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Upper Paleolithic of the Yenisey: New Discoveries, Old Debates

This paper integrates the results of studies relating to the Upper Paleolithic of the Yenisey, collating traditional ideas with findings made in the latest decades. Excavations on the Upper and Middle Yenisey are being carried out by several research teams. Sites representing the hitherto little known Early Upper Paleolithic (Yasnoye I, Afontova Gora II-Sklon) have been discovered, but so far the findings do not suffice for their cultural attribution. The key site for that period in the region remains Malaya Syia, for which a series of new dates ranging between 34–29 ka has been generated. Traditions revealed there continued at a later site, Sabanikha. The Middle Upper Paleolithic is characterized by the prevalence of various blade industries, which in most cases cannot be separated into clear-cut groups resembling archaeological cultures. Certain industries are archaic, with Mousterian-like lithic assemblages and elaborate bone and tusk processing (Kurtak IV). During the later phase of the Pleistocene, along with cultures such as the Afontova and Kokorevo, blade industries survived, continuing traditions of the preceding stage (Golubaya I, Maltat, Konzhul). A peculiar variant of the Upper Paleolithic has been identified, combining features of both cultures and a series of foliated bifaces (Kuibyshevo II). Discussions are ongoing around the effect of various factors on the cultural differentiation, including the relationship between the Afontova and Kokorevo cultures.

Keywords: *Yenisey, Abakan, Upper Paleolithic, Afontova Gora, Afontova culture, Kokorevo culture.*

Introduction

This brief review characterizes the current state of research on the Upper Paleolithic of the Yenisey. The concentration of well-stratified, often multilayered sites discovered in the basin of the Upper and partly Middle Yenisey, which provided a series of radiocarbon dates and data for the reconstruction of the paleoenvironment, presents crucial information for studying the Upper Paleolithic of North Asia. The archaeological sites of the Yenisey basin have always been of key importance for understanding the nature of the Old Stone Age in Siberia; the proposed interpretations have consistently demonstrated the main stages in the development of Paleolithic research in our country. The pioneering works of I.T. Savenkov at Afontova Gora in the 19th century laid the foundation for discussions of the age and development of the North Asian Paleolithic. Subsequently, the Yenisey sites served as a basis for the stadial development model proposed by G.P. Sosnovsky for the Siberian Paleolithic in the 1930s, and for the local-cultural approach by Z.A. Abramova in the 1960s. The bulk of the data derived during the work of large rescue archaeological expeditions of the 1960–1980s was published in a number of monographs (Abramova, 1979a, b; Astakhov, 1986; Vasiliev, 1996; Lisitsyn, 2000) and in a summarizing study (Paleolit Yeniseya, 1991).

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At present, the study of Paleolithic sites in the Upper and Middle Yenisey is proceeding at an increasing pace (Fig. 1). Large-scale rescue excavations are being actively carried out in the territory of Krasnoyarsk, covering, in addition to the sites of Afontova Gora, the areas along both the banks of the Yenisey (Pozdnepaleoliticheskaya stoyanka…, 2021; Geologiya…, 2020). As compared to the traditional ideas about the Paleolithic of Afontova Gora (Astakhov, 1999), a lot has changed: both the chronological assessment of the sites, owing to the discovery of early materials at the sites of Afontova Gora V and Afontova Gora II-Sklon, and their cultural characteristics—along with the prevailing Afontova materials, traces of the Kokorevo culture, represented by finds from the Krutaya site, were recovered for the first time.

A team headed by E.V. Akimova completed the long-term studies at the sites on the shores of the Derbina Bay of the Krasnoyarsk Reservoir by publishing the concluding monograph (Paleolit Derbinskogo zaliva, 2018). Excavations at the Malaya Syia site were resumed (Lbova et al., 2013). The coast of the Krasnoyarsk Reservoir is being surveyed: the studies at the Sabanikha site has been renewed (Kharevich et al., 2020a, b).

