobien industry. 1-7, 30-33, 44, 47, 49-51 - Skalistiy I.III/3; 8-10 - Skalistiy I.III/2; 38 - Skalistiy I.I; 11, 39-40 - Fat'ma-Koba I; 5-6, 12, 27-29, 41, 53-54 - Buran-Kaya rockshelter; 13, 37 - Shan-Koba I.6/5, as. I; 14, 16-17, 35-36 - Shan-Koba I.6/3, as. II; 15, 21-33, 45, 52 - Shan-Koba I.6/2, as. III; 18-20, 24-26, 34, 46, 48 - Shan-Koba I.6/1, 6/0, as. IV.



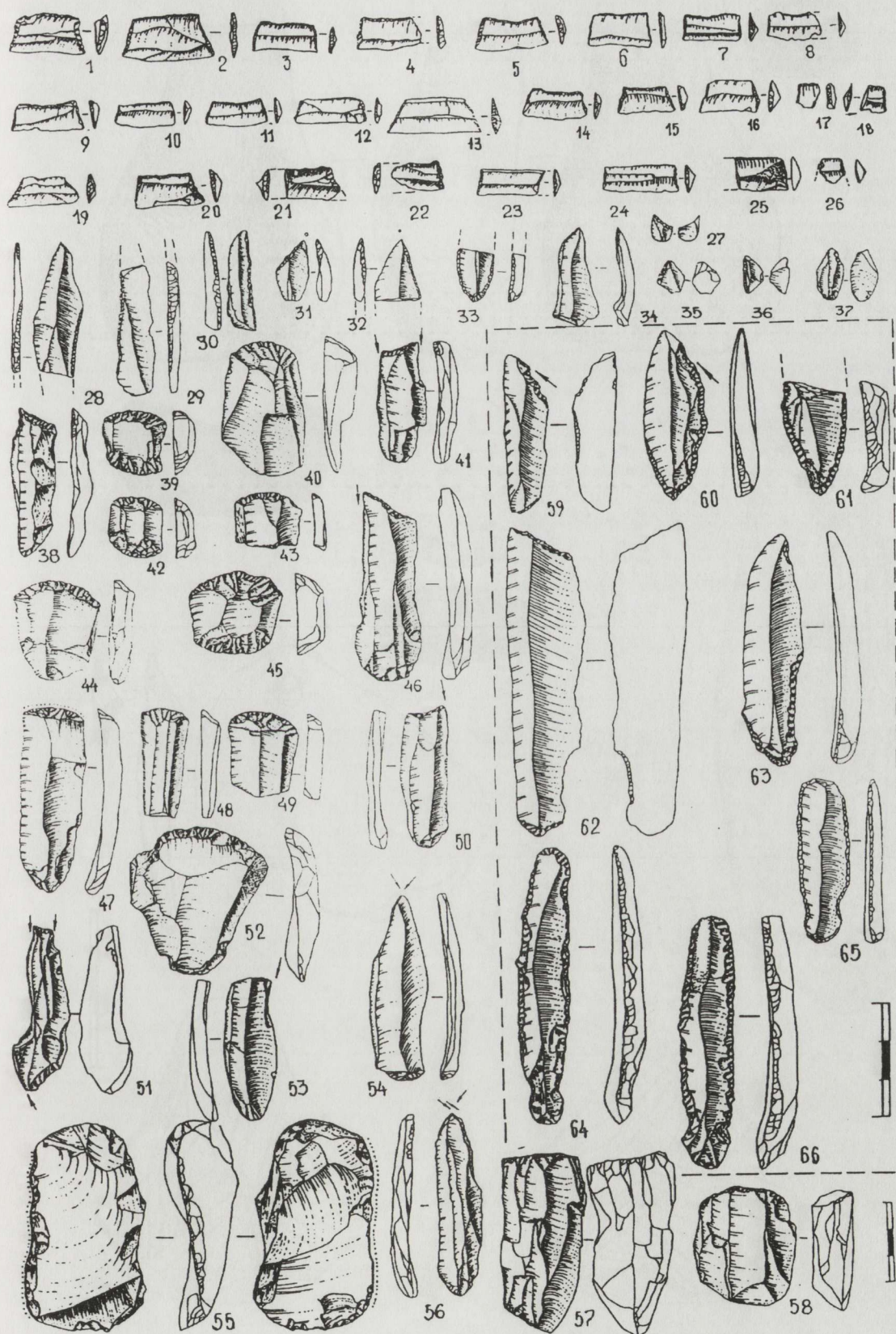


Fig. 5. Geometric industry of the Rogalik-Peredel'sk group.



