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Khengerekte-Sukhotino— An Upper Paleolithic Culture in Transbaikalia

During the studies at the Barun-Alan-1 stratified site in Western Transbaikalia, a lithic industry was described, providing a basis for a new archaeological culture, termed Khengerekte. Similar materials were excavated from nearby sites such as Sloistaya Skala and Khenger-Tyn-3 Svyatilishche. A comparative analysis of the Khengerekte industry of Barun-Alan-1 and that from the Sukhotino-4 in southern Chita, Eastern Tranbaikalia, reveals that most of their typological groups are quite similar. On that basis, the culture's distribution area was extended, and the culture itself was renamed Khengerekte-Sukhotino, spanning ~400 km from Barun-Alan-1 in the west to Unenker in the east. The calendar age of excavated layers of key Khengerekte-Sukhotino sites, Barun-Alan-1 and Sukhotino-4, was estimated at 12–33 ka BP. Their lithic industry, based mainly on microblades, is described. Bifaces, unifaces, and high side-scrapers are common. The origin of the Khengerekte-Sukhotino culture is an open question.

Keywords: *Upper Palaeolithic, archaeological culture, Western Transbaikalia, Eastern Transbaikalia, Barun-Alan-1, Sukhotino-4.*

Introduction

The Khengerekte-Sukhotino archaeological culture was identified based on similar and in many cases identical evidence at the Barun-Alan-1 and Sukhotino-4 sites (Tashak, 2020). At the initial stages of research, only the lithic industry of Khengerekte was distinguished during the works at the stratified site of Barun-Alan-1 in 2004–2015 (Tashak, 2010). It is represented in the materials of the lower layer of lithological horizon 6 and in all layers (7a–c) of lithological horizon 7 (Fig. 1)*. In 2015, artifacts of the Khengerekte culture were found at the Sloistaya Skala archaeological site, located 450 m north of Barun-Alan-1 and separated from it by a rocky ridge (Tashak, 2019). The additional technical and typological analysis of evidence from lithological layers 2–6 of the Khenger-Tyn-3 Svyatilishche archaeological site, located 1600 m southeast of Barun-Alan-1 (Tashak, 2005b), revealed that they belonged to that same culture. All these sites are located close to each other (2100 m between the extreme objects) on the southwestern spurs of Mount Khengerekte, in the estuary part of the Alan River valley. However, the issues of territorial distribution of the culture and its possible links with archaeological cultures of the adjacent areas remained unresolved.

In 2019, the evidence from the Sukhotino-4 stratified site (Eastern Transbaikalia), where field works had been carried out for many years since 1972, was used for the comparative analysis. Unfortunately, this evidence

*Layer 7d is an independent lithological unit.