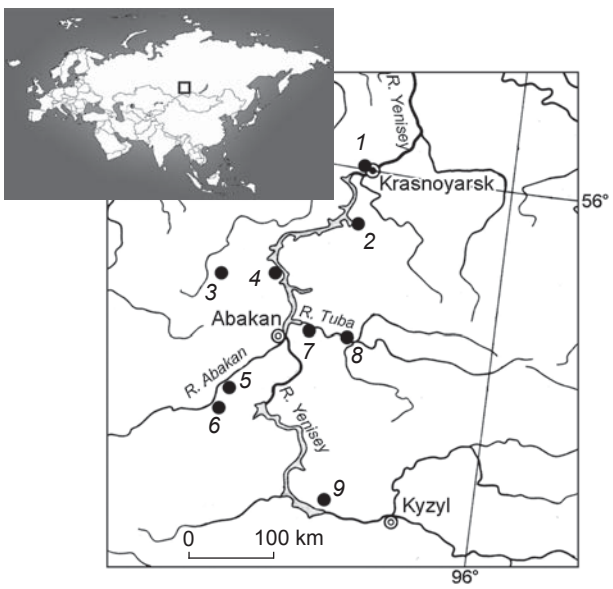

Fig. 1. Location of the main recently discovered and explored sites of the Upper Paleolithic of the Yenisey. *1* – Afontova Gora I–V, Krutaya, Yasnoye I, etc.; *2* – Derbina IV, V, Pokrovka I, II, Ust-Maltat I, II, Maltat, Konzhul, etc.; *3* – Malaya Syia; *4* – Sabanikha; *5* – Matkechik I, II, Ust-Sos; *6* – Kuibyshevo II, Krivoy Chistobai I, Mozharov Uval I, Bolshie Arbaty I, Matros I, etc.; *7* – Pritubinsk I; *8* – Irba II; *9* – Kuylug-Khem I grotto.

In the course of surveys in the southwestern Khakassia, Paleolithic sites were found in the valleys of the Abakan, Tashtyp, Dzhebash, Bolshiye and Malye Arbaty rivers (Zubkov et al., 2019). A group of Russian and Chinese archaeologists led by N.I. Drozdov carried out archaeological works at Ust-Sos and Matkechik on the Abakan River (Drozdov N.I., Makulov, Drozdov D.N. et al., 2017; Drozdov, Makulov, Leontiev et al., 2017). Another team of Krasnoyarsk researchers studied the right bank of the Upper Yenisey, and explored the Pritubinsk I site in the Middle Tuba (Kharevich et al., 2018). Upstream the Yenisey, as a part of the rescue archaeology project of the Kyzyl-Kuragino railway construction, excavations were carried out at a large area of the Final Paleolithic site of Irba II (Vasiliev et al., 2019). Vl.A. Semenov discovered a Paleolithic cave site in Tuva, where previously only open-air sites were known (Semenov, Vasiliev, Kilunovskaya, 2006).

Early Upper Paleolithic

As compared to other regions of Southern Siberia (Altai, Angara basin, Transbaikalia), the Early Upper Paleolithic of the Yenisey remains almost unstudied. There is a large chronological gap between the Levallois-Mousterian assemblage from the lower layers of the Dvuglazka grotto, with a radiocarbon date of 44.4 ka BP*, and the earliest Upper Paleolithic sites.

Recently, on the territory of Krasnoyarsk, several sites yielding unexpectedly ancient faunal remains and lithic artifacts have been identified. Among these is Yasnoye I, located at a great distance from the river, at an elevation of 100 m above the Yenisey River. The pedosediments of the Karginsky age, with dates ranging between 33–28 ka BP, yielded animal-bone remains and lithic artifacts.

The locality of Afontova Gora II-Sklon is associated with slope deposits at an altitude ranging from 25 to 50 m above the river level. Faunal remains (mammoth, Asiatic wiled ass, saiga antelope, woolly rhinoceros, etc.) and lithic artifacts were found in colluvial deposits, dating to 40–28 ka BP, although there are also older estimates. The finds include pebble tools and side-scrapers. The available data are insufficient for detailed description of the industry (Geologiya…, 2020: 58–77; Filatov, Klementiev, 2020).

