Neanderthals and modern humans - discussing the transition: Central and Eastern Europe from 50.000 - 30.000 B. P.

Neanderthal Museum. Edited by Jorg Orschiedt and Gerd-Christian Weniger. - Mettmann: Neanderthal Museum, 2000
(Wissenschaftliche Schriften des Neanderthal Museum; Bd. 2), p. 256-266.

SHLYAKH - A NEW LATE MIDDLE PALEOLITHIC SITE IN THE SOUTH RUSSIAN PLAIN

P. E. Nehoroshev and L. B. Vishnyatsky

1. INTRODUCTION

Our knowledge of the Middle to Upper Paleolithic transition in the eastern part of the Russian Plain can best be characterized as still fragmentary. The materials which could shed light on the cultural processes occurring in the region in the time period from about 60 to 30 kyr ago are still rather poor, particularly as regards the first half of this chronological interval. While there is a number of relatively well studied early Upper Paleolithic sites predating 30 kyr bp (Anikovich 1992), the information about the late Middle Paleolithic is practically lacking due to the paucity of Middle Paleolithic assemblages and absence of reliable dates. Below we report some results of the study of Shlyakh – one of very few currently known sites which could fill (to some extent) this gap in our knowledge. The location of Shlyakh in a region which still remains a blank spot for prehistoric archaeologists, and its very peculiar lithic industry characterized by a protoprismatic laminar technology, make the site important both to our understanding of the Middle Paleolithic variability in general and to the clarification of the problem of the Middle to Upper Paleolithic transition in Eastern Europe.

2. LOCATION AND THE HISTORY OF STUDY

Shlyakh is an open-air site set on alluvial deposits, 14 km East of the Don River in the eastern part of the Russian Plain. It is located on the left bank of the Panica ravine near the Shlyakhovskoi farmstead, 112 km NW of Volgograd, and 850 km SE of Moscow (Fig.1). The Paleolithic artifacts were first reported in 1988 by the local historian V.I.Kufenko, when stratified archaeological deposits were exposed by limestone quarrying activities. The eastern part of the site has unfortunately been destroyed by the quarry. In 1990 and 1991 the site was studied headed by one of the present authors (P.N.) In an exploratory phase 14 cleanings (test pits) were placed along the northern, western and southern walls of the quarry, which revealed that archaeological deposits are present on all edges of the quarry. Subsequently, 62 square meters were excavated in the western part of the southern wall of the quarry (Nehoroshev 1993). In 1998, when the work at the site was resumed, 4 additional cleanings were placed along the northern, western and southern walls of the quarry (Fig.1) to clarify the stratigraphy of the deposits and to obtain samples for TL and 14C dating, as well as pollen samples.

3. GEOLOGY AND GEOMORPHOLOGY

The region where the site is situated is a part of the so called Archeda-Don swell. It is characterized by numerous neotectonic uplifts and outcrops of the Upper Carboniferous sediments. The latter are represented by three geological suites: Panica (limestone), Shlyakh (clays) and Lopushinskaya (limestone saturated with numerous

