doi:10.17746/1563-0110.2024.52.1.058-069

# V.I. Molodin<sup>1</sup>, N. Batbold<sup>2</sup>, L.V. Zotkina<sup>1</sup>, D.V. Cheremisin<sup>1</sup>, and Y.V. Nenakhova<sup>1</sup>

Institute of Archaeology and Ethnography,
Siberian Branch, Russian Academy of Sciences,
Pr. Akademika Lavrentieva 17, Novosibirsk, 630090, Russia
E-mail: office3@archaeology.nsc.ru; lidiazotkina@gmail.com;
topsya@bk.ru; nenaxoffsurgut@mail.ru

Institute of Archaeology, Mongolian Academy of Sciences,
Peace Avenue, MAS building-1, Ulaanbaatar, 13330, Mongolia
E-mail: batboldnt@gmail.com

# Sanctuary with "Kalguty" Style Images in Northwestern Mongolia (Preliminary Data)

This article presents the first results of a detailed study of a key rock art site with the earliest petroglyphs in the Mongolian Altai—Baga-Oigur-5 (Right Bank). Basic data on its location, the surrounding environment, etc. are provided. The main groups of petroglyphs are characterized and attributed. The most numerous group, that of the "Kalguty" style, is examined in detail. This style was previously attributed by the current authors to the Final Upper Paleolithic. Bronze Age and medieval petroglyphs are also present at the site. The most informative panels show single horses, bulls, sheep, and deer rendered in the "Kalguty" style, as well as compositions including these animals. Among the earliest local rock art, for the first time, a nonfigurative sign has been found, resembling a grid, connected with the figure of a horse in a manner that is typical of prehistoric art. The analysis of a multilayered composition—one of the most important—confirms the hypothesis that "Kalguty" style petroglyphs predate the Bronze Age. The unusual natural context of Baga-Oigur-5 (Right Bank) is addressed in detail: a restricted area with available flat rock surfaces standing out against a background landscape with convex boulders. The arrangement of rock carvings within the site is unusual: animal figures on various surfaces combine in a nearly compositional manner. A tentative conclusion is made that the site was a sanctuary.

Keywords: Rock art, petroglyphs, palimpsest, "Kalguty" style, Baga-Oigur-5 (Right Bank), Mongolian Altai.

#### Introduction

In the summer of 2023, a joint expedition from the Institute of Archaeology and Ethnography of the Siberian Branch of the Russian Academy of Sciences and the Institute of Archaeology of the Mongolian Academy of Sciences continued the research begun in 2019 in order to search for and document rock art downstream the right

bank of the Baga-Oigur River (Molodin, Cheremisin, Batbold et al., 2019; Batbold et al., 2019) (Fig. 1). The site named Baga-Oigur-5 (Right Bank) is especially notable among the discovered rock art sites of various periods. It stands out from among numerous rock art location not only on the left and right banks of the Baga-Oigur River, but also in the northwestern regions of the Mongolian Altai.

The site was discovered by a group of Mongolian archaeologists (T. Turbat (team leader), N. Batbold, B. Umirbek), who photographed multilayered composition. In 2021, the palimpsest was published (Umirbek, Batbold, Tserendagva, 2021) and presented at an international conference in Mongolia in 2022, along with other palimpsests with "Kalguty" figures (Molodin et al., 2022). In 2023, the composition was published again (Turbat, Batbold, Umirbek, 2023)\*. Detailed examination of the Baga-Oigur-5 (Right Bank) site during field works of 2023 showed its particularly rich content as compared to previously discovered rock art sites, which meant that it ought to be studied using the latest recording methods.

At the foot of the mountain range stretching along the river, a secluded area with slate outcrops was discovered, consisting of a slightly inclined surface polished by the movement of a glacier to a mirror-like finish (Fig. 2). Such surfaces extend for 17 m up the slope and for about 18.5 m along the bank. This site was located on a small hill, separated from large surrounding boulders by small ravines (Fig. 2, 1; 3). The coordinates of Baga-Oigur-5 (Right Bank) are 49°18'45.2" N 088°27'41.4" E. The height above sea level is 2345 m.