For a long time, the site of Malaya Syia was considered the main site of the presumably early stage

*In the article, all dates are uncalibrated.

of development of the Yenisey Paleolithic. The site is situated at the slope of the ravine, at a height of 32–35 m. Its thick cultural layer is associated with redeposited buried soil, with traces of cryoturbations, and is covered by a layer of upper loams. The faunal remains are dominated by the bones of reindeer, wild sheep or goat, and bison. The series of radiocarbon age-determinations of the site is discrepant (ranging from 17.8 to 34.5 thousand years). A number of AMS-dates in the range of 34–29 ka BP have recently been obtained. The industry of Malaya Syia is based on large blades, which were used for the production of end- and side-scrapers and burins. The collection yielded numerous retouched bladelets, including those with curved edges. A series of bone and antler points without grooves, blanks of personal ornaments, and pendants with holes made of serpentine were also found (Larichev, Kholyushkin, 1992; Lbova et al., 2013, 2015).

At the site of Sabanikha, located on the shore of the Krasnoyarsk Reservoir, cultural remains were deposited above the brown sandy loam horizon (interpreted as fossil soil of the Karginsky period), in deposits at the level of 40 m high. The bones of red deer, bison, and argali predominated among the fauna. Radiocarbon dates of 26.9–22.9 ka BP were run out on charcoal from the hearths. The lithics include large single- and double-platform cores, retouched blades (including pieces with concave lateral edges, reminiscent of Aurignacian forms), end-scrapers on blades (incl. retouched), typical end-scrapers with pointed bases, bifacial side-scrapers, choppers, etc. A number of artifacts made of bone and antler (adzes, points without grooves, and needles) were found. There are also stone beads. The features of the lithic industry and the ornaments are similar to those of Malaya Syia, which probably suggests the development of a single cultural tradition (Lisitsyn, 2000: 23–26; Kharevich et al., 2020b).

Middle Upper Paleolithic

The Middle Upper Paleolithic of Siberia is characterized by coexisting heterogeneous cultural trends, which made it possible to use the expression "Siberian mosaic" (Vasil'ev, 2000). Along with the prevailing blade-based industries, similar to the European Upper Paleolithic ones, archaic and sometimes Mousterian-looking industries continued to exist in a paradoxical combination with a developed technique of bone and tusk processing.

Among the recent discoveries, noteworthy are the finds from cultural layer 2 at Afontova Gora V. In the Karginsky deposits, a few tools, mainly end-scrapers on blades, were found (Geologiya…, 2020: 29–42). The correlation of the new finds with the previously studied artifacts from layer 5 of this locality, dating to ca 28 ka BP (Drozdov, Artemiev, 1997: 22–24), remains unclear.

A small blade-based assemblage, with a radiocarbon date of about 26.5 ka BP, comes from cultural layer 4 of the Dvuglazka grotto. Its faunal remains are dominated by the bones of mountain sheep, horse, and Asiatic wild ass; the occurrence of Baikal yak is noteworthy. Lithic artifacts include a single-platform core, blades with retouched edges, end-scrapers on retouched blades, and a point. A peculiar wedge-shaped bone tool with grooves and a pendant were also found (Paleolit Yeniseya, 1991: 67–68; Lisitsyn, 2000: 17–18).

Other sites of the Middle Upper Paleolithic are associated with the banks of the Krasnoyarsk Reservoir. The main problem of their study is the correlation of finds from the cultural layer (usually not numerous) and abundant surface material, which homogeneity can always be called into question, and radiocarbon dates may correspond not to the age of the cultural layer, but to the time of redeposition of the remains along the slope (Paleolit Derbinskogo zaliva, 2018: 15).

At the Krasnoyarsk Reservoir, the eroded site of Kashtanka I was studied (Drozdov et al., 1992). Its cultural layers are associated with cryoturbated buried soils of the Kurtak series, overlain by a thick layer of slope loams of the Sartan period. A date of >29 ka BP was obtained for cultural layer 2, and the overlying deposits and cultural layer 1 were dated to 24–21 ka BP. The lithic industry is represented by single- and double-platform large cores, a series of cone-shaped microcores, end-scrapers on blades and flakes, backed bladelets, side-scrapers, chisel-like tools, and choppers. There are several artifacts made from mammoth tusk and reindeer antler, including points, needles, and beads.

