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Ivory Figurines and the Symbolic Context of a Paleolithic Dwelling at Kovrizhka IV on the Lower Vitim River, Eastern Siberia

One of the most important recent discoveries made on the Vitim River (Baikal-Patom plateau, Eastern Siberia), is that of a Paleolithic dwelling at Kovrizhka IV, cultural layer 6. Excavations here revealed markers of symbolic activity, including two anthropomorphic ivory figurines. These were recovered in a context suggestive of non-utilitarian activity: including with an alternating boulder and slab perimeter, with ocher found on lithics and one figurine. One figurine depicts a downward-pointing angle, which may represent the pubes, as in female figurines. Stylistically, this figure resembles Neolithic and Bronze Age anthropomorphic figurines from the Cis-Baikal region. Its head, painted with ocher, was directed eastwards. The second ivory figurine has a contour loosely reminiscent of the human body, and it shows no engraving. Near the head of the figurine, a cluster of ocher pieces was found. A radiocarbon date from the dwelling places its construction ca 15.7 ka BP. These two figurines, along with a fragment of a graphite pendant from cultural layer 4, are the first objects of portable art to be found in the Paleolithic of the Baikal-Patom plateau and Vitim basin. The first figurine is thus far the only unambiguously anthropomorphic Upper Paleolithic representation from northeastern Siberia.

Keywords: *Upper Paleolithic, dwelling, anthropomorphic figurine, Paleolithic art, symbolic activity, Kovrizhka IV.*

Introduction

The study of Paleolithic dwellings, as well as Paleolithic art and symbolic behavior, have been central themes in Russian Paleolithic studies since the field first garnered international recognition in the 1920s–1950s (Trigger, 1990: 223; Lebedev, 1992: 429). Upper Paleolithic dwellings and artwork recovered from Malta and Buret

in the Cis-Baikal region and other sites across Middle and Eastern Siberia and the Russian Far East have had a particularly significant influence on Paleolithic prehistory. Previous work includes studies of dwellings at Studenoye-1 and -2, Ust-Memza-1 and -2, Kosaya Shivera-1 and -2, and Sukhotino-4 in the Trans-Baikal region; Ui II and Listvenka on the Yenisei; Ushki I–V on Kamchatka; and Ogonki-5 on Sakhalin (Gerasimov, 1935; Okladnikov, 1941; Konstantinov M.V., 1994: 71–99; Konstantinov A.V., 2001: 20–147; Vasiliev, 1996: 120–121; Paleolit Eniseya…, 2005: 114–117; Dikov, 1993: 10–32; Vasilevsky, 2008: 104–113). Such dwellings often contain non-utilitarian objects linked to the symbolic sphere, including art pieces. These finds reveal that apart from its primary function as a household, a dwelling also had symbolic aspects. Our new discoveries show a strong link between the living space, art, and symbolism in Paleolithic dwellings of the northern Baikal area. Based on detailed contextual examination of two anthropomorphic ivory figurines, we propose a non-utilitarian interpretation of symbolic activity at a Paleolithic dwelling discovered at Kovrizhka IV, layer 6 (Tetenkin, 2016; Tetenkin, Henry, Klementiev, 2017).

Description of the site

Kovrizhka IV belongs to the cluster of sites Kovrizhka I–V discovered and studied by A.V. Tetenkin since 1995. The site is located in the central part of the Baikal-Patom plateau in Eastern Siberia, in the Lower Vitim area, 3 km downstream from the mouth of the left tributary of Mamakan River, 15 km from Bodaybo town (57°48′ N; 113°56′ E). The site is located on terrace of the right-bank, which sits at a height of 11 m. Over 15 cultural layers have been identified at the site. The most culturally-informative of these, layer 6, was discovered within alluvial sediments at a depth of 0.75–1.10 m from the ground surface. Between 2012–2015, researchers working at the site excavated the remains of a dwelling The thickness of the cultural layer, composed of dark gray aleurite, does not exceed 2 cm. Cultural remains were found *in situ*, with subsidence occurring in the central part of the dwelling, which caused the corresponding segment of the cultural layer to sink to a depth of 9 cm. We obtained six radiocarbon dates for layer 6, the most reliable of which are three AMS dates generated on charcoal and bone samples. These estimates place the layer within the range of ca 15.7–15.5 ka BP (Tetenkin, Henry, Klementiev, 2017).