As opposed to other slate outcrops in the area, which have the shape of rounded boulders, these surfaces look almost perfectly smooth, creating a pronounced reflective effect. A separate mirror-like flattened area stands out in the lowest part of the slope among numerous smoothed *roches moutonnées* shining in the sun (see Fig. 2).

When examining neighboring rock outcrops 45 m east of Baga-Oigur-5 (Right Bank), in addition to late petroglyphs, a deer figure made in the "Kalguty" style was discovered. Two more figures of deer

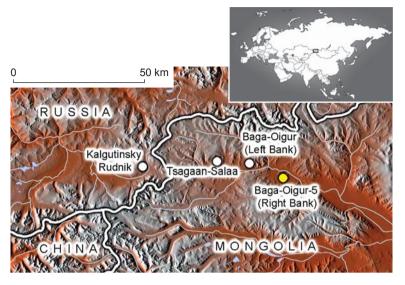


Fig. 1. The Baga-Oigur-5 (Right Bank) rock art site, the Mongolian Altai.



Fig. 2. Part of the Baga-Oigur River valley, with Baga-Oigur-5 (Right Bank) (1); general view of Baga-Oigur-5 (Right Bank) from the northwest (2).

<sup>\*</sup>Since the name of the site Baga-Oigur with Roman numerals and without indicating the bank (Jacobson, Kubarev, Tseveendorj, 2001) can be used in the future to designate new sites on the left bank, in this paper we use the name Baga-Oigur-5 (Right Bank), in accordance with the numbering adopted by our joint expedition of 2019.

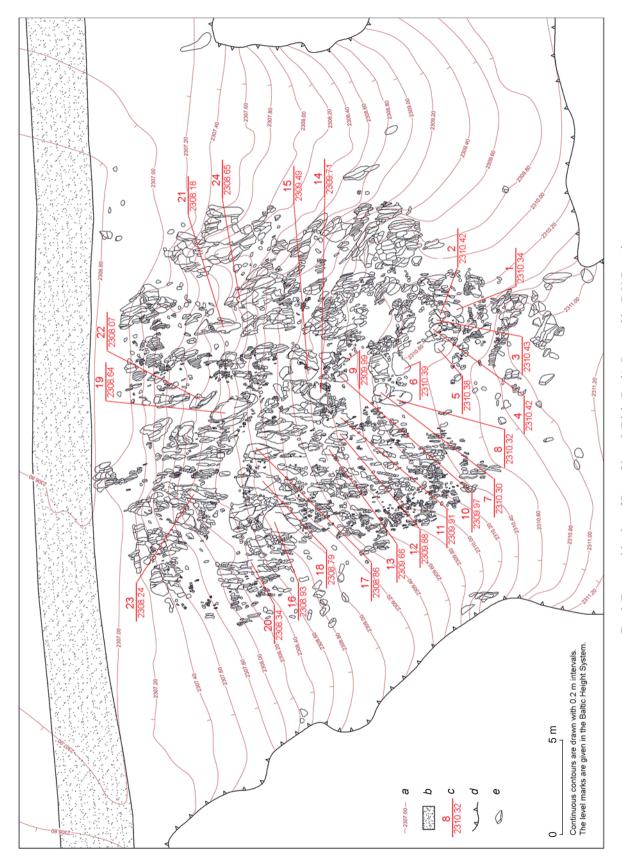


Fig. 3. Topographic plan of Baga-Oigur-5 (Right Bank). Prepared by R.V. Davydov. a – continuous contours; b – country road; c – numbers and leveling data of panels; d – boundaries of rock masses; e – stones.

and argali were found at the nearby Baga-Oigur-6 (Right Bank) site of the Bronze Age (Molodin, Cheremisin, Nenakhova, Batbold, Zotkina, 2023). A series of four partial images of deer and three argali, made in the archaic manner, appeared on the much worse-preserved surfaces of boulders 25 m west of Baga-Oigur-5 (Right Bank).