The studies of sites of the Derbina group made a significant contribution to Middle Upper Paleolithic research (Paleolit Derbinskogo zaliva, 2018). The main cultural layer of the Derbina V site is dated to 21–20 ka BP. The assemblage of artifacts, coming mainly from surface collections, includes a series of typical foliated bifaces (Fig. 2). The lithic industry is based on blades. Single- and double-platform cores, butt-ended microcores, end-scrapers, retouched blades, side-scrapers, chisel-like tools, and points were found. Other sites of the region are Ust-Maltat I and II, Derbina IV,

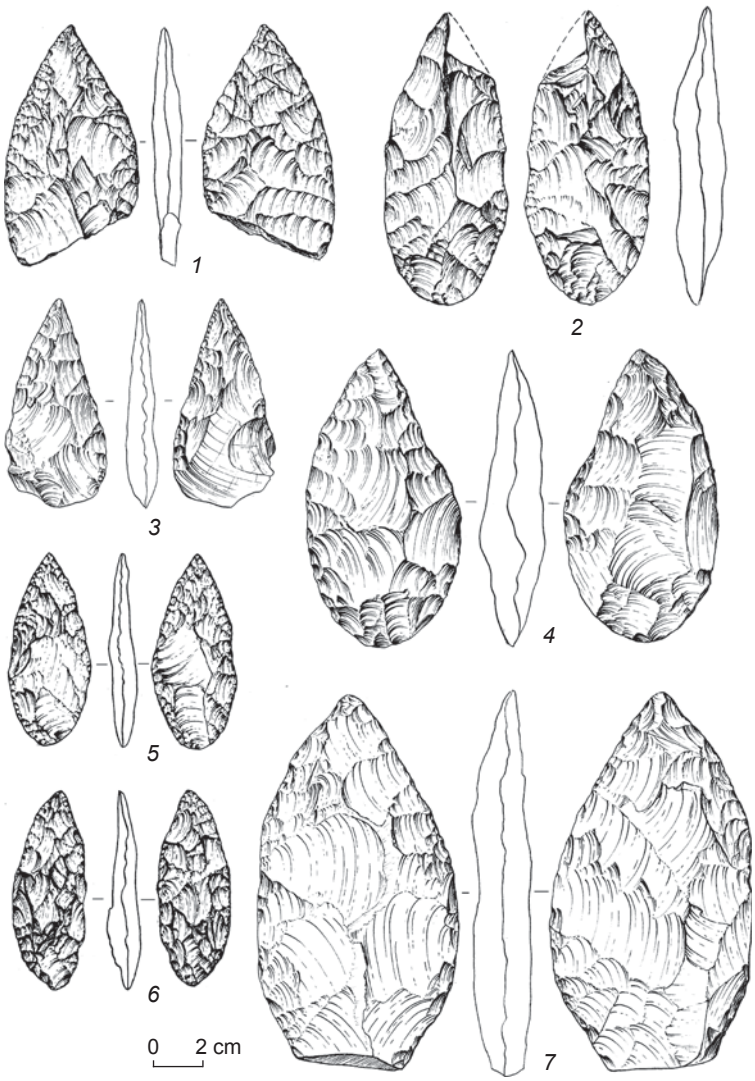

Fig. 2. Bifaces from Derbina V (after (Paleolit Derbinskogo zaliva, 2018: Fig. 12)).

Pokrovka I and II. A fragment of a human skull dating to ca 27 ka BP was found on the exposures close to Pokrovka II.

The Shlenka site belongs to a younger period (Lisitsyn, 2000: 37–38); its cultural layer is associated with deposits of a 70–80 m terrace-like level. The bones of reindeer, mammoth, and horse predominate the numerous faunal remains. A series of radiocarbon dates in the range of 20–18 ka BP has been obtained. These data are in good agreement with the idea of the Early Sartan age of the site. The artifact collection includes retouched bladelets, end-scrapers, retouched flakes, a few borers, burins, side-scrapers, and pebble tools. In general, the assemblage demonstrates well-developed blade technology. A small bone rod was also found.