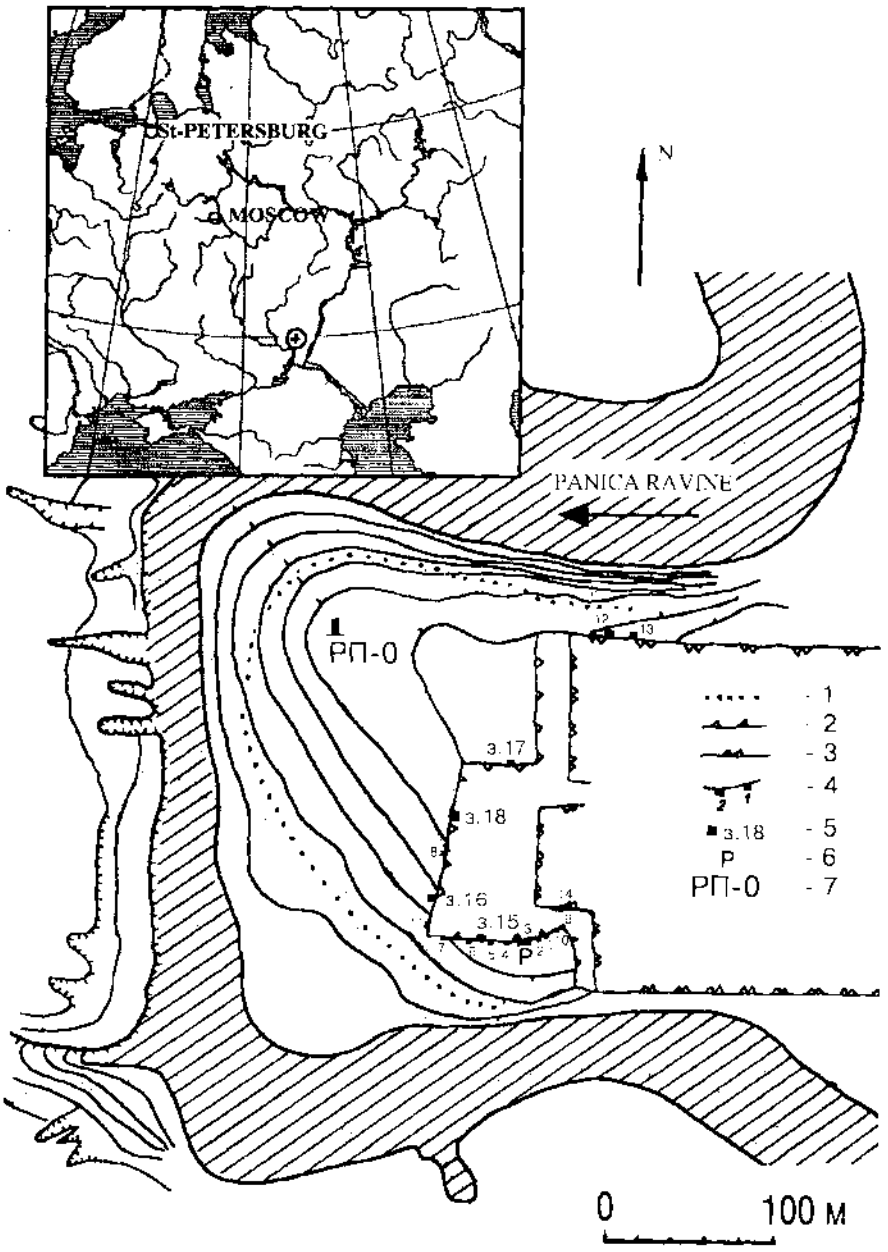

Fig.1 Map of the site area
1 supposed area of the site
2, 3 borders of the quarry
4 1990-91 cleanings (test pits)
5 1998 cleanings
6 excavation pit (1990-91).
7 zero datum

flint concretions). There is no doubt that the outcrops of the Lopushinskaya suite served as the main source of raw material for the inhabitants of the site. Shlyakh itself is located on a source of flint, nodules and slabs of which have been found eroded from of limestone outcrops. The site is delimited to the north, west and south by a deep bend in the dry Panica ravine, the bottom of which lies 8-10 m. below the surface of the site. The valley of the ravine is cut into the denudated surface of Pliocene age which can be considered the fourth terrace of the Don river. According to site geologist Y. Musatov (St. Petersburg State University) the formation of the ravine began in the late Middle or early Upper Pleistocene (either Moscow or Mikulino/Kalinin time in accordance with the Russian scheme).

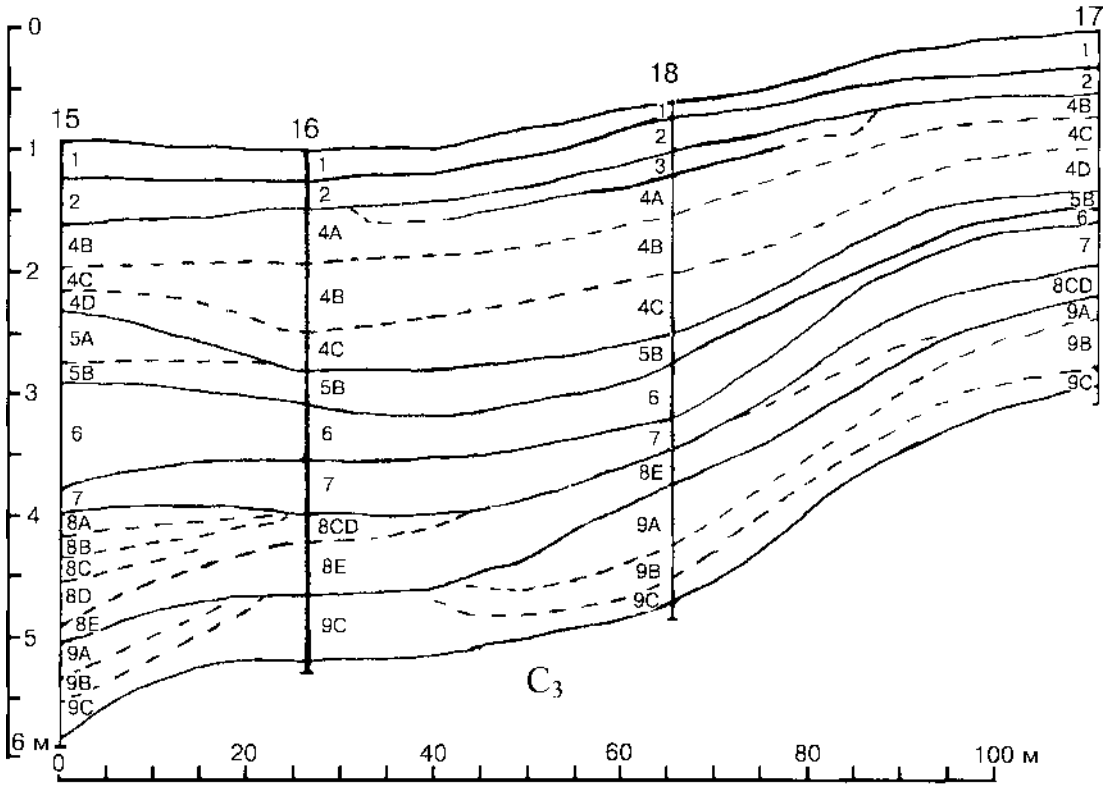

Fig. 2 Generalized section of the site (cleanings 15 through 18).

4. STRATIGRAPHY

The cleanings revealed that the thickness of the Quaternary deposits at the site remoted to a layer of 5 m. The generalized section of Shlyakh consists of 11 layers, many of which can be further subdivided into 2-5 horizons (Fig.2).