In the upper part of Baga-Oigur-5 (Right Bank), panels are horizontal. These contain compositions of the Bronze Age. Several images from the Late Middle Ages were discovered in the lower part of the slope (Fig. 4). Interestingly, the earlier petroglyphs were not damaged during their creation. The main part of the site contains single, less often grouped, images in the archaic manner, mainly in the "Kalguty" style (Fig. 4–9). Noteworthy is a multilayered composition with Bronze Age images and zoomorphic figures in the "Kalguty" manner (see Fig. 7, 8), which gave rise to the study of this site.

In terms of position, type of panels, and specific features of figurative style, the carvings from Baga-Oigur-5 (Right Bank) resemble those from the Kalgutinsky Rudnik site on the neighboring Ukok Plateau (the Russian Altai). A series of petroglyphs, distinguished by their

archaic figurative style, was first identified on glacier-polished rhyolite surfaces on the bank of the Kalguty River (Molodin, Cheremisin, 1999). Later, together with rock images of Baga-Oigur-2 and -3 (Left Bank) and Tsagaan-Salaa, they were united into a special group representing the "Kalguty" style and were attributed to the earliest petroglyphs in the Russian and Mongolian Altai (Cheremisin et al., 2018; Molodin, Geneste, Zotkina et al., 2019).

Notably, the images made in the "Kalguty" style differ from the rock paintings of Mongolia studied by A.P. Okladnikov in Hoyt-Tsenker Agui Cave (Okladnikov, 1972) and from the images of Arshan-Khad, which were tentatively dated by Okladnikov to the Mesolithic (1981: 79). The relation between these images and the "Kalguty" style petroglyphs still needs to be clarified.

At present, the Baga-Oigur-5 (Right Bank) site is undoubtedly the richest and best preserved location containing the earliest rock art in the Mongolian and the adjacent Russian Altai Mountains. Considering that it was suggested dating the sites with "Kalguty" petroglyphs in this region to the Final Paleolithic (Molodin, Geneste, Zotkina et al., 2019; Molodin et al., 2020; Zotkina et al.,

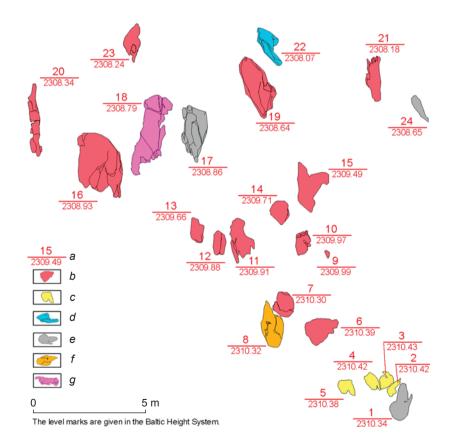


Fig. 4. Relative position of panels at Baga-Oigur-5 (Right Bank). a – numbers and leveling data of the panels; b – panels with the earliest images; c – panels with images of the Bronze Age; d – panels with images of the Middle Ages; e – panels with indeterminate images; f – panels with images of the earliest period and the Bronze Age; g – panels with images of the earliest period and Middle Ages. Prepared by R.V. Davydov.

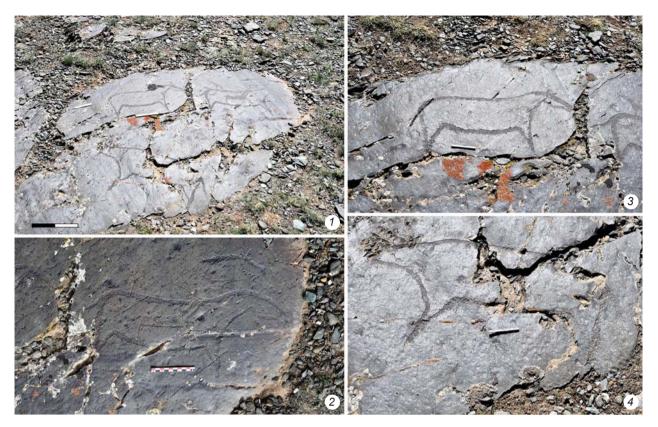


Fig. 5. Panel 8. I – general view of the panel; 2 – multilayered composition; 3 – horse image; 4 – bull image.