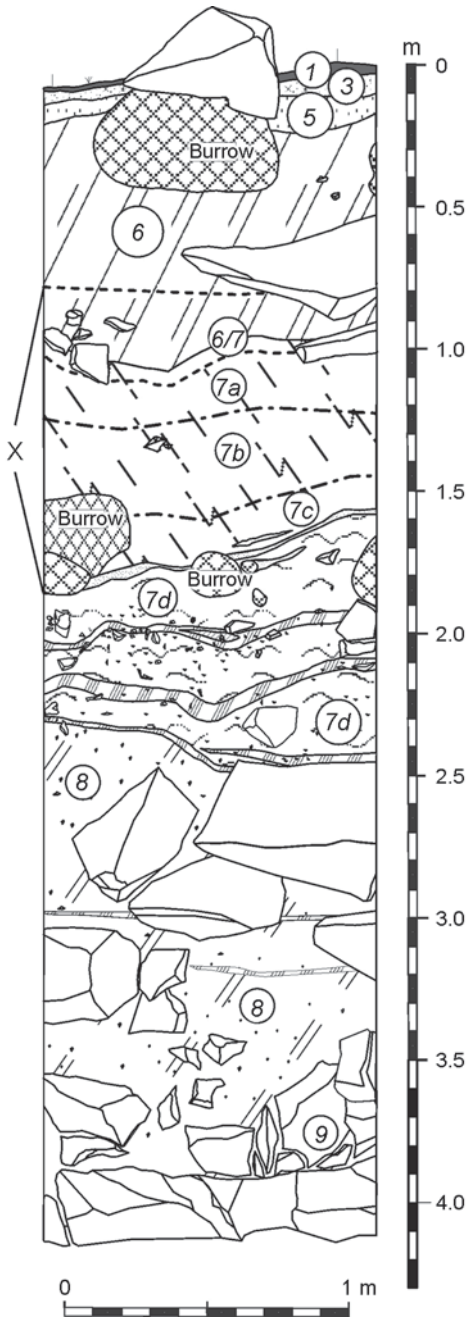

Fig. 1. Stratigraphic sequence of the southern wall of the excavation at Barun-Alan-1 (X – layers of deposition of archaeological evidence of the Khengerekte-Sukhotino culture).

was published extremely fragmentarily (Kirillov, 1973, 1980, 1986, 2003; Okladnikov, Kirillov, 1980: 41–51; Cherenshchikov, 1985), which hampered its comprehensive comparison with data from other Paleolithic sites. In the course of new research, it was established that some groups of Khengerekte artifacts were identical with those from Sukhotino-4 industry; the technique of lithic reduction and tool manufacture was also common. On the basis of these conclusions, it was proposed to name the culture "Khengerekte-Sukhotino". The ongoing works with materials from the Western and Eastern Transbaikalia have provided new information about the area of that culture, aspects of settling in habitation zones, and specific features of the lithic industry.

Main features of the lithic industry

The sites of Barun-Alan-1 and Sukhotino-4 contain both macro- and microindustry. The former is dominated by the parallel reduction of flat-faced frontal single-platform cores (Fig. 2, *1*) aimed at the production of large laminar flakes. These flakes were detached from wide flat surfaces of cores, starting from the natural or specially prepared angle ridge. Multiplatform and cuboid cores executed in the orthogonal reduction technique are much less common. Large blades with even edges and parallel faceting (in Barun-Alan-1, about 1.1 %, including fragments), as well as subprismatic single-platform cores, are few. The majority of cores of all types bear flaking scars on the striking platforms in the areas of presumable flaking, while the entire surfaces were rarely processed. A part of striking platforms retain their natural crust. The most common type of large blades and laminar flakes is the oblong spall with dihedral and very asymmetric dorsal surface (Fig. 2, *2*). The abundance of such spalls suggests that the reduction from flat-faced frontal cores started from the angle ridge and gradually moved to the boad flaking surface, while permanently maintaining the ridge.

The microindustry at the sites under discussion aimed at obtaining small blades from edge-faceted cores, most of which were wedge-shaped (Fig. 2, *3–5*). The microblade industry was based on cores with flaking surfaces reaching 4 cm in height and 3 cm in depth. Items with low flaking surface and large distance from it to the back surface are rare. For example, there are only three cores from fractured biface tools. Their striking platforms were the surfaces of transverse break of a large biface (Tashak, Kovychev, 2020). Purposeful detachment of bladelets up to 10 mm wide (less often somewhat wider) was carried out from a few fan-shaped and large edge-faceted cores.

The industries of both sites contain a lot of side-scrapers (Fig. 2, *6–8*), including carinated items and scraper-knives. Carinated side-scrapers differ in the way they were shaped: some were fashioned as unifacial tools with complete or almost complete dorsal trimming, while in others, only the working edge was processed.

