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D.V. Ozherelyev[1] and T.B. Mamirov[2]
[1]Institute of Archaeology, Russian Academy of Sciences,
Ulyanova 19, Moscow, 117292, Russia
E-mail: dmit.ozherelyev@gmail.com
[2]Margulan Institute of Archaeology,
Pr. Dostyk 44, Almaty, A25D9KO, Kazakhstan
E-mail: talgatmamirov@gmail.com

A Complex of Stratified Upper Paleolithic Sites in the Foothills of the Northern Tien Shan: General Data and Research Perspectives

This article examines the key cultural trends and events in the evolution of the Upper Paleolithic in the foothills of the Northern Tien Shan (Zailisky Alatau, Kazakhstan). It outlines the history of Paleolithic studies in southeastern Kazakhstan. We describe the geographic characteristics of the region, the geomorphological positions of sites, and features of sedimentation that influenced the preservation of cultural remains in situ. Archaeological materials from key Upper Paleolithic sites are reviewed, including those from stratified sites—Maibulak, Rakhat, and Uzynagash-1, -2. Lithic industries and absolute dates suggest that Maibulak was permanently inhabited during the Early, Middle, and probably Late Upper Paleolithic, materials from the early stages being the most expressive. Early Upper Paleolithic industries display Aurignacian-like characteristics and are paralleled by certain Western Eurasian industries of the same age. The multicomponent site of Rakhat was peopled during the end of the Early Upper Paleolithic, in the Middle Upper Paleolithic, and at the beginning of the Late Upper Paleolithic, documenting the evolution of Upper Paleolithic cultures during the ~30–23 cal ka BP interval. The industries of Rakhat include an Aurignacian-like one, a Middle Upper Paleolithic complex with micro-Gravette-like points, and one with geometric artifacts shaped as scalene triangles. For the first time, results of excavations and prospects of future studies at the new sites Uzynagash-1 and -2, dating to the late Early Upper Paleolithic, are outlined. We conclude that Upper Paleolithic cultures (or industries) of the foothills of the Northern Tien Shan are original, while following a single vector with the Upper Paleolithic of Western Eurasia.

Keywords: *Northern Tien Shan, Upper Paleolithic, Maibulak, Rakhat, Uzynagash, loess, lithic industry.*

Introduction

Before the early 2000s, isolated Upper Paleolithic sites with buried cultural layers were known in East, Central, and South Kazakhstan. They were widely separated from one another. Experts regarded the materials of each Upper Paleolithic site as a distinct cultural entity. The pattern of the lithic industries appeared mosaic, and no single evolutionary vector was seen behind it, all the more so because the vast majority of other sites were exposed, chronologically diverse, and could not be viewed as a single whole.

Paleolithic studies in southeastern Kazakhstan have a short history. Before the year 2000, only one site was

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known there: the open-air Middle Paleolithic site of Aktogai, located in the Charyn River valley. The reason for this situation lay in the almost complete absence of reconnaissance surveys. Starting from the early 21st century, archaeological studies have been intensified there. The most significant event of the last two decades was the discovery of a cluster of Upper Paleolithic sites in the foothills of the Zailisky (Trans-Ili) Alatau Range (Northern Tien Shan). This includes Maibulak, Rakhat, Uzynagash-1, -2, Kyzylauz-1–4, Saryzhazyk-1, -2, and others (Taimagambetov, Ozherelyev, 2009: 124–140; Ozherelyev, Dzhasybaev, Mamirov, 2021; Ozherelyev, Lev, Stolpnikova, 2023; Ozherelyev, Uspenskaya, Taimagambetov, 2023; Kunitake, 2019; Iovita et al., 2020). Almost all of these are multilayered sites located in similar geomorphological contexts. Culture-bearing horizons are incorporated into covering loess sediments, which are characterized by a chronologically distinct stratigraphic sequence. Within separate sites, the existence and succession of various Upper Paleolithic complexes can be traced. Given the sedimentation pattern, various cultural levels evidencing settlement, and the homogeneity of the archaeological material, stratified sites in the Northern Tien Shan foothills acquire an interregional significance.