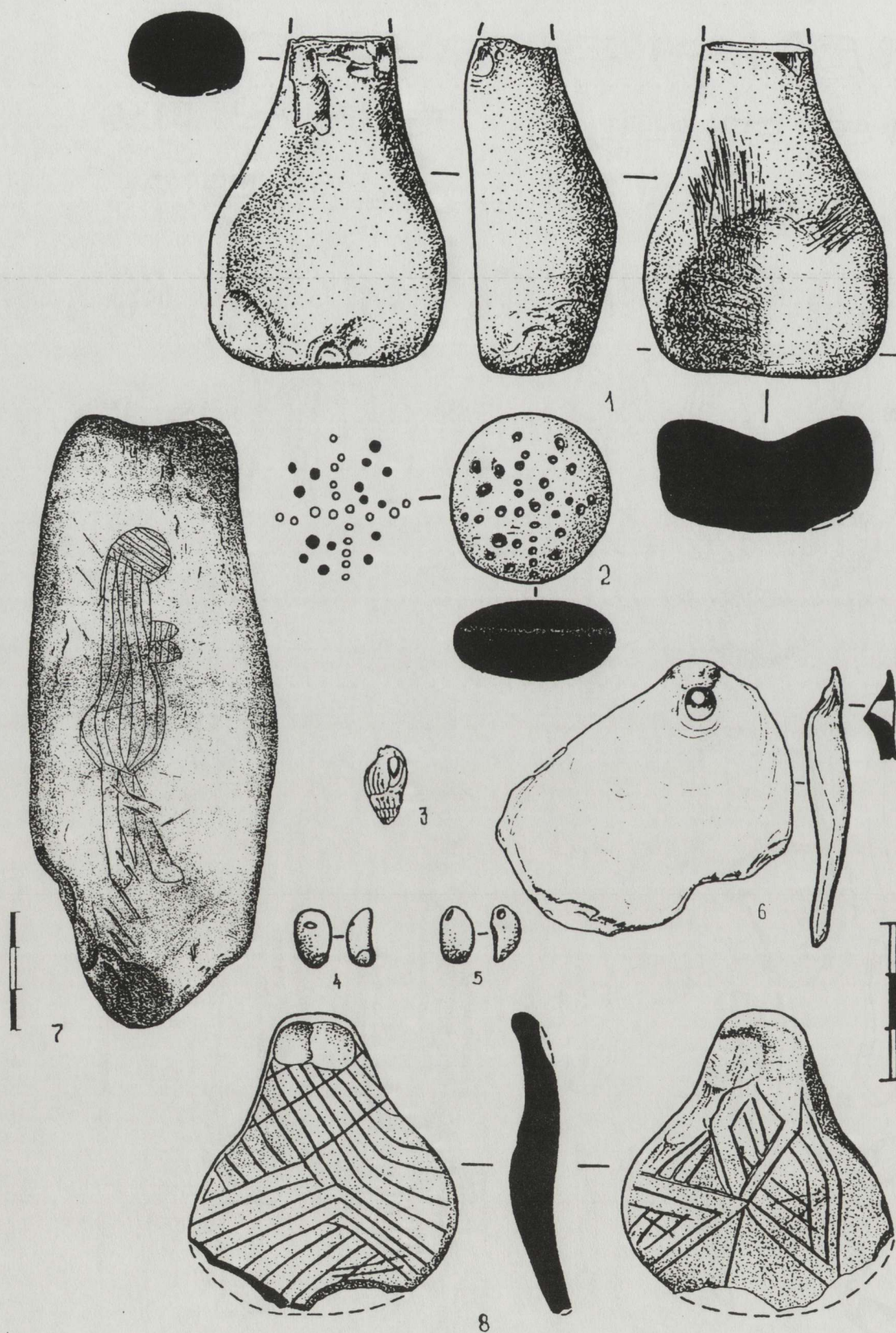


Fig. 6. Mobile art of the Rogalik-Peredel'sk group.