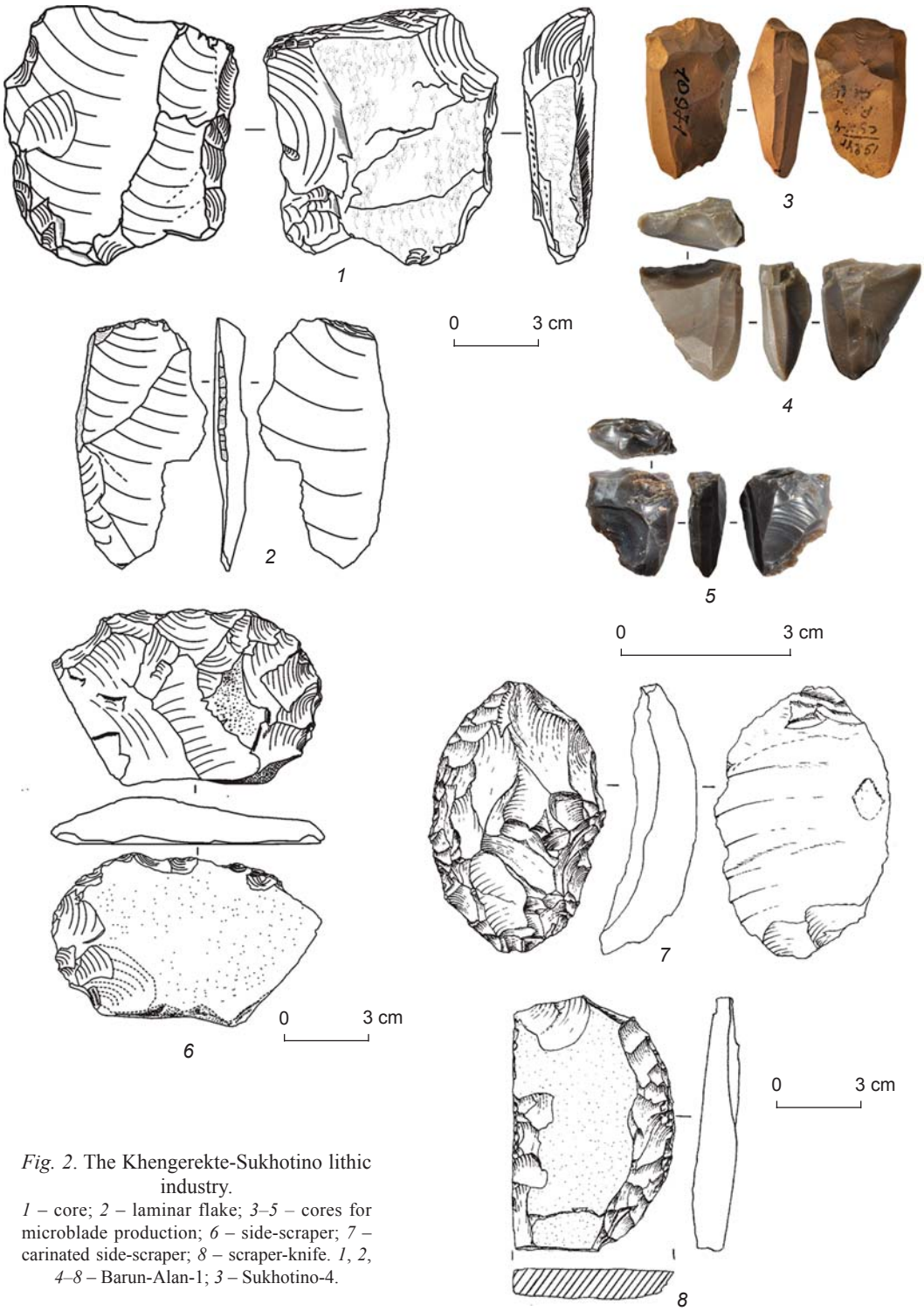

Fig. 2. The Khengerekte-Sukhotino lithic industry.
1 – core; *2* – laminar flake; *3–5* – cores for microblade production; *6* – side-scraper; *7* – carinated side-scraper; *8* – scraper-knife. *1*, *2*, *4–8* – Barun-Alan-1; *3* – Sukhotino-4.