The Tarachikha site (locus 1) falls into approximately the same chronological range (Ibid.: 33–34). Here, artifacts were associated with colluvial sandy loams uncovered on the ravine's slope. They were accompanied by faunal remains dominated by mammoth and reindeer bones. Available radiocarbon dates determine the age of the site to be in the range of 19–18 ka BP. The expressive blade-based industry includes flat single- and double-platform cores, close in shape to prismatic cores, as well as atypical wedge-shaped cores. Tools are end-scrapers on blades (including on retouched ones) and on flakes, retouched and backed bladelets, peculiar micropoints with retouched bases and longitudinal edges, burins, retouched flakes, side-scrapers, and leaf-shaped bifacial points. A pendant made of a canine was also found.

The cultural layer of the Afanasieva Gora site was associated with upper clays on the slope of a 40-meter terrace. The bones of mammoth, reindeer, horse, and argali were collected in the eroded area near the site; faunal remains from small excavations are unidentifiable. The toolkit (characteristic types of retouched bladelets, points, end-scrapers, burins, etc.) is similar in appearance to the assemblage from Tarachikha, and can be combined with it into a single cultural tradition of the Middle Upper Paleolithic (Ibid.: 31–33).

The youngest assemblage of the period under consideration comes from cultural layer 19 of the Listvenka site, dated to 17–16 ka BP. The blade industry, based on the use of prismatic cores, reveals retouched blades, points, burins, end-scrapers, and backed bladelets. Artifacts made from mammoth tusk were also found (Paleolit Yeniseya…, 2005: 118–133).

E.V. Akimova unites all the "small blade" industries of the Middle and Late Upper Paleolithic on the Yenisey (in the range of 22–11 ka BP) within the "Tarachikha culture" (Paleolit Derbinskogo zaliva, 2018: 166). At the same time, she notes a significant variability of lithic industries. The undoubted unity of the toolkits of two sites (Tarachikha and Afanasieva Gora) can be considered a local grouping. The possible influence of the Malta culture is evidenced by a pendant with typical Malta ornamentation; the artifact was found in cultural

layer 5 of the Kuylug-Khem I grotto in Tuva, dated to 26.1–20.3 ka BP (Semenov, 2021).

Along with blade industries, archaic flake industries, such as the assemblage from Kurtak IV, continued to exist (Lisitsyn, 2000: 18–22). The site of Kurtak IV is associated with a layer of interbedded colluvial sandy loams overlying the buried soil of the Karginsky period, composing the 60–80-meter level. The faunal collection includes remains of a mammoth (the prevailing species), bear, bison, red deer, and others. For the paleosol, the date of ca 27.5 ka BP was run out on the charcoal; for the cultural layer, a series of dates in the range of 24–23 ka BP was obtained. The site yielded a very archaic industry with simple forms of pebble cores, an abundance of end-scrapers, retouched flakes, side-scrapers, borers, and beak-shaped, notched and pebble tools. Artifacts made of tusk and bone, and personal ornaments, were also found.

Among the assemblages with both flakes and blades, the industry of the lowermost cultural layer of the Ui I site is noteworthy. For this layer, a series of dates on bone in the range of 17–16 ka BP, and a date of earlier than 22 ka on charcoal were obtained. The site is probably attributable to the Early Sartan age. The collection includes cone-shaped, prismatic, and wedge-shaped cores, end-scrapers on blades and flakes, retouched bladelets and flakes, as well as an antler point, bone points, a peculiar tool made from a fragment of a tubular bone, and a canine-pendant (Vasiliev, 1996: 145–170).

