

Advancing Archaeological Research of the Mongolian Altai through the Scientific Study of Deer Stones: New Discoveries from Buyant Valley



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ABSTRACT

In archaeology, the Mongolian Altai remains a poorly studied region of Asia. Since 2007, systematic studies have been conducted there by a joint expedition of three universities from Mongolia and Russia. This work has provided important information for the reconstruction of the history of ancient nomadic peoples. Of particular importance is the comprehensive documentation of deer stones dated to the Arjan-Mayemir period (the first few centuries of the first millennium B.C.). These stones are carved with images that allow archaeologists to date and reconstruct traits of the corresponding material culture. On the basis of results of exploration and documentation of deer stones in Buyant Valley (near the town of Khovd) and other places in the Mongolian Altai, the author proposes a new perspective on the peculiarities of the objects presented on these stelae and their relationship with funerary and commemorative structures. Comparing the objects the images portray to equivalent archaeological findings reveals their social significance. This approach and method to studying deer stones provides important insights into the ancient material culture as well as future prospects for research on Iron Age nomadic societies in Mongolia. **KEYWORDS:** Mongolian Altai, Arjan-Mayemir period, deer stones, *khirigsuur* mounds, rock carvings, rubbing method.

INTRODUCTION

AT PRESENT, STUDYING THE CULTURE OF THE NOMADIC PEOPLES of the Mongolian Altai of the Arjan-Mayemir period (the first few centuries of the first millennium B.C.) is difficult due to a general absence of archaeological remains of settlements. Although a substantial number of funeral-memorial complexes have been dated to this period, with some being large in scale (e.g., [Turbat et al. 2009](#)), very few objects have been recovered from them. Ancient looting and modern destruction of these sites are ubiquitous problems. So far, museums in the region have gathered a very small collection of copper and bronze artifacts that were either found inadvertently or by local prospectors using metal detectors; other finds have been kept in private collections or lost. Moreover, archaeological details are difficult to glean from Chinese

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historical sources, which only supply sketchy descriptions of this period. Despite these issues, we can infer that a large community of people in the region built the burial complexes known as *khirigsuurs*, but since very few material finds associated with these people have been discovered, it is difficult to characterize their cultural patterns or socio-political organization. However, “deer stones,” tall slabs of granite reaching up to 4 m in height, are often found at these funerary-memorial complexes. Classically depicting stylized deer, but also showing a range of anthropomorphic motifs, these “deer stones” have become an important source of symbolic information relevant for reconstructing aspects of nomadic life in Inner Asia during the first few centuries of the first millennium B.C. For example, there is an established view in current archaeological discourse that some deer stones represent a heroic and well-adorned warrior (Khudyakov 1987; Khudyakov and Erdene-Ochir 2011). Indeed, on deer stones of these so-called ancestral leaders, it is common to encounter depictions of possessions such as belts, weapons, clothing, jewelry, and so on. However, more nuanced views of ancient nomadic societies can be derived from these deer stones, as a substantial number of them reflect a range of more quotidian symbols, which offers an opportunity to unlock their cultural use in the broader Eurasian context.

Deer stones exhibit wide geographic distribution in Eurasia, having been found in Northern and Central Mongolia, Transbaikalia, Tuva, Altai (Russia), Xinjiang (China), Kazakhstan, the Urals, the Black Sea, the Caucasus, and some other regions of Eurasia (Bayarsaikhan 2017; Chlenova 1962, 1984; Dikov 1958; Fitzhugh 2009; Fitzhugh and Bayarsaikhan 2010; Jacobson-Tepfer 2001, 2015; Jacobson-Tepfer et al. 2010; Khudyakov 1987; Khudyakov and Erdene-Ochir 2011; Kovalev 2000; Kubarev 1979; Magail 2005, 2007, 2008; Novgorodova 1984; Okladnikov 1954; Ol'khovskiy 1989, 2005; Savinov 1990, 1994, 2010; Takahama et al. 2006; Turbat 2008; Turbat et al. 2009; Volkov 1981, 2002). However, a specialized study of deer stones in the Mongolian Altai has not yet been undertaken.

When these unusual ancient stones were first studied, besides the characteristic “flying” deer, weapons were also noted. As more images were recorded, it became clear that an image of a so-called “nomadic warrior” had been originally carved on many stones. Despite their diverse designs, all types of the stones were characterized by including what well-known archaeologist V. V. Volkov (2002:18) described as “anthropomorphic features” that had “apparently [been] embedded in them from the very beginning.”

Currently, there are numerous interpretations of the images on deer stones (Bayarsaikhan 2017; Savinov 1994; Tishkin 2013b), but deciphering the meaning of certain individual motifs has remained difficult. This is affected not only by the quality of the copies and the number of discovered monuments, but also by other factors such as the preservation condition of the stone and the experience of the researcher in documenting the carvings.

A specialized and systematic study of these stones provides insight into diverse aspects of life and activities in ancient nomadic communities in Eurasia. This article presents new finds of deer stones in the Mongolian Altai and analyzes their imagery to seek an understanding of the enigmatic nomadic communities of the Arjan-Mayemir period. Recent research shows that recognizing the characteristic motifs or universal models of deer stone carvings allows researchers to discern distinctive features amongst the individual deer stones that have so far been identified (Tishkin and Usova 2011). At the same time, the ability to create precise copies is very important to the

documentation of this kind of monument. Making conclusions based on poor-quality copies or sketches from photographic images detached from the context of the archaeological complex only generates problems and controversy. It is therefore necessary to create deer stones images using reliable techniques.

This article is the result of research carried out by the author over more than ten years in the Mongolian Altai. It provides a detailed analysis of new archaeological data obtained from the study of deer stones in Buyant Valley to establish a reliable system of interpretation for understanding local communities poorly represented in the archaeological record. Through the examples presented here, we see a situation in which the diversity of deer stones reflects complex cultural dynamics that have yet to be studied systematically.