The most expressive are numerous bifaces and unifaces (Ibid.), which can be subdivided into tools and preforms of edge-faceted cores for the production of microblades. The majority of such tools are knives of various shapes (segment-shaped, ellipsoid, etc.) with natural or specially shaped backs (Fig. 3). The complete identity of tools from the sites of Barun-Alan-1 and Sukhotino-4 is observed precisely in this category of tools: similar are the shapes and methods of processing backs and edges, as well as methods of flattening the items (Ibid.). Side-scrapers are significantly less numerous among bifaces. Distinctive leaf-shaped

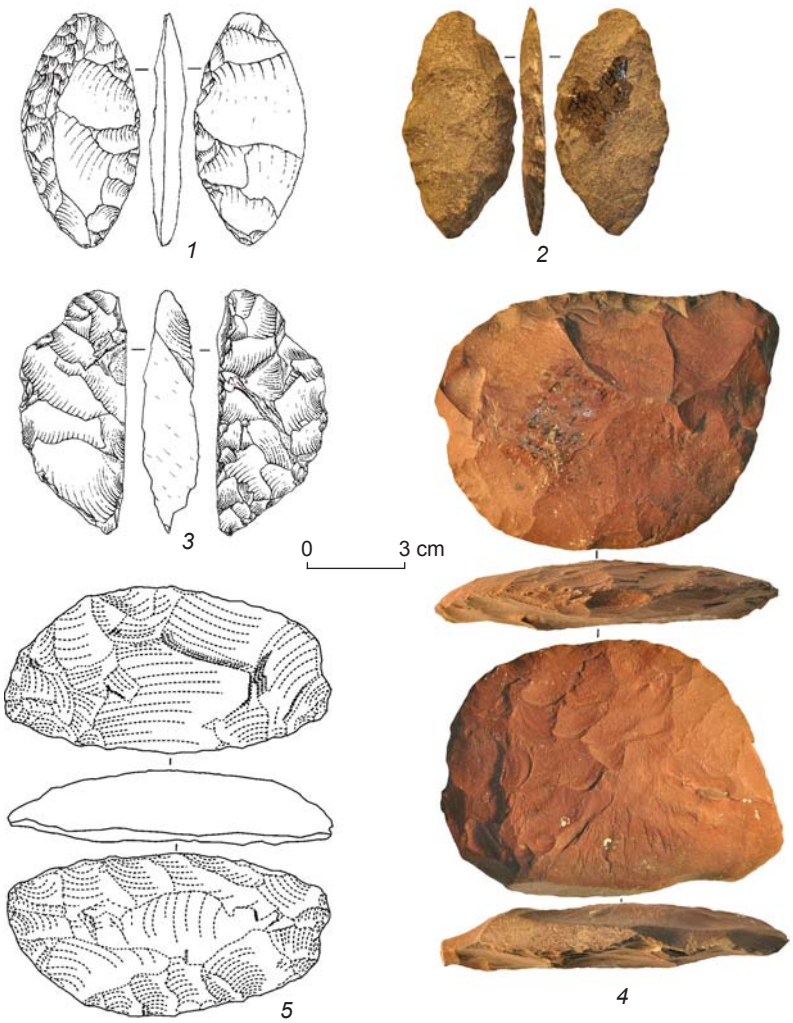

Fig. 3. Bifacial tools.
1, *2*, *5* – bifaces with retouched back (ellipsoid); *3* – segment-shaped biface (knife); *4* – large segment-shaped biface. *1*, *3*, *5* – Barun-Alan-1; *2*, *4* – Sukhotino-4.

pointed bifaces include strongly flattened items with the trimmed basal end, which makes it possible to consider them arrowheads.