Late Upper Paleolithic

In the Late Sartan period, starting from 17–16 ka BP, assemblages of the Afontova culture dominated in all clusters of the Paleolithic localities in the Yenisey basin. These were archaic-looking lithic industries, dominated by flakes, single- and double-platform pebble cores, with side-scrapers, end-scrapers, and chisel-like tools prevailing in the toolkit. The discoveries of recent years have significantly supplemented the data on the Afontova culture, primarily owing to large-scale excavations at Afontova Gora. The known area of distribution of the this culture has expanded. The Afontova sites have been discovered in the southeastern part of the Minusinsk Basin, in the vicinity of the village of Kuragino (Irba II), and in the Upper Abakan basin (Matros I, Bolshiye Arbaty I, Mozharov Uval I, etc. (Zubkov et al., 2019)).

Another trend in the Late Paleolithic culture demonstrates a considerable use of the blade technique, although the reduction strategy is more reminiscent of the Middle Paleolithic technologies, rather than European Upper Paleolithic technology. The assemblages of this unity include tools that were fashioned on elongated blanks—Mousterian points and retouched blades. However, the main set of artifacts is similar to the assemblages of the Afontova culture; the differences are observed mainly in the quantitative ratio of typological groups. Such sites, located along the Yenisey River valley from the north of Krasnoyarsk (Druzhinikha) to the Middle Minusinsk Basin, were assigned by Abramova to the Kokorevo culture (1979b: 175–194). New discoveries expand the distribution area of this culture in a southeastern direction, e.g., by the site of Pritubinsk I in the middle reaches of the Tuba River. Two cultural layers of the site date back to 15–12 ka BP. A cache of stone tools is noteworthy (Kharevich et al., 2018).

Until recently, the extreme point of distribution of the Kokorevo culture in the southwestern direction was the Ulugbil site in the Abakan valley (Lisitsyn, Hudiakov, 1997: 14–16). In the Upper Abakan, in the valley of the Krivoi Chistobai stream, on a 35–40-meter terrace, the site of Krivoi Chistobai I was found. Its Paleolithic cultural layer was associated with cryoturbated loams overlying the eluvium. The lithic industry includes single- and double-platform cores, wedge-shaped microcores, side-scrapers, end-scrapers, burins, etc. According to a number of features (blade technique, a series of retouched blades, end-scrapers and burins on blades, and an elongated leaf-shaped Mousterian point), it is close to the Kokorevo assemblages (Zubkov et al., 2019).

The significance of differentiation of the Yenisey Late Paleolithic industries into the Afontova and Kokorevo cultures is still debated. V.S. Zubkov has proposed to focus on a structural approach to the analysis of lithics, emphasizing the variability in the forms of tools and core-like pieces and the fluctuations in technical and typological features throughout the development of the industry (2016). The sites combining the features of the Afontova and Kokorevo cultures have long been known. At the site of Berezovyi Ruchei I, located in the Beresh River valley in the Nazarovo Basin, the cultural layer was noted in association with the upper loams of the terrace level corresponding to the third terrace of the Chulym River. The layer yielded a lithic industry with butt-ended and wedge-shaped microcores, side-scrapers on flakes and blades, end-scrapers on retouched blades, atypical points, choppers and limaces, along with the bones of bison, reindeer, and horse. The toolkit also

includes flattened antler and bone points with grooves. According to researchers (Vishnyatsky et al., 1986), the industry is based on a combination of "Afontova" and "Kokorevo" features. While the tools on flakes are predominant (burins and Mousterian points are atypical), the collection includes a series of end-scrapers on blades and retouched blades.

Another example of a combination of features of the two cultures is the site of Kokorevo IVB. Both culture-bearing layers of this site are associated with upper sandy loams and sands of the elevated part of terrace II. The fauna is represented by the reindeer remains. The lowermost layer has been radiocarbon dated to 15.5 ka BP. The lithic industry, with flakes and side-scrapers prevailing, is similar to that of the Afontova assemblages (especially with Kokorevo II). Noteworthy is the hearth made of obliquely set stone slabs, which was found in cultural layer 2; the hearth is similar to those identified at Kokorevo I and is considered one of the typical features of the Kokorevo culture (Astakhov, 1966, 2014).