RESEARCH METHODS AND MATERIALS

Since 2007, the Buyant Russian–Mongolian archaeological expedition, comprising researchers from Altai State University, Khovd University, and Ulaanbaatar University, has been exploring archaeological sites in the Mongolian Altai (Tishkin 2007, 2009, 2010, 2011; Tishkin and Erdenebaatar 2007) (Fig. 1). One of the group's objectives is to locate, identify, and analyze deer stones. To date, copies of more than 50 deer stones located in the Mongolian Altai have been made using a rubbing technique. Additionally, more than 70 deer stones have been photographed and described in detail. Our research is primarily focused on the Mongolian *aimags* (provinces) of Khovd and Bayan Ulgiy. One of the study areas was the Buyant River Valley near the

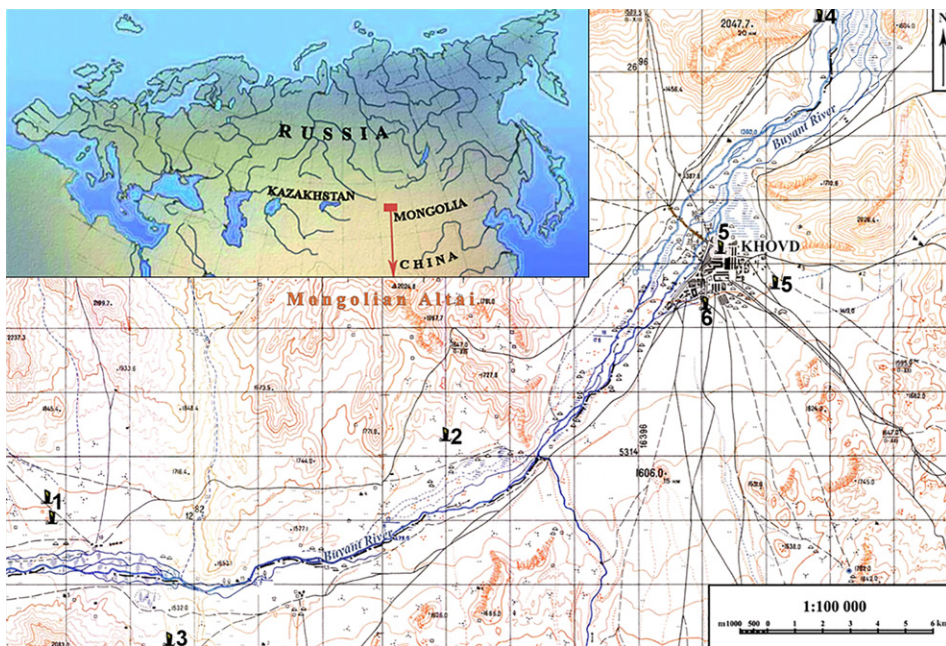


Fig. 1. Sites of deer stones found in Buyant River Valley in the Mongolian Altai: (1) Bayan–Bulag–I; (2) Ulaan Khudag–I; (3) Hoshshootiyn Zaag–I; (4) Yamaat Ulaan; (5) Elsen Tolgoi; (6) Kashara; inset map of Eurasia (upper left) (maps prepared by author).



Fig. 2. Bayan Bulag-I site in Buyant River Valley and identified deer stones: (a) view from southeast Bayan Bulag area with arrows pointing to large khirigsuurs; (b) central barrow of Khirigsuur no. 3 where cluster of deer stones was found; (c) deer stones atop central mound of Khirigsuur no. 3 prior to extraction; (d) deer stone positioned vertically in preparation for documentation and copying (photos by author).



Fig. 3. Photographs illustrating 11 main stages of copying deer stone imagery to mica-coated paper: (a) deer stone laid down; (b) measuring mica-coated paper; (c) applying and wetting paper; (d) removing air bubbles; (e) two layers of mica-coated paper on deer stone; (f) dried double layers of mica-coated paper; (g) applying black paint; (h) deer stone with detailed images; (i) removing double layers of mica-coated paper; (j) removing mica-coated paper; (k) mica-coated paper and deer stone after copying (photos by author).

town of Khovd in Khovd Aimag in western Mongolia (Tishkin 2013a) (Fig. 1, Fig. 2). Our group has previously published preliminary results in Russian and Mongolian (Tishkin 2009; Tishkin and Erdenebaatar 2007; Tishkin et al. 2006, 2008; Tishkin and Usova 2011). Here, we present the complete results of our work.

In 2010 and in 2011, under the guidance of the author, the Buyant Russian-Mongolian archaeological team investigated a large cluster of more than 30 deer stones near the highland village of Bayan Zurkh. Following Kapel'ko's (1986) method, the images on the stelae were copied onto white mica-coated paper made of pressed long-fiber cotton (Fig. 3). After laying the deer stone on the ground and dry brushing it to remove sediments (Fig. 3a), the stone statue is measured and then mica-coated paper is carefully applied onto the entire surface using sponge and water (Fig. 3b,c). Air bubbles are removed from between the stone's surface and the first layer of paper to ensure an even coverage of the deer stone (Fig. 3d). A second layer of mica-coated paper is placed on top of the first layer (Fig. 3e). The layers are allowed to dry in the sun for approximately 30 minutes, during which time the chiseled images become visible through the layers (Fig. 3f). Black paint is applied to the dry surface of the mica-coated paper with a satin cloth (Fig. 3g). The imagery present on the deer stone is thus accurately transferred to the mica-coated paper (Fig. 3h). The two layers of mica-coated paper are carefully removed from the surface of the deer stone to reveal the composition and shape of the stele (Fig. 3i,j). No traces of the mica-coated paper or paint are left on the deer stone, and no traces of ancient red pigment or particles from the stone are transferred to the mica-coated paper (Fig. 3k). Markers and a strong transparent film are required when working with shallow reliefs. Less commonly used is a traditional full-scale graphic drawing of the stele. In addition to daylight photography, a night imaging session was organized; this made it possible to enhance drawings of existing images and reveal previously imperceptible images on the deer stones. Our combined methods allowed us to record newly discovered deer stones with improved quality, thus enabling a re-evaluation of existing interpretations of the cultural patterns of ancient nomadic societies in Mongolia as represented in deer stones.

DEER STONE FINDS

The reason for the fluorescence of deer stone traditions in the early nomadic period of Mongolia remains unclear. During the previous era of the Late Bronze Age (twelfth to ninth centuries B.C.), deer stones were absent from Mongolia. The emergence of deer stones may reflect a more complex form of social organization in which male figures (possibly warriors) and elites of various ranks and kin groups had become important cultural symbols. Thus, deer stones could indicate the initial rise of prominent social hierarchies in Mongolia. Clear connections between the deer stones and the monumental structures used for funerary and ritual activities are necessary in order to reconstruct the social organization embedded in these ritualized landscapes. Unfortunately, many of the *khirigsuurs* in Mongolia have been destroyed or repurposed (i.e., quarried for building material) in later periods. However, Buyant Valley contains numerous deer stones, a majority of which remain directly associated with undisturbed *khirigsuurs*, two of which are very large. The valley's deer stones also exhibit considerable variation in size and imagery even in this relatively small geographic area.