The strategy of raw material use also shows some common features. At both localities, the macro-industry was based on the best available local raw materials, such as rhyolite-porphyry at Barun-Alan-1 (Tashak, 2020), and hornfels at Sukhotino-4 (Moroz, Yurgenson, 2018). Flints, jasperoids, and chalcedony were widely used in microindustry and in the manufacture of bifaces. The dimensions of lithics usually weren't a determining factor in choosing raw materials. However, for the production of microblades, knappers purposefully selected the blanks with metric parameters close to cores fully prepared for reduction.

Area of the Khengerekte-Sukhotino culture

After ten years of systematic studies at Barun-Alan-1, the Khengerekte industry was found only at that site. Later, it was recorded at two more archaeological sites of Sloistaya Skala and Khenger-Tyn-3 Svyatilishche, located at the foot of Mount Khengerekte. The Khengerekte industry, which differs from other Upper Paleolithic industries in Western Transbaikalia, had remained geographically limited, calling identification of an independent culture into question. Establishing the similarity between this industry and the material evidence from Sukhotino-4, located in the vicinity of the city of Chita in the Eastern Transbaikal region, has led to identifying a vast area of distribution of sites of the same type. As a result, a more precise designation of the culture as "Khengerekte-Sukhotino" was proposed (Tashak, 2020).

Further studies of archaeological evidence from the collection of the Transbaikal State University have revealed common features in the industries of the Unenker site and the Khengerekte-Sukhotino culture (Tashak, Kovychev, 2021). That site, where surface finds were made, is located 130 km east of Sukhotino-4. This indicates the spread of the Khengerekte-Sukhotino culture to the east, deep into the Eastern Transbaikalia. The Unenker site, like Sukhotino-4, is located in the valley of the Ingoda River, 2 km from the right, southern bank. Paleolithic evidence was discovered in the area where the slopes of the Borshchovochny Ridge spurs meet the alluvial piedmont plain. This area rises 15–20 m above the river level. Taking into account the distance between the extreme archaeological sites (387 km) of the Khengerekte-Sukhotino culture, currently the area of this culture from west to east is believed to reach about 400 km (Fig. 4).

Notably, in the vicinity of Chita, horizons with the evidence of the Khengerekte-Sukhotino culture were excavated at another archaeological site of Dvortsy. The site is located 20 km northwest of Sukhtino-4, in the Ingoda River valley, on the opposite side of Sukhtino-4, in a wide gorge of the Yablonovy Ridge,

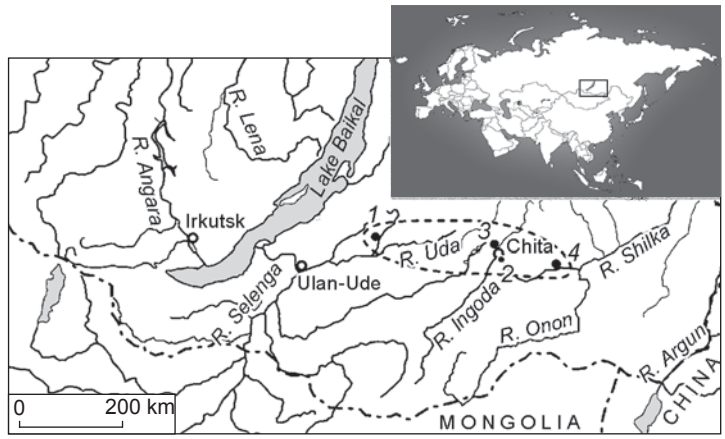

Fig. 4. Area of archaeological objects with the Khengerekte-Sukhotino evidence.
1 – Barun-Alan-1, Sloistaya Skala, Khenger-Tyn-3 Svyatilishche; *2* – Sukhotino-4; *3* – Dvortsy; *4* – Unenker.

where the Kadalinka River flows. Although Paleolithic finds from that site have not been decribed in publications, their similarity with the evidence from Sukhotino-4 has been mentioned (Cherenshchikov, 2013: 31). Unlike Sukhotino-4 and Unenker, and similarly to Barun-Alan-1, the Dvortsy site is located far from a large watercourse. The presence of two similar sites on the sides of the wide Ingoda River valley suggests the active development of this location and adjacent areas by the Khengerekte-Sukhotino people.