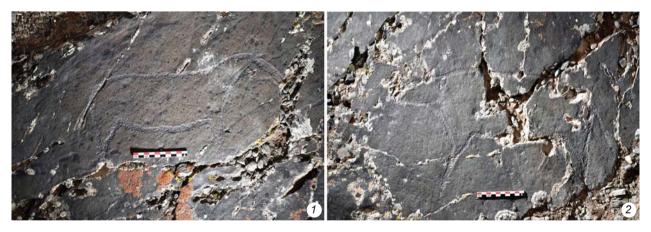


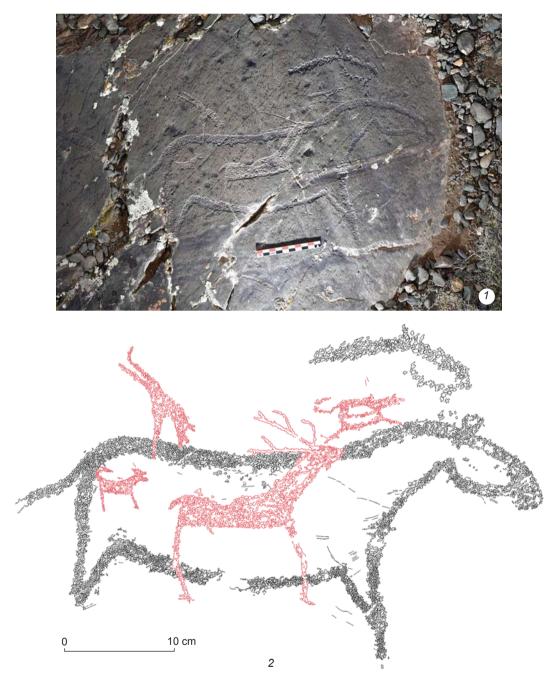
Fig. 6. Images of the horse (1) and bull (2) on panel 8. Photo with artificial light.

2020), the scholarly importance of Baga-Oigur-5 (Right Bank) can hardly be overestimated.

This article provides only some of the most important information about Baga-Oigur-5 (Right Bank). The purpose of this study is to introduce the first results of conceptualizing the site as a special location with a series of the most significant earliest rock images in the "Kalguty" style. The site certainly deserves a separate monographic study, which will be prepared by this team in the near future.

# Research methods

The study of the Baga-Oigur-5 (Right Bank) site required a comprehensive approach to the documenting of rock images and their context. After a thorough examination of the site, all identified surfaces with depictions were indexed; in full, 24 panels with petroglyphs of different periods were recorded. The numbering was made from the upper southern part of the slope to the lower northern part, from left to



*Fig.* 7. Multilayered composition on panel 8. *I* – photo with additional artificial light; *2* – tracing.

right (see Fig. 3, 4). The natural features of the terrain determined the borders and sizes of the site.

Preparing the panels for recording involved clearing loose sediments and rubble resulting from natural rock destruction from the main part and periphery of each surface. Many of the images were partially covered with lichen, which was removed using wooden sticks and a large amount of water.

Photographs of the site and its context in the Baga-Oigur River valley were taken using a Nikon D750 camera with a wide-angle AF-S Nikkor 14-24 mm lens and using a DJI Phantom 4 Pro drone (see Fig. 2). Photogrammetry was used for documenting in order to obtain a three-dimensional model of the site. It involved two stages. First, photographs of each panel were taken without labels, and then with labels containing numbers. This made it possible to easily recognize the location of each figurative surface on 3D models. Using these models, a diagram of the site was made in laboratory, providing a complete idea of the spatial position of each