Geographical location

In terms of geography, culture, and history, southeastern Kazakhstan is known as Semirechye or Zhetysu (Seven Rivers), named after seven largest rivers flowing there. The region occupies the southern part of the Balkhash Lake basin—the largest in Central Asia (Fig. 1). The study area with the cluster of Upper Paleolithic sites is located in the Zailisky Alatau—one of the ranges in the Northern Tien Shan. The northern slopes of the range have a stepped structure represented by two terrace-like ledges. Almost all the sites known to date are located on the lower terrace, at an altitude of 950–1150 m above sea level. Most cultural horizons consist of ancient occupation layers containing coaly spots, charred earth lenses, and remains of fireplaces and hearths, as well as lithic artifacts and rare bone remains. We will now briefly describe the principal sites and their materials.

Preliminary findings

Maibulak. The site is located 34 km west of Almaty (Zhambylsky District of the Almaty Region), on the right side of the mouth of the Maibulak River gorge (Fig. 1). The true altitude is 1050 m above sea level. Culture-bearing deposits are incorporated into a loess remnant on the lower terrace ledge in the Zailisky Alatau foothills. The thickness of loess in the site's area is at least 9 m (the depth of the excavation). The site was discovered in 2004. It was studied intermittently up to 2021. The most extensive excavations were carried out in 2004–2006 (Taimagambetov, Ozherelyev, 2009: 124–140). At that time, the total excavated area measured 130 m^2. The maximal depth of the excavation was 9.0 m from the conventional zero level. Seven cultural layers were recorded. Finds from the lower layer 7 (108 spec.) showed a combination of Middle and Upper Paleolithic traits. No absolute dates are available.

Layer 6 contained unusual lithic finds (238 spec.) based on microblade knapping. The collection includes subprismatic, narrow-faced, carinated core-scrapers and core-burins, small blades, and retouched bladelets, as well as points on straight or slightly curved bladelets (Fig. 2, *1–5*). Two charcoal samples from layer 6 generated dates within limits of ~41,300–39,500 cal BP (Feng et al., 2011; Fitzsimmons et al., 2017; Ozherelyev, Uspenskaya, Taimagambetov, 2023). It is assumed that this developed microblade industry was imported to the foothills of the Northern Tien Shan. The migration

Fig. 1. Location of Upper Paleolithic sites in the foothills of the Northern Tien Shan (Zailisky Alatau).
1 – Rakhat; *2* – Maibulak; *3* – Uzynagash-1 and -2.

was part of a cultural impulse that extended over western and central Eurasia ~41,000–39,000 cal BP. Its epicenter was probably the Early Ahmarian of the Levant. Similar (though not identical) industries form a wide stratum in the western part of Eurasia (Proto-Aurignacian, Fumanian, Krems-Hundssteig, Early Kozarnikian, Spitsynian, Early Baradostian, Rostamian) (Tsanova, 2013; Dinnis et al., 2019; Ozherelyev, Uspenskaya, Taimagambetov, 2023). Industries of this circle spread out fast. One of them, associated with the Early Baradostian, penetrated into the Tien Shan foothills via the Iranian Plateau. Stratigraphic materials of layer 6 underlay a more "archaic" lithic industry.

Lithic artifacts from layers 3–5 (1830 spec.) contained Aurignacian-like implements: blades with scalar retouch, carinated core-scrapers, shouldered scrapers, and others (Fig. 2, *6–8*). At the same time, there are artifacts of Middle Paleolithic character: discoid and "Levallois" cores, side-scrapers, and backed knives. According to the results of OSL-dating, the age of loess from layer 5 varies from 30 to 35 ka years. Two radiocarbon dates were obtained for layer 4: ~35,000–32,800 cal BP. One date within the limits of ~32,000–31,100 cal BP was generated for layer 3 (Ozherelyev, Uspenskaya, Taimagambetov, 2023). The archaeological complex from layers 5–3 appears homogeneous. Chronologically, it coincided with the Early and Classic Aurignacian of Europe, differing from it in many respects.

