

Early Upper Paleolithic Industries of Eastern Europe

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Early Upper Paleolithic sites are known in various parts of Eastern Europe, but the two main concentrations of them are the Prut-Dniester basin and the middle Don. The flint industries are divided into archaeological cultures (cultural traditions), of which some show clear archaic features (Kostenki-Streletskian, Gorodtsovian, Brynzenian, etc.), while others have no Mousteroid characteristics (Spitsynian, Telmanian, etc.). Both types of culture coexisted throughout the Early Upper Paleolithic. In some cases, it is possible to trace genetic links between archaeological cultures and to follow the transition between the Middle and the Upper Paleolithic. The radiocarbon age of the oldest Upper Paleolithic sites in the Russian Plain is about 40,000 B.P., but some sites may be older. The Early Upper Paleolithic ended about 24,000–23,000 B.P. In the Crimea, the Middle–Upper Paleolithic transition appears to have taken place at about 20,000–18,000 B.P.

KEY WORDS: Early Upper Paleolithic; Eastern Europe; Russian Plain.

INTRODUCTION

In the 1930s to 1950s, the concept of stages predominated in Soviet Paleolithic research. Global significance was assigned to the Western European Upper Paleolithic sequence (Aurignacian–Solutrean–Magdalenian), and the technotypological attributes of these cultures were seen as stages in the progressive development in toolmaking, determined by universal patterns in the social and economic development of the Upper Paleolithic. The periodization of the Upper

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Paleolithic was based mainly on typology. In Eastern Europe, these three cultures were subdivided into stages. The age of a site was determined by its affiliation to a certain stage, as indicated by the stone tools. In this model, the early Upper Paleolithic was termed "Aurignacian-Solutrean," and scholars referred to it industries with "Aurignacian" or "Solutrean" features (Yefimenko, 1953; Boriskovsky, 1953; Chernysh, 1959).

The stage concept was disproved by the work of Rogachev, who showed that Eastern European industries with clear "Solutrean" features differ drastically in age and do not necessarily fall between industries with perceived "Aurignacian" and "Magdalenian" features (Rogachev, 1957). After Rogachev's work, the chronology of the Upper Paleolithic began to be based on natural scientific data and the concept of "archaeological culture" was introduced to interpret stone industries. Earlier interpretations were abandoned.

Sites that geologically or stratigraphically date to Middle Valdai in the Eastern European sequence (which corresponds to Middle Würm of Western Europe) are usually placed in the early stage of the Upper Paleolithic. This definition has archaeological meaning as well since, at the beginning of Upper Valdai, there was a replacement of one group of archaeological cultures by others: in the southwest (the basin of the Dniester and Prut) horse and reindeer hunters were replaced by reindeer hunters using different stone tools, while in the basins of the Dniepr and middle Don, highly developed mammoth-hunting cultures became widespread (Kostenki, Mezin, Mezhirich etc.). Furthermore, industries with archaic (Middle Paleolithic) elements disappeared from Eastern Europe in Upper Valdai but occurred throughout the Russian Plain during the early Upper Paleolithic (Rogachev and Anikovich, 1984).

The boundary between Middle and Upper Valdai (24,000 B.P.) is not a precise, upper time limit for the early Upper Paleolithic in Eastern Europe. First, some cultures, which belong basically to the early stage, end within the first part of Upper Valdai (for instance, the Molodovan culture) and should not be artificially divided across the stratigraphic boundary. Second, it is possible that some industries with pronounced archaic traces, which are not yet clearly dated geologically (such as Klimautsy I and Radomyshl'), will eventually be referred to Upper Valdai. In this case, the upper boundary of the early Upper Paleolithic will be younger than is currently thought. Third, it is possible that, in isolated regions (Crimea), the transition from Middle to Upper Paleolithic occurred much later than in Eastern Europe as a whole, so that we would have local chronologies for the "early stage" of the Upper Paleolithic.

The lower boundary of the Upper Paleolithic of Eastern Europe is considered by most Soviet archaeologists to be about 40,000 B.P. However, Gladilin and his followers believe that the trans-Carpathian Upper Paleolithic sites of Korolevo 1 Layer 1a and Korolevo 2 Layer 2 are much older and predate Brörup!

Some Upper Paleolithic sites in Eastern Europe may well be earlier than 40,000 B.P., but I see no serious grounds for such a high age for these two particular sites.

Basic Concepts

Two basic concepts are used here for the comparison of stone industries: archaeological culture and route of development. The first is widely used in Soviet Paleolithic research, although different scholars have different definitions. I use the following definition of archaeological culture:

Archaeological culture is a system of traditions, developed by social groups under specific historical conditions, that finds its material expression in those results of human activity that became part of the archaeological record and were discovered through analysis of that record. (Anikovich, 1989, p. 120)

Thus, industries of the same culture are bound through some degree of genetic resemblance.

The concept of route of development was introduced by Grigor'ev to characterize industries that are not genetically related but have clear similarities that cannot be explained by their affiliation to one "stage." Grigor'ev (1988) used the concept to analyze the Middle Paleolithic, but it is equally applicable to the Upper Paleolithic when comparing industries that are traditionally compared in terms of the extent to which they seem "Aurignacoid," or "Szeletian," or "Gravettian." Developmental similarities reveal themselves in some aspects of primary technology and secondary treatment, in the general composition of the tool-kit, and in certain particular characteristics of some groups of tools.

Geographical Distribution

Early Upper Paleolithic sites are not evenly distributed across Eastern Europe. The largest concentration is in two areas of the southwestern Russian Plain (the basins of the Prut and middle Dniester) and in the middle Don, in the Kostenki-Borshchevo region. There are almost no sites in the south of Russian Plain (the steppe area), the Crimea, or the basins of the Dniepr and the Desna. In the northeast, early Upper Paleolithic sites extend far to the north—up to the basin of the Pechora and lower Kama (Fig 1).

In general, I present the material regionally, except where the sites of one culture extend beyond the limits of one region.

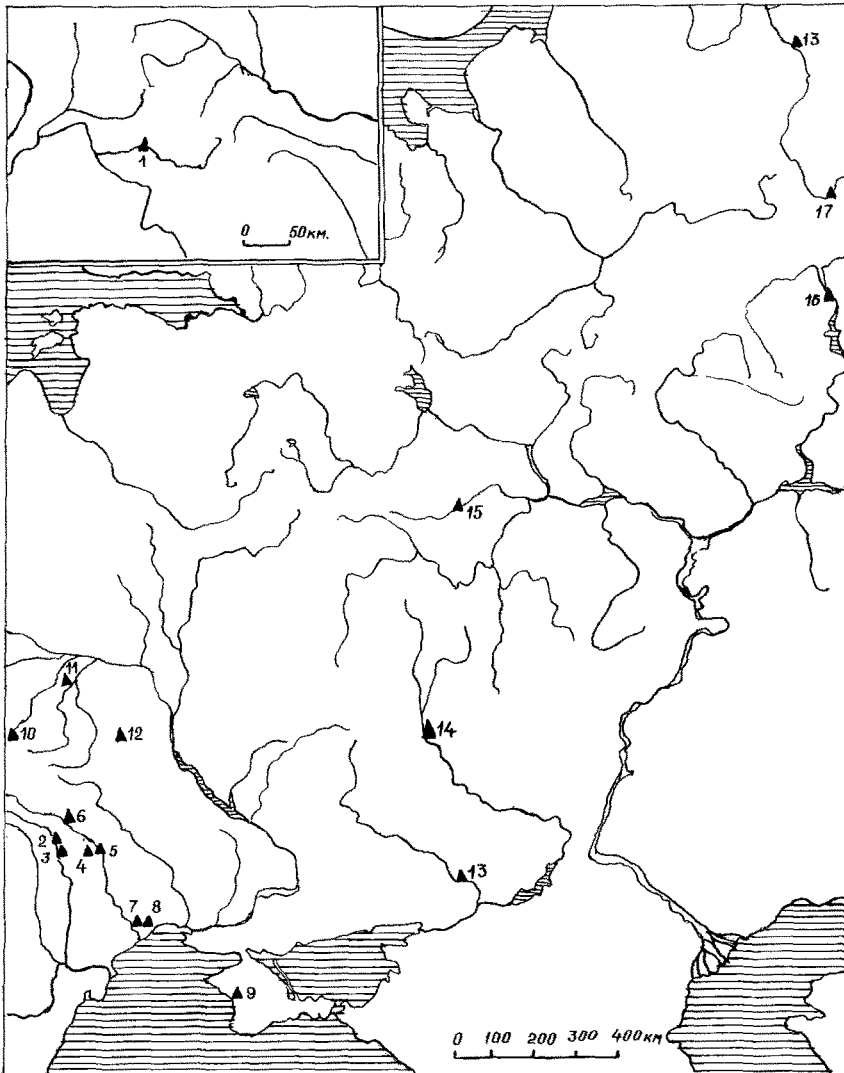


Fig. 1. Early Upper Paleolithic sites in Eastern Europe. (1) Korolevo 1, 2; (2) Chuntu; (3) Brynzeny 1, Korpach, Korpach Cape; (4) Bobuleshty 6; (5) Klimautsy 1; (6) Molodova 5, Babin 1; (7) Zelenyj Khutor; (8) Il'inka; (9) Syuren 1; (10) Kulichivka; (11) Zhornov; (12) Radomyshl'; (13) Biryuch'ya Balka; (14) Kostenki-Borshchevo region; (15) Sungir; (16) Garchi 1; (17) Medvezh'ya Cave; (18) Byzovaya.

ARCHAEOLOGICAL CULTURES OF THE EARLY UPPER PALEOLITHIC IN EASTERN EUROPE

Transcarpathian Ukraine

Transcarpathian Ukraine covers the western foothills of the Eastern Carpathians and a small part of the Alföld-Great Hungarian Lowland and is, thus, geomorphologically bound to Central Europe. The Upper Paleolithic in this territory is therefore tied to that of Hungary.

The early Upper Paleolithic is known through the work of Gladilin at the stratified sites of Korolevo 1 and 2, on the left bank of the River Tissa near Korolevo. Here, in a 12-m sequence of Quaternary deposits, there were five fossil soils and 14 cultural horizons, predominantly Mousterian and pre-Mousterian. The early Upper Paleolithic strata are in the lower contact of the upper fossil soil and the underlying loams at Korolevo 1 (Layer 1a), and within this underlying loam at Korolevo 2 (Layer 2), and thus at a lower level than Layer 1a.

Gladilin dates the upper fossil soil to Brörup, which significantly increases the age of the Upper Paleolithic boundary (Gladilin and Demidenko, 1986, 1989), but I do not find his reasoning persuasive. Palynological data published for the upper fossil soil at Korolevo are contradictory and do not allow a firm determination of whether the climate under which the soil formed was "milder than modern" (Adamenko *et al.*, 1981, p. 61) or, on the contrary, "more continental and cold" (Pashkevich, 1978, pp. 18–19; Adamenko *et al.*, 1981, p. 66). Gladilin refers to the opinion of geologists in determining the age of the upper fossil soil, but they, in turn, while cautiously admitting the possibility of its correlation with the Brörup interstadial, refer to Gladilin's opinion. The occurrence in Layer 1 at Korolevo 1 (above the upper fossil soil) of a supposed "Denticulate Mousterian" has been seen as decisive (Adamenko *et al.*, 1981, p. 61), but the collection from Layer 1 is very small and rather ambiguous. Of 40 retouched tools, only two endscrapers are well defined; the remainder are odd flakes with retouch that may well be natural. Further, even if the Layer 1 material really is Mousterian, it is not clear why this should not make the Middle Paleolithic younger, rather than the Upper Paleolithic older. Finally, Gladilin and others have ignored completely the radiocarbon dates for the Upper Paleolithic layers of Korolevo: 25,700 B.P. \pm 400 years (Gro-2773) for Layer 1a of Korolevo 1 and 38,500 B.P. \pm 1000 years (Gro-2774) for Layer 2 of Korolevo 2. The second date, at least, correlates well with the archaeological material.

The industry of Layer 2 of Korolevo 2 is based on blades struck from prismatic, flat, and butt-ended cores. (The last are cores struck down the narrower face, so that the width of the flaking surface is less than the thickness of the core behind it.) Of some 150 tools, more than half (80) are fragments and

miscellaneous retouched flakes. Of the remainder, 11 are bifacial foliates, similar to the basic types of bifacial points in the Szeletian culture: with a rounded base and roughly laurel leaf-shaped (Fig. 2: 7-9). There are 19 denticulates and notches, which are well represented in the upper layers of Szeleta. Two *bec*-like pieces are analogous to finds from the upper layer of Szeleta (Fig. 2: 3). There are five endscrapers, all different, of which one on a truncated blade also has an analogue in the upper layer of Szeleta. There are seven burins. More interesting are the points, which include tools with continuously retouched edges (Fig. 2: 2), points like those of the upper layer of Szeleta, and blades with only the distal end sharpened. The 17 sidescrapers are mainly simple with straight or convex edges (Fig. 2: 6), like most Szeletian sidescrapers. The single Moustertian point (Fig. 2: 5) closely resembles one from the upper layer of Szeleta. I would note, in particular, two massive tools with continuous, invasive retouch of the edges (Fig. 2: 4); in their massiveness and retouch, these are close to the convergent carinated sidescrapers from the upper layer of Szeleta. The cultural affiliation of Layer 2 of Korolevo 2 is, thus, clearly with the Szeletian archaeological culture, which I see as a tradition found at a series of sites concentrated in the area of Bükk mountains (Hungary), including Szeleta Cave, Balla, and Pushkaporosh. Typologically, this site is intermediate between the lower (C-14 dated to ca. 41,700 B.P.) and upper (32,620 B.P. \pm 400 years) layers of Szeleta, which supports the radiocarbon date for Layer 2 of Korolevo 2.

