

## BIFACIAL STONE TOOLS OF LATE PALAEOLITHIC IN DNIESTR-PRUT INTERFLUVE

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Bifacial stone tools of Late Palaeolithic of Europe is a rather wide-spread phenomenon. These are encountered in a series of cultures and certain archaeological records referred, mainly, to early and middle period of Late Palaeolithic. Similar tools are traced in Late Palaeolithic in Dniester-Prut interfluvium as well, including territory of the Moldavian SSR. Prior to passing to description, analysis characteristic of late palaeolithic artefacts bearing bifacial treatment and encountered within the specified area, it is worthy to note that we include into this category of specimens all the artefacts which reveal complete or partial bifacial treatment. Among the bifaces one can encounter lances points and darts of various shapes and proportions, bifacial knives, different blades, scrapers, small choppers.

The range of sources laid in the foundation of the present paper is rather scarce. Some 43 hunter-gathers locations and excavation sites of Late Palaeolithic with bifacial implements were so far discovered in Dniester-Prut interfluvium. 22 hunter-gathers locations are found at the territory of the Moldavian SSR, while the remainder at the territory of Chernovtsy Region, Ukrainian SSR. All these archaeological records are known for single — to several tens of bifacial implements. It shall be noticed as well that only 16 stratified assemblages of Late Palaeolithic were revealed in this area, and only 9 of these are found at the territory of the Moldavian SSR, while the remainder are in Ukraine. Other records are represented by surface collections. Taking into consideration probable inhomogeneity of surface collections we make use mainly of the data collected off stratified assemblages discovered in the process of excavations. All of the above mentioned archaeological records and assemblages were discovered and investigated starting with 30s of our century and up to present time.

Comply totality of geological, palaeontological, and stone tools typology data the most early late palaeolithic records in Dniester-Prut interfluvium shall be considered hunter-gathers included in Brynzeny late palaeolithic culture (Borziyak, 1978, p. 16; Borziyak, 1983, p. 36; Rogachev, Anikovich, 1984, p. 197), i.e. grotto Brynzeny I, lower layer, grotto Chuntu, Bobuleshty VI, Skok (Ketraru, 1973, p. 34; Borziyak, Ketraru, 1978, p. 148-156; Borziyak, Kovalenko, 1978, p. 36). The stone tools kit of these records alongside with rather archaic artifacts components, s. a. scrapers, points, knives, with natural edge, denticulate and notched implements, large choppers, more typical for Mousterian than for Late Palaeolithic, represents artefact groups for late palaeolithic types of scrapers, cutters, knife-like retouched blades certain blades (as a rule, rather large) with blunted edge, which served evidently, as knives. All the accumulated records of this culture bear evidence of bifacials of various types at various stages of shaping. As for instance, within the eponimic assemblage of lower layer of grotto Brynzeny I about 9 thou-

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sand specimens, some 1492 stone artifacts were singled out, among which 52 scrapers (pointed ones from blades and flakes, carinated); 91 burins (middle, side, at the edge of broken blade); artifacts with truncated retouched edge — 13; side-scrapers — 52 (angle, type Quina, single, double); bifaces — 20 (leafpoints, darts, choppers, scrapers with bifacial treatment, points), sharpened points — 7 (Mousterian and levallois), points of various shapes, including typical perforators — 32, knife-like retouched blades — 358, denticulate and notched tools 430, other single or atypical shapes. Same assemblage reveals certain amount of large (up to 5–7 cm) blades with one truncated edge. Approximately the same tool kit structure is typical for Bobuleshty VI, but here we find less stone tools, and hence, less bifaces, total of 9. Tool kits from grotto Chuntu and open site Skok are poor in findings (250 to 270 flint products each), stone artifacts represented by 35 and 44 items respectively. Grotto Chuntu revealed one biface (fragment) and 5 of these at the site Skok (also fragments). Thus, in the records referred to Brynzeny late palaeolithic culture there were 35 bifacials discovered till nowadays. Brynzeny culture records bear genetic rooting in Mousterian of Dniester–Carpathian region (Borziyak, 1980, p. 59–67; Amirkhanov, Anikovich, Borziyak, 1980, p. 5–22; Borziyak, 1988, p. 31). The following were used as initial products for bifaces manufacture: depleted nuclei — 3, flakes and their fragments — 18, blades — 4, the remainder from morphologically nondetermined products. Out of 35 bifaces only 9 were intact, the rest represented fragments. Flint was used as raw material exclusively. Typologically among the bifaces of Brynzeny culture the following are encountered: choppers and their fragments — 6 pcs. (only in lower layer of grotto Brynzeny I), chopping axe-shaped tools — 1 pc., leafpoint tips — 14 pcs., sharp edged tools retouched on ventral side — 5 pcs., side-scrapers — 3 pcs. (Figs 2, 3). The rest of the findings are non-determined fragments. As is known, choppers are not typical for late palaeolithic assemblages. Moreover, these are quite rare even in more early Mousterian and Acheulean records of Dniester–Prut interfluve, although in some cases they are encountered, for instance, in the lower layer of grotto Vykhatintsy (Sergeev, 1950, p. 105). It is quite possible that we are dealing with points at the initial stage of manufacture here. The given specimens are of sub-triangular or oval shape with rough disordered scars, while the edges bear traces of fine and coarse retouche. Except for the lower layer of grotto Brynzeny I bladelets mostly in fragments, were found at site Kosoutsy II of mid-Dniester area. Bladelets of Brynzeny culture find certain parallel with some Szeletian assemblages of Central Europe (Allsworth-Jones, 1975; Gamble, 1986) and with some Mousterian sites in Crimea (Kolosov, 1986).