Deer Stones in Buyant Valley

The greatest number of deer stones in Buyant Valley was found on the west bank of Buyant River in Bayan Bulag Mountains, where several funerary-memorial complexes are located (Fig. 1, Fig. 2). Notably, the Bayan Bulag-I complex has huge *khirigsuurs* (burial mounds) that are clearly visible in satellite imagery; next to them are Turkic fences and other funerary structures built from stone. It should be noted that Khirigsuur no. 1 (west) differs from the other two large stone structures in dimension, design features, and presence of deer stones. Khirigsuur no. 1 is the earliest in the complex and contains a platform. The other two structures that are thought to be associated with socio-political leaders are associated with deer stones dating to the Arjan-Mayemir (early Scythian) period. Two deer stones situated at Khirigsuur no. 2 (north) demonstrate the same schema. The sculptures at Khirigsuur no. 2 are carved from different types of stone and the quality of the finish and dimensions are different from the two found at Khirigsuur no. 1.

The diameter of Khirigsuur no. 2 along the north-south line is 121.65 m and along the east-west line is 124.5 m. On the western side, where the section is semicircular in shape, there are more than 60 so-called “memorials” in the form of stones circles ranging from 1.2 m to 2.5 m in diameter (Kovalev et al. 2016). The dimensions of the central mound (khirigsuur), from which eight “paths” radiate, are 32 × 34 m (length and width, respectively). Deer stones are present in its southeastern section. A preliminary examination of two complete stones with armament and other motifs has been previously published (Tishkin 2009, 2012), but a more detailed study is in progress. The study was carried out by copying on mica-coated paper and transparent film.

The deer stone designated no. 1 was carefully measured and has the following dimensions: its height is 1.61 m, width in the middle is 0.33 m, and thickness is 0.31 m (Fig. 4A). On the upper part of the stone is a wide (7–9 cm) carved band (Fig. 4A: a–f). Its most visible feature is an arrangement of armament items (Fig. 4A: a, c, d, g, h), including a hatchet on the belt on the right side, dagger in the front, and a bow in the *gorytos* (bow case) on the left (Fig. 4A: i). These could represent past social conditions of conflict. The entire pictorial composition is carved at the top of the deer stone and occupies only about a third of the stone’s length (Fig. 4A: a–d). This arrangement was probably necessitated by the deer stone having been planted deep into the barrow; the markings on the stele were probably used to identify the burial (Kovalev and Erdenebaatar 2007, 2010; Kubarev 1979; Polos’mak 1993; Tishkin 1996; Turbat 2008). This hypothesis is further examined in the Discussion section.

The second deer stone at the Bayan Bulag-I Complex, designated no. 2 (Fig. 4B), is a smaller version of deer stone no. 1. Its dimensions are 1.32 m high, 0.24 m wide in the middle, and 0.28 m thick. A specific feature of this stone is the decoration at the neck area on the front panel (Fig. 4B: a–e). Other images (Fig. 4B: f–h), including a hatchet, dagger, bow in *gorytos*, and bands, are presented in relief (Fig. 4B: i).

A fragment of the lower part of another (previously unknown) deer stone was found during the study of Khirigsuur no. 2. Its dimensions are as follows: height 0.53 m, width 0.33 m, and thickness 0.25 m. The fragment is within the size range of other deer stones dating to the Arjan-Mayemir time, and is therefore likely to be a deer stone from this period.