The collection from Layer 1a from Korolevo 1 is different and consists almost exclusively of endscrapers (34), with single examples of other types (such as a burin, a truncated blade, and a sidescraper). The difference from Korolevo 2 probably results from variation in facies. If we may correctly correlate the upper fossil soils at Korolevo 1 and 2, then the radiocarbon date of Layer 1a is probably too young, although not so much so as Gladilin suggests.

The Southwestern Russian Plain

In this vast region, sites of the early Upper Paleolithic are located in the basin of the River Prut (Moldova), in the middle Dniester region (Moldova, southern Ukraine), and in the Volyn-Podolsk Upland (Ukraine). They belong to various archaeological cultures.

The Brynzeny Archaeological Culture

Sites of this culture are located in the Prut area (Brynzeny 1 Layer 3; Chuntu) and in Moldova along the Dniester (Bobuleshty 6). The material from the eponymous site of Brynzeny 1, excavated by Ketraru, is typical of the culture. Brynzeny 1 is a cave on the left bank of the River Prut near the village of Brynzeny; Layer 3 consists of deposits of yellowish clay with a high gravel content. The geological age of the site is not certain, but the fauna includes

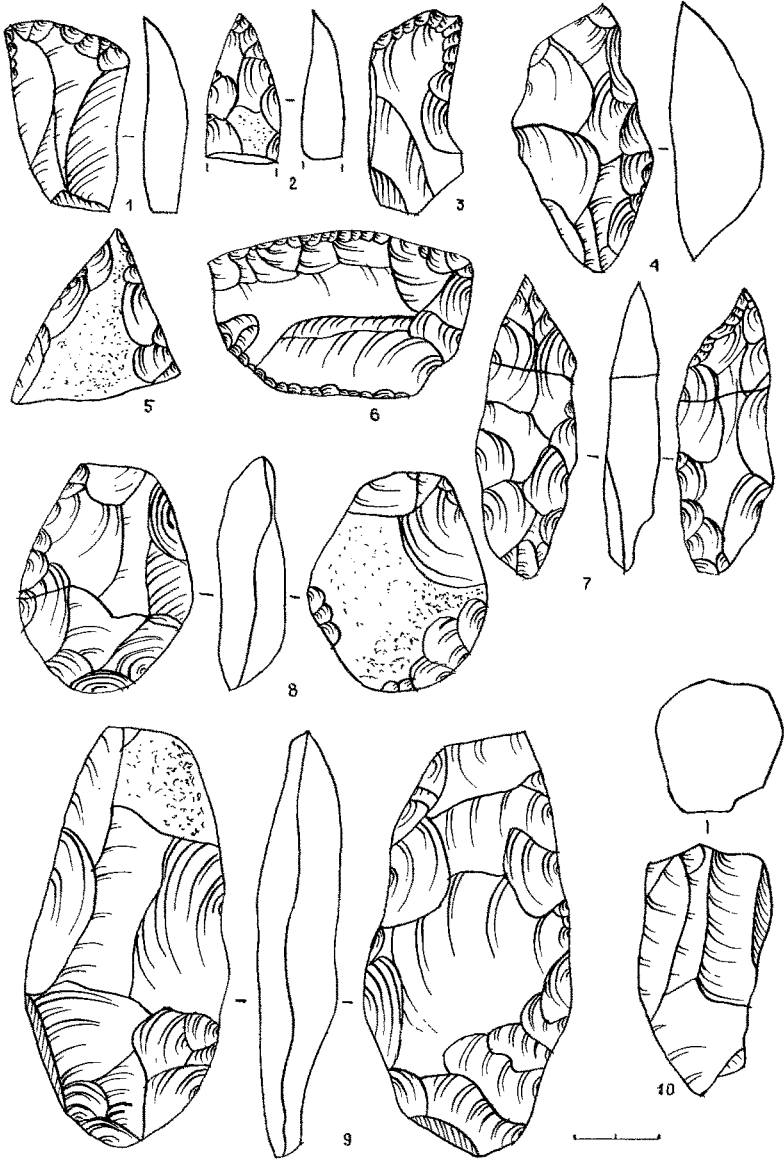


Fig. 2. Artifacts from Korolevo 2 Layer 2.

such species as arctic fox, white hare, ermine, and lemming, so climatic conditions were severe; it probably preceded the last Middle Valdai interstadial, which corresponds to Stillfried B (Arcy).

Of the 7500 stone artifacts from Layer 3, some 1300 have secondary retouch, but only 500 pieces are really characteristic. The cores are prismatic and parallel-flaked; discoidal cores also occur. The tools include Upper and Middle Paleolithic types. There are fewer than 50 endscrapers, including endscrapers on blades, nosed endscrapers, and endscrapers on flakes (Fig. 3: 2–5, 11). There are no more than 20 clear burins (Fig. 3: 9, 10), a few points on blades, borers (Fig. 3: 6, 14), and some backed blades (Fig. 3: 1, 7, 8). Archaic tools are mostly represented by sidescrapers (>40), which are predominantly single and straight or slightly convex (Fig. 3: 13, 23). Wide, triangular Mousterian points are frequently made on typical Levallois flakes (Fig. 3: 15). The bifacial tools are rather rough and amorphous and seem archaic; some are more or less triangular or oval (Fig. 3: 16, 19, 20) but there are no clear types. About 250 pieces are denticulates or notches (Fig. 3: 17), some of them with a “beak” or “nose.” A significant find from this layer is the so-called amulet of mammoth ivory (Fig. 3: 24). It is almost impossible to be sure what it depicts: suggestions have included a fish, a bird, and a flying saucer!

The other sites referred to the Brynzeny archaeological culture, Bobuleshty 6 and Chuntu, are distinguished by the more evolved appearance of the tools, and of bifacial pieces in particular. These are interpreted as being later (Borzhiyak, 1983, p. 40).

The Prut or Gordineshty Archaeological Culture

The Prut region is known for a series of sites, referred to other archaeological cultures, which yield both Middle and Upper Paleolithic tools and have a characteristic group of bifacial foliates. The Prut or Gordineshty archaeological culture is one such group, which is represented in Moldova by Gordineshty 1 and in Rumania by Ripiceni Izvor (the “Aurignacian” layers), Mitok-Valya Izvorului, and Chatatsika (Borzhiyak, 1984, pp. 58–66). At Gordineshty 1, endscrapers predominate and make up a third of all tools; there are few Mousterian forms (represented by sidescrapers) and almost no denticulate-convex pieces. (The latter class includes all notched or denticulated tools with a convex working edge.) Specific shapes of tools are also different, particularly the bifacial points, which have rounded bases and elongated sharp tips or are triangular with concave bases (Fig. 4: 26, 27). Unfortunately, it is impossible to determine the exact geological age of this layer (within the Middle Valdai).

This region also has a number of sites with different cultural affinity. For example, two sites near the village of Korpach differ in typology from each other and from the Brynzeny and Gordineshty traditions. Korpach is a stratified site on the right bank of the River Rakovets, close to its confluence with the

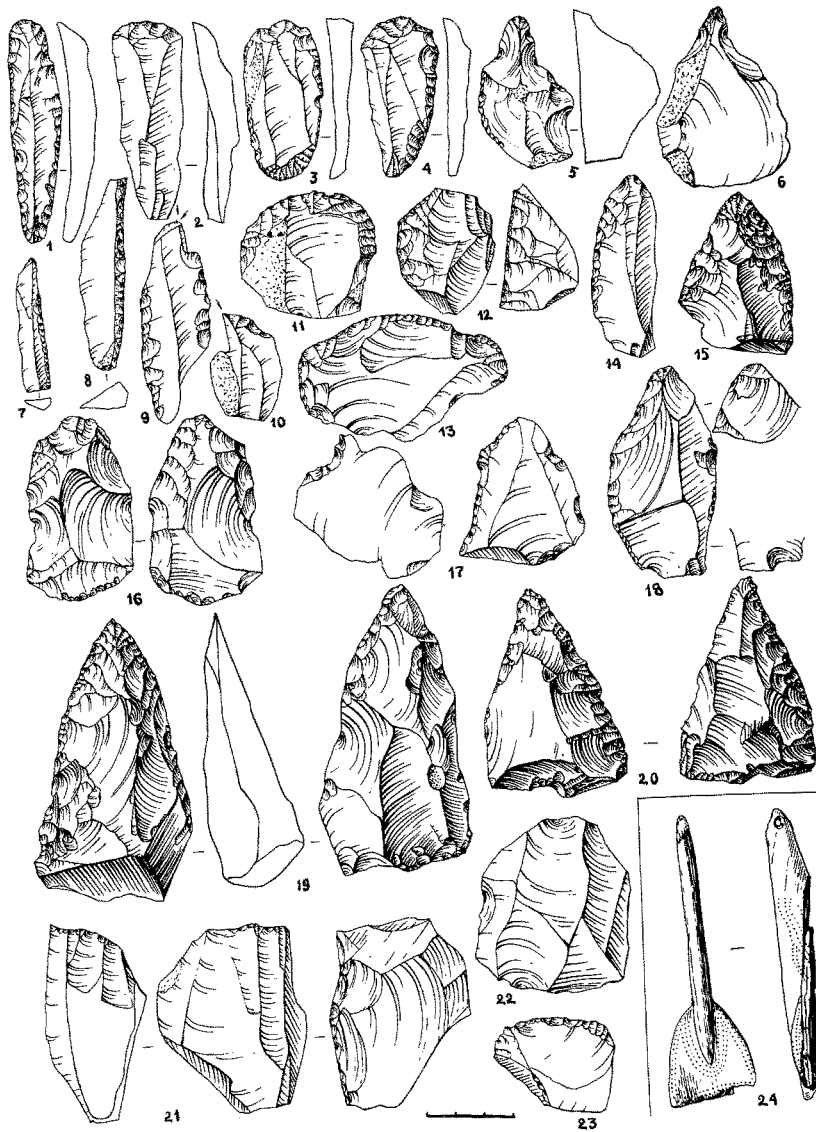


Fig. 3. Artifacts from Brynzeny 1 Layer 3.

Prut. The Quaternary deposits include two fossil soils and four cultural horizons. Layer 4, which is in the lower part of the lower soil, is early Upper Paleolithic (Borziyak *et al.*, 1981, pp. 46–47). It has a radiocarbon date of 25,250 B.P. \pm 300 years (GrN-9758) and, thus, relates to the Stillfried B (Arcy) interstadial.

The 14,400 stone artifacts from Layer 4 include only 165 definite tools, but >200 cores (all prismatic). The tool-kit is rather peculiar. The bifacial foliates include wide types with rounded bases, or sharpened bases and triangular forms with straight sides (Fig. 4: 16, 17). Unfortunately, few pieces are unbroken. The 15 endscrapers are predominantly on blades and flake-blades (Fig. 4: 5–8); some, made on the platform (Fig. 4: 9), are very characteristic. Burins (a total of 16) are poor in both the Brynzeny and the Gordineshty cultures, but backed blades (28) are quite typical; most are typical segments (Fig. 4: 1, 2). Nine blades have retouched truncated tips, mainly oblique (Fig. 4: 3, 4). Three knives of Molodova type with curved backs differ from their counterparts in the Molodovan culture (see below) only in their smaller size. The 16 sidescrapers are all large and include both double and single forms (Fig. 4: 13–15); two are backed. Denticulate-convex tools (22) are quite typical (Fig. 4: 11). The material from Layer 4 of Korpatch seems to be culturally unique.

Korpatch Cape, which has two cultural layers, is nearby but reveals different cultural traditions. The upper layer is in a fossil soil, which probably refers to Stillfried B (Arcy). The site was discovered and excavated by Borziyak in 1975–1976 (Borziyak *et al.*, 1981, pp. 86–90). Of almost 2000 stone artifacts, 65 are cores and 50 have careful secondary retouch. The cores are mainly prismatic, with a few butt-ended and discoidal examples. Nineteen endscrapers are carinated and narrow and are probably made on microblade cores (Fig. 5: 1). There are also short fan-shaped endscrapers. Of the eight burins, five are struck from retouched truncations (Fig. 5: 2). The six sidescrapers are large (Fig. 5: 5). There are three fragments of bifacial foliates: two are more elongated than those found at Gordineshty and Korpatch (Fig. 5: 4, 6), and the third one is a rough-out. There is also a large borer (Fig. 5: 3), rare backed blades, and denticulate-convex tools. The flint tools are accompanied by sandstone grinders, two gritstone choppers, and two ivory points of Mladec type (Fig. 5: 7); such points are well-known in Central Europe but have not been found previously in Eastern Europe. The lower horizon at Korpatch Cape is in a lower fossil soil and is known only through bore pits. It is a blade industry (Borziyak *et al.*, 1981, p. 103).