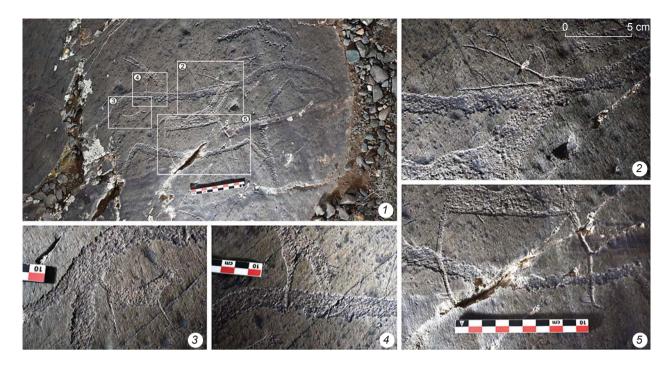


Fig. 8. Intersection of the "Kalguty" horse image with Bronze Age petroglyphs on panel 8. I – general view of the multilayered composition; 2, 5 – intersection with the deer figure; 3 – intersection with the dog figure; 4 – intersection with the predator figure.

image, which was especially important for the subsequent interpretation of the site (see Fig. 3, 4).

Each panel with petroglyphs was carefully and uniformly described. The size, nature of the surface, and its orientation relative to other panels were taken into account. Information about the content of each image, technique used, and general stylistic features was provided.

Each identified panel was documented in accordance with a unified standard. Photographs of the surfaces and of each image were taken under different lighting. In addition to documenting the panels with natural sidelight, a large series of photographs was taken with artificial lighting, using an external flash in various positions to the surface. If necessary, macro photography of individual significant details of the images was implemented. Three-dimensional visualization using the photogrammetry technique was applied to each identified petroglyph and individual significant details. Photographs were taken using a Nikon D750 full-matrix camera with Nikon 105 mm f 2.8G IF-ED AF-S VR Micro-Nikkor and Nikon 60 mm f/2.8 Nikkor Micro lenses. At the final stage of documenting, analytical tracings of each rock image and composition were made on transparent film, using magnifying glasses (from ×3 to ×15) and a portable microscope Nikon NS 111470 (×20). Laboratory processing of the completed tracings was carried out using CorelDraw 2020. Agisoft Metashape Professional was used to build 3D models,

and AutoCAD was used to create a location diagram based on the model.

The formal typological approach (Molodin, Geneste, Zotkina et al., 2019) was used to analyze the figurative manner of the petroglyphs. Traceological analysis based on 3D visualization (Zotkina et al., 2014; Zotkina, 2019) was used to study the multilayered composition on panel 8.

# Study results

Petroglyphs of various periods were discovered at the Baga-Oigur-5 (Right Bank) site. Preliminary analysis attributes the images on 16 panels (6–16, 18–21, 23) to the earliest period (see Fig. 3, 4). Petroglyphs on four surfaces (2–5) represent the Bronze Age. Panels 8 and 18 include images of different periods—of the earliest period and the Bronze Age. Panel 8 contains intersected figures, which is extremely important for clarifying the relative chronology of the rock art. On panel 23, a "Kalguty" petroglyph was found close to an image probably of the Middle Ages. Medieval images were also present on panel 22. Carvings or their preforms on panels 1, 24, 17 cannot be definitely dated.

Images of chariots, as well as zoomorphic figures of a deer, predator, and dog, belong to the Bronze Age (see Fig. 7, 8). All of them are small as compared to the "Kalguty" petroglyphs, and were made by very fine



Fig. 9. Panel 15. I – general view in natural light; 2 – image of the horse and grid (photo with additional artificial light); 3 – macro photograph of the grid (photo with additional artificial light).

percussion, with sharply defined contours (without surrounding random dents), and were concentrated in the upper part of the slope. The execution of carvings of this group was typical of the Bronze Age rock art in this region (Molodin, Cheremisin, Nenakhova, Batbold, 2023: Fig. 2, 22–27). Medieval petroglyphs include stylized geometrized images, mainly of goats, also typical of the region.

This article focuses on the earliest images. The most significant "Kalguty" petroglyphs were found on panels 6–8, and 15 (see Fig. 5–9). These figurative surfaces were located quite densely, on an elevation in the southern and central parts of the site. Almost every image occupied either the entire panel or an area limited by natural fractures. Petroglyphs were clearly inscribed into a separate figurative space (see, e.g., Fig. 5, 1; 9, 1).