The collection from layer 2 comprises 120 artifacts. According to the results of OSL-dating, the age of loess from this layer varies from 24,000 ± 2000 to 25,300 ± ± 2600 years. The excavated area of layer 1 does not exceed 10 m^2. Lithic artifacts (77 spec.) were scattered over the loess deposit. No reliable absolute dates are available. The collection contains few diagnostic forms. On a number of grounds, the lithics can be attributed to the Late Upper Paleolithic or even to a later period. Generally speaking, Maibulak is the first Upper Paleolithic site discovered in the region. At present, it is part of the industrial development area.

Starting from 2018, on the basis of a cooperation agreement, investigations in southeastern Kazakhstan are carried out by the joint expedition from the Institute of Archaeology RAS (Moscow) and the Margulan Institute of Archaeology (Almaty). The works are focused on excavation of the previously known site of Rakhat, as well as on a search of new Upper Paleolithic localities.

Rakhat. This site is located 32 km east of Almaty (Enbenshikazakhsky District of the Almaty Region) (see Fig. 1). The true altitude is 952 m above sea level. We discovered this site in 2006 in an exposure of a quarry. However, we started the first archaeological excavations there only as late as 2018. The excavations

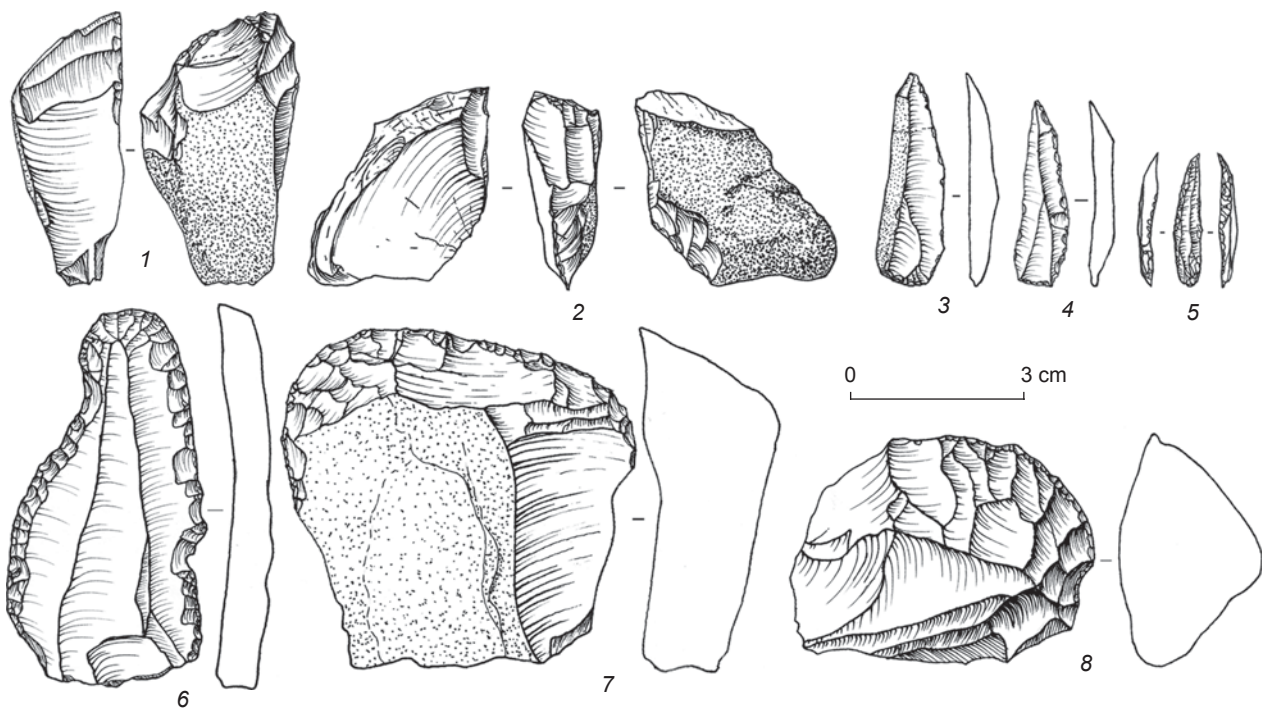

Fig. 2. Lithic artifacts from Maibulak.
1, *2* – carinated core-burins; *3–5* – points; *6*, *7* – end-scrapers; *8* – carinated core-scraper. *1–5* – layer 6; *6–8* – layers 5–3.