The remains of the dwelling are represented by the following features: 1) an arc of 13 stones, which comprises half of the former outer contour (approximately 4.2 m in diameter); 2) two hearths located in the center and in the entrance zone of the dwelling, between the last stone slab and two small pits; and 3) cultural remains distributed within the stone circle, as well as in the external entrance and rear zones (Fig. 1, 2). The arc is made from three pairs of stones. In each pair, the left stone is a rounded granite boulder, while the right one is a gneiss slab (Fig. 1, *a–c*). Another pair of such stones was found less than 1 m west of the feature. In all the pairs, the boulder and the slab were positioned at an angle to one another. The pairs themselves within the stone arc slant towards the central hearth. Large unpaired stones were also arranged in sequence, with boulder and slab alternating. A cobble and a tablet lay on the opposing (left and right, respectively) margins of the hearth in the center of the dwelling (Fig. 1, *d1*). A flake detached from this cobble and recovered from the assemblage was used as a tool, as evidenced by use-wear on its edge. The hearth was covered by sand with a black mineral substance. The cobble and tablet lay above. A cross-sectional profile of the hearth shows two thin black charcoal beds separated by sand (Fig. 1, *d2*). The second hearth was located 0.8 m from the first one. It was larger and included a lens of burned sediment up to 6 cm thick (Fig. 1, *e*).

Cultural remains from this feature (9918 pcs.) are composed of lithics (9235 pcs.), intact or broken pebbles and tablets, bone fragments, pieces of ocher, graphitite, and black mineral substance. There were 33 tool specimens recovered in the assemblage, most of which were found in the south-southeastern portion of the dwelling. These include two side-scrapers, three end-scrapers, one spurred implement, one knife, seven burin and chisel-like items made of quartz, and three pebble flakes with use-wear. The vast majority of segmented and complete microblades were discovered in the northwestern part of the dwelling (see Fig. 2) (Ibid.).

Study methods

Cultural layer 6 at Kovrizhka IV was excavated with the aid of archaeological and science-based methods that had been practiced in earlier field work on the Lower Vitim (Ineshin, Tetenkin, 2010: 71–92), including radiocarbon dating, archaeozoological, and paleobotanic analyses (Tetenkin, Henry, Klementiev, 2017; Henry et al., 2018). We also used scientific techniques to assess the possible symbolic meaning of the complex, applying geochemical (powder diffraction) analysis to detect hematite and ocher, paleomagnetic analysis to evaluate the way the stones were fired, and X-ray fluorescence (XRF) to estimate the chemical composition of the substance covering the hearth. During cleaning and restoration of the ivory figurines, we employed visual inspection in tandem with microscopy of the ivory fragments.

Fig. 1. Remains of the dwelling.
a–c – paired stones (boulder and slab); *d*, *d1* – hearth in the center of dwelling; *d2* – cross-section of the hearth; *e* – hearth in the entrance zone.

Ivory figurines

The first ivory figurine with anthropomorphic features (Fig. 1, 2) was found 0.8 m southeast from the margin of the central hearth. Its "head" was oriented toward the east. Within the layer, the upper portion of the figurine was recovered from a level 3 mm lower than the "thorax" and lower portion, whose lower margin sat at a further depth of 7 mm. However, the figurine nonetheless appears to represent a whole artifact (Fig. 3, *3*, *4*). During excavation, the "head" showed an apparent ocher stain. Later on, during the cleaning process, the figurine disintegrated into several fragments: the "head", "neck and shoulders", "trunk and legs", and "stalk". The second ivory figurine (Fig. 3, *5*) was found at the hearth's margin, in the entrance zone of the occupation feature (see Fig. 1, 2). Near the head of this figurine, oriented to the south-south-east, we also recovered an accumulation of large pieces of hematite, the only deposit of its kind in cultural layer 6 (Fig. 3, *6*). Both finds are almost flat in shape, and up to 5 mm thick.

V.V. Pitulko (Institute for the History of Material Culture RAS, St. Petersburg) and E.Y. Pavlova (Arctic and Antarctic Research Institute, St. Petersburg) were first to identify the material the figurines were made of as likely mammoth ivory. Later on, this assumption was confirmed during restoration, which revealed structural properties, identification characteristics, and character of damage corresponded to mammoth tusk (Fig. 4) (Goffer, 2007: 379–386, 405–432; Locke, 2013: 99–123).