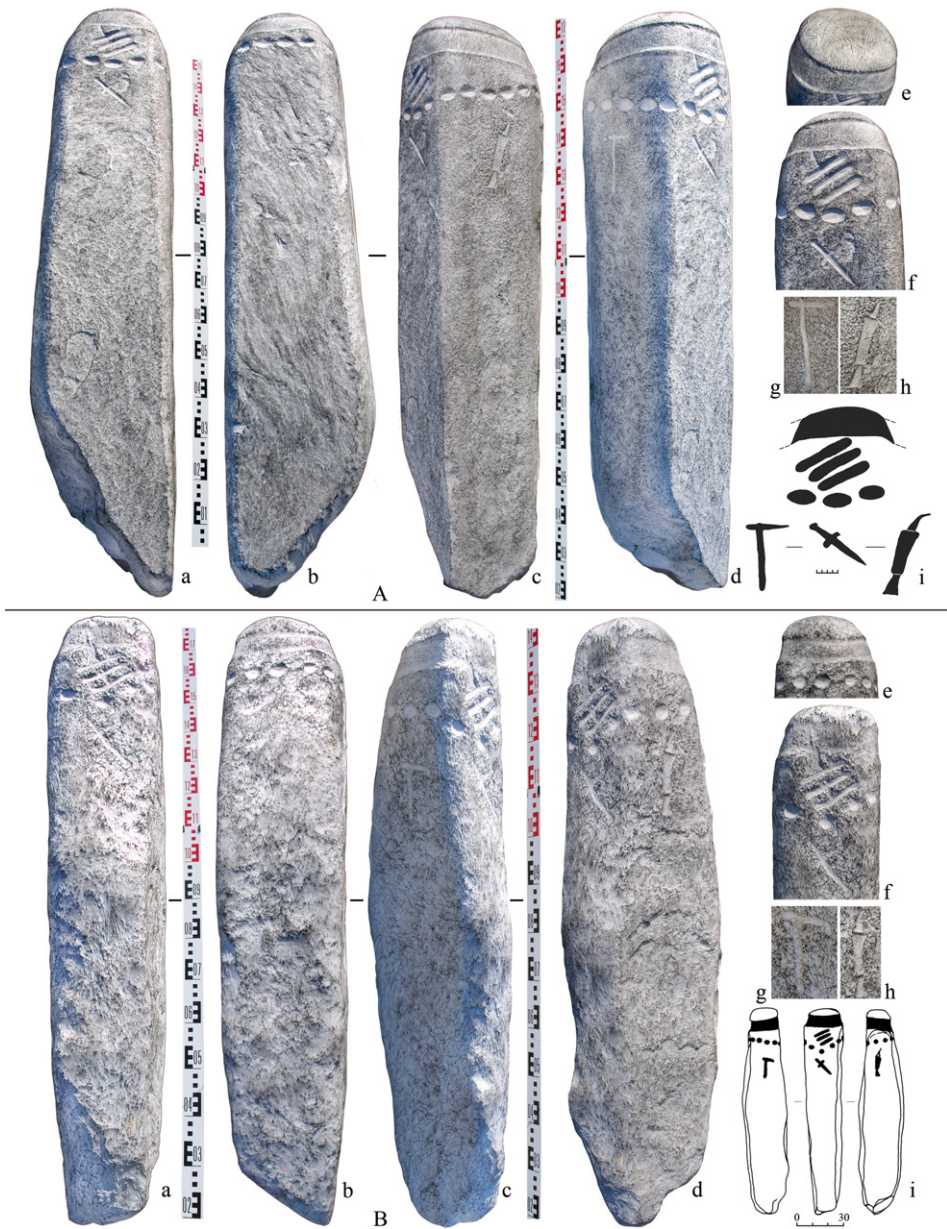


Fig. 4. Two deer stones found near Khirgisuur no. 2, Bayan Bulag-I, Buyant Valley: (A) deer stone no. 1: (a) front; (b) back; (c) left side; (d) right side; (e) headpiece seen from above; (f) closeup images on upper front; (g) hatchet on upper part of the right side; (h) bow with *gorytos* on upper part of the left side (e–h not to scale); (i) schematic drawings of images on top part (e–h); (B) deer stone no. 2: (a) front side; (b) back; (c) left side; (d) right side; (e) headpiece on top part of deer stone, view from back; (f) images on right side; (g) hatchet on top part of left side; (h) bow with *gorytos* on top part of right side (e–h not to scale); (i) schematic drawings of front, left side, and right side (photos and drawings by author).

Finds at Khirigsuur no. 3 of Bayan Bulag-I are analogous to these stones. A conglomeration of four deer stones was found in the barrow. The attributes of this *khirigsuur*, which includes radiating lines and more than 130 associated structures, are as follows: the outer diameter of the ring line is 124.5 m along the north-south axis and 122.2 m along the east-west axis. The width of this 2.5–3.9 m high decorated fence is about approximately 0.5 m. A gap in the ring (most likely the entrance) is located in the southeastern quadrant. The diameter of the central barrow along the north-south axis is 29.2 m and 29.5 m along the east-west axis. In the center is a huge pit more than 2 m in depth, 13 m in diameter along the north-south axis, and 10.5 m in diameter along the east-west axis. Several smaller pits are in the western half of the mound. There is evidence of looting of several tombs with which the deer stones are associated. The height of the barrow is more than 4 m. Nine paths can be clearly seen between the central embankment and the ring fence. Neither they nor those associated with barrow no. 2 coincide with cardinal directions.

Memorial stone circles are found to the east-northeast, north, west, and south of this huge *khirigsuur*. For example, memorial no. 1 has a diameter of 1.2 m and memorial no. 22 has a diameter of 2.7 m and a height of 0.25 m. To the north-west of the stone circles constituting memorial no. 1 are 36 memorial circles arranged in an arc shape. The main memorial stone circle complex is located 88 m to the west of the outer edge of the ring fence of Khirigsuur no. 3. There are a total of 64 stone structures, arranged in three rows. Further to the west is an uneven line of eight similar layouts. To the south of the marked western complex and further to the southeast, the number of memorial stone circles increases, totaling 133. Among them is a large oval monument, no. 121, which measures 3.5 × 2.8 m and is 0.2 m high. Memorial no. 129 is located precisely southward from the center of the mound, although the chain of structures stretches further out to the southeast. Near the southern edge of the ring fence there is a continuous chain of these stone circles of various sizes; the entire chain measures 3.4 m long × 2.7 m wide and 0.35 m high, but its past purpose remains obscure.

A cluster of four deer stones was found on Khirigsuur no. 3 (47°55.842'N, 91°21.648'E) at an elevation of 1588 masl (GPS coordinates). The quantity and ornamentation of these deer stones make this complex different from other known structures. Deer stone no. 1 is laid face down on top of the central barrow. It was partially protected from looters by the stones, which likely helped it remain undisturbed. This deer stone, made from a large boulder, is 1.03 m long and has unusual traces of red paint along three oblique lines on the upper portion. It also has images of traditional weaponry, including a dagger, hatchet, and bow in a *gorytos*, and features two circles, possibly depicting earrings, one on each side of the stone (Fig. 5A). There was no wide band or solid line on the upper part of the stele. A special feature of the sculpture is what appears to be a necklace, illustrated by a chain of ovals and a pendant in the form of a lying down horse (Fig. 5A: b).

Deer stone 2, which is 1.27 m long, was found in a central looting pit beneath stones. It was initially noticed because one of its “earring” motifs showed (Fig. 5B). There are three oblique lines on the upper part of the front of this deer stone, below which is an image of a large dagger with traces of paint. An earring similar in shape to that on deer stone no. 1 is depicted on the opposite side.

The third deer stone was situated near deer stone 2 on the slope of the looting pit, but it was buried closer to the ground surface. This deer stone is not as decorated as the other two, although it still shows three oblique lines on the side, a solid chiseled line



Fig. 5. Deer stones at Bayan Bulag-I, Khirigsuur no. 3: (A) deer stone no. 1: (a) right side; (b) front; (c) earring, necklace, bow with *gorytos* on left side (not to scale); (B) deer stone no. 2: (a) right side; (b) front; (c) three stripes and a dagger on upper part of front; (d) earring on top part of right side; (e) hatchet on right side and back (c–e not to scale); (C) deer stone no. 3: (a) right side; (b) front; (c) view of upper part of front; (D) deer stone no. 4: (a) front; (b) headpiece, necklace, dagger on upper part of front; (c) *gorytos* with bow on left side (b and c not to scale) (photos by author).

probably representing the headdress, a necklace, and what appears to be a dagger (Fig. 5C). Unfortunately, the stone has a rough surface and no other images could be discerned. The fourth deer stone lies on top of the mound; it is 1.18 m long. Carved images of weapons, three oblique lines, and a so-called ‘diadem’ (headband) are spread across three sides (Fig. 5D). No other images could be discerned.

All the sculptures found on the barrow of Khirigsuur no. 3 had been laid face down. This may have been done intentionally by looters to hide the images of the figures represented on the stones. If this was the case, the looters would have deliberately extracted and overturned the stones that had likely originally been erected on the top of the mound. These reported deer stones were also copied with mica-coated paper and photographed.