Among the blades of this culture records one can not distinguish a series of uniform objects: tanged points with slightly concave base — 3 pcs., oval-leaflike with a widening in its lower third — 6 pcs.; indeterminable fragments of upper and middle part 5 pcs. Two of the oval-leaflike discovered bifaces at Bobuleshty VI site are only partially treated on both sides.

Sharp points or picks are treated on both sides only partially. Lateral edges are retouched by flat sharpening on tools backs and have flat retouching on blade face normally near tip and close to base. By style of manufacture they approach to points of Jerzmanowice, specified for the territory of Poland (Chmielewski, 1961). Except for the finds of Brynzeny culture, certain points with partial bifacial treatment were revealed at sites in grotto Trinka I (third layer — Anisjutkin, Borziyak, Ketraru, 1986, p. 38) as well as at certain locations of Mid- and Upper Dniester area. It is worthy to note that at the early stage of Brynzeny culture (bottom layer, Brynzeny I) the points were quite archaic, mostly asymmetrical. Proportions are not strictly observed. At the next stage of this culture development represented by sites Bobuleshty VI and Skok the points are smaller in size, approaching leaflike shape with fine sections and more carefully worked plane surfaces. The late stage of this culture represented by assemblage of grotto Chuntu revealed only one biface /fragment/, evidently sub-triangular shapes with thoroughly worked plain surfaces. Within the frames of this culture a certain process of progress is noticed in accuracy of bifaces shaping.

Handaxes originates from the lower layer of grotto Brynzeny I. This is a large nucleus which was given a lenticular section by flat removal of flakes.

As a whole, the bifaces belonging to this group of archaeological records, still bear the imprint of Mousterian technique and do not form a series of standardized tools. Same unstable features are characteristic of some other groups of artifacts in these records as if containing Mousterian component represented by scrapers, points, denticulate tools. Brynzeny culture, same as Szeletian in Central Europe, originated directly from Mousterian and hence, it is the most ancient late palaeolithic culture at the South-West of the USSR (Rogachev, Anikovich, 1984, p. 184).

Another group of bifacially worked tools (total of 32 pcs.) was discovered in the excavations of site Gordineshty at Middle Prut. Stone artifacts of this site investigated at the area of 120 m<sup>2</sup>, consists of some 5 thousand flint items, among which about 500 represent stone tools. The cultural layer of the site occurs in loamy deposits above the thick layer of fossil soil, which revealed several Mousterian flint implements. The site is probably dated by Pre-Paundorf period (Borziyak, 1983). In typological plane the structure of the artifacts from this site consists of the following: endscrapers and scraper-like tools — 18 pcs., naturally backed knives — 7 pcs., points — 3 pcs., bifaces and their fragments — 32 pcs., side-scrapers and scraper-like tools 122 pcs, various blades — 27 pcs., points — 14 pcs. Atypical stone tools are represented by large series of beak-like, potted and denticulate tools. The so-called "gravette" elements are represented by 7 pcs of small retouched with fine semi-circle retouche along the edges. Bifacials and scrapers are most indicative in the stone artefact collection, since they determine the cultural appearance of the archaeological record as a whole. Scrapers are made mainly from broad flakes quite often with faceted or retouched percussion platforms.

Bifaces are represented mostly by fragments. The collection is composed of: a) upper fragments — 6 pcs., b) middle fragments — 8 pcs., c) lower fragments — 11 pcs. Intact bifaces are represented by 4 pcs. All these are lanceolated and darts points. Besides, there were discovered 4 partially worked implements at the initial stage of bifacial treatment.

A single piece is represented by cordiform point with concave base. By its shape it approaches cordiform points with concave base typical for Kostenki-Streletskaya culture (Streletskaya, Sungir, Biryuchi Log — Rogachev, Anikovich, 1984, Bader, 1978, p. 130). However, unlike those of Streletskaya culture it is larger in size and approaches the largest points of this type from Biryuchi Log, recently discovered by A.E. Matyukhin. Its lateral edges are slightly convex, "ailerons" are slightly rounded. Plane surfaces are treated by flat undercutting. Cordiform points with straight or slightly concave base are not quite typical for Late Palaeolithic of Dniester-Prut interfluve, although encountered on certain occasions. Thus, they were discovered in the form of single finds at some locations: Kapreshty, Gura-Kamenka III along Reut (Ketraru, 1969, p. 61, 82), Nezvisko IX and Klimautsy along Dniester (collections by I.A. Borziyak and L.G. Matskevov). Initial genetic tradition for such points shall be looked for in the finds from grotto Brynzeny I and Trinkia III (Anisjutkin, Borziyak, Ketraru, 1986, p. 45).