are still in progress. Over five years, the whole culture-bearing deposit over the area of approximately 60 m^2 has been examined. Fifteen cultural layers were identified. They are located at different levels of 13-meter-thick loess deposits overlying Late Pleistocene river-bed shingle. The layers contain lithic artifacts, rare animal bones, numerous charred earth lenses, coaly spots, and hearth pits. The number of lithics exceeds 8000 spec., including small debitage pieces. The materials from Rakhat allow us to trace the cultural transformation that proceeded before and right after the Last Glacial Maximum. The site mirrors the transition from the end of the Early Upper Paleolithic, with typical carinated core-scrapers (layer 12), to the Middle Upper Paleolithic (layers 7–11), with peculiar points (Fig. 3, *1–11*). These tools display some morphological similarity with micro-Gravette-like points of the initial Middle Upper Paleolithic. Finds from layers 7–11 date to ~29,500–27,700 cal BP (dates for Rakhat are indexed as IGAN$_{AMS}$) (Ozherelyev, Lev, Stolpnikova, 2023). A lithic industry with such points appears separate from other industries of the area. At the same time, it may be culturally and stadially related to the industry of Kulbulak layers 2.1 and 2 (Kolobova et al., 2013). After a gap, which occurred ~27,500–24,300 cal BP and probably coincided with one of the first cycles of the Last Glacial Maximum, Rakhat layers 1–5 display a different industry, indicating the beginning of a new technological stage within the Upper Paleolithic (Fig. 3, *12–23*). The main feature of it is the appearance of geometric implements in the form of asymmetrical scalene triangles. According to the results of radiocarbon dating, this culture existed at Rakhat ~24,000–23,000 cal BP (Ozherelyev, Lev, Stolpnikova, 2023). Parallels are traceable in the materials of Dodekatym-2 (Middle Asia) (Krivoshapkin, Kolobova, Kharevich, 2009), Epipaleolithic industries of Zagros (Zarzian), and in the final Upper Paleolithic to Early Epipaleolithic assemblages of the Levant (Masraquan, Early Kebaran) (Olszewski, 2012; Belfer-Cohen, Goring-Morris, 2014; Nadel, 2017). Interestingly, the appearance of industries known for mass production of microliths in the Levant (Ohalo II) and in the Northern Tien Shan chronologically coincides. The late stage of the Upper Paleolithic, following the period mentioned above, is still insufficiently documented by materials from the Northern Tien Shan. At the same time, important new sites with abundant materials relating to various stages of the Upper Paleolithic are being discovered.

Uzynagash-1 and -2. The cluster of Uzynagash sites was discovered in 2021. It is located 52 km west-south-west of Almaty (Zhambylsky District of the Almaty Region) (see Fig. 1). The sites are located on the lower terrace ledge of the piedmonts. In relation to the river, this level corresponds to the first fluvial terrace. The true altitude is 1120 m above sea level. Nine loci of surface finds were recorded. The first excavations were conducted in 2022.

At Uzynagash-1, a 19 m^2 large excavation was cut into the slope. Within loess-like sediments, at a depth of 6.05–6.80 m, three cultural layers with numerous lithic artifacts (4390 spec., including fragments, chips, and scales) were found. The collection includes cores, core preforms, hammerstones, flakes, blades, curved and curved-twisted bladelets (Fig. 4, *1*, *15–17*). The toolkit comprises numerous end-scrapers on blades and flakes of various shapes, carinated core-scrapers and core-burins, retouched blades, rare lateral burins, and solitary specimens of bladelets with ventral retouch (Fig. 4, *2–14*). Tools had been manufactured from various stones derived mostly from the Uzynagash River bed. Typical habitation objects were also discovered at the site: two deepened hearths, a charred earth lens, and a utility pit. Judging by the appearance of the lithics, the site can be attributed to the Early Upper Paleolithic. Technological and typological features of the industry from layers 1–3 suggest that it is homogeneous, displaying a markedly Aurignacian-like component. Those three layers may evidence three stages in the peopling of the place. If, on the other hand, we speak of a single culture, then it can be subdivided into stages. The site can be interpreted as a long-term residential base-camp.