1) Modern soil (0,2-0,3 m);
2) Light-brown non-stratified loam with sparse carbonate detritus and gravel (0,3-0,4 m);
3) Grayish-brownish non-stratified loam with spots of lime (0,2-0,3 m);
4) Grey sandy loam, from light to heavy, cemented by clayish-carbonate cement, without detritus material (0,7-0,9 m);
5) Grey-brownish loam with rare inclusions of detritus and gravel (flints, limestone) (0,4-0,6 m);
6) Grey-brownish loam formed by interstratifying thin (from 1-2 to 10 mm) layers of light and middle loams (0,5-0,7 m);
7) Buried soil - humused loam with a well developed "web" of carbonate cement and rare inclusions of detritus materials (0,5-0,7 m);
8) Light brown loam gradually turning into sandy loam and later into sand, contains some quantity of detritus (0,4-0,7 m);
9) "Gravel" or basal layer formed by gravel, pebbles and boulders with sandy infill (0,7-0,9 m);
10) Lopushinskaya suite of the Upper Carboniferous time - smashed yellow-grayish limestone with clayish infill and numerous concretions of flint (to 2,7 m);
11) Motley clays of the Shlyakh suite.

Archaeological materials were found on the present surface of the site and in layers 1, 2, 4, 5, 7-9. Flint artifacts occur along the western and northern walls of the quarry for a distance of 320 m. Abundant archaeological material comes from layer 8 only, whereas the materials collected from other layers (from the surface, cleanings, and excavation pit) are rather scarce. However, the presence of these finds points to the multi-level character of the site and gives hope that more representative and in situ concentrations of artifacts will be found in future.

5. Dating of the main archaeological assemblage

Layer 8 occurs at a depth of 4-5 m directly below a buried soil. In the process of excavating it was divided into 5 more or less conventional horizons (A-E) of which the upper three proved to be richest in archaeological finds. The analysis of the stone inventory led to the conclusion that the industry of layer 8 contains elements of both Middle and Upper Paleolithic technology and can be dated to the end of the Middle Paleolithic (Nehoroshev 1993; 1997). However until recently there had been almost no data to judge on the geological age of the site. Only since 1998 when the work at Shlyakh was resumed the situation has changed for the better. Though many chronological problems still remain unresolved, the observations on the geology and stratigraphy of the site combined with the newly obtained absolute age determinations seem to confirm (with some reservations) the date originally proposed by one of us (P.N.) on strictly archaeological grounds.

The formation of layer 9 took place when the Panica ravine started to form and can therefore (if Musatov's conclusions are correct) be dated to the late Middle or early Upper Pleistocene. Hence layer 8 must have been formed in the Upper Pleistocene, most probably in the early or middle part of this period. The palynological data, though very poor, give some grounds to suppose that levels 8 and 6 were formed under interstadial conditions, while pollen from level 7 is indicative of colder climates (the analysis was carried out by T.Sapelko from the Institute for Lake Studies, St.Petersburg). However, it is still impossible to correlate the palynological zones with any specific stages of the Pleistocene. Of special importance are three radiocarbon dates (uncalibrated) obtained on bone samples taken from the middle part of layer 8 (horizon C):

1) >26000 years (bone, conventional 14C, LE 5522);
2) 46300+/-3100 years (bone, AMS, OXA 8306);
3) 45700+/-3000 years (bone, AMS, OXA 8307).

It is quite obvious that both AMS dates are quite in line with our expectations and confirm the final Middle Paleolithic status of the main assemblage. The conventional 14C date does not contradict such a conclusion. However, the situation is complicated by two RTL dates which are apparently too old:

1) 172000+/-35000 (quartz grains, RTL, Moscow University)
2) 163000+/-33000 quartz grains, RTL, Moscow University)

The two samples were taken from the lowermost part of layer 8 (horizon E), but the discrepancy in age is too high to be explained by this fact. On the balance of evidence we think that the AMS dates are much closer to the real age of layer 8 than the RTL ones, but further work is needed to clarify the issue.

6. Inventory of layer 8

Though the layer experienced some disturbances in ancient times the redeposition was not considerable as is evidenced by the fact that many finds coming both from adjacent and non-adjacent horizons can be refitted. The layer yielded only a few faunal remains attributed to bison (A. K. Kasparov, Iistitute for the History of Metrial Culture, pers. com.). The collection of stone artifacts (without those found in 1998) includes 2182 objects: tools - 57 (2,6%), cores and core-like objects - 90 (4,1%), debitage - 2035 (93,3%). These finds form the main Paleolithic assemblage that in all

aspects (raw material, preservation condition, typology and technology) looks very homogenous. The low percentage of tools alongside the location of the site directly on a source of raw material makes us believe that the site served primarily as a workshop.

The overwhelming majority of artifacts are made of flint - 2165 (99,2%), and only 18 (0,8%) are of quartzite.

The tools (Fig. 3) are mostly of the Middle Paleolithic aspect (Nehoroshev 1998). The following categories are present: 1) Mousterian points - 2, one of them, thinned by means of truncating-faceting and consisting of two conjoined parts, has clear wear traces indicative of fresh hide processing (traceological analysis was done by E. Y. Girya, Institute for the History of Material Culture). 2) Side-scrapers - 7. There are 4 simple side-scrapers, 1 double with truncating faceting on both ends, one convergent, and one canted. 3) Proto-Kostenki knives - 4. 4) Backed knives - 6, four of these have natural backs, and in two cases the backing is artificial. 5) Atypical endscrapers - 8. 6) Truncated flakes - 7. 7) Burin-like tools – 10, they are crude and inexpressive 8) Notches and denticulates - 3. 9) None of the above - 7. There are also 2 hammerstones and an anvil. Most of retouched tools are made on flakes and blades with unidirected dorsal scars.