Cordiform points, although not with concave but with truncated base were found in some "Aurignacian" assemblages of the Prut river right bank (Chirica, 1973, p. 96). The rest of the points originating from this assemblage refer to leaf-like with rounded base. The most indicative among these is complete point of leaf-like shape, 9.2 cm long, maximum width of 4.1 cm and maximum thickness of 1.2 cm. Its body is of elongated shape with a lenticular section. Most expanded part is within the lower third of point body; its base is rounded. Plane surfaces are covered with negatives of fine trimming. With respect to accuracy of working, points from Gordineshty do not differ from those of Streletskaya-Sungir type or points discovered in Solutrean culture of Western Europe. One of the intact points has a partially non retouched edge. Quite possible it has been used as a knife. Certain interest present 4 items bearing partial bifacial treatment. Treatment is done only on ventral face. This type of treatment is generally used to make the blanks thinner or to smooth them down. On two occasions such treatment was given to lower parts of blanks: in order to round them, while on another two occasions top edges of blanks were treated. As it has been noted above such style of treatment was characteristic of Jerzmanowice points. The similar points were found in our

region in the third layer of grotto Trinka I, as well as in lower layer of grotto Brynzeny I, at locations Bobuleshty VI, Nezvisko IX. As a whole, the collection of this record contains an expressive series of bifaces, among which one can distinguish three types: a) cordiform with concave base, b) leaf-shaped with rounded base, c) with partially bifacial treatment, which distantly resemble Jerzmanowice points. The latter could have been used not only as points, but as knives as well (bifaces from Gordineshty I – Fig. 4).

Gordineshty I refers to early stage of Late Palaeolithic, although to another archaeological culture, which we named Prutskaya (Borziak, 1983). Together with "Early Aurignacian" assemblages discovered in Prut-Carpathian zone (Ceahlau-Cetetica, Mitoc-Valea Izvorului, Ripiceni-Izvor) from the most eastern branch of Aurignac assemblages of the early stage of Late Palaeolithic.

Two more archaeological assemblages were investigated in Prut area which revealed bifacially worked tool kits. Here we shall talk about the lower layer of site Korpach (Borziak, Grigorieva, Ketraru, 1981, p. 66) as well as about upper layer of site Korpach-Mys. Multilayer site Korpach was investigated on the area of 230 m<sup>2</sup>. The lower layer is found at the depth of about 4 meters; at the base layers of fossil soil of full profile identified with Bryansk (Paudorf) type of soil. By radiocarbon (residual charcoal) there was determined the date of layer –  $25250 \pm 300$  years B.P. (GrN – 9758). The layer revealed a series of clusters of flint finds. These were interpreted as locations for flint treatment. Out of 12 thousand flint items 200 were classified as tools. In structural respect this set of artefact is subdivided onto: endscrapers – 16 pcs., bifacial tools – 8 pcs., side-scrappers – 14 pcs., blades – 20 pcs., segments and their fragments – 22 pcs., knife-like retouched flakes 50 pcs., retouched flakes – 33 pcs., the rest is uniquely represented tools, and 21 pcs. – notched tools.

Bifaces are represented by one intact, five distal segments, one point blank and two scraper-like items. Complete leaf points have lenticular cross-sections, maximally enlarged in the lower third. These points were of rather large sizes up to 10–12 cm long, 6 to 7 cm wide. Thickness varies from 1.3 up to 0.9 cm. The surfaces are worked by large, non-systematic scars which makes them resemble points from grotto Brynzeny I. The assemblages contains 4 fragments of lower parts, an upper part and a point blank. Large, massive flakes served as initial blanks for production of points, and on one occasion – reduced nucleus. Among all the points only one was leaf-shaped with rounded base.

The lower layer of site Korpach is the single archaeological assemblage on the territory of the European part of USSR, positively dated as late palaeolithic. Its artefacts present archaic forms of tools – endscrapers, bifaces, etc. alongside with segments, which are, as a rule, associated with early stages of Mesolithic. Such archaeological assemblages as, for instance, sites included in Uluzzo culture (Italy), Zwierzyniec (Poland) are known in Central and Southern Europe. If for Uluzzo culture joint finding of archaic forms (scrapers, bifaces, points) together with segments is not doubted by anybody, then such finding in Korpach and Zwierzyniec by S. Kozłowsky's opinion, is related with redepositing at the same place in different time, but on one and the same lithological layer (?) of various non-interlinked materials. If it can be true for Polish site, then for Korpach it is excluded, since the cultural layer is found at non-disturbed position under a layer of fossil soil. Even if the rate of sedimentation of this cultural layer was quite slow and one the same place could have been habited by bearers of various cultural traditions, the fact stays that the segments appeared not in the early stage of Mesolithic, but rather in early Late Palaeolithic. It shall be noted that Korpach is the single archaeological site of Late Palaeolithic with bifacially worked forms discovered at South-West of the USSR, which is reliably dated geologically, as well as by radiocarbon.