Deer Stone in the Yamaat Ulaan Complex

The monumental complex of Yamaat Ulaan is located ten kilometers along the road from the Khovd city on the west bank of Buyant River (Fig. 1). In 2000, a research group from St. Petersburg, Barnaul, and Khovd studied the archaeological sites in the area (Batmunkh 2008:9). Later, Chuluunbaat Munkhbayar and Yuri Ozheredov explored Buyant Valley, photographing the monuments and recording their geographic locations (Ozheredov 2012).

Members of the Buyant Expedition explored and studied the archaeological sites in the Yamaat Ulaan area in August 2010 and excavated a standing deer stone that had a set of images carved into it. The location of the deer stone was recorded as 48°04.896'N, 91°40.638'E (at 1348 masl); the deer stone faces south-southeast. The deer stone stands 1.32 m above the modern surface. It is 0.49 m wide and 0.22 m thick. To its north by 0.55 m is a stone wall made of several slabs each measuring 1.2×1.12 m and not more than 0.1 m tall.

The following images were recorded from the deer stone: a diadem, a dagger (15 cm long), a bow in a *gorytos*, two earrings (10 cm diameter), and a hatchet with a handle measuring 22.5 cm long. A distinctive feature is a 4 cm wide band (Fig. 6). During the expedition, the deer stone was copied using mica coated paper and photographed. It should be noted that this deer stone had already been documented prior to the



Fig. 6. Free-standing deer stone at Yamahat Ulaan: (a) right side; (b) front; (c) left side; (d) back; (e) *gorytos* with bow on left side; (f) dagger on front; (g) hatchet on right side (e–g not to scale) (photos by author).

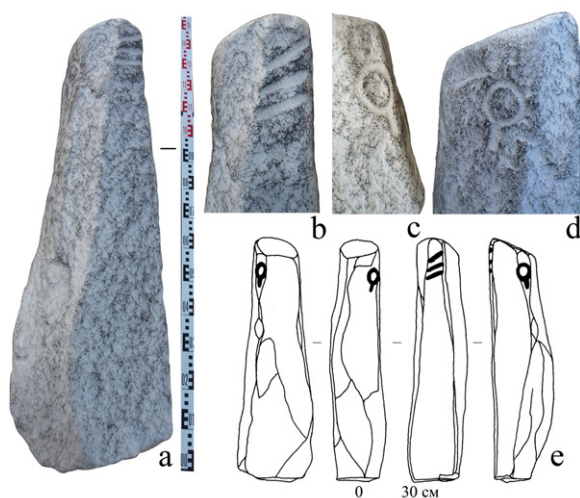


Fig. 7. Deer stone lying on barrow at Hoshootiyn Zaag: (a) front side with images; (b) three oblique lines on upper part of front; (c) earring on left side; (d) earring on right side (b–d not to scale); (e) schematic drawing of all sides (photos and drawings by author).

expedition (Batmunkh 2000, 2008), but a detailed and systematic examination of its pictorial inventory and its correlation with other archaeological materials had not been carried out. An analysis of this deer stone will be discussed in future publications.

Deer Stone in Hoshootiyn Zaag

A chain of four khirigsuurs is recorded in the Hoshootiyn Zaag area on the right bank of Buyant River (Fig. 1). On the southernmost mound lies a deer stone (Fig. 7). Its location is recorded as 47°53.144'N, 91°27.821'E (at 1619 masl). It measures 1.22 m long, 0.26 m wide, and 0.3 m thick. Although it was not carved from high-quality granite, the upper part was shaped, with one edge slanted. The location of the three oblique lines carved on the long facet is consistent with that on the deer stone from the Ulaan Hudag mountain area described below. In addition to the triple line motif, two earrings are carved on opposite sides of the deer stone.

Deer Stones in Elsen Tolgoi and Kashara

Two deer stones are located inside the fence of the Khovd Local History Museum (Batmunkh 2008) (Fig. 8A,B). They were relocated there from the Elsen Tolgoi mountain area near the city of Khovd sometime in the 1970s, but there is no photographic record of their original locations. The surfaces of the stelae were first copied onto mica-coated paper in 2010. Individual images were also taken with the use of transparent film and markers. In addition, a multi-faceted photographic scan of the deer stone was conducted and the sculptures were described.

According to H. Byambasuren, then director of the museum, the first deer stone had been buried about 0.6 m deep in the earth (Fig. 8A: a–d). Because the stone was dragged to the museum by a tractor, the upper part had broken off and the side of the

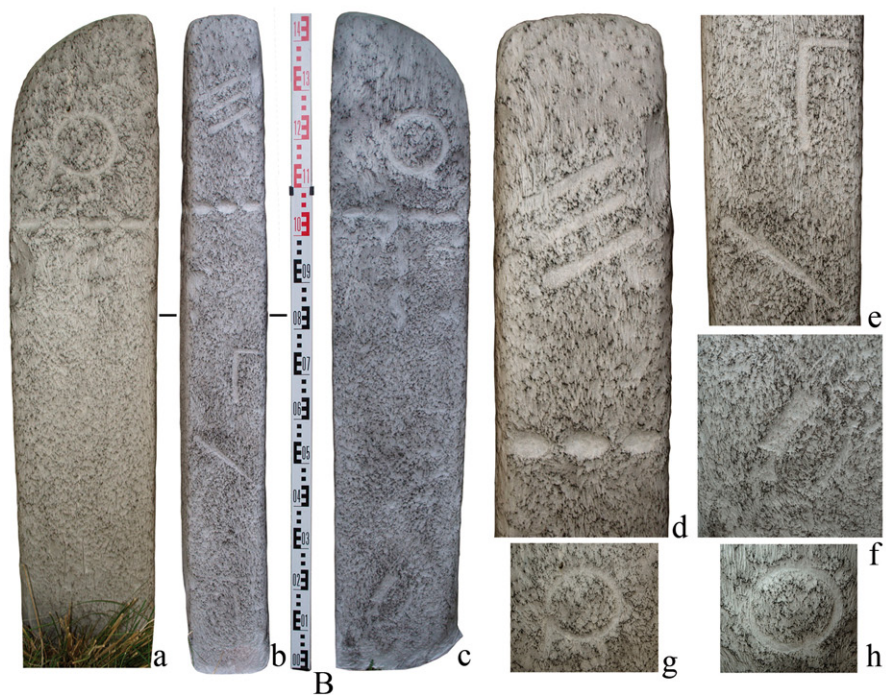


Fig. 8. Deer stones from Elsen Tolgoi relocated near Khovd Museum: (A) large deer stone: (a) back; (b) right side; (c) front; (d) left side; (e) dagger on front; (f) hatchet on lower part of right side; (g) *gorytos* with bow on left side; (h) shield on the lower part of back (e–h not to scale); (B) small deer stone: (a) right side; (b) front; (c) left side; (d) upper part of left side; (e) hatchet and dagger on front; (f) *gorytos* with bow on lower part of left side; (g) earring on right side; (h) earring on left side (d–h not to scale) (all photos by author).