Core-like objects (Fig. 4) consist of 60 intact cores, 21 core fragments, and 9 core-like fragments. Of the 60 intact objects of this group, 16 are single platform protoprismatic wedge-shaped cores; 30 cores have flattened flaking surfaces with one or two striking platforms (there are 14 ordinary, 11 bipolar, 3 radial, 1 orthogonal, and 1 crossed cores), 6 cores are intermediate between these two types; and 8 are miscellaneous (including precores and test cores). The single platform wedge-shaped and flattened bipolar cores are most expressive. These forms reflect the main strategy of core reduction.

The debitage consists mainly of flakes, many of which are characterized by (sub)parallel edges (124 complete flakes, 249 broken flakes) and facetted platforms. Blades are not numerous (63). The analysis of the flakes with (sub)parallel edges shows that the fragments included in this group differ in many aspects from the intact objects. The former are characterized by: 1) the highest indices of faceting (IF - 45,5; IFst - 30) which are 1,5-2 times as high as those calculated for intact flakes (IF=31,3 and IFst=20,3) and intact blades (IF=26,5 and IFst=22,5), 2) the highest percentage of unidirected dorsal flake scars, 3) the lowest percentage of backed forms, 4) the lowest percentage of lateral rejuvenation traces. Numerically the fragments constitute the biggest subgroup among the flakes with (sub)parallel edges, and in addition they have the best qualitative characteristics (they are less massive than intact flakes and blades), have more regular parallel edges and dorsal scar patterns. Taking into consideration the presence of well expressed wedge-shaped cores, it can be suggested that the described fragments are probably indicative of the main purpose of primary flaking - the manufacture of blades with parallel edges and ridges. The latter are practically absent in the collection, but since the site served mainly as a workshop, it is possible that most good blanks including blades were taken away. The intact blades present in the collection are characterized by a high percentage of backed forms (45,9%) and objects with a natural (cortical) facet (47,5%). Hence it is possible to suggest that these blades mainly reflect the final stage of the formation of convex flaking surface and were not the main purpose of primary flaking. They should rather be considered technical, auxiliary removals. Among numerous preparation and rejuvenation removals there are 54 "crested" flakes and 43 core platform rejuvenation flakes, some of which are similar to Upper Paleolithic "tablets".

Concluding the description of the inventory of the site it is also necessary to note that the spectrum analysis carried out by A. Egorkov at the Chemical lab of the Institute for the History of Material Culture has shown that iron concretions found in the major cultural layer (layer 8) represent pieces of ochre. It should be stressed that this is only the second time for the Russian Plain that the presence of ochre can be securily demonstrated at a pre-Upper Paleolithic assemblage.