One more late palaeolithic site with bifacially worked forms: Korpach-Mys was studied near site Korpach, under same geological conditions (although some researchers dispute the fact – Grigorieva, 1989) under a layer of soil identified also with Bryansk or Paudorf. Here, on the area of about 140 m<sup>2</sup> a cultural layer was studied which

revealed 1200 flint specimens out of which 82 are tools represented by endscrapers — 6 pcs., bifaces — 3 pcs., side-scrappers — 14 pcs., blades — 9 pcs., point, retouched flakes and blades. Bone artifacts are represented by two points of Mladec type, although of smaller proportions. It is a single record from the USSR South-West where flint rounded base and lenticular section. Total length of point made about 12 — 13 cm, maximum width about 5 cm. Maximum width is measured in the middle part of point. Flat surfaces are treated by relatively large scars, although sloping, fine. The upper part of the other points is worked similarly, the total length being 14 — 15 cm. The section is lenticular as well. The third biface is rectangle-like 12 x 8,3 x 4,6 cm. One of transverse edges is thinned and turned into axe-like edge, another has partially preserved cortex, and probably served as a handle. Flat surfaces are treated by large scars. Evidently, at this site the technology of bifacial treatment included not only points, but certain other tools as well. The artifacts of this site are generally rather original. Gravette features are missing here, instead there is a series of scrapers of high form on narrow blades, a group of small oval scrapers retouched along the whole contour. In general, the assemblage has certain semblance with some "Aurignacian" assemblages of Central Europe, because of bone points of type "Mladec" (Points discovered at sites Korpach and Korpach-Mys — Fig. 5).

In the tenth layer of site Molodova V there was found an atypical for this region biface of oval-leaf-like shape with extended elongated tang. The rest of the artifacts from this layer do not reveal traces of bifacial working. None of these can be found even in later layers at sites Molodova V, Korman IV, Molodova I. Evidently, this biface was picked up at much earlier sites and later on used not as a point, but rather as a pick. Several findings of bifaces refer to site Voronovitsa's lower layer. These are of leaf-shape, lenticular sections and rounded bases. The artifact of the layer as a whole does not fall out of the circle typical for aurignacian assemblages of Central Europe, Dniester-Prut interfluve and can be considered as rather early within the frames of Late Palaeolithic in the specified zone (Chernysh, 1959). Some bifaces were found at a multilayer site Oselivka. Generally, they repeat the bifaces of lower layer of site Voronovitsa.

In addition to the above specified stratified finds of Dniester-Prut area shall be mentioned sites with such forms which were gathered on the surface. These are known at the territory of the Moldavian SSR as well as at the territory of Chernovitsy region in Ukraine. The most important among these are: Stinka I (upper layer), Klimautsy I, Gura-Kamenka I, Chenusha I, Gyndeshty I, Varvarovka VII, Bagrineshty I, Alexandrovka I etc., located along Dniester river, La Moara Popey, Kukoneshty-Malul Galben, Proskureany, Trinka IV, located along Prut river banks. At sites Stinka I and Klimautsy I alone were found 11 and 8 bifaces respectively, while the rest of sites yielded by 2 to 3 pcs. According to scarce amount of stone tools, represented mainly by endscrapers of high form and blades, one can include poor locations with bifacial findings of Dniester-Prut interfluve into the Aurignacian. Separate position, evidently, is taken by such finds as upper layer of site Stinka I, Klimautsy I and Zeleny Khutor II (Lower Dniester interfluve). These records gave extended materials for clarification of cultural affiliation of the specified assemblages. In addition to bifaces their artefacts comprise multiple endscrapers of high form (carinated, nosed), multiple denticulate-notched tools. Blades and points with blunted edge are either missing at all, or single. In our opinion, archaeological sites Stinka I (upper layer — Anisjutkin, 1969), Klimautsy I (Borziyak, 1983), Zeleny Khutor II (Stanko, 1982) are genetically related with some Mousterian industries that are included in denticulate facies — Stinka I (lower layer), Mamaya, Peninsula, etc. (Borziyak, 1980). Bifaces in these assemblages are more narrow and more massive compared to "Aurignacian" finds of Dniester-Prut interfluve, as well as those of Central Europe. However, fragmentarity of bifaces does not permit to carry out a thorough analysis of the latter, since intact forms are practically missing.

Concluding the review of bifaces encountered in the archaeological records of Late Palaeolithic of Dniester-Prut interfluve, the following inferences can be drawn:

1. Two groups of industries containing bifaces are distinguished at the early stage of Late Palaeolithic within the specified zone and adjacent territories: a) Brynzeny I, Bobuleshty VI, Chuntu, and Skok referred to Brynzeny late

Palaeolithic culture; b) Stinka I (upper layer), Klimautsy I, Zeleny Khutor II referred to a different archaeological culture which has to be singled out and characterized in future. These two groups of assemblages take their origin in Mousterian of the region. In the first case from Mousterian type Buteshty, Ripiceni-Izvor and Stinka I (lower layer); Mamaya, Peninsula — in the second case. Bifaces of these industries have their predecessors in bifaces of late Micoquian of Central Europe.

2. Another group of assemblages is composed of Gordineshty I, Korpach-Mys, Reut sites and sites located along Dniester river, found at the territory of Chernovitsy region of Ukrainian SSR, which are, generally, more late do not reveal relation to Mousterian of the region and, as a whole, tend to Aurignacian of Central Europe. Among the bifacial tools of this group there are leaf-shaped points with rounded bases and their variations, which, nevertheless vary from site to site in proportions, as well as in the degree of flat surfaces working. With due account of the above specified, we believe that the area of Aurignacian distribution in Central European shall be extended eastwards and included in it shall be the territory of Dniester-Prut interfluvium. Some assemblages with points having rounded bases and leaf-shaped points, reveal cordiform with truncated or concave base. However, these are single and do not deteriorate the general picture.