Six out of ten images of the earliest period, including partial images, on the four mentioned panels, contain the image of a horse in the "Kalguty" style (see Fig. 5, 2, 3; 6, 1; 9, 2). Panel 8 contains the image of a bull (see Fig. 5, 4; 6, 2), while panel 15 depicts two deer figures (see Fig. 9). Previously unknown in the "Kalguty" style, images of snakes and compositions consisting of the earliest petroglyphs were discovered on other panels.

Almost all "Kalguty" images discovered at the site are large in size (ca 0.5 m long), which sets them apart from later, smaller petroglyphs. All the "Kalguty" figures are depicted in the same figurative manner: they are silhouetted, and there is no filling or any decoration inside the body contours, as opposed to the decoration inside early images in the adjacent territories, for example, in the rock art of the "Minusinsk" style (Zotkina et al., 2023: Fig. 5, 23–26; 6, 1–30; 9, 11–20). Only two legs are shown using two connecting contour lines. The belly is conveyed by an arched line

emphasizing the heavy outline of the torso. The thigh is slightly emphasized; the croup is rounded, and the tail most often extends from it.

Noteworthy are the methods of depicting the back and head of animals, since the species of zoomorphic figures can be identified precisely from these parts of the image. For example, a small sub-triangular head, bend in the neck, small hump, and short tail correspond to the image of a deer, even if it has no branched antlers (see Fig. 9, 1). A large trapezoidal head, massive hump, horns, neck, and shoulder, as well as back with almost no bend and long tail, are indicative of a bull-aurochs (see Fig. 5, 4; 6, 2). A figure with pronounced arch of the back, curved neck, long tail, and muzzle rendered in detail with the rounded contour of the lips, emphasized cheek, and distinctively depicted ears, can be defined as the image of a horse (see Fig. 5, 2, 3; 6, 1). Notably, in the lower part (legs, stomach), the outlines of the animals are almost identical. This suggests the uniformity of the laconic and naturalistic manner of depiction.

These petroglyphs are also notable in their execution. They were made by superficial percussion, which creates fairly clear (not very wide) lines. The power of closerange strikes decreases, but their control improves. The artisan had to make many strikes to obtain a line of relatively deep, dense percussion marks, but this technique minimized the number of individual random dents protruding beyond the contours of the image. A paucity of such dents distinguishes most of the earliest petroglyphs at Baga-Oigur-5 (Right Bank). Many of them also show additional contours made using the fine engraving technique. For example, engraved lines that usually run parallel to the pecked contours are clearly visible in the images of horses on panels 6-8. They can be interpreted as sketch elements. Some pecked partial images show engraved lines that continue the torso and legs. Traces of the abrasion technique are also present. For instance, a horse's ear on panel 7 was depicted using this technique. The combination of all these methods was typical of other rock images created in the "Kalguty" style (Zotkina et al., 2020).

An identical set of techniques is observed in the petroglyphs at Kalgutinsky Rudnik (Molodin et al., 2019; Zotkina et al., 2020), which suggests a consistent and distinctive manner of execution typical of the "Kalguty" style. It may be recalled that the combined techniques of percussion, engraving, and abrasion was typical of Foz Côa—one of the most famous Paleolithic open-air sites in Western Europe (see, e.g., (Baptista, 1999: 63, 67, 76, 77, 82, etc.)).

One of the unusual motifs that previously was unknown in the earliest rock art in the region is a grid sign made using a combined technique of fine engraving and sawing. This abstract motif was found on panel 15, next to the image of a horse in the "Kalguty" style (see Fig. 9, 2, 3).

There is reason to believe that this sign and the horse image were simultaneous, since identical thin engraved lines appear outside the grid, in the area of the animal's head and neck, although the engravings are oriented at a slightly different angle. There are engraved lines covered with percussion marks, as well as incisions passing over densely pecked area that forms the contours of the animal's head and neck (see Fig. 9, 3). Some engraved lines connect the grid and the horse figure, thus precluding clear distinction between the images. Therefore, the "Kalguty" horse and nonfigurative motif of a grid can be considered interconnected elements of a simultaneously created composition.

Especially noteworthy are the images of two reptiles on panels 9 and 10, which are probably typical figures of the site. In his work on the petroglyphs of Central Asia, A.P. Okladnikov wrote that the images of snakes constituted "the most ancient corpus of Gobi rock images, probably of the Stone Age" (1980: 5).