As compared to the Late Upper Paleolithic trends listed above, some lithic industries are probably genetically related to the assemblages of the previous, Middle Upper Paleolithic period; these industries show a well-developed prismatic technique. Until recently, only the industry of the lower cultural layer at the site of Golubaya I, dated to 13–12 ka BP, could

Fig 3. Stone tools from Kuibyshevo II (after (Zubkov et al., 2019: Fig. 4)).
1–3 – end-scrapers; *4* – borer; *5*, *18* – side-scrapers; *6*, *16*, *17* – cores; *7*, *10* – combination tools; *8* – point; *9*, *11* – burins; *12–15* – foliated bifaces; *19*, *20* – retouched blades.

be attributed to this group (Astakhov, 1986: 99–109). During the works in the Derbina site cluster, the Final Paleolithic sites with a microblade industry typologically different from the Golubaya I complex were discovered. Among the late sites of the Derbina group, Maltat is the most important. The obtained radiocarbon dates, in the range of 10.5–9.5 ka BP, are considered rather young for this site. The Derbina sites show a blade-based industry with single- and double-platform cores, retouched blades, burins, end-scrapers, and chisel-like tools. Beads made of soft stone were found. A similar assemblage was recorded from the site of Konzhul, where the lower cultural layer with the remains of a hearth was dated to ca 12 ka BP (Paleolit Derbinskogo zaliva, 2018: 146–151).

The number of variants of the Late Upper Paleolithic is increasing, as evidenced by the assemblage from the huge lithic workshop site of Kuibyshevo II, located in the valley of the Dzhebash, a tributary of the Abakan. Its cultural remains are associated with thin upper loams covering the eluvium at a level of 70–75 m (there are finds at levels of 60–65 and 90 m). The site is located close to the outcrops of veined quartzite found less than 1 km westwards. The main part of the lithic industry is similar to the Afontova assemblages, with the predominant use of flakes as blanks, with large single-platform cores, wedge-shaped microcores, side-scrapers, end-scrapers, and chisel-like tools. The collection also demonstrates typical burins, including elongated varieties, fashioned on retouched blades, similar to those found in the Kokorevo assemblages. Noteworthy is a series of thin foliated bifaces described for the first time at the Late Upper Paleolithic sites (Fig. 3) (Zubkov et al., 2019).

Conclusions

Recent discoveries clearly demonstrated a much greater diversity in the disposition of the Upper Paleolithic sites in the region than traditional estimates. On the one hand, sites were found at high elevations, up to the areas close to watersheds, and located far from the modern river system (Yasnoye I). On the other hand, sites associated with unusually low levels were discovered, almost at the level of modern high floodplains (Irba II). It becomes obvious that it is necessary to revise the search criteria previously focused on exploration at low terrace levels along river valleys.

Another important consequence was the understanding of the more complex (than previously thought) structure of the Yenisey Upper Paleolithic at the middle and late stages of its development. The number of cultural variants is multiplying, and it becomes clear that factors of site differentiation should be taken into account. E.V. Akimova points out the factors that influenced the nature of lithic industries: seasonality of habitation, location in river valleys, and the availability of certain types of raw materials (Paleolit Derbinskogo zaliva, 2018: 166). A comprehensive analysis of the previously known assemblages with respect to these factors is a matter for the future.

There are many other issues. One concerns the extremely uneven state of study of the vast territory. The Paleolithic of the Yenisey valley downstream from Krasnoyarsk is still practically unknown, and Druzhinikha is in fact the only known site of the Old Stone Age. On the left bank of the Yenisey, the Kuznetsk Alatau foothills adjacent to the site of Malaya Syia, and the northern piedmonts of the West Sayan, stretching from Sayanogorsk to Bondarevo, have not been surveyed. On the right bank of the Yenisey, the main part of the Tuba valley, the basin of the Kazyr River and its tributary Kizir have not been surveyed either. The "Paleolithic potential" of these areas can be very high.

Finally, a purposeful search for stratified sites in Tuva is necessary. The assemblages of surface-collected artifacts allowed S.N. Astakhov to outline the general chronological stages of the Upper Paleolithic of the region and to show its heterogeneity (1986). Given the lack of stratified and dated sites, it is unclear whether this phenomenon should be interpreted as reflection of the temporal or cultural variation.

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