At Uzynagash-2, the pilot step-trench revealed two layers with different industries (layer 1 at a depth of 5.5–5.7 m, and layer 2 at a depth of 7.5–7.6 m). Lithic artifacts from layer 1 resemble those from Uzynagash-1. The collection from layer 2 includes a few stone implements (27 spec.) distinguished by their small sizes. Most forms are undiagnostic.

Although the excavations at the Uzynagash cluster of sites are in the initial stage, they have already demonstrated that these sites are new and informative, revealing an expressive archaeological material deposited *in situ*. Noteworthy are the sites such as Kyzylauz-1–4 (studied by S. Kunitake); Tikenekty and Yntymak (studied by R. Iovita); and Saryzhazyk-1 and -2 (studied by D.V. Ozherelyev and T.B. Mamirov), located in various regions of the Zailisky Alatau foothills. The study of these localities

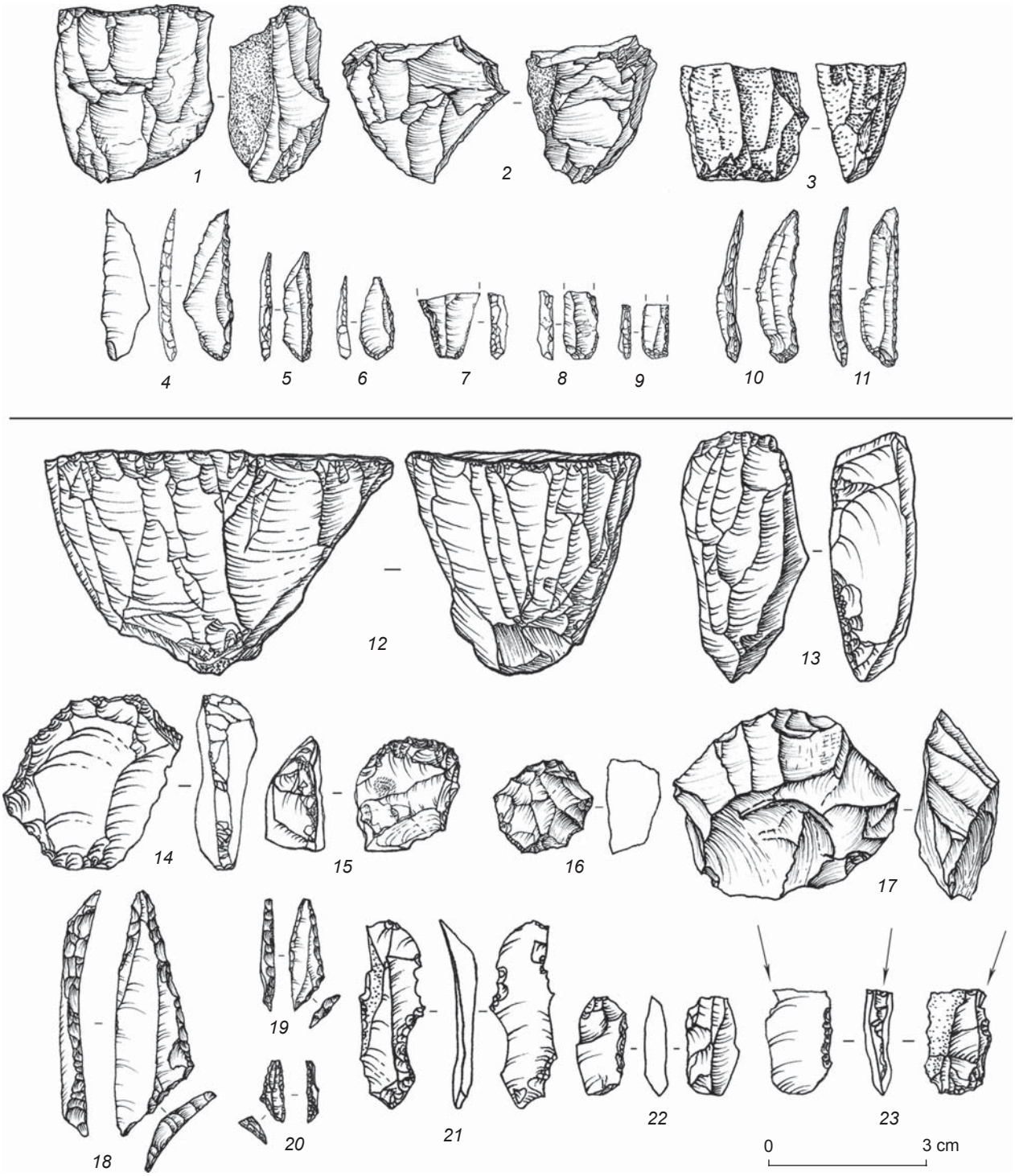

Fig. 3. Lithic artifacts from Rakhat.
1–9 – from layers 7, 8/1: *1–3* – cores, *4–6* – points, *7* – fragment of a point, *8*, *9* – backed bladelets; *10*, *11* – points from layers 9, 10; *12–23* – from layers 2–4/3: *12*, *13*, *17* – cores, *14–16* – end-scrapers, *18–20* – asymmetrical scalene triangles, *21* – notched bladelet, *22* – chisel-like tool, *23* – burin.