3. Chronologically, bifaces in the above specified zone are encountered only in the assemblages of early stage of Late Palaeolithic dated by Pre-Bryansk (Pre-Paudorf) time. Bifaces are practically missing in Post-Paudorf sites, while those dated by time span, are usually collected on the surface and do not have chronological binds (Borziyak, 1978; Chirica, 1973, p. 97).

4. In a broad plan, two regions can be outlined at the European part of the USSR in the Late Palaeolithic where bifaces are represented, i.e. South-West (Dniester-Prut interfluvium with adjacent region) and Central part of Russian Plain (basin of river Don and its confluents) (Kostenki sites, Sungir, Avdeev, Biryuchi Log, etc.), although single bifaces are encountered at some other territories, as for instance, at site Muralovka in the basin of Azov Sea.

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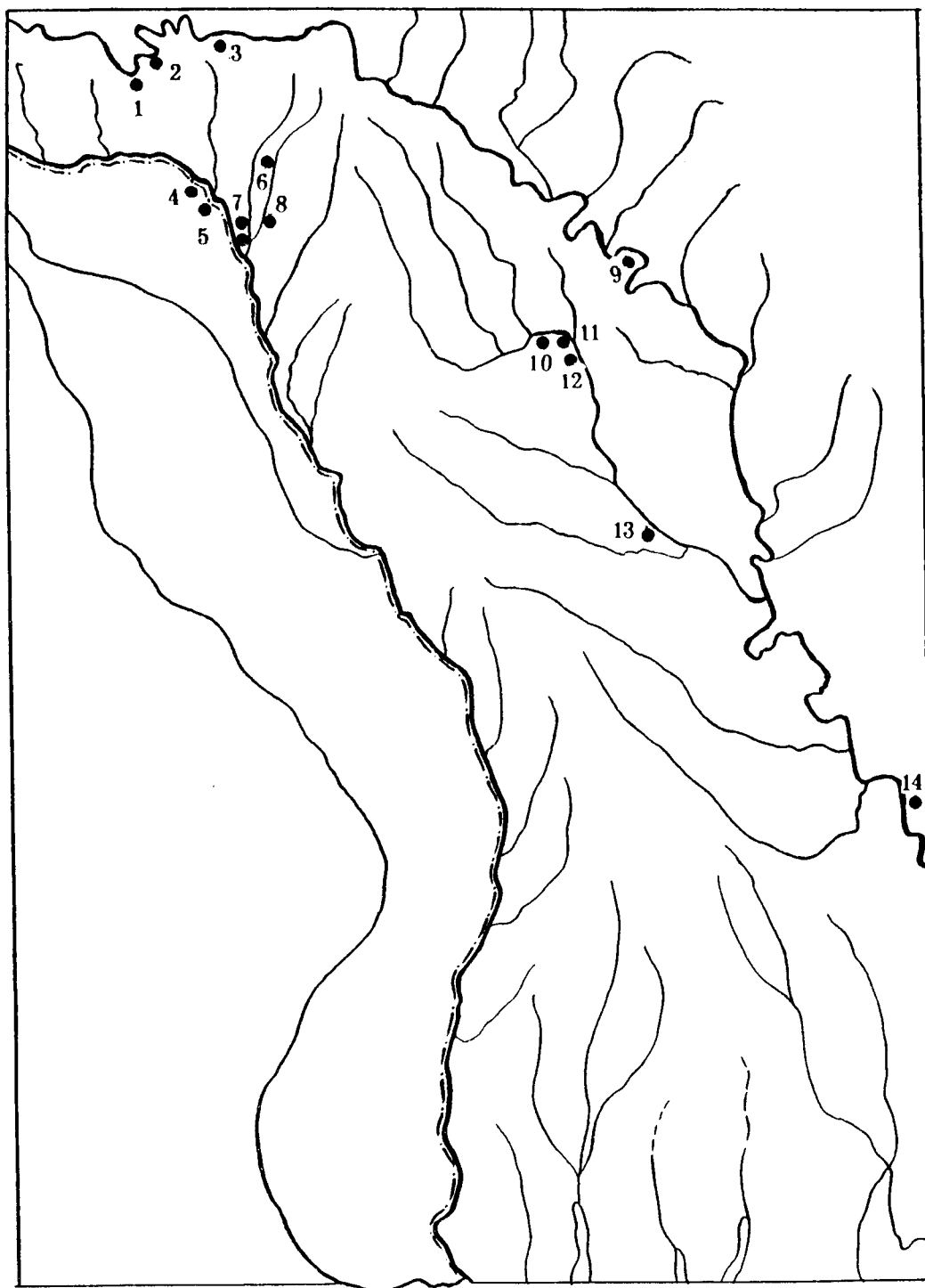


Fig. 1. 1 Map of the settlement of Upper Palaeolithic with the bifacially worked stone tools in Dniester Prut interfluvium: 1 Voronovitsa. 2. Oselivca. 3. Molodova V. 4. Mitoc-Valea Izvorului. 5 Ripiceni-Izvor. 6 Gordineshty. 7. Korpach-Mys, Korpach. 8. Brynzeny I. 9. Klimautsy I. 10. Bobulesty VI. 11. Goura-Kamenca IV. 12. Gindesty. 13. Scok. 14. Zeleny-Hutor II.