stone was scraped. The larger deer stone stands 1.94 m tall. Its width in the middle is 0.33 m, 0.4 m at the base, and 0.3 m at the top. It is 0.14 m thick at the base, 0.26 m thick in the middle, and 0.25 m thick at the top. The deer motif dominates many of the images (e.g., the lower deer is 1.1 m long). Depictions of armaments include a dagger (22.5 cm long), hatchet (0.11 m long) with a 0.35 m long handle, a bow in a *gorytos* (0.3 m long), shield (0.21 m long, 0.17 m wide at the base, 19.5 cm wide at the top) (Fig. 8A: e–h). On the left side is an earring 11 cm in diameter. In addition, there is an image of a horse (0.11 m long). The second deer stone was better preserved (Fig. 8B). Traces of red paint have been preserved on some sections of the carvings on both deer stones.

The author researched the site where the stelae supposedly stood. It was a small hill in the eastern vicinity of Khovd. The coordinates of the site are recorded as 47°59.435'N, 91°40.207'E at 1446 masl. No archaeological objects were discovered there. In the course of further research on the *khirigsuur* (42 m diameter, 2 m high) closest to Khovd (i.e., the Kashara site; geographical coordinates taken at center of the mound are 47°59.269'N, 91°39.393'E) (Fig. 1), a large fragment of a deer stone was found at 47°59.271'N, 91°39.346'E (1420 masl). It measures 1.18 m in length, 0.43 m in width, and 0.38 m thick. On the fragment is an image of an earring 0.12 m in diameter; the engraved line is 1 cm thick. Because the fragment was found on the road and was at high risk of being damaged, the expedition team took it to the Khovd State University Museum.

Deer Stone in Ulaan Khudag

The complex discovered in Ulaan Khudag is located about 8 km southwest of Khovd on the left bank of Buyant River (Tishkin et al. 2006:110–111; Tishkin et al. 2008: 69–70) (Fig. 1). The Ulaan Khudag complex features more than 30 memorial structures of various sizes and dating to several cultural periods. In the center is a large *khirigsuur* that can be preliminarily dated to the Arjan-Mayemir period. The rest of the monuments are constructions typical of the archaeology of Western Mongolia. The main focus of fieldwork in 2009 was *Khirigsuur* no. 10. Prior to excavation, this *khirigsuur* appeared to be composed of a distinct external stone fence with a diameter of more than 36 m inside of which is a mound with a diameter of over 10 m and a height of over 1 m that has been partially destroyed by looting or desecration. The central barrow is connected to the fence by four paths, which are oriented in close alignment with the cardinal directions. To the west of the *khirigsuur* are several memorial constructions arranged in the shape of an arc. Some have been destroyed or disturbed. A total of 17 structures were noted. Another three similar layouts are identified inside the arc on one line. All these commemorative stone constructions have a diameter from 1 to 2.5 m and a height of about 0.1 m.

To the east of the excavated *khirigsuur*, a deer stone undoubtedly connected to the complex was found in a horizontal position and buried in the ground. It has GPS coordinates of 47°56.504'N, 91°30.405'E at 1488 masl. This stone was extracted from the ground and studied separately (Tishkin 2009). It measures 1.44 m in length, 0.3 m wide at the middle, and 0.17 m thick (Fig. 9a–c). Unfortunately, all the images on the side of the stone that was in contact with the ground surface are poorly preserved. Details of a neck decoration on the other sides are fairly well-preserved. The inclination of the lateral lines suggests that the “necklace” was hanging. There are three

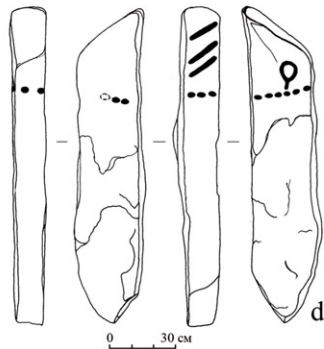


Fig. 9. Deer stone at Khirigsuur no. 10, Ulaan Khudag-I: (a) left side; (b) front; (c) front and left side; (d) schematic drawings of all sides (photos and drawings by author).

oblique lines carved on the long edge of the stone. The decoration is distinct in that the upper line is not quite parallel to the other two. In addition, the distance between the upper line and the middle line is slightly larger than that between the center and the lower line. On the wider side of the stone, an image of the earring characteristic of the Arjan-Mayemir period is clearly observable. Another distinctive feature of this stone is the absence of images of weaponry. All the images are concentrated at the top of the stone. We recorded the stone with sketches, photography, and mica-coated paper (Fig. 9a–d). It is worth noting that the absence of a detailed headdress occurs with a trapezoid profile. Many of the stones found in the Russian Altai territory are made in the same way, though they ordinarily show no images (Tishkin 1996).

Petroglyphs are found in the northwestern sector of the *khirigsuur* on one of the boulders that make up its outer ring. The boulder is more or less round, not very large, and has a smooth surface with a dark patina. The carvings are arranged in a circle, but because their color is similar to the background, the images are barely distinguishable. There appear to be two goats and next to them, figures of predators; an unfinished carving of an animal on the right is indicated by shallow medium-sized dots (Tishkin and Mukhareva 2011:fig. 2). The rest of the images are indicated by soft imprints and are arranged more sparsely. Since the boulders surrounding the *khirigsuur* would have prevented images from being carved into the boulder after the fence was built, the petroglyphs probably have narrative and stylistic connections to the period when the *khirigsuur* was created (Tishkin and Mukhareva 2011).