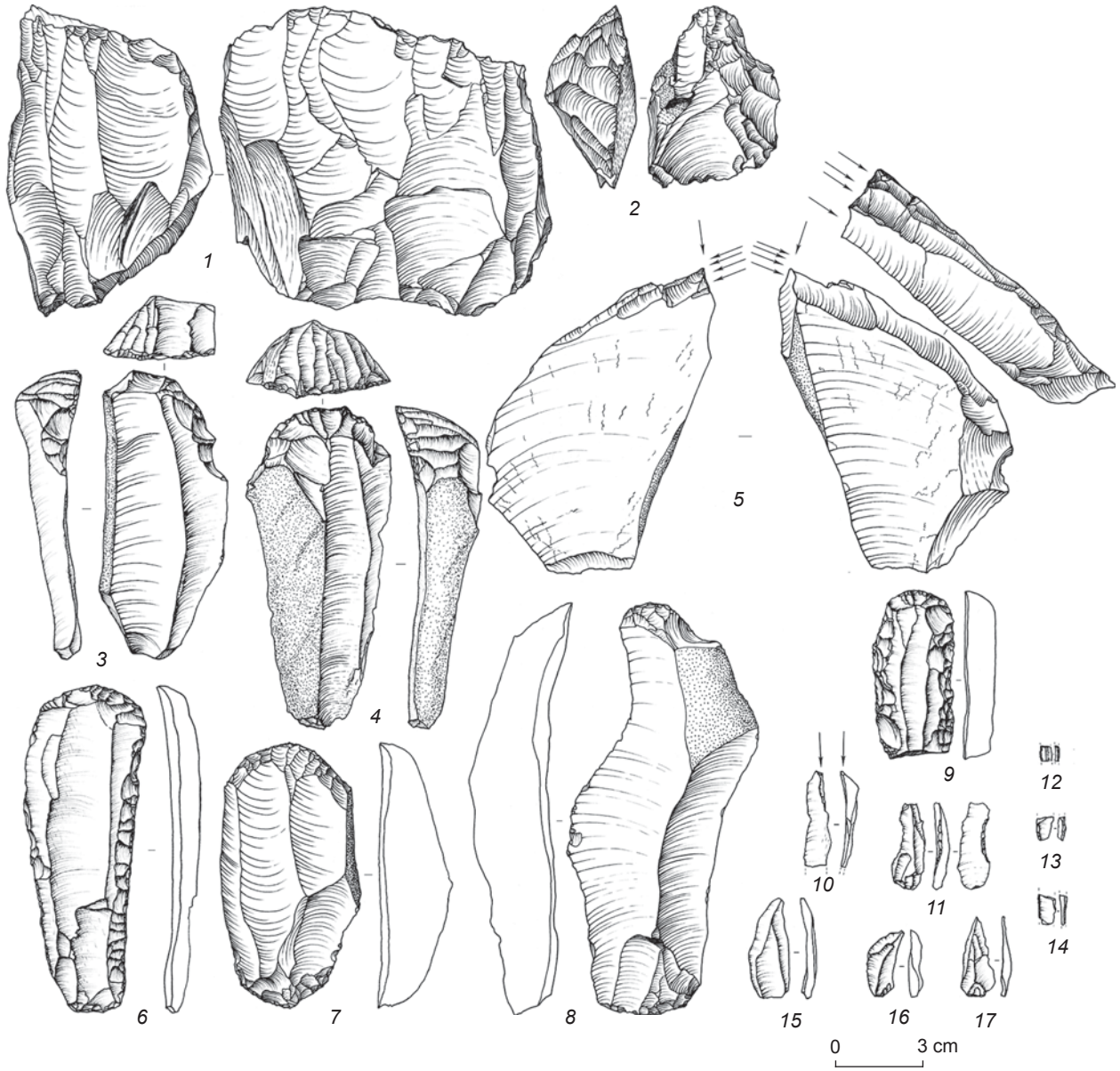

Fig. 4. Lithic artifacts from Uzynagash-1 and -2.
1 – core; *2* – carinated nosed core-scraper; *3*, *4* – carinated core-scrapers on blades; *5* – carinated core-burin; *6–9* – end-scrapers; *10* – burin; *11*, *13*, *14* – bladelets with ventral retouch; *12* – fragment of a microblade with dorsal retouch; *15–17* – bladelets.

is also at an early stage. These sites might belong to different stages of the Upper Paleolithic.

Conclusions

At the present time, systematic studies have demonstrated that the piedmont regions of the Northern Tien Shan are a major center documenting the evolution of the Upper Paleolithic in western Central Asia. Most known Upper Paleolithic sites were discovered in the northern foothills of the Zailisky Alatau; however, there are also sites located in the area of adjacent ranges (Kurama, Byuirukbastau-Bulak) (Chargynov, 2015; Kunitake, Taimagambetov, 2021). The sites in the Zailisky Alatau are multicomponent, embracing different stages of the Upper Paleolithic. The earliest dated evidence of the Upper Paleolithic there belongs to ~35,000 BP (41,000–40,000 cal BP). In our view, its appearance was caused by a single process of human dispersal linked with the spread of closely related cultures such as Proto-Aurignacian, Fumanian, Early Baradostian, etc., preceding the Aurignacian. The most abundant sites in the region

are those dating to the Early Upper Paleolithic and early Middle Upper Paleolithic. It was here that a culture with a distinctly Aurignacian component (Maibulak, Uzynagash-1 and -2, and Rakhat layer 12) originated and evolved. This suggests that the ties between the humans of the Northern Tien Shan and the Aurignacians living west of Central Asia were closer than previously believed. A