
The bladelet production in the Early Upper Palaeolithic assemblage of the Ust-Karakol-1 site (Russian Altai)

Natalia Belousova*^{†1}, Alexander Yu. Fedorchenko¹, and Dmitriy Gurulev²

¹Institute of Archaeology and Ethnography of the Siberian Branch of the Russian Academy of Sciences (IAET SB RAS) – Russia, 630090, Novosibirsk, Acad. Lavrentiev avenue, 17, Russia

²Institute of Archaeology and Ethnography of the Siberian Branch of the Russian Academy of Sciences – Russia

Abstract

Assemblages of the Ust-Karakolian cultural tradition appear in Southern Siberia about 35–33 ka uncal BP and reflect a regional variant of the Early Upper Palaeolithic. Mobile groups of hunter-gatherers represented this population; in technological terms, this tradition had many parallels with the Aurignacian in Europe and the Middle East. Here we present new data on the technology of bladelet production from the Ust-Karakol-1 site in Russian Altai. Our research focused on the production sequences and functions of artefacts following technological, experimental and petrographic methods, 3D-modeling. An integrated approach helps determine the role of the discussed technology in economic activities and identify some cultural and behavioural stereotypes of the Early Upper Palaeolithic inhabitants of Altai.

The lithic assemblage of Ust-Karakol-1 is based on the blade production technology using volumetric parallel unidirectional reduction. The primary trend in this complex was the production of miniature and narrow bladelets from edge-faceted and wide-frontal volumetric cores. The toolkit of Ust-Karakol-1 includes backed bladelets, carinated end-scrapers, ogival end-scrapers, massive side-scrapers. A specific feature of the Ust-Karakolian assemblages of Altai was personal ornaments made of serpentine, teeth of hoofed mammals and shells of freshwater molluscs.

The petrographic study shows that the raw materials for the bladelet production were high-quality nodules and flakes from hornfels pebbles, dense weakly-hornfelsed sedimentary rocks, thinly crystallized aphyric effusives, and homogeneous siltstones, as well as jaspers, wax jasperoids, and rock crystal, which are lithic raw materials of the highest quality in terms of technology. The results of the technological analysis showed that the preparation of the core's preform was minimal or complex. In the latter case, the master gave the item the shape of an elongated trihedral prism, while the front was located at the core's end, and the section of the preform provided it with the necessary triangular shape. The shortened front acquired a convex shape and arcuate profile during the reduction of the cores by the unidirectional method, and the products acquired a carinated morphology. In this group, we revealed a series of expressive intensely worked cores of the specific bifrontal modification.

*Speaker

[†]Corresponding author: consacrer@yandex.ru

Depending on the utilization strategy and the degree of reduction, blanks with a straight or curved profile were produced. The bladelets are significantly differentiated from the blades by the size of the residual butt; the proportion of the proximal oval zones is much higher among the bladelets. We recorded the traces of reduction and abrasive preparation on the residual butts of bladelets and cores for their production in Ust-Karakol-1 assemblage. According to the results of experimental modelling, the reconstructed reduction sequences could be implemented on local raw materials using a soft organic hummer or an intermediate tool. This research was funded by the Russian Science Foundation project No 20-78-10125 "The dynamics of cultural development and human colonization of Altai at the onset of the Upper Paleolithic: life support strategies, paleotechnologies, mobility".

Keywords: Altai Mountains, Ust, Karakol, Early Upper Paleolithic, lithic raw material, technological analysis, bladelet production, carinated cores