The Molodovan Archaeological Culture

This is among the best-known early Upper Paleolithic cultures in Middle Dniester region. It is best represented by the material from Layers 10–7 of Molodova 5, in Ukraine, investigated by Chernysh in the 1950s and 1960s (Chernysh, 1959, 1987). The site has some 20 Middle and Upper Paleolithic layers. The radiocarbon age of the layers referred to the Molodovan culture is from 30,000 to 23,000 B.P. The primary flaking technique is based upon prismatic cores from which long and narrow blades were struck. Tools made on

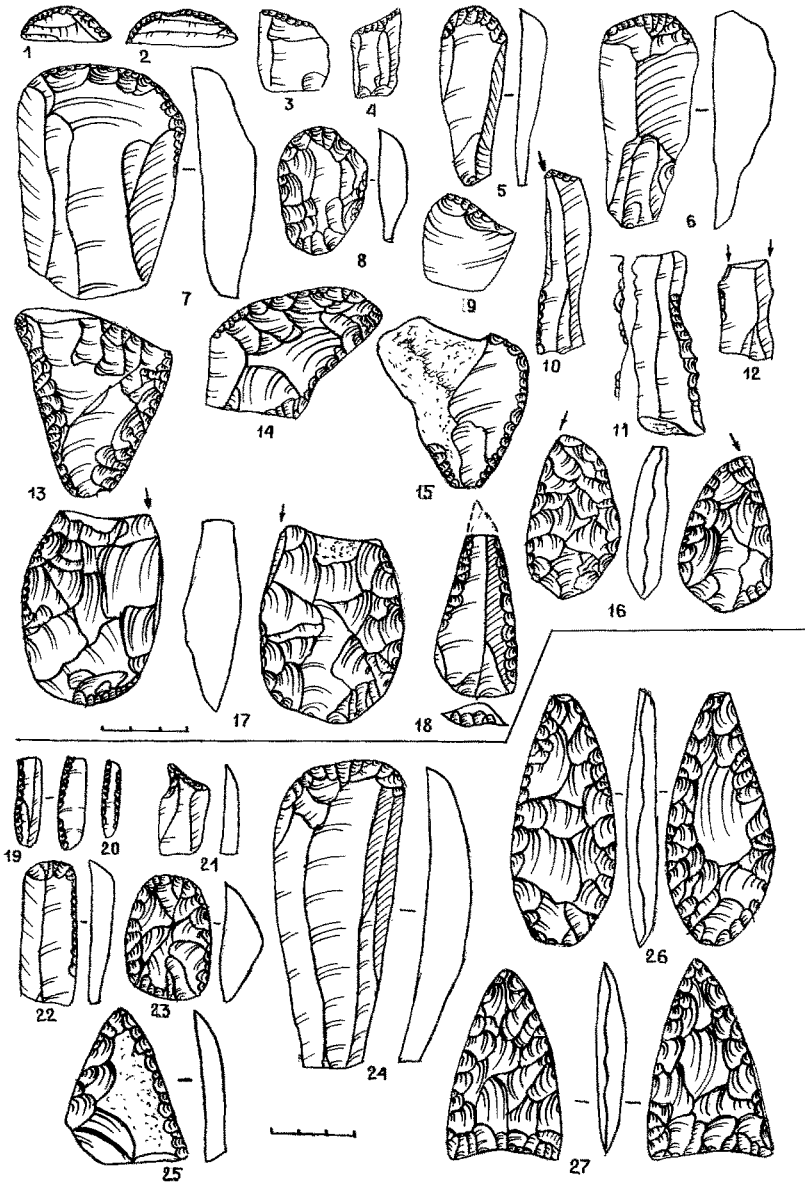


Fig. 4. Artifacts from Korpatch Layer 4 (1-18) and Gordineshty 1 (19-27).

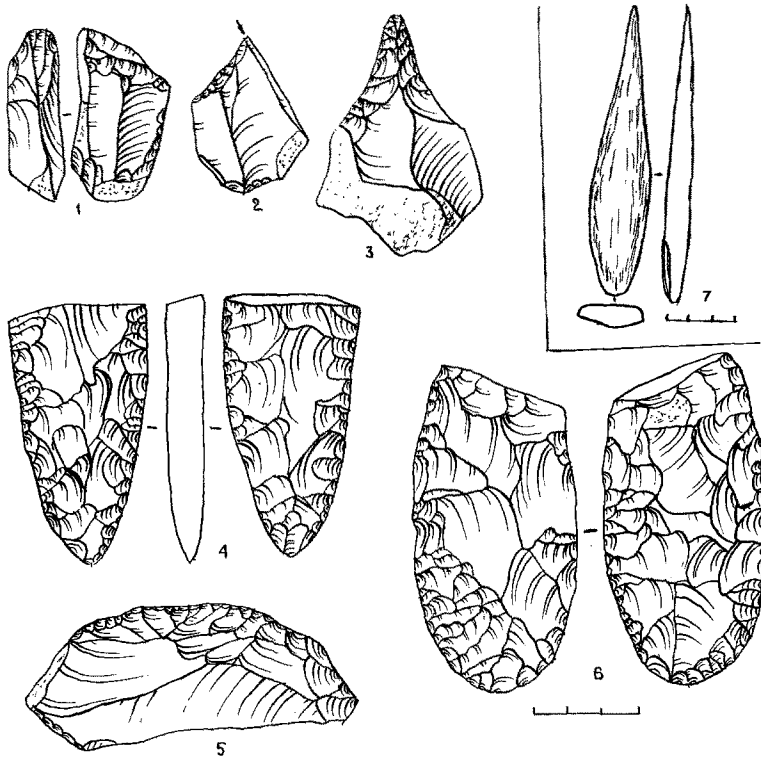


Fig. 5. Artifacts from Korpatch Cape.

such blades are followed in importance by tools on microblades, of which the number increases sharply in Layer 7.

Layers 10–8 have 40–100 tools with secondary retouch, while Layer 7 has 1200; there is, however, little typological difference between layers. Endscrapers are usually made on large blades and often have sharpened bases—by retouch only in the earlier layers and by burin-blows in the later ones (Fig. 6: 10, 18). These are accompanied by endscrapers made on blades with unretouched parallel edges, some of them double (Fig. 6: 8, 19), and a small, but consistent, group of carinated endscrapers on elongated blades (Fig. 6: 14, 21). Burins are the numerically most important group of tools in Molodovan sites (40–50% of all tools), mainly dihedral burins and burins on breaks. Single and double points are characteristic (Fig. 6: 12, 24–25), as are knives of the Molodova type (Fig. 6: 13, 27). Sidescrapers are rare but occur in both Layer 10 and Layer 8 (Fig. 6: 20). Backed blades are one of the most characteristic groups of the Molodovan archaeological culture, and they show the clearest development through time. Only one type is known in Layer 10: blades with one backed edge and two

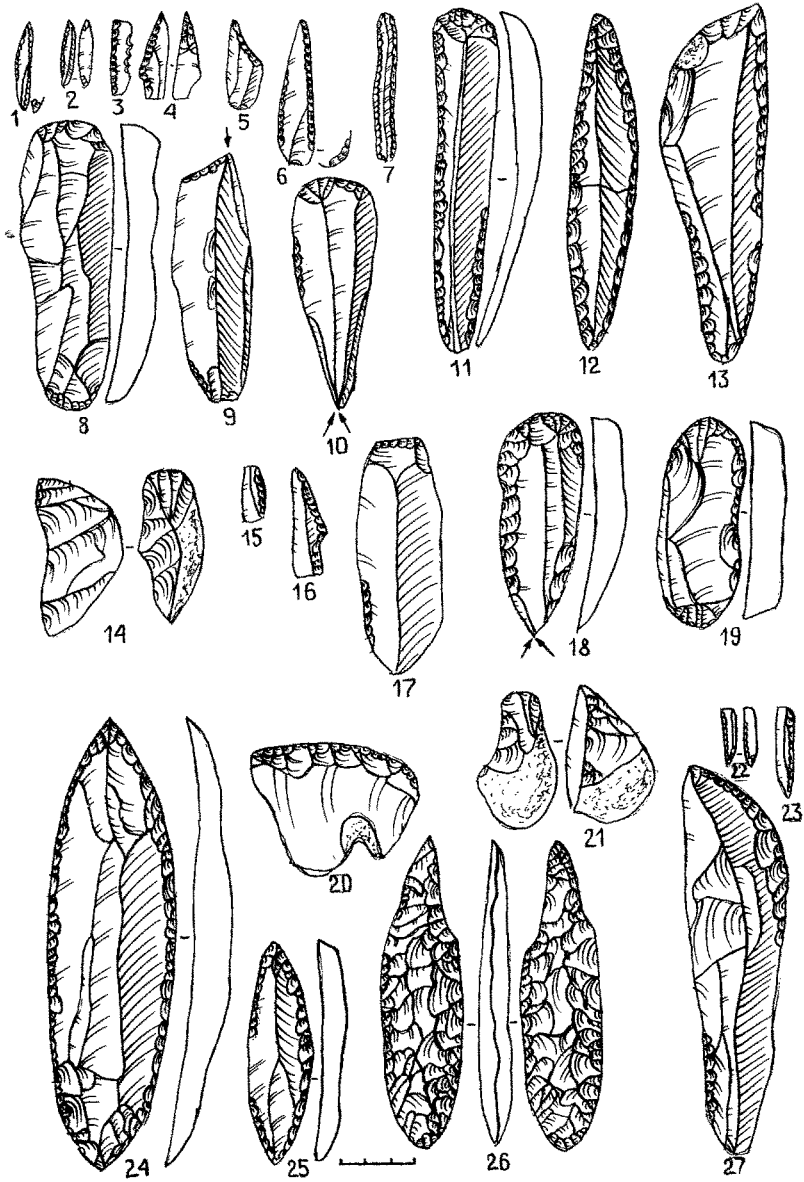


Fig. 6. Artifacts from Molodova 5 Layer 7 (1-19) and Layer 10 (20-27).

pointed ends with flat ventral retouch (Fig. 6: 22, 23). This type continues into the overlying layers, but two new types appear in Layers 9 and 8: a double-pointed, double-backed form and a shouldered point (Fig. 6: 16). In Layer 7, there is an increase in the percentage of backed tools (to 17%), the known types diversify (Fig. 6: 1–4), and new ones are added: points with convex bases with flat ventral retouch (Fig. 6: 6), “Rgani” knives (Fig. 6: 5), double-backed blades with unretouched ends (Fig. 6: 7), and backed “saws” (Fig. 6: 3). Layer 10 of Molodova also yielded a bifacial point with convex base and point in the shape of an elongated borer (Fig. 6: 26); such tools do not occur in the overlying layers. In turn, Layer 7 has a few scaled pieces (*pièces esquillées*), which are not encountered in lower layers.

Artifacts of bone, ivory, and antler are common (about 50 pieces) only in Layer 7. They include pieces of mammoth tusk, Lyngby axes, and the *bâtons de commandement* made of reindeer antler. Some are decorated with simple ornaments (rows of notches); one has an engraved anthropomorphic design (Fig. 15: 27).

There are several other sites of the Molodovan culture in the Middle Dniester region and adjacent areas. Among the Dniester sites is the lowest horizon of Babin 1, which was previously considered the earliest Upper Paleolithic site in the region. It was seen as older than Layer 10 of Molodova 5, since the middle horizon of Babin 1 was correlated with Molodova 5 Layer 10 on the basis of fragments of bifacial foliates (Chernysh, 1959, p. 178; Grigor'ev, 1970, p. 44). This view is now seen as erroneous: in typology [types of backed points (double-pointed and double-backed, single-pointed with rounded base, “Rgani” knives) and the high number of bone tools], the lowest layer of Babin 1 resembles Layer 7 of Molodova 5 and, thus, dates to approximately the same time (24,000–23,000 B.P.). Moreover, even though the middle horizon of Babin 1 has fragments of bifacial tools, its typology better fits that of the later, Dniester archaeological culture, represented at Molodova 5 by Layers 6–1 (Anikovich, 1987a). Outside the Middle Dniester region, some traits of the Molodovan archaeological culture can be seen in material from Chutuleshty 1, on the right bank of the River Reut, in a fossil soil, presumably of Stillfried B (Arcy) (Ketraru, 1973).

The origin of the Molodovan culture is a problem of particular interest. Until recently, its origin was tied to the local Mousterian, especially since the Mousterian industries of the Middle Dniester region tend to be “bladey.” However, on the basis of personal inspection of the material from Szeleta Cave, I would advance a new hypothesis: that the Molodovan culture is derived from the developed Szeletian as seen in the upper layer of Szeleta Cave (Grigor'eva and Anikovich, 1990). This is supported by the occurrence in the upper layer of Szeleta and in Layers 10–9 of Molodova 5 of the same types of backed points and ventral working of tips, single and double points on large blades, knives of

the Molodova type, and associated forms of endscrapers on blades with sharpened base (the Molodova ones are distinguished only by their larger size). A unique bifacial point with an elongated borer tip from Layer 10 of Molodova 5 finds its closest analogy in the upper layer of Szeleta.