study of this industry and its changes seems to be quite important for the future. Tentative findings and observations agree with the idea of an *in situ* transformation of the Aurignacian cultural tradition into Middle Upper Paleolithic industries such as those of Rakhat layers 7–10 and Maibulak layer 2. Recent discoveries point to the effect of the Last Glacial Maximum upon the peopling of the region and the evolution of the local Upper Paleolithic. The pattern of lithic industries in ~25,000–23,000 BP (~29,500–27,700 cal BP) is mosaic, which may be caused by the southward shift of landscape and climatic zones and the arrival of humans bearing different cultural traditions to the Northern Tien Shan. The ~23,000–20,000 BP (~27,500–24,300 cal BP) interval was marked by a gap in the cultural sequence, evidently resulting from the highly adverse environmental conditions of the first half of the Last Glacial Maximum. This is indirectly evidenced by the data relating to Late Pleistocene moraines of the Inner Tien Shan (Narama et al., 2009). The key event at the beginning of the Late Upper Paleolithic was the emergence of an innovative lithic industry with the first geometric microliths and similar points (scalene triangles) between ~20,000–19,000 BP (~24,000–23,000 cal BP). This industry is attested by Rakhat layers 1–5. Its appearance may be a technological response to the environmental challenges of the Last Glacial Maximum. The further evolution of the Upper Paleolithic cultural traditions in the region is poorly known. Climatic conditions following the Last Glacial Maximum might have contributed to a more intense peopling not only of the piedmont but also of intermontane troughs and gorges of the Inner Tien Shan.

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