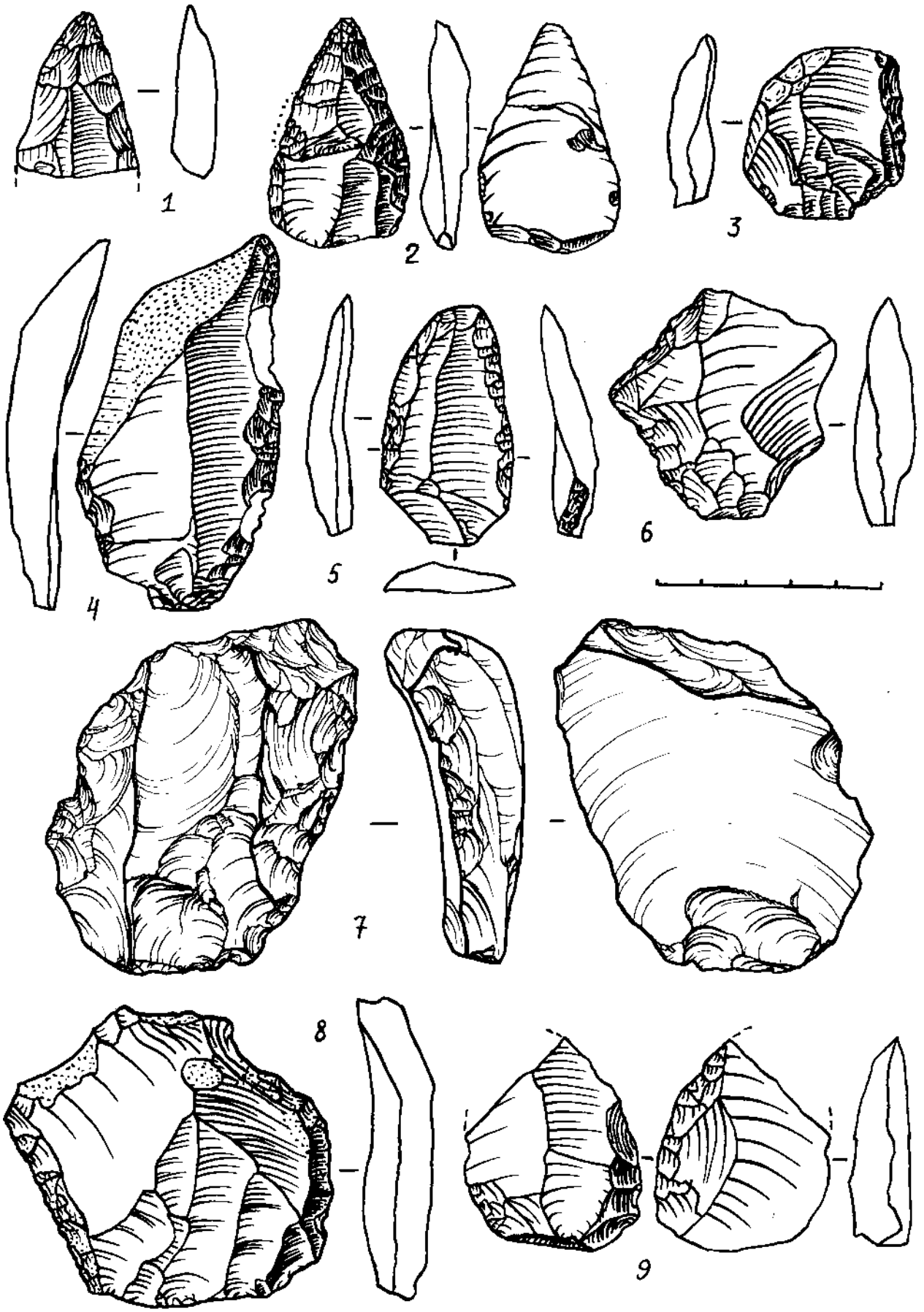

Fig. 3 Shlyakh, layer 8. Tools. 1-2 - retouched points; 3-9 – sidescrapers. (Scale 1:1)

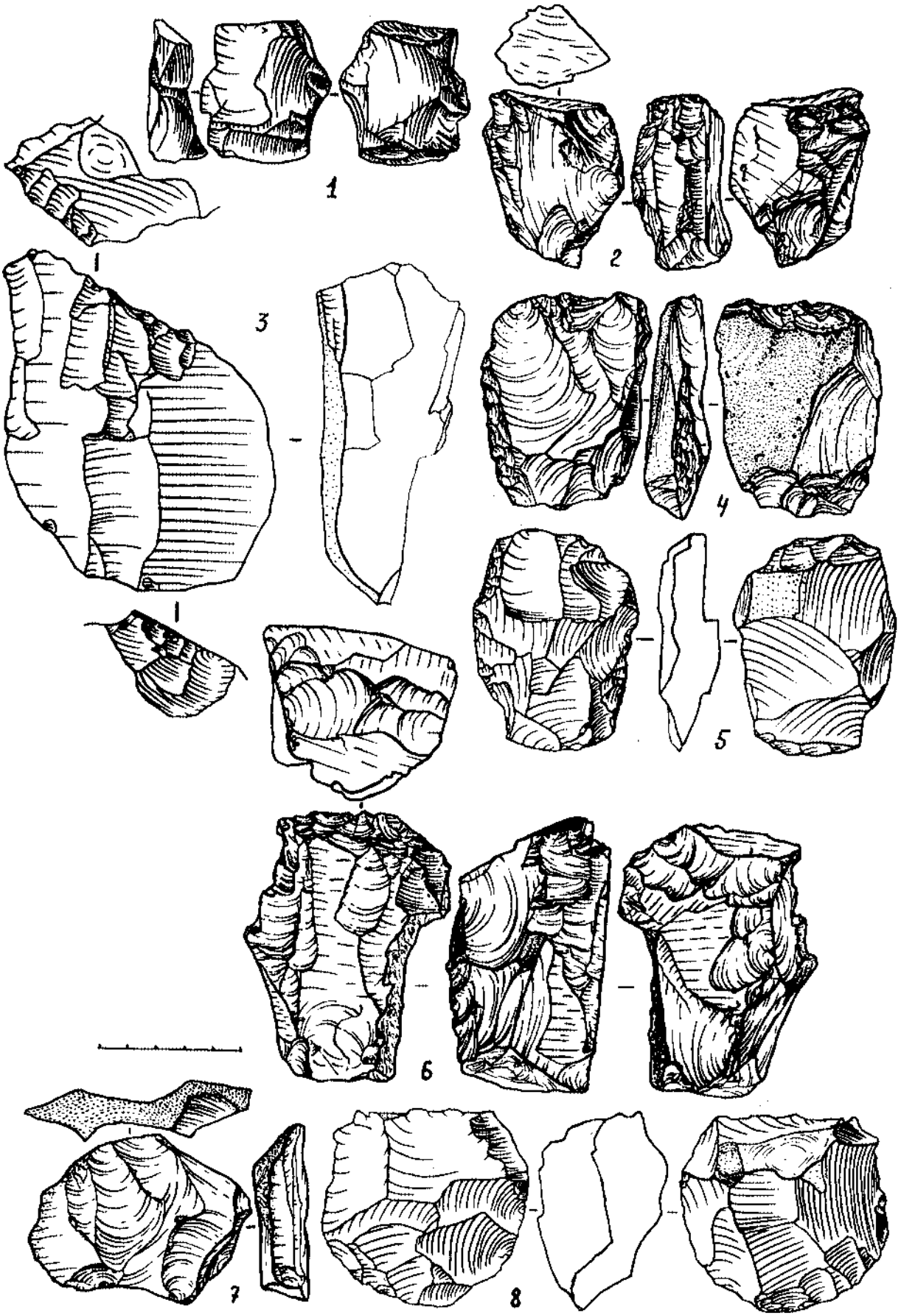

Fig. 4 Shlyakh, layer 8. Cores. (Scale 1:1)