Both figurines were subsequently restored by O.V. Zhmur. Because initial inspection during discovery suggested that the material was poorly preserved, the figurines were supported artificially during removal and were subsequently cleaned in the laboratory. As it turned out in the process of restoration, the ivory was largely decayed, and in some cases was in a pulverized

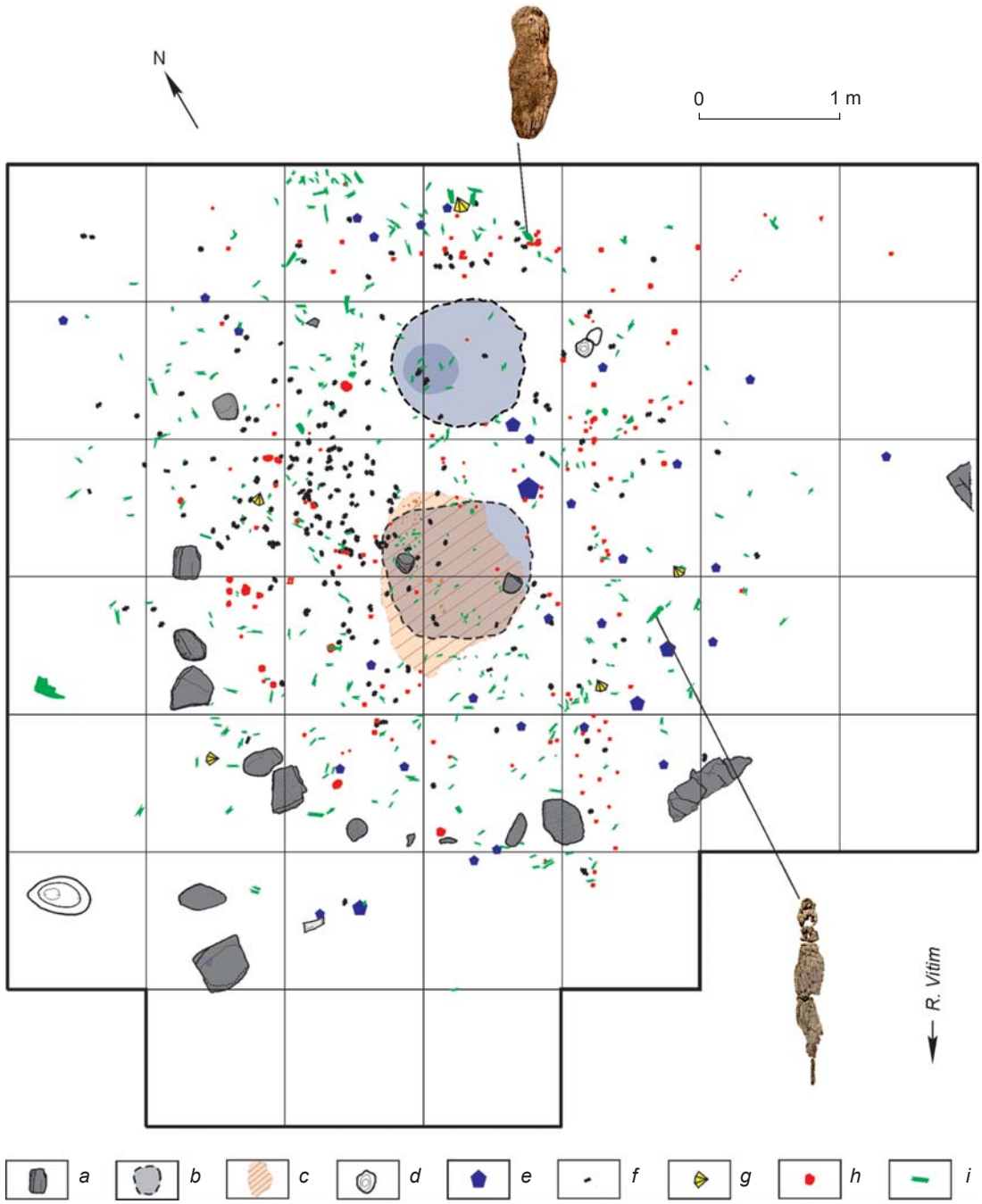

Fig. 2. Planview of the dwelling.
a – boulder and slab; *b* – hearth; *c* – sand with aleurite covering the hearth; *d* – pit; *e* – tool; *f* – microblade; *g* – core; *h* – spot of ocher and a piece of hematite; *i* – bone fragment.