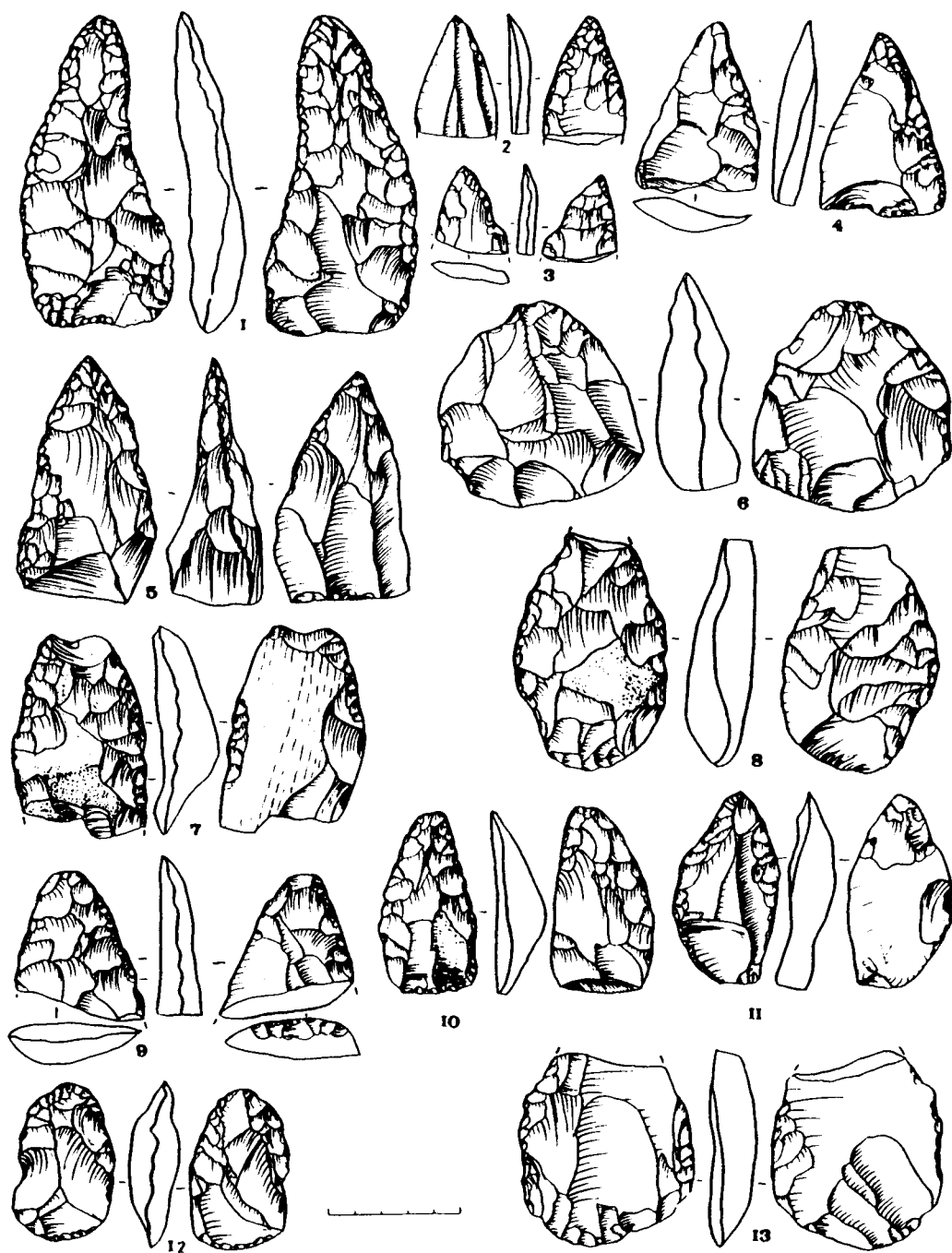


Fig. 2. Grotto Brynzeny I (lower layer) – 1 – 13.