On the right side of panel 8, there is a palimpsest that includes an image of a horse in the "Kalguty" style, and figures of a red deer, dog, and predator, made in the classic Bronze Age manner (see Fig. 8, 1). This composition has been published several times. The style of percussion in the image of the horse and figures of the three other animals is essentially different. Bronze Age petroglyphs have the most defined and even boundaries of pecked lines. Individual percussion marks are almost unreadable due to very dense filling. The lines that make up the image of the "Kalguty" horse are wider. Relatively large dents appear along the edges of the pecked contour. Therefore, the boundaries of the lines seem less smooth, and generally, despite the high density of trace concentrations, the pecked lines of the horse image have a cellular relief (see Fig. 8, 2-5).

Differences in the manner of percussion are visible even to the naked eye. Typical features of Bronze Age pecked images are observed in all the areas of intersections of the figures (head and legs of the deer, front paw of the predator) (see Fig. 8, 2, 4, 5) and even in close proximity to the images' contours (tail of the dog and face of the predator) (see Fig. 8, 3, 4). This indicates that the image of the "Kalguty" horse was created earlier than the figures of the other animals in the composition. This conclusion confirms the earliest age of not only the palimpsest figure of the horse on panel 8, but also of all the animal images in the "Kalguty" style.

# Discussion

Features of the figurative style and technological aspects of the small set of "Kalguty" images at Baga-Oigur-5 (Right Bank), described above, find the closest parallels among the petroglyphs from the neighboring sites of

Baga-Oigur-2 and -3 (Left Bank), Tsagaan-Salaa-4, and Kalgutinsky Rudnik on the Ukok Plateau (Molodin, Geneste, Zotkina et al., 2019; Molodin et al., 2020) (see Fig. 1). The images discussed above and other images at Baga-Oigur-5 (Right Bank) have significantly expanded the series of "Kalguty" petroglyphs attributed to the Final Paleolithic (Ibid.), and supplemented the already known figures with the new images of snake and compositionally organized petroglyphs (see, e.g., Fig. 5, 9).

One of the main arguments in favor of the Paleolithic age of this group of petroglyphs is their stylistic consistency with the images of the Pleistocene fauna (mammoths) from the sites of Baga-Oigur and Tsagaan-Salaa (Molodin, Geneste, Zotkina et al., 2019: 22–23). Additional indirect evidence of the Paleolithic age of these petroglyphs is their similarity, in terms of archaic figurative style, with classic examples of the Paleolithic art of Western Europe (Ibid.: 19–20).

A specific motif of Paleolithic cave art in Western Europe and other regions is nonfigurative signs. Most often they are located next to the images of animals or are compositionally related to them (see, e.g., (Ajoulat, 2004: Fig. 68, 70, 78, 82; La Grotte Chauvet..., 2010: Fig. 73, 75, 157; Sauvet et al., 2014: 407; Gaussen, 2019: Pl. 2, 5, 30, 34; Plassard, 2018: Fig. 8)). These abstract motifs have been most frequently interpreted as designations of identity among the groups of Paleolithic populations (Sauvet et al., 2018). We may find similar manifestations (nonfigurative signs) at other sites of Paleolithic art of Eurasia, such as, for example, Shulgan-Tash (Kapova) Cave (Zhitenev, 2017: Fig. 270–276).

The geometric motif in the form of a grid, appearing on panel 15 at Baga-Oigur-5 (Right Bank)\* and linked to the image of the horse in the "Kalguty" style (see Fig. 9, 2, 3), requires a fresh look at the earliest rock art of that region. This abstract symbol can be considered additional evidence that the "Kalguty" style belonged to the Paleolithic.

The relative chronology of images in palimpsests is an additional indirect argument in favor of the Paleolithic age of the "Kalguty" style. Previously, images of the "Kalguty" horses were known only from one multilayered composition at Tsagaan-Salaa-4 (Molodin et al., 2020). The palimpsest on panel 8 at Baga-Oigur-5 (Right Bank) (see Fig. 7, 8) confirms the conclusions about the chronological position of the "Kalguty" style prior to the Bronze Age (Molodin et al., 2022).