state. Regrettably, the poor state of preservation makes it impossible to conduct a thorough use-wear analysis of the finds. Therefore, in the interests of conservation, beginning from the initial stages of restoration, we applied impregnating consolidants, temporary patches, and flexible molds. However, despite our cautious approach, some minute fragments (particularly, on margins of the "head" and near the "eyes" of the first figurine) were lost during restoration. At the final stage of treatment, the most damaged, thin, and brittle parts of the figurines were fixed in place with tea paper. This allowed us to maintain the integrity of forms, to avoid permanent alterations using rigid supports, and to make all surfaces available for inspection. To maximize morphological information, we also applied detailed photography and scanning to the objects.

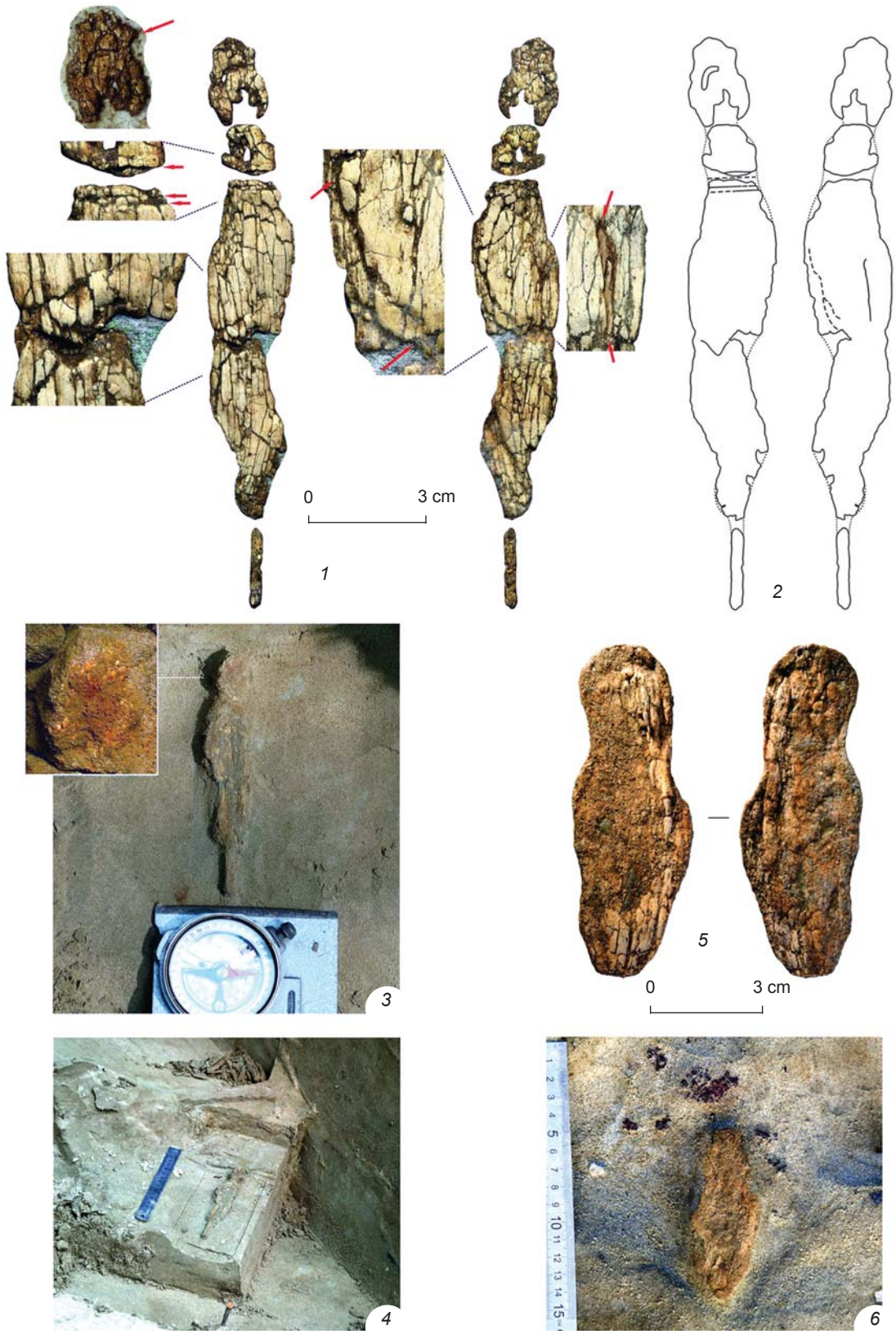

Fig. 3. Anthropomorphic ivory figurines.
1–4 – first figurine: *1* – general view and details, *2* – scheme, *3*, *4* – location within the layer; *5*, *6* – second figurine: general view and location within the layer.

1 2

Fig. 4. Fragments of the anthropomorphic figurines during cleaning.

The first figurine is approximately 15 cm long (Fig. 3, *1*, *2*). The preserved part of the "head" measures 1.8 by 1.5 cm; it is suboval in shape, and its lower portion is missing. On the object's downward aspect (as it was found *in situ*) we identified a 1.5 mm-wide cavity with distinct margins, which arcs upwards. At the beginning of the restoration, a small cavity was also observed along the right margin of the head. Possibly, this was a portion of a second such arc. The "trunk/legs" portion of this figurine stands 8.8 cm long and up to 2.4 cm wide. This fragment slightly widens from the upper margin downwards, and narrows in the middle part, especially on the right side, where the edge might be damaged. The width of the figurine in this part is no less than 1.5 cm. Near the waist, there is an impressed angle with gently converging sides. Further on, the figurine becomes bent to the right and then to the left. The upper margin of the "trunk" is even, nearly straight. A straight parallel incised line is visible at a distance of 1.5 mm from the margin; another one is traced 1.5 mm below. A similar line is also partially preserved at the base of the "shoulder" fragment. The non-taphonomic nature of these lines is evidenced by their reiteration and lack of coincidence with the direction of taphonomic cracks on the rest of the figurine. On the face of the figurine originally facing upward when the artifact was discovered, there are two lines running down to the waist, parallel to the sides of the "trunk". The significance of these lines is unclear: they might represent engraved arms, a natural feature of the tusk surface, or they may be the result of postdepositional deformation. Notably, the right line is more distinct and deep than the left. The figurine ends in a 2 cm long "stalk".