Within the Middle Dniester region, there are other cultural traditions that can be assigned to the early Upper Paleolithic. One such is the material from Klimautsy 1, in Moldova. Excavation of the site was difficult, since the site lies within the town of Nizhnie Klimautsy; the cultural layer was extensively destroyed and most of the artifacts were collected from the surface (Borziyak, 1981). Of 3700 flint artifacts, 110 are cores and about 500 are tools. Together with prismatic cores and flat, parallel-flaked blade-cores, there are 13 discoidal cores. About 50 tools are scrapers, most of them carinated and occasionally with narrowed bits (Fig. 7: 1, 2); such endscrapers resemble the carinated points of Klimautsy type (Fig. 7: 6). The 40 burins here are more characteristic than those of the Brynzeny culture. Archaic tools are represented by sidescrapers (about 20), which are single or double (Fig. 7: 5, 9). Bifacial pieces are rare (seven), but typical; only two are unbroken and both are of a form not encountered in the industries described above. Most tools (170) are denticulate-convex forms, but many of them appear to result from natural damage (Borziyak, 1981, p. 22).

Zelenyi Khutor, in the Odessa district of the southern Russian Steppe, seems to be culturally most similar to Klimautsy 1. The site is represented mainly by surface material. The carinated endscrapers with elongated, narrow bits are similar to those of Klimautsy and the points are of Klimautsy type (Fig. 7: 10, 15, 16). However, as a whole, the endscrapers from Zelenyi Khutor are more numerous and varied than those of Klimautsy 1. Burins and sidescrapers are rare. Denticulate-convex tools are quite common, whereas bifacial foliates are represented by broken pieces, which differ in patina from the rest of the material, suggesting that they may not belong. Overall, the industry of Zelenyi Khutor seems to be more developed than that of Klimautsy 1, which may be earlier. The geological dating of these sites remains imprecise.

One of the most important, early Upper Paleolithic sites of the Volyn-Podolsk upland is Kulichivka (near Kremenets). It was discovered in 1938 but excavated only in the 1960s–1980s (Savich, 1975, 1987). The site has three Upper Paleolithic horizons. The lowest (Layer 3) is beneath a fossil soil attributed to Stillfried B (Arcy) and with a radiocarbon date of 31,000 B.P. (Savich, 1987, p. 51). The middle layer is in the Paudorf fossil soil and is dated to 25,000 B.P. (Savich, 1987, p. 53). The upper horizon (Layer 1) coincides with the overlying fossil soil, which is Upper Valdai if the age of soil containing Layer 2 is correct.

During the years of excavation at Kulichivka, thousands of square meters were opened and hundreds of thousands of stone artifacts were recovered,

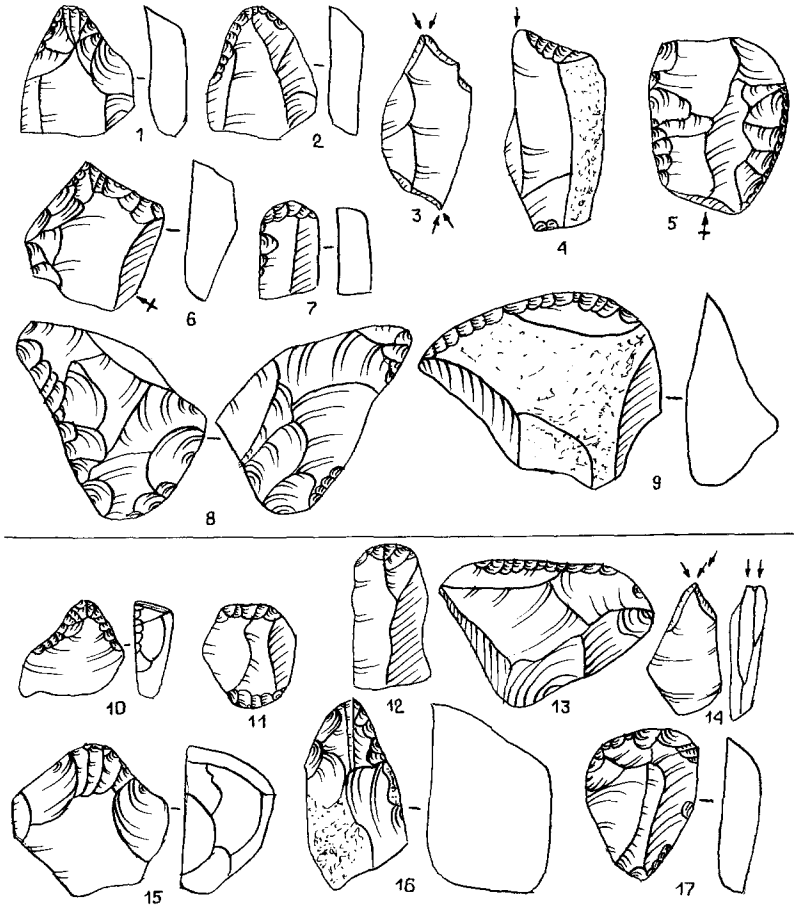


Fig. 7. Artifacts from Klimautsy 1 (1-9) and Zelenyi Khutor (10-17).

including hundreds of tools. Unfortunately, this material has been published only in partial and very general terms. It is not possible, from the available publications, to build up a clear image of the specific cultural nature of the material or of the nature of the variations between layers. Further, the Kulichivka collection is not readily accessible, and I have been able to examine only a few tens of tools from different horizons, predominantly the upper and middle ones. On the basis of the published data and my personal knowledge of part of the material, I can make the following observations. Large massive blades were the major blanks in all three horizons. Typically, such blades have continuous, invasive edge retouch (Aurignacian retouch). In all horizons, there are such Aurignacoid types as endscrapers on Aurignacian blades, points, and waisted

blades. All three horizons also have typical large sidescrapers [Savich mentions that in the upper horizon these are “significantly less” common (1987, p. 54)]. Multifaceted burins are typical. In the collections from the lower and middle horizons, I saw typical Levallois cores and Levallois points but cannot be sure whether the Levallois technique survived into the upper horizon. In general, all three horizons of Kulichivka site may be assigned to the Aurignacoid industries and are culturally very different from sites of the Molodovan archaeological culture.

Similar industries are known from neighboring areas. These include the upper layer of Zhornov (Rovno area), studied by Pyasetsky in the 1980s (a report is in preparation). Farther east, in the Dniepr area, is the best known site of this type—Radomyshl’, which was excavated by Shovkoplyas in the late 1950s and early 1960s (Shovkoplyas, 1965). The cultural layer is in a loamy soil about 1 m below the modern surface; its geological age has not been established. The radiocarbon date of 19,000 B.P. \pm 300 years (OxA-697) was obtained on bones from an old collection and seems too young. The horizon had several concentrations of large mammoth bones, interpreted by Shovkoplyas as dwellings (Shovkoplyas, 1965, p. 110). There was also a pit 2 m in diameter and filled with mammoth bones.

A total of 20,000 stone artifacts and >4700 tools was collected. The technique of primary flaking is lamellar, with a predominance of prismatic and butt-ended cores. Pieces interpreted as discoidal cores are actually the primary stage of preparation of butt-ended core (before blade removal). More than half of the retouched tools are burins, predominantly dihedral (Fig. 8: 2, 3). Endscrapers are relatively scarce (about 260) but quite typical; most are on blades, with continuous, invasive retouch of the edge, and many have sharpened bases (Fig. 8: 5, 6). Scrapers on flakes exist, as well as carinated endscrapers with narrow bits. Points (225) are made on the same blades as most of the endscrapers and with the same edge retouch (Fig. 8: 13, 22). Similar blades were also used for making most of the 200 borers (Fig. 8: 17), although 40 of them are on flakes. Truncated pieces (40) are variable, as are the denticulate-convex tools (some 130). There are single finds of a bifacial tool (Fig. 8: 16) and a point on a microblade (Fig. 8: 1). Archaic forms are represented by a series of Mousterian points on large flakes (about 50) and sidescrapers (220) (Fig. 8: 11, 12, 15, 18, 19).

Radomyshl’ was long considered the earliest Upper Paleolithic site in Eastern Europe (Boriskovsky, 1963, p. 120; Shovkoplyas, 1965, p. 114). This was based on the stadial model, whereby the Aurignacoid character and Middle Paleolithic elements of Radomyshl’ were seen as chronological indicators. We may now reject both this argument and the stadial model. Since the cultural horizon of Radomyshl’ is not related to a fossil soil, there are no grounds to assign it to Stillfried B (Arcy). On the contrary, Upper Paleolithic sites with

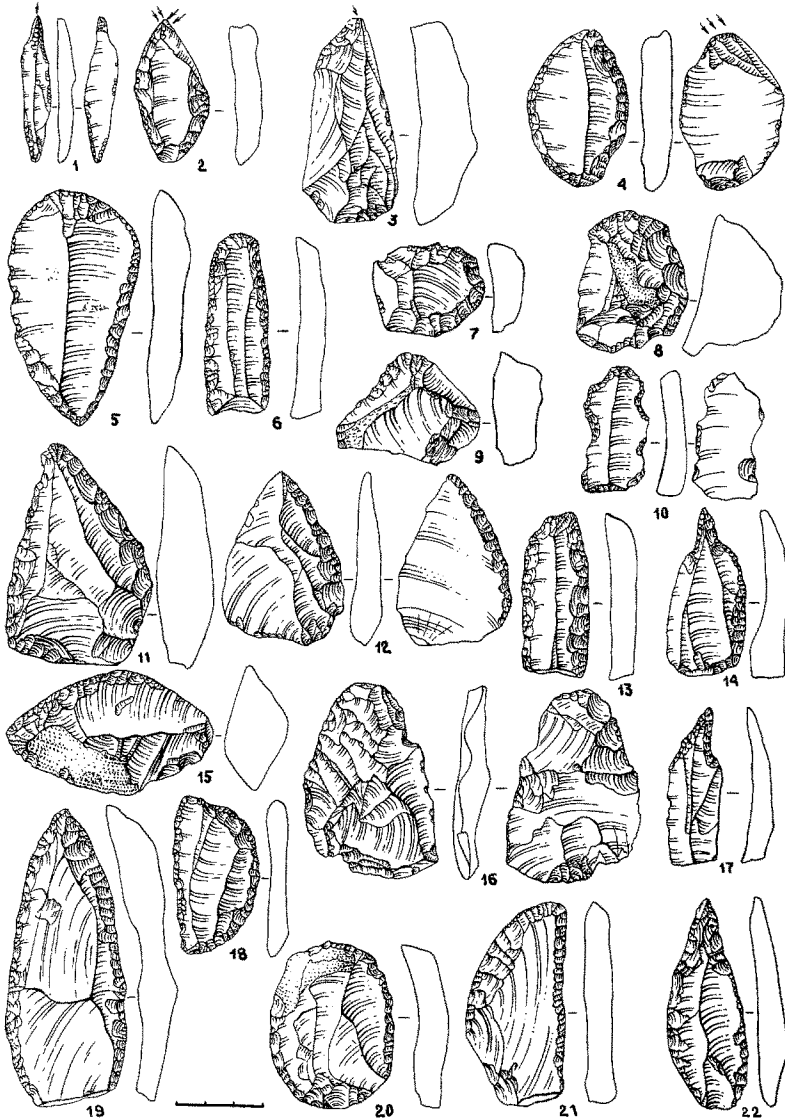


Fig. 8. Artifacts from Radomyshl'.

structures of large mammoth bones appear on the Russian Plain no earlier than the beginning of Upper Valdai. We therefore consider Radomyshl' to be of this age (24,000–20,000 B.P.).

At present, Radomyshl' is the only site in the basin of the Dniepr and Desna that can be referred to the early Upper Paleolithic, based on the impor-

tance of its Middle Paleolithic tools. The other rich Upper Paleolithic sites of this region (Pushkari, Mezin, Mezhrich, Dobranichivka, Yudinovo, Eliseevichi, etc.) are later and fall outside the scope of this article.

The Southern Russian Plain (“The Steppe Zone”)

This region encompasses the northern part of the area of the Black Sea and Sea of Azov. It has many Upper Paleolithic sites, of which the earliest (Amvro-sievka, Sagaidak 1) are dated to the beginning of Upper Valdai (by radiocarbon dates of ca. 22,000–21,000 B.P.). As noted above, the only site that is culturally related to the early Upper Paleolithic in adjacent regions is Zelenyi Khutor, the geological age of which remains unknown. In the Azov area (the lower reaches of the Northern Donets), Matyukhin is currently excavating at Biryuchya Balka, which is undoubtedly early Upper Paleolithic. All the evidence indicates its affiliation to the Streletsian archaeological culture, sites of which, except for Sungir, are otherwise known only within the Kostenki-Borshchevo region in the Middle Don. I discuss the material from Biryuchya Balka below, when characterizing the Kostenki-Streletsian archaeological culture as a whole.