Deer stones from Hoshootiyn Zaag-I and Ulaan Khudag-I are similar in that they share an absence of weaponry images (Fig. 7, Fig. 9). It is possible that these stones were intended to showcase other ethno-social or gender-age characteristics of the ancestors whose graves were marked accordingly; however, this is a hypothesis for future research.

RESULTS AND DISCUSSION

The location and decoration of deer stones found in Buyant River Valley show how these monuments might have been used to mark burials of people belonging to different social status during the Arjan-Mayemir period. This tradition appeared in Central Asia in pre-Scythian and Early Scythian periods (900–550 B.C.), then spread widely, supposedly through migration and increased cultural contact (Savinov 1994). In Mongolia, the tradition of organizing ancient memorial complexes in honor of dead soldiers is also well documented. While the deer stones there seem to have served a similar function, they were located not on the barrows but on separately organized sites. One of these sites (Uushkiyn-Uver) has recently been excavated in its entirety in Central Mongolia (Kovalev et al. 2016).

We can generalize on the ornamentation of deer stones but further research may still reveal a significant amount of information about additional or specific features (Kovalev 2000; Marsadolov 2004; Ol'khovsky 2005). Deer stones were connected to a certain type of *khirigsuur*, and their initial position relative to *khirigsuurs* is generally fixed, often at the center (Kovalev and Erdenebaatar 2007; Savinov 1994; Volkov 2002). Notably, this pattern is evident in Buyant Valley at the Bayan Bulag-I site. Here, deer stones could act as social markers of people buried in the *khirigsuur*. These sculptures differ from others in surrounding regions in having distinctive images and designs.

Armaments are an important image on deer stones of the Arjan–Mayemir period. Their placement shows a definite and repeated pattern that was clearly important to the people who produced the deer stones and commemorated the dead at associated *khirigsuurs*. The dagger, perhaps as a cultural norm, is located on the front (obverse) side of the stele, the hatchet or hammer is on the right side, and the *gorytos* with bow (and sometimes quiver) is on the left side. The configuration of these images is consistently positioned on the top half of the deer stone. This highly visible set of symbols likely helped mark the burials and gave them prominence. Axes, knives, belts, sharpeners, hooks, and other implements also regularly appear on deer stones. These images reflect the importance of these objects to the cultural identity of the people who built and experienced these deer stones. They reinforce our interpretation that weaponry was a key element of social status recognized by these communities.

An interesting point of disagreement among scholars concerning weaponry on deer stones revolves around how to interpret “the pentagonal trellised figures that were placed over the belt usually on the back of the statues” (Volkov 2002:17). Many (but not all) researchers have argued that these depictions represent shields (Devlet 2008, 2012; Devlet and Devlet 2007; Novgorodova 1975). I tend to agree with this opinion (Tishkin 2016; Tishkin and Mukhareva 2014). The ubiquity of these images makes it clear that shields were key pieces of technology and important symbols for the ancient inhabitants of Mongolia. The deer stones in the Jargalant area depict the shield in a more realistic way (Volkov 2002:Pl. 111–112, 114, 116–118), but they are also represented at many other sites, including Bayan Zurkh Village. D. G. Savinov (1994:149–150) believes that the shield is the most reasonable interpretation, but he does not exclude the possibility that these “pentagonal trellised figures” represent a temporary repository of the souls of the deceased. A. M. Smirnov (2012:138–140) recently raised the idea of considering them as representing temple constructions. However, his argument is based on a limited number of deer stones and does not stand up to greater scrutiny when applied throughout Mongolia. Numerous examples of deer stones may be cited to show that a shield can be added to the repertoire of weapons including a dagger, hatchet, and *gorytos* with bow. Such combinations are featured widely on other archaeological objects, not only on deer stones with animal images. For example, the entire collection of weapons including a shield is present on one of the documented obelisks at the Tavt Pass in the Mongolian Altai (Tishkin and Mukhareva 2014).

Some of the stones may be characterized by the presence of other images. For example, the combat or parade belt, “an important detail of the male military equipment” (Kubarev 1979: 55), is unique to large deer stones. The belt sets on deer stones have also been examined by V. N. Dobzhansky (1990) and D. G. Savinov (1994: 104–105), among others. At present, these images are known in Central Mongolia (Turbat et al. 2011). Offensive and defensive weapons depicted on deer stones of the early nomads of the Mongolian Altai suggest a rather prevalent military–political situation in Inner Asia during the Arjan–Mayemir period. War may very well have been frequent, if not romanticized. War itself (or legends of war) may have contributed not only to military culture, but also influenced other social domains in ancient nomadic communities (Tishkin 2012).

A detailed study of each item of armament depicted on deer stones is urgently required. It is necessary to identify analogies, build classifications, establish chronologies, and conduct multi-faceted reconstructions. A good reference for this

work is provided by the finds at the sites of Arjan-1 in Tuva ([Gryaznov 1980](#)), Arjan-2 ([Chugunov 2011a](#); [Chugunov et al. 2010](#)), and Chinge-Tay-I ([Chugunov 2011b](#)). Complexes of comparable scale in Mongolia have not yet been investigated, so very few examples are available for study.

It is also necessary to emphasize the peculiarity of sculpting practices during the Arjan-Mayemir period. Three-dimensional objects on deer stones are often illustrated using a technique of deep continuous chiseling. This method distorts the image being represented by creating a concave portrayal of an object that would otherwise be perceived as convex. The reasons for this technique are not yet fully clear. Most likely the creators of the deer stones either wanted to present the volume of the product or they did not have the necessary technical skills to illustrate convex forms (e.g., as demonstrated on later statues of the Turkic period, A.D. 460–1100). Nonetheless, in analyzing and reconstructing the images on anthropomorphic figures, it is necessary to interpret each inward depiction of an object as representing real life three-dimensional forms. This shifts interpretations of the images towards items of personal adornment. With this unique carving technique in mind, it is important to review a few familiar case studies of deer stones.

The upper part of deer stones is often marked by a carved wide band in relief ([Fig. 4A,B](#), [Fig. 5C,D](#), [Fig. 6](#)). [V. V. Volkov \(2002:17\)](#) interpreted these as images of a ribbon-diadem. However, this element may be interpreted differently given the understanding that concave depictions could very well represent real-life objects. Wide bands could represent the protruding part of a headdress made of wool, fur, or other organic material; such headdresses are known for nomadic pastoral peoples of Southern Siberia and adjacent regions. This observation, made during the sketching and copying of many deer stones ([Tishkin 2013b](#)), makes it clear that the fixed band most likely indicates an important part of a headdress with decorative elements that have survived to the present day (similar studies of Turkic stone sculptures are summarized in [Kubarev 1984](#)). Indeed, numerous examples of these headdresses being worn by modern nomads of Central Asia can be seen on the Internet. It thus seems logical to interpret chiseled designs in the upper part of deer stones as an important feature of cultural identity; they could represent distinctive hats, a hair band, or different types of hairstyles. However, the bands are shown quite differently on other deer stones. Without well-preserved archaeological material for direct comparison, it remains difficult to evaluate the various hypotheses except by ethnographic analog.