The second figurine has a round "head" measuring 4.0 by 2.4 cm, and a main torso with slightly bulging sides measuring 4.0 by 2.4 cm (Fig. 3, *3*). No engravings are visible. This second figurine is appreciably less well-preserved than the first.

Discussion

In the dwelling and its entrance areas, we recorded patches of ocher, hematite, and light pink coloration. Moreover, we recovered microscopic patches of ocher on one side-scraper, while an end-scraper is nearly completely covered. Stains of ocher are also visible on the head (on the surface facing upwards *in situ*) and on the middle portion (on the downwards-facing surface) of the first figurine. Pieces of hematite lay near the head of the second figurine. While ocher could conceivably have been used as paint for utilitarian purposes during the dwelling's occupation, the treatment of these figurines strongly points towards symbolic practices. Moreover, investigations of cultural layer 2B (radiocarbon dated to ca 15.3 ka BP) conducted in 2016, revealed ocher-based coloration of the dwelling surface. There is a high probability that this observation can be extrapolated to the dwelling complex of cultural layer 6.

Powder X-ray diffraction analysis*of ocher from layers 2B and 6 revealed the presence of hematite (α-Fe_2O_3) (Table 1, Fig. 5). Some samples also contained goethite (α-FeOOH). Nearly all samples, except the iron oxide minerals, contained quartz, suggesting that ocher was procured from ferruginous quartzite. Muscovite and feldspar were rarely encountered in the analyzed materials,

*Analysis was performed with the aid of D8 ADVANCE Bruker diffractometer equipped with VÅNTEC-1 plastic scintillation detector and Göbel mirror. We used DIFFRACplus software for data processing. Mineral phases in samples were identified using a PDF-2 (ICDD powder diffraction database, http://www.icdd.com/index.php/pdf-2/), with EVA software (https://www.bruker.com/products/x-ray-diffraction-and-elemental-analysis/x-ray-diffraction/xrd-software/eva/overview.html). The quantitative ratio of phases in samples was estimated using the program TOPAS 4 (https://www.bruker.com/products/x-ray-diffraction-and-elemental-analysis/x-ray-diffraction/xrd-software/topas.html).