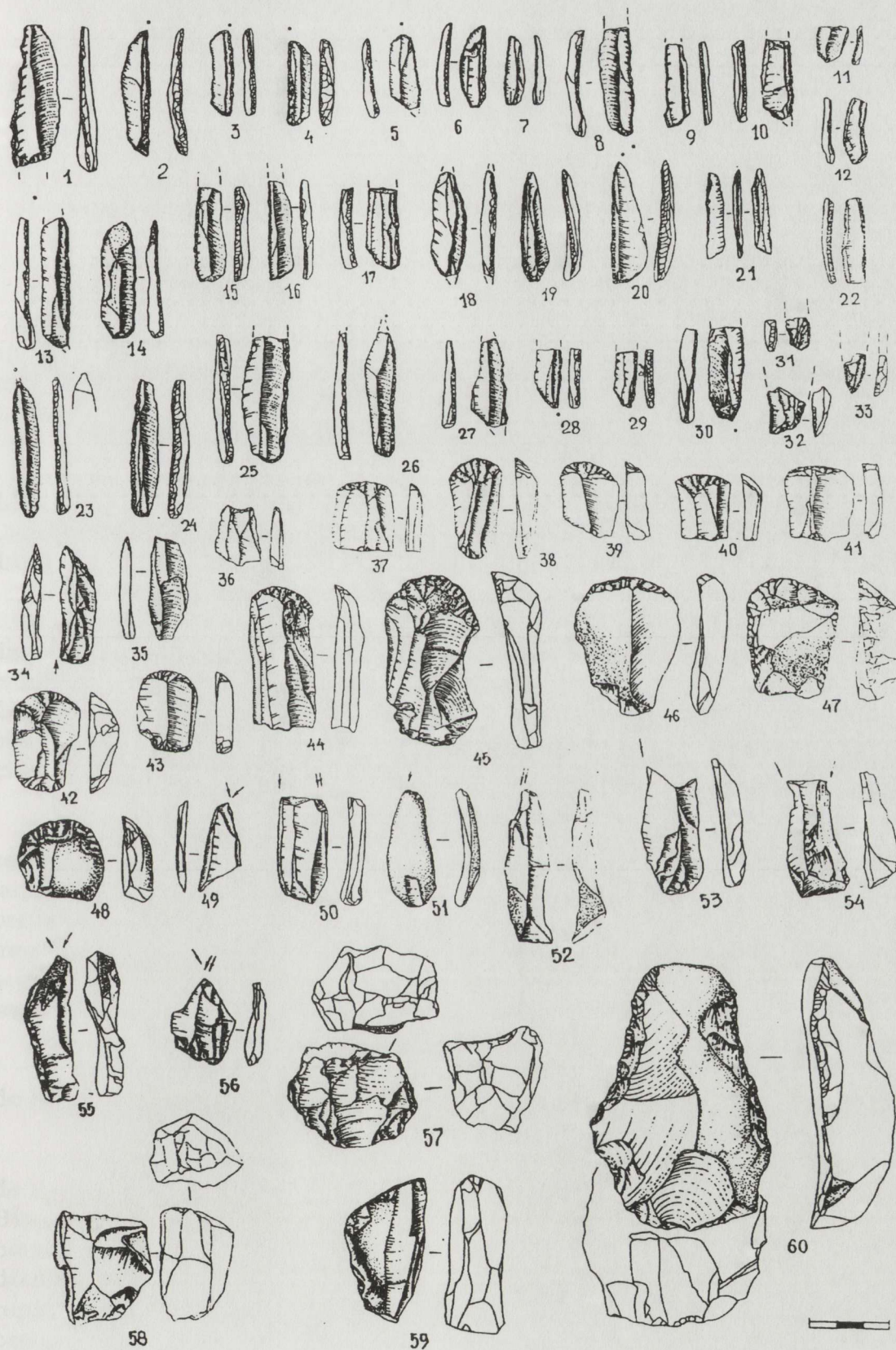


Fig. 7. Non-geometric industry of the Rogalik-Peredel'sk group.