Chronology

Dating the sites of Barun-Alan-1 and Sukhotino-4 has shown that the period of the Khengerekte-Sukhotino culture coincided with that of the Sartan cooling. According to the data for Barun-Alan-1 layer 7, the culture appeared at the final stage of the Karga interstadial: layer 7c was dated to 26,911 ± 975 BP (NSKA-s571) or 32,140–30,035 cal BP, and layer 7b, 22,920 ± 140 BP (TKa-17114) or 27,325–27,155 cal BP (Tashak, 2020: 125, 126). The final stage of the Khengerekte-Sukhotino culture was associated with the end of the Sartan cooling, as indicated by the radiocarbon date of 11,900 ± 130 BP (SOAN-841) obtained for Sukhotino-4 layer 1 (Okladnikov, Kirillov, 1980: 51). Layers 6–8 of that site are dated to 15,820 ± ± 300 BP (LE-3652), 16,810 ± 390 (LE-3647), and 16,870 ± 700 BP (LE-3653), respectively (Lisitsyn, Svezhentsev, 1997), which coincides with most of the dates for Barun-Alan-1 layer 7a, while layers 10 and 11, which occur much deeper than layer 8, can be correlated with layer 7b. The above date for Barun-Alan-1 layer 7c is close to the earliest date of 26,110 ± 200 BP (SOAN-1138) for Sukhotino-4, which raises some doubts due to large difference with the date of layer 1. It has been mentioned that the samples came from different excavation areas, and so the layers of deposition could have been different (Okladnikov, Kirillov, 1980: 51). The coincidence of the earliest radiocarbon dates for Barun-Alan-1 and Sukhotino-4 testifies to the acceptability of the latter date and to contemporaneous existence of the two archaeological sites remote from each other. The initial stage of the Khengerekte-Sukhotino might have occurred in the late stage of the Early Upper Paleolithic, which is comparable with late dates of the Upper Paleolithic Tolbaga culture.

Conclusions

At the current stage of research, the Khengerekte-Sukhotino archaeological culture in the Western Transbaikalia can be identified on the basis of the lower layer of horizon 6 and all layers of horizon 7 at Barun-Alan-1. Similar materials were discovered at the nearby archaeological sites of Sloistaya Skala and Khenger-Tyn-3 Svyatilishche. In the Eastern Transbaikalia, the basic site is the stratified site of Sukhotino-4; the Khengerekte-Sukhotino culture also occurs at the Dvortsy and Unenker localities. Unenker marks the eastern boundary of its area.

Lithic artifacts from Barun-Alan-1 and Sukhotino-4 are similar in many respects. For example, the same technique of primary reduction in macro- and micro-industry can be observed. Bifacially and unifacially processed tools, carinated side-scrapers, pointed items made of microblades, etc. are completely identical. All this makes it possible to speak about a cultural affinity of these industries, which leads to the establishment of a corresponding archaeological culture. The distance between the two basic sites (Barun-Alan-1 in the west and Sukhotino-4 in the east) is 250 km, which indicates a significant area of distribution of the Khengerekte-Sukhotino culture. This area was expanded at a new stage of research by adding the Paleolithic evidence of the Unenker site (about 400 km from west to east).

There are some differences between western and eastern sites. First, this is the location in the terrain: Barun-Alan-1 and the accompanying objects are confined to the slopes of a mountain with expressive rocky cliffs; Sukhotino-4 and Unenker are associated

with terrace levels of a large watercourse of the Eastern Transbaikalia—the Ingoda River. The locality of Dvortsy indicates that the Khengerekte-Sukhotino people in the Eastern Transbaikal region also chose for their camps places on alluvial piedmonts in the valleys of small rivers. Futhermore, the remains of horizons with dwellings and hearths with stone linings were found at Sukhotino-4, but not at Barun-Alan-1, possibly because the latter is located under the rocks with abundant rubble at the foot, which precludes the identification of any stone structures.