It is also prudent to reinterpret other elements of the pictorial complex on deer stones such as belt fasteners, pendants, and beads of different sizes and contours (oval, rounded, rectangular, etc.). Such ornaments and accessories have been amongst other artifacts at study sites in regions adjacent to the Mongolian Altai, although they are not as large as they are depicted on the deer stones. The pendants depicted on deer stones may represent artistic metal products, canines of boar or musk deer, or other ornaments. Fasteners, whether round or oval in shape, have yet to be identified among the objects that have been discovered for the historical period in question, however. The ear ornaments that are so widely featured on deer stones, most often in the shape of a ring on each side of the stone, have been found in monuments dated to the Late Bronze Age and so-called Early Scythian period. An easily recognized ornament shown on many deer stones is the cone-shaped dangling earring. This style of earring is

also found in many well-dated funerary monuments such as Arjan-2 (Chugunov et al. 2010). These findings are not only good chronological markers, they also corroborate the style of ear ornaments depicted on deer stones. Earrings of other types shown on the deer stones in this study should also be considered. A detailed study of this category of existing products is to be realized in the future in the framework of a comparative analysis of the whole range of available sources.

It is necessary to once again pay attention to the fact that some deer stones of the Mongolian Altai were possibly painted. This fact has been illustrated by many examples (Esin et al. 2017). Traces of reddish residue are clearly visible on oblique lines and depictions of weapons, ornaments, and other items. It is possible that the painting was not only used to display the images, but also used to complement the technique of deep chiseling for a stronger visualization. A few examples were noted at the site of Bayan Bulag-I (Figs. 2d and 3k). Traces of reddish pigment are clearly present on three oblique lines in the upper part of the deer stone that have been decorated with a necklace, clasp, and pendant. They are also especially visible on the image of a dagger of another deer stone. Some deer stones of the Bayan Zurkh Complex mentioned above exhibit similar red pigment.

The overwhelming majority of deer stones of the Mongolian Altai have three (sometimes two) parallel grooves of varying curvature on the front panel. The meaning of these designs has not been fully understood although a number of interpretations have been proposed (Kubarev 1979:49–50; Savinov 1994; Turbat 2008:226; Volkov 2002:17). Many researchers recognize the chiseled short parallel lines as an anthropomorphic symbol with semantic meaning. However, if we again use the interpretive framework of the chiseling technique for decorating deer stones, the three bands would have been superimposed on what has been conventionally designated as the “face” of a human figure. The grooves might then be interpreted as either stripes of pigment posthumously applied to the corpse or as artificial scars denoting combat wounds. This convex element is shown on the Kulay image of the face from the Novoobintsevo treasure (Borodaev 1987:fig. 2-1) and in similar finds from Western Siberia (Bayarsaikhan 2017; Zaitceva et al. 2017).

The circles carved out on the deer stones undoubtedly represent the discs of metal mirrors, which were widely used (Savinov 1994).

The most puzzling images are the representations of strange deer on many, but not all, of the so-called deer stones. There are a number of working hypotheses concerning these depictions (Savinov 1999; Volkov 2002). One recent interpretation was by German researcher A. Nagler (2011), who sees in them a resemblance to the design of Karasukskaya Culture daggers of the Late Bronze Age of Southern Siberia. A peculiar explanation was put forward by A. V. Tivanenko (2005). Relating his interpretation to ancient Chinese pictographic signs, he believes that deer stones reflect a materialized image of the deceased (Tivanenko 2005). Our research supports the hypothesis that the “deer” motif was adapted from appliqués made of leather, felt, cloth, or other materials that were used to decorate the outerwear of the deceased (Savinov 1999). Future work will aim to evaluate these hypotheses.

It should also be pointed out that, despite the common arrangements of objects depicted on deer stones, the demonstrated principles of object recognition may not apply to cases where a separate understanding of the individual image or the entire composition is required. A detailed and productive reading relies on the use of effective

field recording methods; 3D scanners and modern methods of photogrammetry are particularly useful in this regard. Nonetheless, as important as recording techniques are, they cannot be a substitute for the in-person engagement with deer stones that is necessary for detecting important variations in carving technique and material decoration.

CONCLUSION

Research on deer stones remains challenging due to difficulties in establishing their chronology, cultural affiliation, and spatial distribution. The discoveries made in the region of the Mongolian Altai, particularly in Buyant River Valley, help provide a representative inventory for reconstructing aspects of life and cultural identity of the early nomads of Inner Asia in the first centuries of the first millennium B.C. Here, deer stones are in direct association with *khirigsuurs* from a known cultural period, and thus give important insight into past behaviors that are otherwise not well represented in the archaeological record due to a lack of settlement data and widespread looting of the burials.

The method of producing representative copies of deer stone imagery presented above provides important details about the symbology used by communities of the Arjan-Mayemir period. The application of this technique is key to deciphering certain carved designs and will provide further insight into not only the pictorial details, but also the idealized embodiment of the deceased. The finding of pigment on the deer stones also opens new ways to understanding how people elaborated the imagery, which perhaps involved repeated applications as part of a ritual. A useful study would involve identifying the composition and potential layering of pigments. A detailed micro-examination of the surface of each deer stone would allow us to reconstruct the precise methods of stone sculpting and address the possibility that animal products such as milk or grease was applied to the mouths of the figures as part of so-called “feeding” rituals (Kubarev 1979).

Questions about the accessorizing of deer stones with items of clothing (corroborated by ethnographic materials) remain difficult to address as no archaeological remains of clothing have been preserved on the stones.

Nonetheless, this article provides a basis to move forward in studying deer stones by first providing clear documentation of their symbolic combinations in relation to the material culture during the Arjan-Mayemir period. Without knowledge of materials from the Mongolian Altai, it would be difficult to understand the archaeology of the early nomads in adjacent regions.

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