The Crimean Peninsula

Investigation of the Crimean Paleolithic was begun in 1879 by Merezhkovsky and has continued intensively since that time. Many sites of the Middle Paleolithic and Terminal Upper Paleolithic have been discovered in Crimea during the last century, but strangely, there are no Early Upper Paleolithic sites in Crimea. Almost the only information we have on this period still comes from the three-layer site of Syuren 1 Cave, discovered in 1879. Study of it was begun by Merezhkovsky (1879–1880), and the basic excavations on which our knowledge of Syuren 1 is based were carried out by Bonch-Osmolovsky in 1926–1929. The collections from these excavations were later described and analyzed in detail by Vekilova (1957, 1971).

The lower layer, with a significant number of tools of Middle Paleolithic form, is typologically tied to the early Upper Paleolithic. Bonch-Osmolovsky separated this stratigraphically from the middle layer, even though all three layers occur in a lithologically similar matrix of grey loam. The faunas of both the lower and the middle horizons indicate a steppe–semidesert landscape and severe climatic conditions (Vekilova, 1957, p. 256, 1971, p. 140). Thus, we can assume that the lower and middle horizons were close in time and date to a marked cold spell. The fauna of the upper layer is like the faunal complexes from Azilian sites in the Crimea (their technotypological characteristics are alike as well) and indicates the beginning of a warming period. It therefore seems

most likely that the lower and middle horizons date to the maximum cold of Upper Valdai (ca. 20,000–18,000 B.P.).

In light of this dating, the industry from the lower layer of Syuren 1 is of particular interest. This layer yielded about 18,000 artifacts, including some 700 tools. The blade technology is very pronounced: about 85% of the tools are made on blades, which is higher than in any other known early Upper Paleolithic industry in Eastern Europe. Blades were struck from typical prismatic and butt-ended cores; the latter include some small cores on flakes, from which microblades were struck. Excluding microtools, the most abundant class in the lower layer is endscrapers (91), mostly on parallel-sided blades, some with faceted platforms. Continuous edge retouch is rare (Fig. 9: 16, 18). The endscrapers on flakes are very distinctive (Fig. 9: 17). Carinated endscrapers exist, including some made on exhausted cores (Fig. 9: 19). Most of the 70 burins are struck from broken blades (Fig. 9: 25), 7 are on truncations and about 20 are dihedral (Fig. 9: 20, 21). Truncated blades (20), borers (8), and pointed blades (5) are rare, although typical. The same is true of the scaled pieces (14), which are made predominantly on flakes and exhausted cores (Fig. 9: 22). Microtools are the most common group (350) in the lower layer. There are only 15 points, but all of them are typical. The rest of the microtools are retouched microblades, usually with alternate retouch (Fig. 9: 11). One microblade has a denticulated edge. The Middle Paleolithic tools are not so numerous, although typologically characteristic. They include 3 small, bifacial, triangular hand axes (Fig. 9: 15), 15 sidescrapers (Fig. 9: 23, 24), and 19 points, which are mainly variants of the triangular points of “Chokurchinsky type” (Fig. 9: 12, 13). Denticulate-convex tools (46), backed knives (4), and the so-called “rough cutting tools” (2) can also be considered archaic elements. Bone artifacts are represented by fragments of points and a few pendants of bone and shell. The rhythmical patterns of notches on some bones are interpreted by Vekilova (1957, p. 301) as simple decoration.

There are some 5000 flint artifacts from the middle layer, including 40 cores and about 170 tools. There are no obvious archaic forms (sidescrapers, Mousterian points, small hand axes). The Upper Paleolithic tools correspond exactly to those of the lower layer (Fig. 9: 1–10). Thus, the middle layer provides evidence for the development of the cultural tradition of the lower layer, and both are assigned to the Syuren archaeological culture.

We cannot interpret the “Mousterian complex” in the lower layer of Syuren 1 as a result of mechanical admixture, since there is about the same ratio of Middle and Upper Paleolithic forms throughout the sequence. Moreover, the deposits of the lower layer yielded none of the fauna characteristic of Middle Paleolithic sites in the Crimea (such as mammoth, woolly rhinoceros, wild donkey, cave bear). Thus, the collection from the lower layer of Syuren 1 must

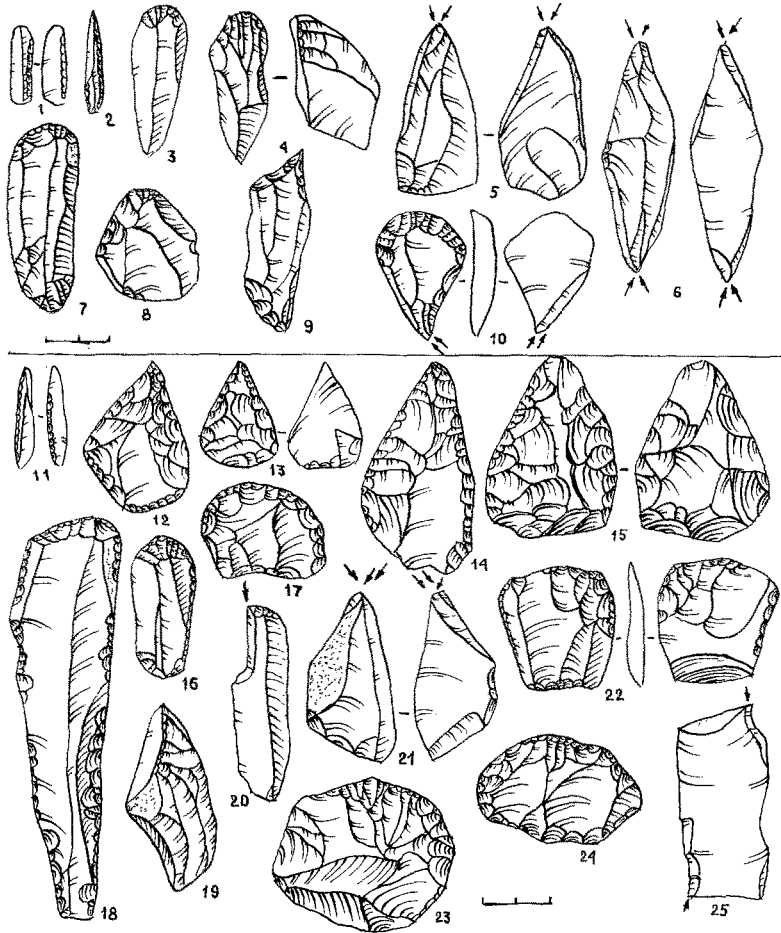


Fig. 9. Artifacts from Syuren 1 Layer 2 (1-10) and Layer 3 (11-25).

reflect ties between local “Mousterians” and, probably, intruders, who brought with them developed Upper Paleolithic cultural traditions. The material in the middle layer shows the rapid obsolescence of Middle Paleolithic traditions and a complete dominance of Upper Paleolithic techniques. The likely geological age of the lower and middle layers suggests that the Middle-Upper Paleolithic transition occurred in the Crimea much later than in most of Europe. This hypothesis can be tested by dating Crimean Middle Paleolithic sites by means of currently available scientific methods.

The Kostenki-Borshchevo Region

The numerous Upper Paleolithic sites, concentrated in a narrow band (about 10 km along the course of the Don) between Kostenki and Borshchevo (Voronezh area), include a significant number which apparently belong to the early Upper Paleolithic (Paleolithic of the Kostenki-Borshchevo Region, 1982). Sites of this period occur at Kostenki in a complex of humic deposits, separated by nonhumic loamy soils containing lenses of ash. The "lower humic strata" are beneath these lenses, and the "upper humic strata" are above them. Recent analysis of the Kostenki ash, carried out at the Institute of Vulcanology (Petro-pavlovsk, Kamchatka), showed that the ash is of Italian origin and is most likely related to catastrophic eruptions in the region of Flegrey Fields as early as 35,000 B.P. (Melekestsev *et al.*, 1984). The upper humic strata have a series of radiocarbon dates from several sites, ranging from 32,000 to 25,000 B.P. This generally corresponds to the latest Middle Valdai warm phase, usually correlated in the literature with Stillfried B (Arcy).

Early Upper Paleolithic sites in the Kostenki-Borshchevo region show a great deal of clear cultural variation, which allows us to identify a series of archaeological cultures. One of the most interesting of these is the Kostenki-Streletsian (or Strelets-Sungirian) archaeological culture. Sites of this culture are known beyond Kostenki, including Biryuchya Balka on the lower Northern Donets, Sungir in the basin of the Klyazma, and Garchi 1 on the Lower Kama. Streletsian sites occur at Kostenki in both the lower and the upper humic strata. Their stratigraphic position and some typological traits allow us to identify stages in the development of the Kostenki-Streletsian culture.

Two sites refer to the early stage, Kostenki 12 Layer 3 and Kostenki 6 (=Streletskaya 2), both in the lower humic strata, of which the material from Kostenki 12 Layer 3 is most characteristic. Of 1100 stone artifacts reliably referred to this layer, some 160 are tools. The primary technology is not for blades: only 3 tools are made on large, prismatic blades, 15 are on flake-blades, and the rest are on tabular fragments and flakes. Most cores are plain and unidirectional; none is prismatic. The industry is extremely archaic in both technology and typology. Endscrapers (20) are small with continuous edge retouch, which gives them a roughly triangular form, but most are variable in shape; the bases of some have plain ventral retouch (Fig. 10: 15, 16). Burins are virtually absent: four of the five possible burins seem accidental. Four tools are atypical scaled pieces. Two thick truncations are very distinctive (Fig. 10: 18). Knives (23) are made on tabular pieces of yellow flint by bifacial retouch along one edge (Fig. 10: 20). The most characteristic tools are bifacial points (25). They include triangular points with concave base, considered typical of the Kostenki-Streletsian archaeological culture (Fig. 10: 21); "poplar-leaf" points (Fig. 10: 24); more elongated points with an irregular convex base; points

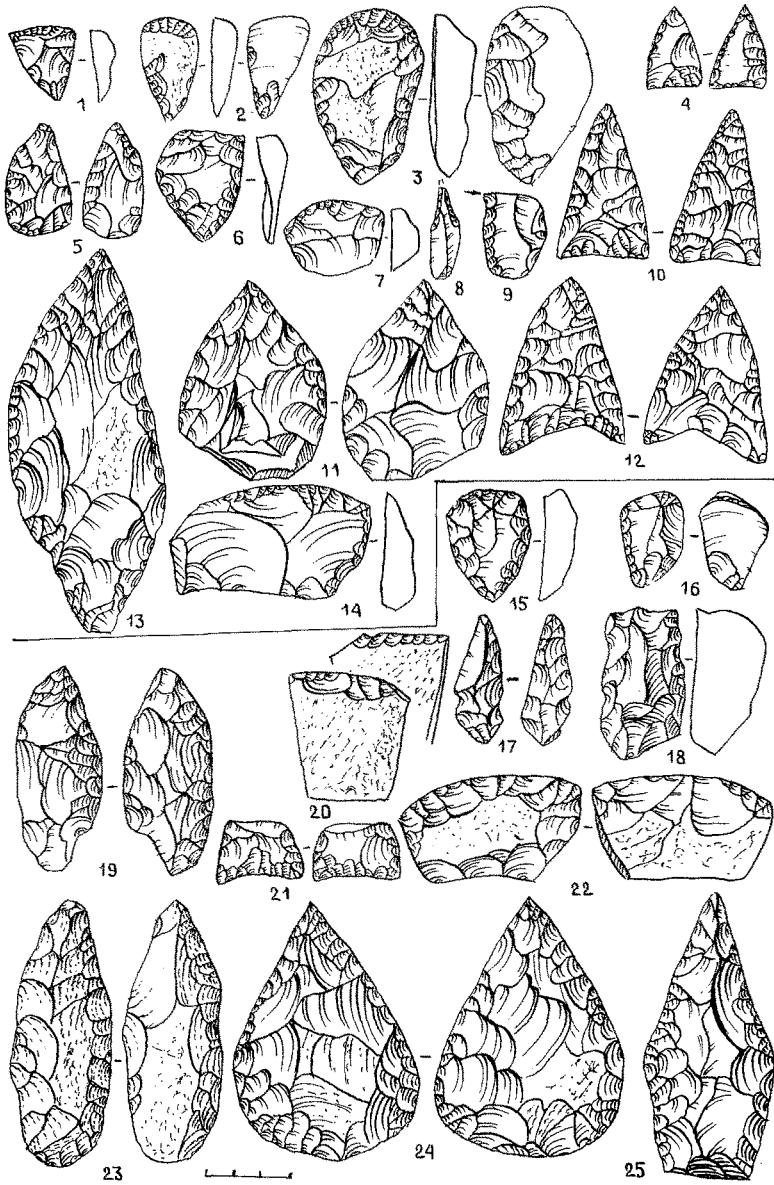


Fig. 10. Streletsian Culture. Artifacts from Kostenki I Layer 5 (1-14) and Kostenki 12 Layer 3 (15-25).

with “scraper” retouch at the base (Fig. 10: 23); rough and asymmetrical double-pointed pieces (Fig. 10: 19); and characteristic oval bifaces. The bifacial tools in this industry are, thus, obviously archaic. Middle Paleolithic types are represented by sidescrapers (21), both single and double (some convergent and some oval) (Fig. 10: 22), three Mousterian points (Fig. 10: 25), and three Quinson points (Fig. 10: 17), which are very rare in Eastern Europe.