Chronological studies carried out at the sites of Khenger-Tyn-3 Svyatilishche, Sukhotino-4, and Barun-Alan-1 have established the time frame for the Khengerekte-Sukhotino archaeological culture within the entire Sartan cooling period. The dating of Barun-Alan-1 layer 7c has revealed that its earliest stage coincided with the end of Karga interstadial, ca 30 ka BP. In the area of Titovskaya Sopka (the Sukhotino group of sites), the earliest manifestation of this culture are presumably the materials from the lower layers of Sukhotino-2. These were compared with the Tolbaga culture of the Western Transbaikalia and, accordingly, attributed to the Initial Upper Paleolithic (Cherenshchikov, 2013: 51). However, the relationship between these cultures has not been proven. The Tolbaga complexes completely lack bifacially processed tools and microblade industry, but show the mass production of tools on large blades. The lithics from Barun-Alan-1 layer 7d (not to be confused with the overlying layer 7) contain very few items connecting it with the Khengerekte industry; therefore, the continuity of industries from layer 7d to layer 7 remains in doubt. The materials from lithological layer 7d have more common features with the Tolbaga culture, but still reveal a lot of peculiarities. According to main components, such as bifaces and edge-faceted microblade cores, there is similarity between the Khengerekte-Sukhotino culture and Dyuktai Paleolithic culture of Northeast Asia, identified by Y.A. Mochanov (2007: 41). Since their earliest manifestations are comparable in terms of age (35–30 ka BP for the Dyuktai culture (Mochanov, 1977: 223) and 32–30 cal ka BP for Barun-Alan-1 layer 7c), the issue of possible influence of the Dyuktai on the origins of Khengerekte-Sukhotino should be left open.

It was suggested that the Khengerekte-Sukhotino had a wider area of distribution in the late Karga interstadial and the early Sartan cooling (Tashak, 2020). In particular, bifacial tools typical of the lower layers at Sukhotino-4 have been discovered on the banks of the Selenga River at Ust-Kyakhta-16, in a layer with a radiocarbon date of ca 27 ka BP (Tashak, 2005a: 77). Such tools have not been found among the evidence from the sites of the Final Paleolithic associated with the Selenga culture, which may testify to a decrease in the area of the Khengerekte-Sukhotino culture or a cultural entity with common features in lithic industry.

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References

Cherenshchikov O.Y. 1985
Kostyanoy inventar i predmety iskusstva iz mnogosloinogo poseleniya Sukhotino-4 (Vostochnoye Zabaikalye). In *Problemy arkheologii Sibiri i Dalnego Vostoka: Tezisy dokl. k XXV arkheol. stud. konf., 3–6 apr. 1985 g*. Irkutsk: Irkut. Gos. Univ., pp. 15–16.

Cherenshchikov O.Y. 2013
Kamen na ladoni. Chita: Ekspress-izdatelstvo.

Kirillov I.I. 1973
Paleoliticheskiye stoyanki Sokhatino (Titovskaya sopka). In *Voprosy krayevedeniya Zabaikalya*, iss. 1. Chita: Irkut. Gos. Ped. Inst., Chit. Gos. Ped. Inst., pp. 168–183.

Kirillov I.I. 1980
Predmety izobrazitelnogo iskusstva paleoliticheskogo poseleniya Sokhatino IV (Titovskaya sopka). In *Zveri v kamne*. Novosibirsk: Nauka, pp. 239–246. (Pervobytnoye iskusstvo).

Kirillov I.I. 1986
Noviye danniye o poselenii drevnekamennogo veka Sukhotino-4 iz Vostochnogo Zabaikalya. In *Pamyatniki drevnikh kultur Sibiri i Dalnego Vostoka*. Novosibirsk: IIFiF SO AN SSSR, pp. 143–147.