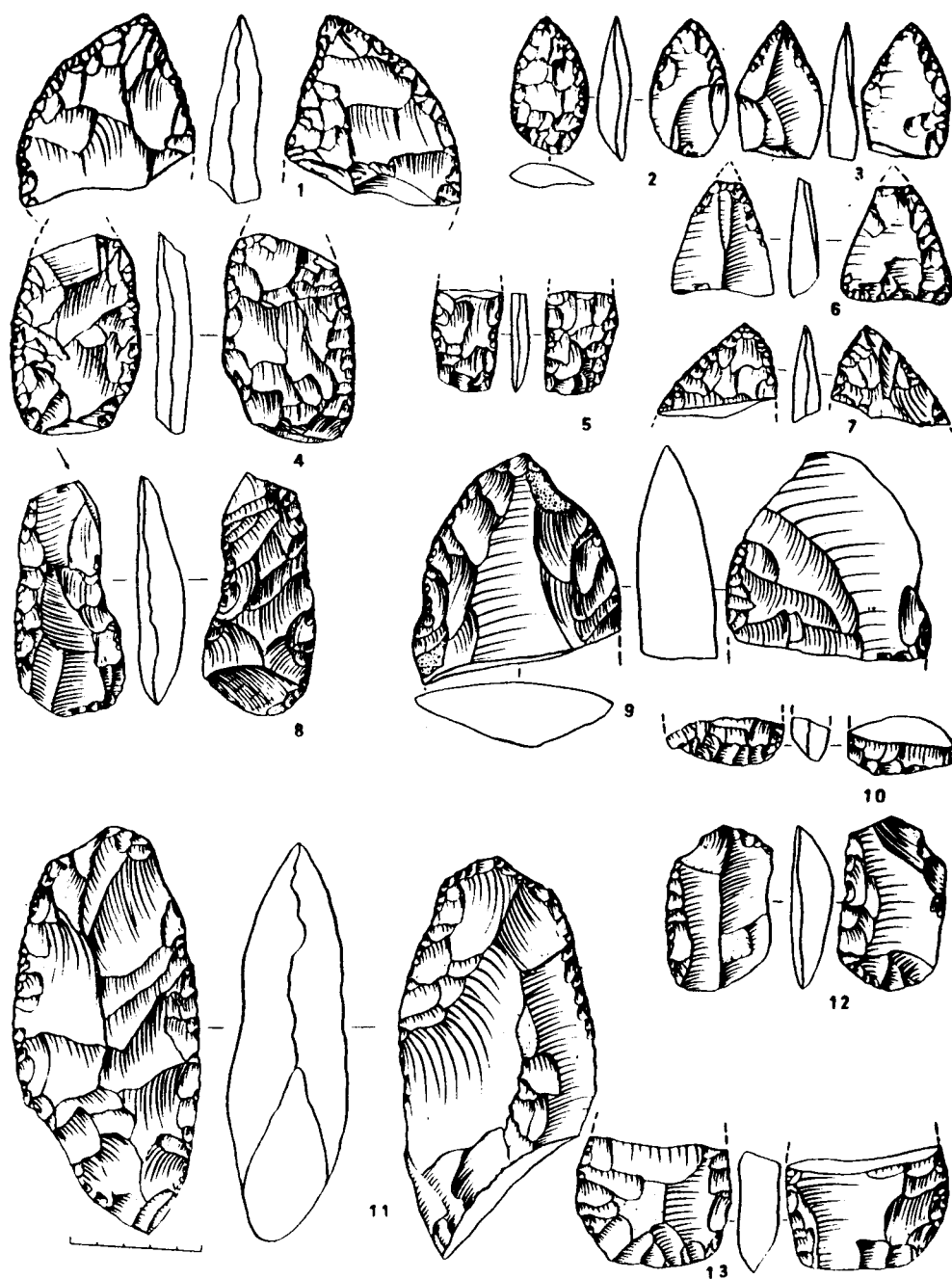


Fig. 3. Bobulesty VI – 1 – 7, Grotto Brynzeny I (lower layer) – 8 – 13.