The collection from Kostenki 6 comes from the lower deposits of an ancient gully (Rogachev, 1957, pp. 98–101). There are only 55 tools, most of them (such as bifacial foliates and sidescrapers) of the same types as in Kostenki 12 Layer 3. The scrapers and burins are different, being made on blades of Cretaceous flint. It is hard to explain this difference. The cultural layer does not extend beyond the limits of the gully, so artifacts were not being washed in from another site.

The second stage of the Kostenki–Streletsian culture at Kostenki is represented by sites at the base of the upper humic strata: Kostenki 1 Layer 5, Kostenki 11 Layer 5, and Kostenki 12 Layer 1a. Outside this area, Garchi 1 on the Lower Kama and Biryuchya Balka on the Northern Donets also refer to this stage. The material from Kostenki 1 Layer 5 is the most important. This was originally referred to the lower humic strata (Rogachev, 1957, pp. 35, 122), but it now seems more likely to refer to the base of the upper humic strata (Anikovich, 1977b; Rogachev and Anikovich, 1984, p. 179). This is supported by a radiocarbon date on mammoth ivory of 27,390 B.P. \pm 300 years (LE-2030). Nevertheless, the stratigraphic position of Kostenki 1 Layer 5 is not yet completely resolved.

The primary technology is the same as in Kostenki 12 Layer 3, although the number of tools on blades is somewhat higher here. The number of archaic elements is notably lower, and the Upper Paleolithic tools are more typical. Of 150 stone tools, 29 are endscrapers that resemble those from Kostenki 12 Layer 3, although the shapes are more standardized. Two types are characteristic: short triangular scrapers (Fig. 10: 1, 2) and large and small cordiform endscrapers (Fig. 10: 3, 6). Burins are rare (nine), but the transverse burins (Fig. 10: 9) are noteworthy. Borers (four) and scaled pieces (five) are typical. Bifacial points (about 50) are of the same types as in the early Streletsian culture, except that there are no double points, and the triangular points with convex base are more frequent and occur in a variety of subtypes, distinguished by size, proportions, and base shape (Fig. 10: 4, 10, 12). Miniature points (Fig. 10: 4) deserve special mention. Asymmetrical bifacial knives (Fig. 10: 13) appear, which were unknown in the early stage. Sidescrapers (seven), Mousterian points (two), and Quinson points (one) are less common than in earlier phases. However, as shown at Garchi 1, Biryuchya Balka, and Sungir, all the basic types of the tools known in the earlier stage persist throughout the Streletsian culture.

We therefore expect the collection of such tools to increase with the continuing excavation of Kostenki 1 Layer 5.

Two other Kostenki sites refer to the middle stage of Streletsian archaeological culture, Kostenki 11 Layer 5 and Kostenki 12 Layer 1a; although they are both poor (neither has > 10 tools), Kostenki 12 Layer 1a yielded radiocarbon dates on charcoal ranging from 32,700 B.P. \pm 400 years (GrN-7758) up to 28,700 B.P. \pm 400 years (LE-1428a).

The Upper Paleolithic site of Garchi 1 was discovered in 1989 by Pavlov in the Lower Kama near Pozhva (Perm region). Our knowledge of the site is based only on surface collections, but these may be confidently attributed to the middle stage of the Streletsian archaeological culture. They include the same scrapers, and types of triangular points with concave bases as in Kostenki 1 Layer 5.

Biryuchya Balka was discovered in 1987 by Matyukhin in the lower reaches of the Northern Donets. The rich collection resulting from 2 years' excavations includes several hundred stone tools, of which at least 150 are triangular points with concave base. These include all the basic subtypes in Kostenki 1 Layer 5 and a new subtype previously known only at Sungir: an elongated triangular point with straight base (Fig. 11: 22). Of the other bifacial foliates known in the Streletsian culture, this site has only elongated points with rounded base. Scrapers include forms typical of Kostenki 1 Layer 5 plus a large number of types characteristic of Sungir. Sidescraper forms are typical of both the lower layer of Kostenki 12 and Sungir. Thick truncations occur, which were previously known only from Kostenki 12 Layer 3. Points made on blades coexist with Mousterian points; similar tools are known at Sungir, although in small numbers. Thus, the industry of Biryuchya Balka combines features of Kostenki 1 Layer 5 and Sungir, which I refer to the third (final) stage of the Kostenki–Streletsian culture. As research proceeds, Biryuchya Balka may eventually form an independent stage in the development of this culture.

The final stage of Streletsian archaeological culture is represented by Sungir, in the outskirts of the town of Vladimir in the Klyazma river basin. It was discovered and excavated in the 1950s–1970s by Bader (Bader, 1978). The rich collection includes tens of thousands of artifacts, of which 2000 are tools. Radiocarbon dates are 24,430 B.P. \pm 400 years (Gro-5446) and 25,500 B.P. \pm 200 years (Gro-5425). While retaining features typical of the Kostenki–Streletsian archaeological culture, Sungir also has a large number of distinctive properties. In primary technology, prismatic cores occur for the first time, alongside flat, parallel-flaked cores. There is an increased percentage of blades. The number of bifacial tools decreases sharply. Triangular points are rare (14) and include only two subtypes, of which the almond-shaped points with rounded base (Fig. 11: 4) were unknown in earlier stages of the Streletsian culture. Not many of



Fig. 11. Streltsian Culture. Artifacts from Sungir I (1-18) and Biryuchya Balka (19-24).

the approximately 400 endscrapers are like those characteristic of Kostenki 1 Layer 5; most are oval, round, or carinated scrapers made on parallel-sided blades and resemble finds from Biryuchya Balka (Fig. 11: 7–12). There are some 300 burins; this is the first time they are numerous within the Streletsian culture. Scaled pieces (about 300) are more common and more standardized than in the preceding stage. Borers and points on blades are rare. The archaic complex, represented by sidescrapers (75) and a few Mousterian points, has the same types as in the early Streletsian culture.

The bone assemblage from Sungir is extremely rich and varied and has no analogues in the preceding stages (Fig. 15: 15–20). It includes many points from bone and ivory, hoes made from reindeer antler, various pins, and so forth. Especially prominent are the darts and lances made from straightened mammoth tusks (one such lance is 2.42 m long!); their points had flints glued onto them (Bader, 1977). There are > 10,000 bone and stone ornaments, including different types of pendants, beads, and bracelets and finger-rings made from mammoth ivory. Works of art are represented by stylized images of animals: two horses and a possible bison and mammoth.

The development of the Kostenki–Streletsian archaeological culture was toward blade-tools, the evolution of and increase in Upper Paleolithic-type tools, and a decrease in Mousterian forms, which nevertheless provide typological continuity throughout the Streletsian culture. The final stage is characterized by a sharp decrease in bifacial foliates. It is meaningless to look for a “post-Sungir” stage of this culture, since further development in these directions would inevitably lead to a complete dissolution of the Streletsian tradition and the appearance of a new archaeological culture.

The Mousterian roots of the Kostenki–Streletsian culture can be traced back to the Middle Paleolithic flake industries with developed use of bifacial retouch. Such industries, which also have bifacial triangular points with concave base, are known in Crimea (Chokurcha, Zaskalnaya 6) and in the southwest of the Russian Plain (Trinka 3 Layer 3).

The Spitsynian culture was contemporaneous with the early stage of Streletsian culture but is very different in all technotypical characteristics. This culture can be illustrated by the material from Kostenki 17 Layer 2, in the lower humic strata. A radiocarbon date of 36,400 B.P. \pm 1700/–1400 (GrN-12596) was obtained for this layer. The site was excavated by Boriskovsky in 1953 and 1955 (Boriskovsky, 1963). Of almost 10,000 artifacts, only 330 are tools. The primary flaking technique is prismatic, as shown by the typical cores and the blades. Most of the tools are burins (160), predominantly on truncations and quite frequently multifaceted (Fig. 12: 26–28). There are 22 endscrapers; most are on blades with parallel, unretouched edges (Fig. 12: 24, 25), and some are oval (Fig. 12: 22) or carinated. Scaled pieces number about 20 (Fig. 12: 29), and some burins are scaled. Points are rare (< 10) and unstandardized. There

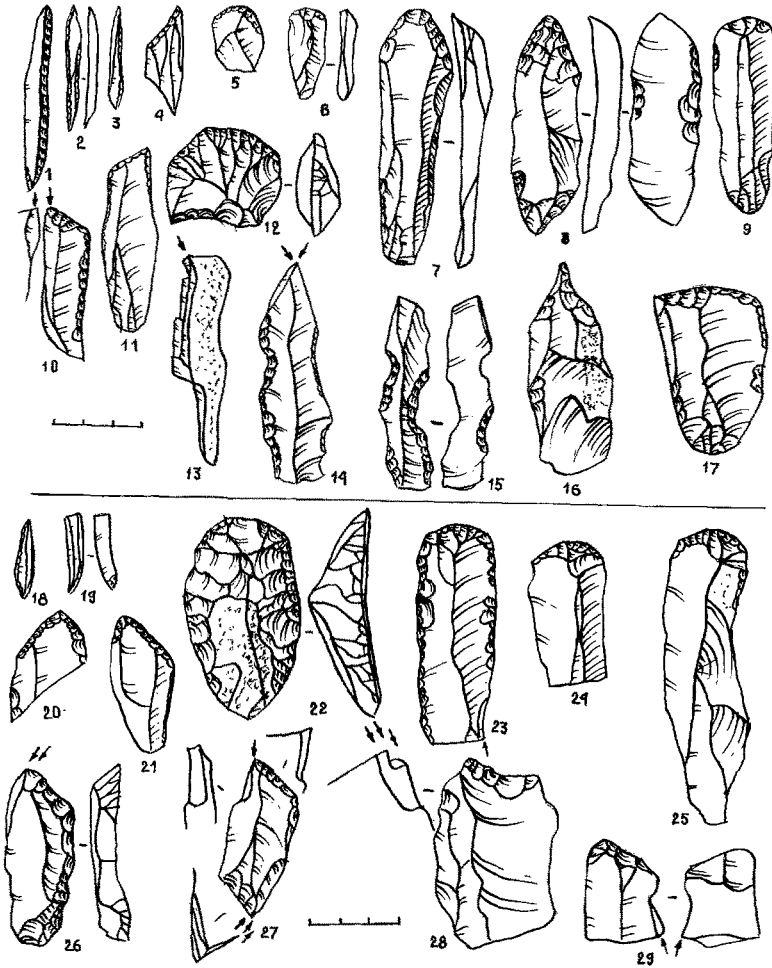


Fig. 12. Artifacts from Kostenki 8 Layer 2 (1-17) and Kostenki 17 Layer 2 (18-29).

are three backed blades (Fig. 12: 18, 19). Over 100 tools are simple retouched blades.

Bone artifacts are limited to two awls made on the radii of arctic fox or hare, a fragment of a burnisher, and four other fragments made of bone and ivory. There are some 50 pendants and ornaments: drilled polar fox canines and drilled pendants of stone and fossils (Fig. 15: 22-25).

The material from Kostenki 12 Layer 2 (lower humic strata) probably also pertains to the Spitsynian culture. The relative frequencies of tool classes are somewhat different (significantly fewer burins), but the basic features are similar

to those of Kostenki 17 Layer 2 (Anikovich, 1977a). Sites of this culture are known only at Kostenki.

Two younger cultures, occurring in the upper humic strata, are known only at Kostenki. Four sites are referred to the Gorodtsovian archaeological culture: Kostenki 12 Layer 1, Kostenki 14 Layer 2, Kostenki 15, and Kostenki 16 (single-horizon sites). In spite of their stratigraphic contemporaneity (all are in the upper humic strata), the industries of these sites are not identical. Grigor'ev (1970, p. 48) has attempted to interpret the differences between them as chronological: the fewer archaic elements, the younger the site. This explanation appears straightforward, particularly since Sinitsyn showed that there are two sets of diachronic change in the tools and technology: (i) a decrease in Middle Paleolithic tools and an increase in blade-tools and (ii) an increase in the number of tools made with the use of an anvil technique (Sinitsyn, 1982, pp. 16–17). The most reliable radiocarbon dates are for Kostenki 14 Layer 2: 28,200 B.P. \pm 700 years (LU-59) and 28,380 B.P. \pm 220 years (GrN-12598). A date of 25,100 B.P. \pm 150 years (LE-1431) is acceptable for Kostenki 16. The old date for Kostenki 15 of 21,000 B.P. is clearly too young. Kostenki 12 Layer 1 is not dated.

Some features are common to all sites of the Gorodtsovian archaeological culture. There are always Middle Paleolithic forms in the tool-kit, burins are rare, there is an almost-complete lack of plain bifacial retouch, scaled retouch is common, and microlithic scaled pieces occur, as do certain types of small endscrapers (with parallel edges, with edges converging toward the tip and elongated triangular forms). Large shovels with handles with hat-shaped tops (Fig. 15: 21) are also characteristic of the Gorodtsovian culture.