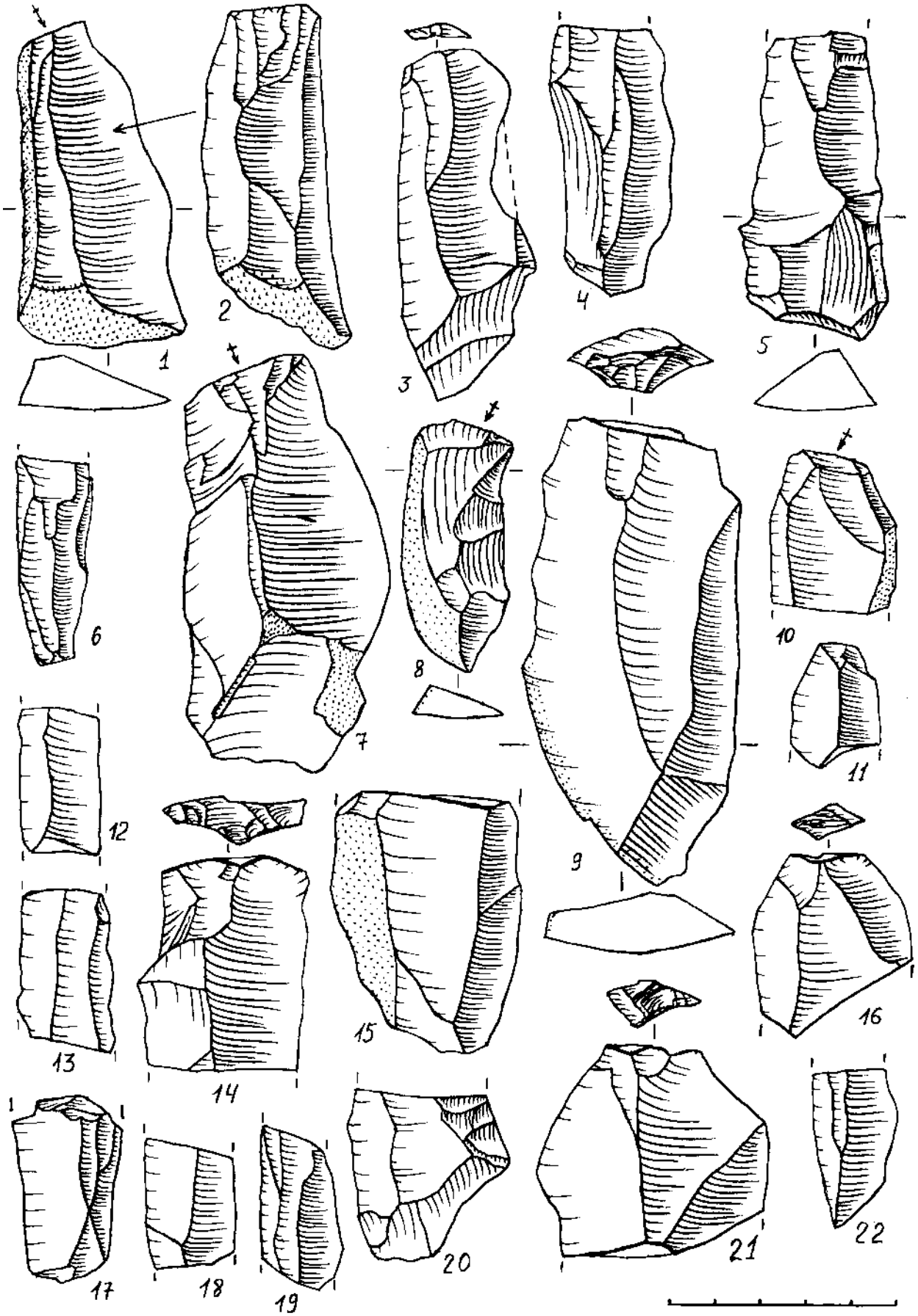

Fig. 5 Shlyakh, layer 8. Blades, flakes, and fragments. (Scale 1:1)