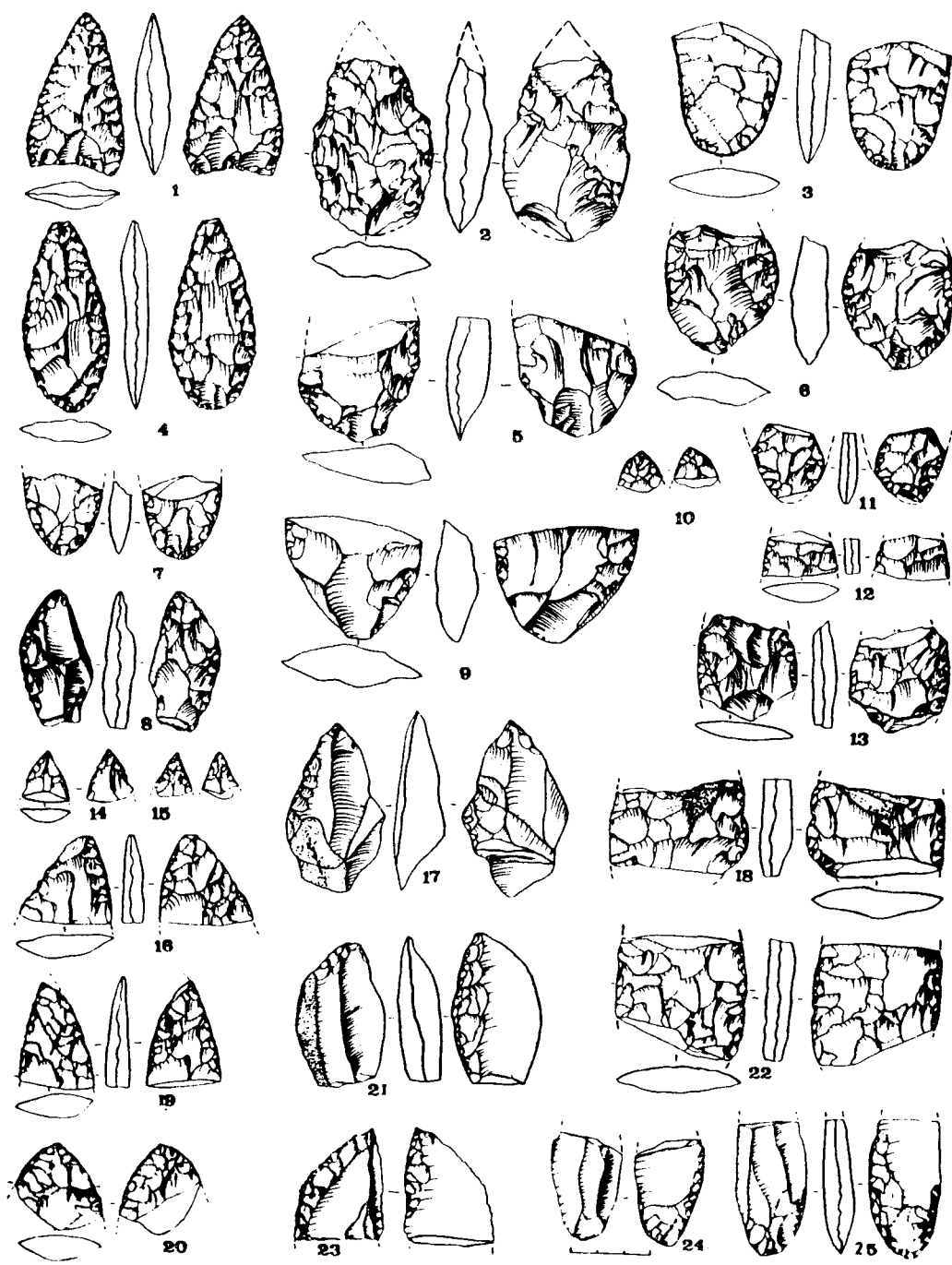


Fig. 4. Gordinesty I - 1 - 25.

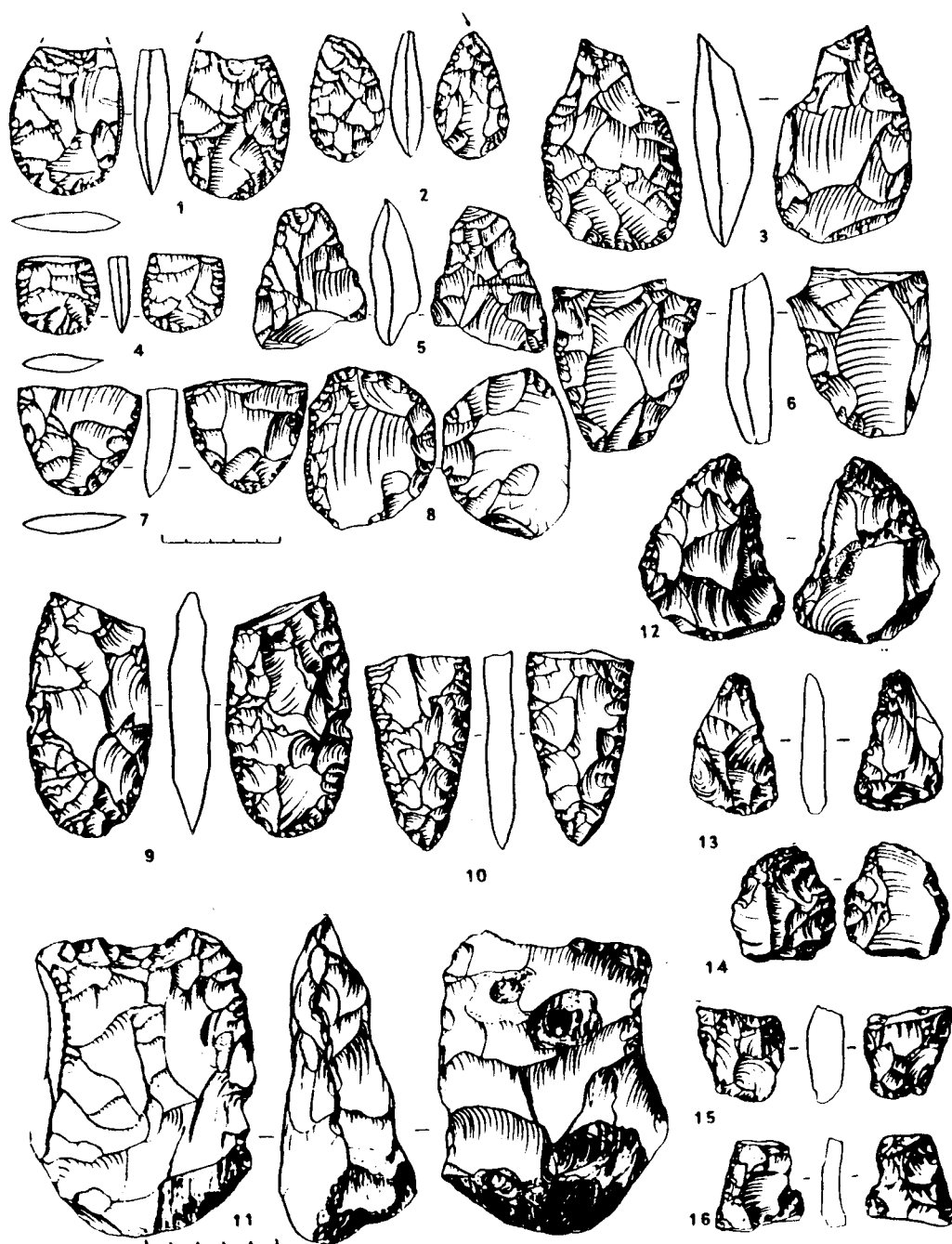


Fig. 5. Korpach (lower layer) – 1 – 8, Korpach-Mys – 9 – 11, Klimautsy I – 12 – 16.