The industry from Kostenki 14 Layer 2 looks most archaic. This site received limited (ca. 45-m²) excavation by Rogachev in 1953–1954 but yielded some 9500 stone artifacts, including >900 tools. The flaking technique is not lamellar: cores are mostly amorphous or flat with parallel flaking; there are no elongated blades with parallel dorsal ridges. The most numerous group of tools are endscrapers (>360), varying from microlithic to large, but with the same basic shapes (Fig. 13: 1–12); carinated endscrapers are quite common. Burin blows are extremely rare and probably accidental. There are about 100 scaled pieces; these are predominantly of Gorodtsovsky type: microlithic rectangular pieces (Fig. 13: 18) and some of larger size (including elongated examples) (Fig. 13: 17). Borers are very rare. Most of the archaic tools are sidescrapers and the morphologically similar backed knives (together, 48% of all tools). The triple sidescrapers are worthy of note (Fig. 13: 21, 22); there are some double sidescrapers, but most are simple ones of various forms (Fig. 13: 16). Mousterian points are few and typologically varied (Fig. 13: 19). Also rare, but more standardized, are miniature, bifacial “hand axes” (Fig. 13: 24). *Limaces* are rare but typical (Fig. 13: 26, 27). In addition to shovels and fragments of shovel

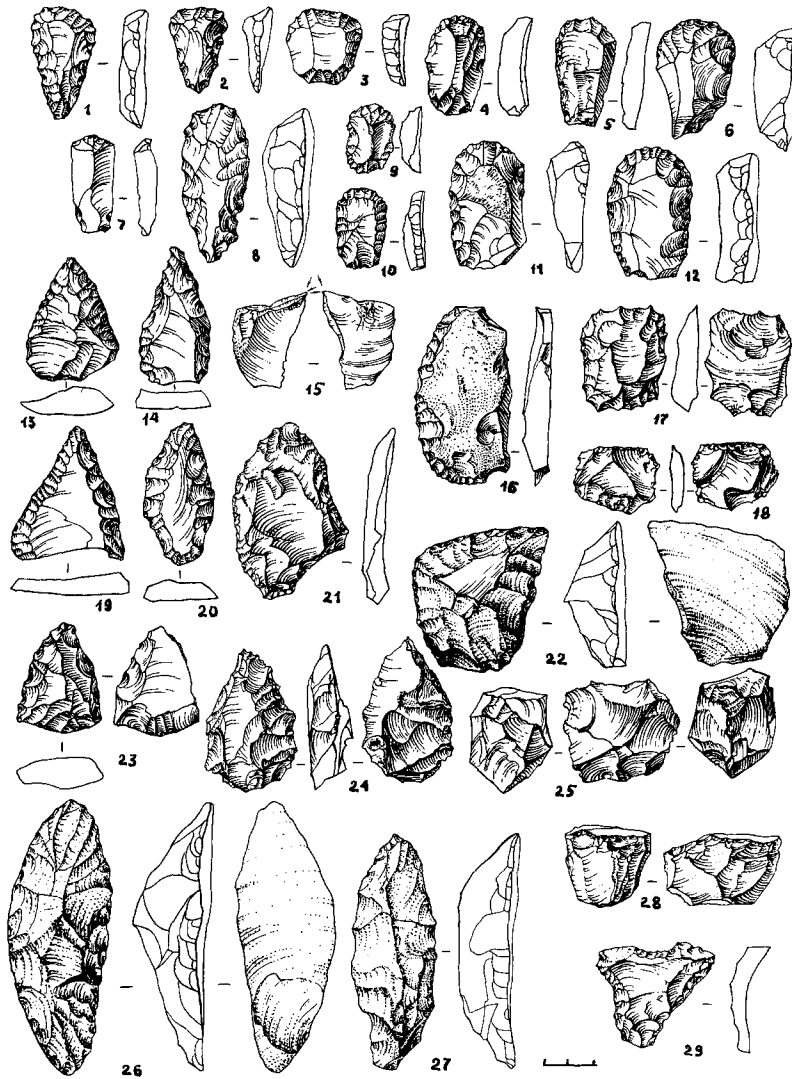


Fig. 13. Artifacts from Kostenki 14 Layer 2.

handles with typical hatlike tops, the bone artifacts include awls, needles, pins and points of various shape, fragments of burnisher-like tools (Paleolithic of the Kostenki-Borshchevo Region, 1982, pp. 154–155), beads, and pendants. Many of the bone objects are decorated with parallel notches, cuts, and zigzags (Fig. 15: 1, 7, 9). There is also a fibula with a zoomorphic end (Fig. 15: 8).

In technology and typology, the industry of Kostenki 15 (excavated by Rogachev in 1951–1952) looks most like Kostenki 14 Layer 2. The collection of 1500 stone artifacts contains about 190 tools, including all the basic forms typical of Kostenki 14 Layer 2: types of endscrapers and sidescrapers, microlithic scaled pieces, small hand axes, and *limaces*. The percentage of archaic tools is notably smaller (about 20%), the relative number of endscrapers is higher (45%), and burins occur. The bone artifacts are the same as in Kostenki 14 Layer 2, including the same decorative elements.

The industries of Kostenki 12 Layer 1 and Kostenki 16 are different. The group of Middle Paleolithic tools is less important and less varied, while Upper Paleolithic elements become more developed. A prismatic blade technology appears, as well as wedge-shaped cores for microblades and a few microlithic tools. The anvil technique (Sinitsyn, 1981, 1982; Paleolithic of the Kostenki-Borshchevo Region, 1982, pp. 134–137, 171–181) is peculiar to Kostenki 16.

Sites of the Gorodtsovian culture are not known beyond the Kostenki-Borshchevo region. The site in the Urals, named after M. V. Talitsky (Rogachev and Anikovich, 1984, p. 186), was formerly linked to the Gorodtsovsky tradition. However, it is now known to be younger and its ties to the Gorodtsovian culture are problematical.

In the same way that the Spitsynian differed from the Streletsian, the material from Kostenki 8 Layer 2 (Telmanskaya) differs from the Gorodtsovian tradition. This layer was excavated under the directorship of Rogachev during the 1950s to 1970s and yielded about 23,000 stone artifacts including 2100 tools. The primary technology is based on blades, and cores were worked to exhaustion. Microblades were struck from butt-ended cores on flakes or blades, many of them indistinguishable from multifaceted burins. The largest class is of microliths (900). These are mainly backed (or sometimes double-backed) points, some with flat, ventral retouch at the point (Fig. 12: 1–3). There are also segments and trapezoids (Fig. 12: 4). There are >500 burins; most are angle-burins on broken blades, with some lateral burins (Fig. 12: 10, 13, 14). The >50 endscrapers are of various forms: large endscrapers on wide blades with retouched edges; endscrapers on long, narrow blades; small scrapers on blades and flakes; and carinated endscrapers (Fig. 12: 5–9, 12, 17). Borers (29) were made on the ends of blades or on burin-spalls (Fig. 12: 16). There are 30 truncated blades. There are many denticulate-convex tools made on blades (Fig. 12: 15). Points, tools with scaled retouch, and atypical sidescrapers are rare.

Two radiocarbon dates are available for Kostenki 8: 26,750 B.P. \pm 700 years (GrN-10511) and 27,700 B.P. \pm 750 years (GrN-10509). This industry is so different from contemporaneous sites of the Gorodtsovian culture that it can serve to define a separate Telmanian culture, even though no other sites of this culture are yet known.

It is curious that the rich bone industry of Kostenki 8 Layer 2, unlike the

stone industry, reveals significant similarities to the material from Kostenki 14 Layer 2. The similarities are manifested not only through such articles as awls, points, and burnishers, but also, and more importantly, in the character of the decoration—parallel rows of notches, cuts, and zigzags (Fig. 15: 10–14).

The Northeastern Part of the Russian Plain

Two sites in this region, Sungir and Garchi 1, clearly belong to the Kostenki–Streletsian culture and were described above. Of the other Upper Paleolithic sites located still farther north, Byzovaya and Medvezh'ya Cave belong to the early Upper Paleolithic. Both sites were discovered at the beginning of the 1960s and excavated by Kanivets, and then in the 1980s by Pavlov.

Byzovaya is on the right bank of the Pechora (about 65°N). The cultural layer is within the clay pebble layer at the base of the second river terrace above the floodplain (Kanivets, 1976; Pavlov, 1986). There were about 180 stone artifacts, including some 90 tools. The cores show that the primary technology is typically prismatic, although most of the tools were made on flakes. About 30 are endscrapers, most of them on short blanks but some on elongated blades; one piece is retouched along the whole perimeter and has a sharpened base (Fig. 14: 1, 2, 4, 6–13, 16, 17). There are about 10 sidescrapers, both single and double (Fig. 14: 14, 15). Short points are of a specific type formed by a combination of straight and concave retouched edges (Kanivets, 1976, Fig. 17: 2, 3); there is one double point with a backed edge (Fig. 14: 5). Bifacial tools (six) include foliates tapered at both ends (Fig. 14: 19), knives with arched blades and natural backs (Kanivets, 1976, Fig. 15: 4), and an asymmetrical point with convex base (Kanivets, 1976, Fig. 15: 3). Worthy of note are four denticulate-convex tools. The age of the site is shown by two close radiocarbon dates: 25,450 B.P. \pm 380 years (Guslitser and Liyva, 1972) and 25,740 B.P. \pm 500 years (LE-3047). Kanivets (1976) and Bader (1978) attempted to link the Byzovaya material with the Kostenki–Streletsian culture, but detailed analysis shows that there are no grounds for this (Anikovich, 1986; Pavlov, 1986).

In the 1980s, Pavlov carried out new excavations and discovered a lower cultural layer, differing from the upper one in technology and typology. Pavlov wishes to relate this material culturally to Kostenki 12 Layer 3 (Pavlov, 1986, pp. 19–20). However, I feel that the nine artifacts collected from the lower layer are not enough for such a crucial conclusion.

Medvezh'ya Cave is in the upper course of the River Pechora. The cultural layer is in a brown loam with lenses of pebbles, which probably formed during the Upper Valdai climatic minimum. Guslitser, who worked there in the 1980s, dated this horizon to 30,000–28,000 B.P. The collection consists of a few thousand stone artifacts but very few tools. The primary technology is typically

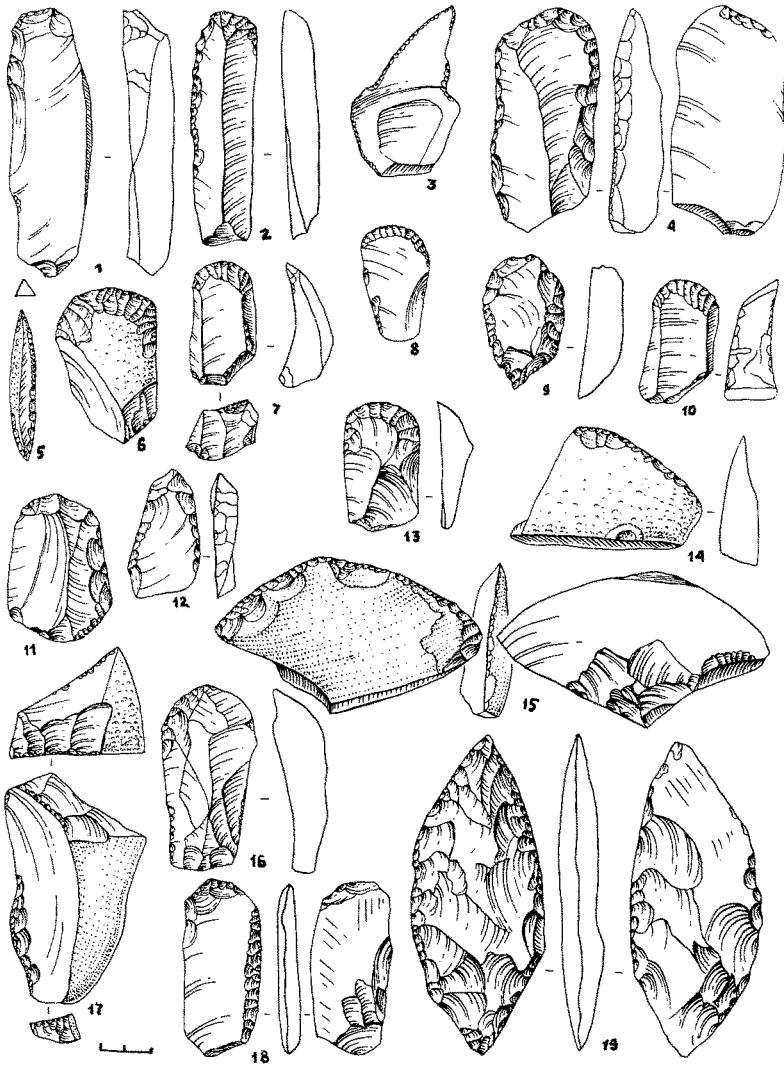


Fig. 14. Artifacts from Byzovaya.

prismatic, and blades are the basic blanks. The tools include endscrapers, both end and oval, truncated blades, and denticulates, as well as large atypical side-scrapers and tabular pieces with bifacial retouch. The material looks more evolved than that of Byzovaya, but as we have seen elsewhere, this is not sufficient grounds to consider it younger.