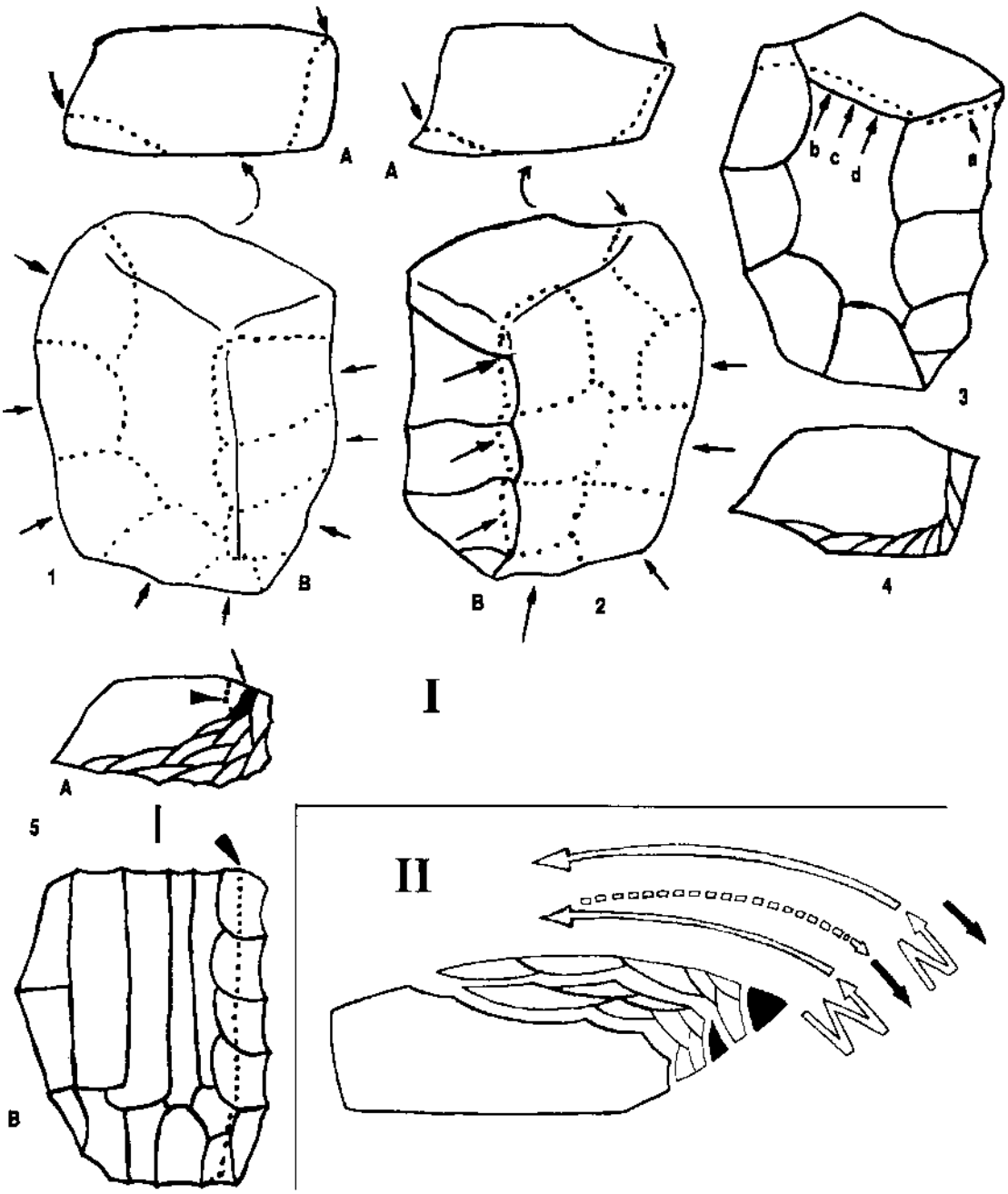

Fig. 6 I – Shlyakh, layer 8. Generalized scheme of core exploitation strategy. II – Roc-de-Combe, layer 8. Generalized scheme of core exploitation strategy, top view (adopted from Boëda 1990).

7. BLANK PRODUCTION TECHNOLOGY

The process of blank production can be reconstructed as follows (Nehoroshev 1997). It started with the selection of angular (but flat enough) pieces of flint or, less frequently, slightly flattened egg-shaped concretions. Judging by some specific traces observed on the flakes both hard and soft hammers were used in the course of knapping. Exhausted cores often served as hard hammers. The preparation of raw material pieces for splitting was not very intensive and depended on their form. One of the narrow sides of the piece (chosen as the flaking surface) was worked by transverse removals which led to the formation of the crest necessary to initialize flaking. The formation of the crest was followed by the creation of the "keel" (thinned distal end). The striking platform was prepared either by longitudinal or transverse

removals, or both. The preparation was not very careful, the crest remained uneven (there are no expressive crested blades in the collection) as did the "keel". The detachment of blank flakes started from the narrow side of the core and then gradually moved to the left lateral side. After detaching a series of flakes, which removed the traces of core preparation and areas covered with cortex, the flaking surface acquired a regular relief with parallel ridges. It was then possible to strike off blank blades. The average size of these blades was 8 by 3 cm. After removing a series of blades the flaking surface became flat. The restoration of its cross-sectional convexity was usually carried out by transverse removals from the right side and longitudinal removals along the left side of the front. Not infrequently in the course of core reduction the two parts of the flaking surface - the narrow part and the lateral one - were exploited as two independent fronts: at first the narrow side was worked down and became flat and after it the process of reduction moved to the left side until it became flat as well. Then the cycle may have been repeated. In case of successful reduction the core could be worked down to a flat form and acquired the appearance of a bipolar core. Heavily exhausted cores could be transformed into cores with circular preparation of the flaking surface. In general the technology of Shlyakh can be characterized as a peculiar technology directed to the production of blades from narrow wedge-shaped cores. Similar strategies of core formation and exploitation are often characteristic of Upper Paleolithic industries (fig.6), for instance the Chatelperronian industry of Roc-de-Combe, layer 8 (Pelegrin 1995).