Another important feature of the Baga-Oigur-5 (Right Bank) site is its specific geomorphological context. As mentioned above, the site is located in a small isolated

area of almost horizontal surfaces smoothed by a glacier, on a small elevation separated from other outcrops by shallow ravines (see Fig. 2). In contrast to the rest of the massif, the panels of this localized area have a bright mirror-like finish and stand out among other, more convex, outcrops.

The site is framed on the west and east by boulders bearing partial images in the same manner as the petroglyphs on the convex boulders. In addition to this cluster of petroglyphs created in the "Kalguty" style, no other images of the earliest period have been discovered so far on the right bank of the Baga-Oigur River (Molodin, Cheremisin, Nenakhova, Batbold, Zotkina, 2023).

It was observed that the images belonging to the "Kalguty" style were arranged in a special way relative to each other. Petroglyphs usually form compositions within a single figurative surface; however, at Baga-Oigur-5 (Right Bank), several panels with images in the "Kalguty" style appear to be compositionally connected (see Fig. 4). This observation made in the field requires further comprehension and more detailed analysis of the spatial structure of the entire site.

The site was probably chosen by ancient humans not by chance. First of all, it was attractive due to its isolation, and second of all, due to the smooth, horizontal panels, which were convenient for creating images. The concentration of the earliest images in such a limited area, set of depicted animals, and relative compositional arrangement of petroglyphs observed at the stage of field research (see Fig. 4) suggest that the site was a special sacred place—a sanctuary.

It should also be mentioned that a wonderful view of the wide, glacial-shaped valley of the Baga-Oigur River opens up from Baga-Oigur-5 (Right Bank), showing the sites of Baga-Oigur-2 and -3 on the left bank with images of mammoths and other animals in the "Kalguty" style (see (Jacobson, Kubarev, Tseveendorj, 2001: 366, fig. 907)). This "neighborhood" could not have been accidental, since in the Late Pleistocene herds of animals probably moved along the river in the zone of the high floodplain with abundant grass, both up and down the Baga-Oigur River.

#### **Conclusions**

The group of rock images discovered at Baga-Oigur-5 (Right Bank), which were made in an archaic naturalistic manner, can confidently be attributed to the "Kalguty" style, based on the parallels with petroglyphs known from the left bank of the Baga-Oigur River, Tsagaan-Salaa River, and the Kalgutinsky Rudnik site.

The rock art site of Baga-Oigur-5 (Right Bank) is an isolated location with densely grouped images of the earliest period located in a specific context, which

<sup>\*</sup>According to the classification of signs and symbols in mythology and art, this sign can be interpreted as a net—a symbol of catching and collecting (O'Connell, Airey, 2009: 236).

makes it possible to view this site as a special sacred place—a sanctuary, where religious rituals might have been performed.

The analysis of the multilayered composition on panel 8 indirectly confirms the earliest age of the rock images of the "Kalguty" style. Together with the palimpsest from Tsagaan-Salaa-4, the "Kalguty" petroglyphs occupy the same position of being before the Bronze Age in the relative chronology of rock art in the region.

The combination of the horse image in the "Kalguty" style and the "grid" on panel 15 may probably be considered as a fundamentally new theme, which has not been previously found in the "Kalguty" rock art. Such nonfigurative motifs, together with zoomorphic images, form a sophisticated semantic structure based on mythological content, typical of the classic art of the Paleolithic.

The new data provided in this article elucidate more fully the "Kalguty" style in the earliest rock art of the Russian and Mongolian Altai, as well as adjacent areas.

A targeted study of the site as a sanctuary will provide fundamentally new information on the symbolic behavior of the ancient populations who inhabited at least the northern part of the Altai Mountains.

#### Acknowledgment

This study was supported by the Russian Science Foundation, Project No. 23-18-00424 "Multidisciplinary Studies of the Spiritual Culture and Prehistoric Art of the Population of Western Siberia and Central Asia in Ancient Times".

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Received December 5, 2023.
Received in revised form December 15, 2023.