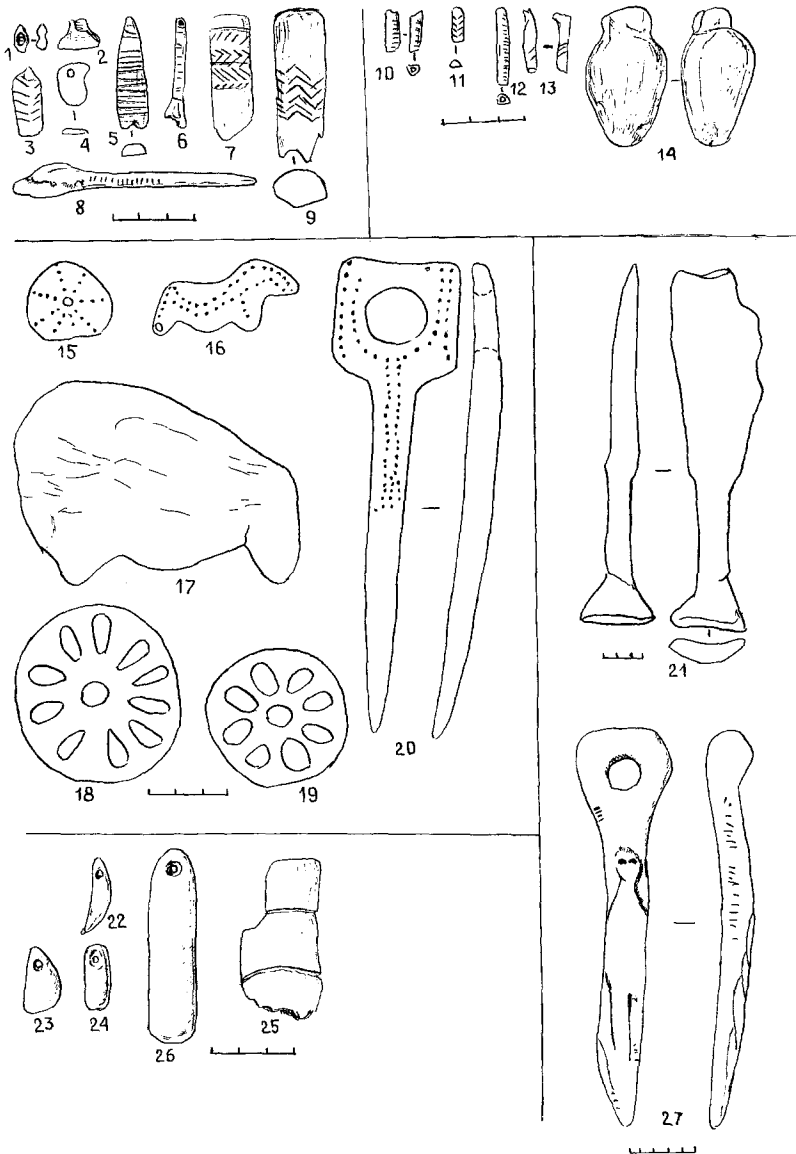


Fig. 15. Artworks and bone tools from Kostenki 14 Layer 2 (1-9), Kostenki 8 Layer 2 (10-14), Sungir (15-20), Kostenki 15 (21), Kostenki 17 Layer 2 (23-26), and Molodova 5 Layer 7 (27).

BURIALS AND PHYSICAL ANTHROPOLOGY

Much of the known physical anthropology of the Upper Paleolithic of Eastern Europe is related to sites of the early stage. I limit myself to a brief characterization of the material.

Kostenki–Streletsian Culture

All the material is from Sungir, where there are two burials, with an extraordinary abundance of grave goods: an elderly man (55–65 years) and a pair of children, buried head-to-head, a girl (9–11 years) and a boy (11–13 years). All were buried extended, on their backs, with their hands crossed on the pubis (Bader, 1984). The child burials yielded thousands of beads that had been used to decorate garments, and bracelets and rings of ivory. There were also darts and spears of ivory, *bâtons de commandement* of reindeer antler, disks, and carvings of a horse and mammoth. The adult man was accompanied only by flint sidescrapers and a flint and bone object with a spiral ornament (Bader, 1984).

Another, badly preserved skull was found above the male burial, and at least two other Paleolithic burials were destroyed at Sungir (Bader, 1984, p. 13). The physical anthropologists report that all the finds from Sungir are of *Homo sapiens sapiens*, but with a series of archaic (Neanderthaloid) traits (Khrisanfova, 1984, p. 129; Zubov, 1984, p. 173; Nikityuk and Kharitonov, 1984, p. 197).

Gorodtsovian Culture

At Kostenki 15, a boy of 6 or 7 years was buried in a chamber. The body was placed on a specially made “seat” of colored clay, and the pit was then roofed over with bones and earth; the collapse of the roof moved the skeleton from its original position. Grave goods include more than 70 flakes, a large knife made from the wall of a mammoth limb bone, a burnisher, and a needle. Rows of perforated polar fox teeth have permitted the reconstruction of a head-dress (Rogachev, 1957, pp. 109–111; *Paleolit Kostenkovsko–Borshchevskogo rajona na Donu*, 1982, pp. 163–164).

Kostenki 12 Layer I yielded the skeleton of a newborn infant (about 10 days old, according to M. M. Gerasimova). It was placed directly on the ground but must have been covered with something that prevented it from being scattered down the rather steep slope by intensive, geomorphic processes. There are no grave goods (Anikovich, 1987b).

Immediately below Layer 3 of Kostenki 14 was the burial of a young male (about 15 years old), lying on his side, in a strongly flexed position at the bottom

of a pit, on top of a layer of red ocher. His fists were clenched and the first phalanx of the middle finger was placed between his teeth. There are no grave goods. The burial probably belongs with Layer 3, of which the cultural affiliation is not known (Rogachev, 1957; *Paleolit Kostenkovsko-Borshchevskogo rajona na Donu*, 1982, pp. 157–160).

Several sites have also produced isolated human bones. Kostenki 17 Layer 2 (Spitsynian culture) yielded a third left molar of *Homo sapiens sapiens* (identified by V. P. Yakimov). Kostenki 8 Layer 2 (Telmanian culture) produced burned fragments of skull bones mixed with common kitchen debris, perhaps indicating ritual cannibalism. Kostenki 1 Layer 3 (an Aurignacoid industry of unknown cultural affiliation) is in a buried fossil soil, affected by permafrost processes, and with radiocarbon dates of 25,600 B.P. \pm 1000 years (Gin-4852) and 26,200 B.P. \pm 1500 years (Gin-4885). In 1989, two tibiae, a fragment of a pelvis and one tooth were found. These are probably remnants of burials destroyed by permafrost. Excavation continues at the site.

CONCLUSION

Characteristics and Origins of the Archaeological Cultures of the Early Upper Paleolithic in Eastern Europe

In spite of the paucity of the available data, we can reach some conclusions about the early Upper Paleolithic of Eastern Europe. The first obvious aspect of the early Upper Paleolithic is the coexistence, from the very early stages, of cultures combining Upper Paleolithic and clear Middle Paleolithic features with cultures with evolved Upper Paleolithic characteristics and no clear archaic component.

The origins of the cultures with archaic features (Brynzenian and Kostenki-Streletsian) may be traced back to the various Mousterian industries of southern Eastern Europe, from along the Dniester and the Prut to Crimea (Anikovich, 1983; Borziyak, 1981, 1983). Their later development, when it can be traced, always involves a quantitative increase in and improvement of Upper Paleolithic techniques and tool forms and a corresponding decrease in the Mousterian component. In the later stages of such cultures, bifacial retouch becomes less important, as do bifacial foliates.

It is sometimes possible to trace genetic links between the "archaic" and the "nonarchaic" cultures and to see a "natural" development of the latter out of the former. Such ties can be seen between the Szeletian culture of the Carpathian region and the Molodovan culture and between the Kostenki-Streletsian and the Anosovo-Telmanian culture (Kostenki 8 Layer 1 and Kostenki 11 Layer 3; these date to Upper Valdai and thus fall outside the scope of this paper).

The archaeological cultures of the southwestern Russian Plain were closely connected to the Paleolithic of neighboring Central European regions. Where the geographical distributions of cultural traditions can be traced, their orientations seem to be primarily to the north and northeast. The following connections can be established: the Carpathians (Szeletian) to the middle Dniester (Molodovan), southwestern Russian Plain and Crimea (the Middle Paleolithic substratum of the Streletsian) to the middle Don (early Kostenki–Streletsian), and the middle Don (Kostenki–Streletsian) to the northeastern Russian Plain (Sungir and Garchi 1—parts of the same culture). However, the developed Streletsian also extends toward the south (Biryuchya Balka on the Northern Donets).

Except for the Molodovan, the sources of the developed archaeological cultures (Spitsynian and Telmanian) cannot be traced. We assume that at least the earliest (Spitsynian) originated elsewhere and appeared in Eastern Europe in developed form. We also assume that such cultures acted as catalysts on the development of the archaic cultures, whose local origin seems quite certain. However, no one has yet succeeded in tracing such influence in Eastern Europe: the material from Kostenki 6 cannot be used because it comes from ravine deposits and it remains unclear whether it all originated from a single cultural layer. The sole indication is the resemblance between the bone artifacts from the “developed” Kostenki 8 Layer 2 and those from the “archaic” Kostenki 14 Layer 2.

Routes of Development in the Early Upper Paleolithic of Eastern Europe

Several of the industries considered above may be assigned to one of three routes of development: Szeletoid, Aurignacoid, and Gravettoid.

The Szeletoid Route of Development

The Szeletoid route has the following characteristics. Primary technology is not necessarily for blades, and in some cases, even when it is, blades are not the leading category of blanks. Flat, bifacial retouch is common, and burins and steep edge retouch are either missing or minor. The tools include a typical Middle Paleolithic component as well as a variety of characteristic bifacial foliates.

Sites pertaining to this route in Eastern Europe include the Szeletian sites (Korolevo 2 Layer 2), Brynzeny, the Gordineshty and Kostenki–Streletsian cultures, and certain sites like Klimautsy 1 and Byzovaya. The available data indicate that typical industries of the Szeletoid route occur only in the early Upper Paleolithic.

The Aurignacoid Route of Development

The blade technology is designed for the production of large, rather massive blades; microblades, when they exist, tend to be amorphous and to resemble waste products of secondary retouch. Steep and semisteep, very invasive edge retouch is typical; flat retouch is secondary or absent. Burin technology is quite common. The tools, in addition to the various forms created by intensive edge retouch, include various carinated endscrapers made on exhausted cores and multifaceted burins. Microlithic tools, when present, often have alternate retouch.

Sites of the Aurignacoid route in Eastern Europe are all three layers of Kulichivka, Radomyshl', the lower and middle layers of Syuren 1, and Kostenki 1 Layer 3. Most of these industries fall at the upper boundary of the early Upper Paleolithic or even a little later (Syuren 1). However, it is possible that more accurate dating of Kulichivka would show the lower layer to be significantly older than Savich assumed and much closer in age to the earliest Aurignacoid sites of Central Europe, such as Istállóskő and Bohunice. In addition to Syuren 1, there are several other industries in Eastern Europe that are referred to the Aurignacoid route of development, although dating to Upper Valdai. These include Muralovka and Zolotovka (in the Azov area), with a radiocarbon age of about 18,000–19,000 B.P.

The Gravettoid Route of Development

The highly developed, prismatic blade technology produced rather thin blades with parallel dorsal ridges, which were the main types of blank; narrow, true microblades are also important. Abrupt backing is typical, usually on narrow blades or microblades. Burin technology is widely used. Flat retouch is used only for thinning the ventral faces of certain tool types; continuous, flat, bifacial retouch is very rare. The tool-kit consists of different types of backed blades, including Gravette points.

Of the sites considered above, those of the Molodovan and Telmanian cultures are referred to the Gravettoid route. Thus, these industries appear in Eastern Europe by 30,000 B.P., but they are most numerous during the Upper Valdai period and survived until at least the Holocene. As an example, we may take sites of Dniester culture, represented in middle Dniester area by Molodova 5 Layers 6–1 (Anikovich, 1987a).

As already mentioned, the material indicates that there were two pairs of genetically linked archaeological cultures, one replacing the other in each pair: the Szeletian–Molodovan and the Kostenki–Streletsian–Anosov–Telmanian. It is worthy of note that the Szeletoid route of development is replaced by the Gravettoid route in the first pair and by the Aurignacoid route in the second pair, although retaining some Szeletoid elements.

Thus, by the concept of routes of development, I understand that quite

stable technological systems can give rise to similar features in the set of retouched tools, which appear and exist independently in different cultural-historical forms. I would consider the Szeletoid route to be that which is typical for the initial establishment of the Upper Paleolithic in Eastern (and Central) Europe, whereas the Aurignacoid and Gravettoid routes refer more to already formed Upper Paleolithic complexes.

There also exist some industries that can be fitted into any of these routes of development only with extreme difficulty. I believe it is possible that further study of the material will allow us to identify new routes of development for such industries, which include the Gorodtsovian culture. Those industries that show a mixture of features of different routes of development (Korpatch Layer 4, Korpatch Cape, upper layer) probably represent the replacement of one archaeological culture by another.

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