8. Place of the layer 8 industry in the Middle Paleolithic of the Russian Plain

The technological system reconstructed for Shlyakh has much in common with the Upper Paleolithic technology of blade production (the use of one, or at times two opposed platforms, from which parallel removals are struck down the narrow convex flaking surface, producing blanks with (sub)parallel dorsal ridge scars), but the flaking techniques (that is methods and means of application a dynamic impulse to the flaking surface with the purpose of detaching a flake) still remained the Middle Paleolithic ones. Therefore we are here dealing with a Middle Paleolithic blade technology. The typological composition of the tool set also is characteristic of the Middle Paleolithic: it is dominated by Mousterian points, sidescrapers, knives and "Proto-Kostenki knives", while typical Upper Paleolithic forms are absent.

The overwhelming majority of the Middle Paleolithic sites in the Russian Plain and Crimea belong to the "East Micoquian" group. The typological and technological characteristics of these industries may vary depending on the properties of raw materials, but there are always some common features which render the "Eastern Micoquian" assemblages similar. This similarity manifests in the presence of bifacial and partly bifacial tools (leafshaped points, small handaxes, triangles), as well as canted sidescrapers, asymmetrical knives and sidescrapers-knives. The sites of the Lower Volga region (Sukhaya Mechetka, Chelyuskinetz, Zaikino Pepelische), situated 80-100 km south-east of Shlyakh and characterized by the presence of various bifacial tools and abundance of canted sidescrapers and asymmetrical points (Zamiatnin 1961; Kuznetsova 1999), belong without doubt to the group of Eastern Micoquian assemblages.

The absence of bifacial forms and other tools characteristic of the Eastern Micoquian distinguishes the industry of Shlyakh from the sites mentioned above as well as from most Middle Paleolithic sites of the Russian Plain. However, there are several more assemblages which form a distinct group if considered against the Eastern Micoquian background. These are Zvanovka, Kurdyumovka, and Belokuzminovka (Kolesnik 1989; 1994) situated about 450-500 km west of Shlyakh in the Donbas region of Ukraine. All of them are workshops (like Shlyakh). Their inventory, as well as that of Shlyakh, includes Proto-Kostenki knives, truncated flakes, backed knives, points, and various tools with thinning of the dorsal face (truncating-faceting). Bifacial tools are absent or extremely rare. Another important common feature is the character of technology which is focused on blade production. In this

respect most analogies can be drawn with the Bug (post-Brorup) complex of Belokuzminovka. The Shlyakh technology appears to be a development of the Belokuzminovka one. Unfortunately, the Donbas sites do not have absolute dates, while relative dating suggests dates ranging from the late Middle Pleistocene to the first half of the Upper Pleistocene. It cannot be ruled out that the mentioned Donbas sites and Shlyakh represent the evolution of the same cultural tradition characterized by blade technology, wide use of truncating and truncating-faceting, as well as absence or paucity of bifacial tools (Nehoroshev 1996). Of particular interest is the wide use of truncating-faceting in tool manufacture, which sharply divides these assemblages from all the other industries of the Russian Plain. The originality of these sites against the Eastern Micoquian background allows to distinguish them as a distinct group which may be called the Belokuzminovka group (after the site that was discovered first).

ACKNOWLEDGEMENTS

We would like to thank Dr. M. Otte and Dr. P. Pettitt for the help with AMS dating. Research reported here was partly funded by a grant from the Leakey Foundation.

P. E. Nehoroshev and L. B. Vishnyatsky
Institute for the History of Material Culture
Dvortsovaya nab. 18, St. Petersburg, 191186
Russia

REFERENCES

Anikovich, M. 1992. Early Upper Paleolithic Industries of Eastern Europe. Journal of World Prehistory 6/2, 205-245.

Boëda, E. 1990. De la surface au volume: analyse de conceptions de débitages Levallois et laminaires. In: C. Farizy (ed.), Paléolithique moyen récent et Paléolithique supérieur ancien en Europe. Mémoires du Musée de Préhistoire d'Ile de France 3, Nemours, 63-68.

Kolesnik, A. V. 1989. The Mousterian workshop Zvanovka in Donbas. Sovetskaya Arkheologia 1, 117-124. In Russian.

Kolesnik A. V. 1994. Mousterian industries evolution of East Ukraine. Prehistoire Européenne 6, 175-186.

Kuznetsova L. V. 1999. The peculiarity of stone inventory of the Mousterian sites in the Lower Volga region. In: T. A. Popova, N. D. Praslov (ed.), Lokalnye razlichiya v kamennom veke. Russian Academy of Sciences, St.Petersburg, 91-94. In Russian.

Nehoroshev, P. E. 1993. Shlyakh: A multilevel site of the Stone Age (a preliminary report). Drevnosti Volgo-Donskih Stepei 3, 84-95. In Russian.

Nehoroshev P. E. 1996. A group of Middle Paleolithic sites on the south of the Russian Plain. Arkheologicheskij Almanah 5, 71-74. In Russian.

Nehoroshev P. E. 1997. Technological method of the study of primary flaking in the Middle Paleolithic. Ph. D. diss., St.Petersburg (unpl.). In Russian.

Nehoroshev P. E. 1998. The site of Shlyakh. Tools from layer 8. Drevnosti Volgo-Donskih Stepei 6, 7-21.

Pelegrin, J. 1995. Technologie lithique: le Châtelperrinien de Rod-de-Combe (Lot) et de la Côte (Dordogne). CNRS Editions, Paris.

Zamiatnin S. N. 1961. The Stalingradskaya site. Kratkie Soobschenia Instituta Arkheologii 82, 5-36. In Russian.