Kirillov I.I. 2003
Khozyaistvenno-bytoviye kompleksy i nekotoriye gruppy artefaktov kak svidetelstva razvitiya dukhovnoy kultury i zarozhdeniya nauchnykh znaniy v pozdnem paleolite (na primere mnogosloinogo poseleniya Sukhotino-4). In *Kulturno-istoricheskiye formy povedeniya cheloveka*. Chita: Poisk, pp. 3–11.

Lisitsyn N.F., Svezhentsev Y.S. 1997
Radiouglerodnaya khronologiya verkhnego paleolita Severnoy Azii. In *Radiouglerodnaya khronologiya Vostochnoy Yevropy i Severnoy Azii: Problemy i perspektivy*. St. Petersburg: IIMK RAN, pp. 67–108.

Mochanov Y.A. 1977
Drevneishiye etapy zaseleniya chelovekom Severo-Vostochnoy Azii. Novosibirsk: Nauka.

Mochanov Y.A. 2007
Dyuktaiskaya bifasialnaya traditsiya paleolita Severnoy Azii (istoriya yeyo vydeleniya i izucheniya). Yakutsk: Tsentr arkt. arkheologii i paleoekologii cheloveka AN Resp. Sakha (Yakutiya).

Moroz P.V., Yurgenson G.A. 2018
Mineralnoye syryo Sukhotinskogo geoarkheologicheskogo rayona. In *Yevraziya v kainozoye: Stratigrafiya, paleoekologiya, kultury*, iss. 7. Irkutsk: Izd. Irkut. Gos. Univ., pp. 110–115.

Okladnikov A.P., Kirillov I.I. 1980
Yugo-Vostochnoye Zabaikalye v epokhu kamnya i ranney bronzy. Novosibirsk: Nauka.

Tashak V.I. 2005a
Paleoliticheskiye i mezoliticheskiye pamyatniki Ust-Kyakhty. Ulan-Ude: Izd. BNC SO RAN.

Tashak V.I. 2005b
Paleoliticheskiye materialy drevnego poseleniya Khenger-Tyn-3 "Svyatilishche". In *Paleoliticheskiye kultury Zabaikalya i Mongolii (noviye pamyatniki, metody, gipotezy)*. Novosibirsk: Izd. IAET SO RAN, pp. 41–55.

Tashak V.I. 2010
K obosnovaniyu novoy arkheologicheskoy kultury v verkhnem paleolite Zabaikalya. *Vestnik Buryatskogo gosudarstvennogo universiteta*. Iss. 8: Vostokovedeniye: 234–241.

Tashak V.I. 2019
Arkheologicheskoye mestonakhozhdeniye Sloistaya Skala v Zapadnom Zabaikalye: Noviye danniye o kulture khengerekte. *Teoriya i praktika arkheologicheskikh issledovaniy*, No. 2: 35–46. doi:10.14258/tpai(2019)2(26).-03

Tashak V.I. 2020
Arkheologicheskaya kultura s bifasami v verkhnem paleolite Zabaikalya. *Teoriya i praktika arkheologicheskikh issledovaniy*, No. 3: 119–133. doi:10.14258/tpai(2020)3(31).-10

Tashak V.I., Kovychev E.V. 2020
Bifasialniye orudiya v kamennoy industrii Sukhotino-4 (Vostochnoye Zabaikalye). *Izvestiya Laboratorii drevnikh tekhnologiy*, vol. 16 (3): 9–31. URL: https://doi.org/10.21285/2415-8739-2020-3-9-31

Tashak V.I., Kovychev E.V. 2021
Unenker – paleoliticheskoye mestonakhozhdeniye kultury khengerekte-sukhotino v Zabaikalye. In *Problemy arkheologii, etnografii, antropologii Sibiri i sopredelnykh territoriy*, vol. XXVII. Novosibirsk: Izd. IAET SO RAN, pp. 259–265.

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