Table 1. **Mineral composition of ocher, %**

No.	Provenance	Hematite	Quartz	Muscovite	Feldspar	Goethite
			Layer 2B			
1	Unit 44, sq. 12	72	28	–	–	–
2	Same, sq. 6	89	11	–	–	–
3	Same, sq. 18, qu. 3	21	32	–	47	–
4	Same, sq. 13, qu. 1	42	–	–	–	58
5	Test pit 14	45	44	–	–	11
			Layer 6			
6	Unit 40, sq. 4	96	4	–	–	–
7	Unit 36, sq. 23	58	42	–	–	–
8	Same, sq. 19, qu. 4 (near ivory figurine)	67	29	4	–	–

and their presence is likely due to contamination in sample collection. Based on this analysis, it can be concluded that the ocher at Kovrizhka IV represents natural mineral material.

The reiterating boulder and slab construction of the feature (Fig. 1, *a–c*) is noteworthy. Three pairs of this sort make a semicircular perimeter of the dwelling. One additional pair is situated on the periphery, outside the western margin of the arc. On the opposing margins of the hearth in the center of the dwelling, a cobble and a tablet (Fig. 1, *d1*) were found. The most cautious interpretation of this pattern is that the layout represents functionally different elements of the site's structure were organized, such as the dwelling, the hearth, and the personal working space. In this sense, the paired rounded cobbles and unrounded slabs appears to be a cultural stereotype of space interiorization. However, it should be noted that the tablet lying on the hearth was located near the area where both the stone tools and anthropomorphic ivory figurines were found. The rounded cobble was laid in the zone where microblades were detached, and possibly, where hunting tools were repaired and supplied with blades.

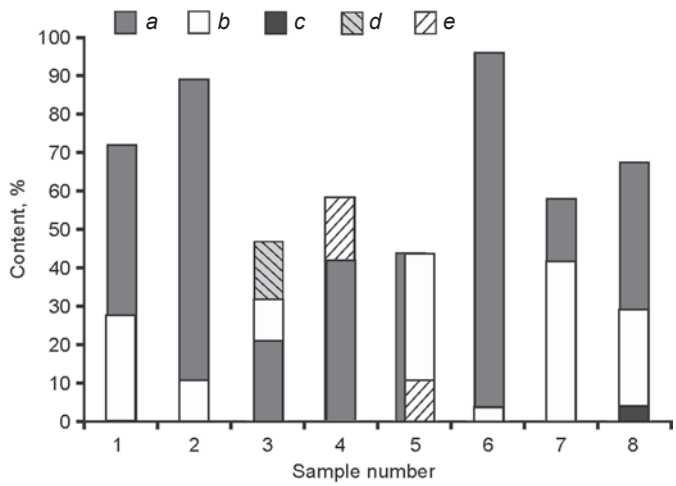

Fig. 5. Results of powder X-ray diffraction analysis of ocher. *a* – hematite; *b* – quartz; *c* – muscovite; *d* – feldspar; *e* – goethite.

To evaluate the way the tablet and cobble were burned, we performed paleomagnetic analysis based on standard procedures (Paleomagnitologiya, 1982: 69)*. Judging by the vector of natural remanent magnetization "recorded" in the finds, it can be assumed that the tablet was superheated at least twice. First, it was heated to approximately 550–600 °C, as evidenced by high-temperature component of natural remanent magnetization, corresponding to the interval of 250–550 °C. Its direction (N = 5, D = 260°, I = 59°, K = 29, α95 = 14) differs significantly from the modern direction of geomagnetic field (D = 350°, I = 75°) in the region under consideration (57°48′ N; 113°56′ E). This implies that the tablet was subsequently turned about 90° around the vertical axis. Then it was probably subjected to low-temperature heating, and was not moved anymore. The direction of low-temperature component (N = 5, D = 347.5°, I = 71°, K = 31, α95 = 14) within the range of 20–250 °C coincides (within statistical error) with the modern direction of geomagnetic field (D = 350°, I = 75°). Presumably, the tablet was placed in the smoldering hearthfire covered with coarse-grained sand and black aleurite. However, results of the paleomagnetic analysis of the cobble do not support an unambiguous conclusion.

X-ray fluorescent analysis of black material from the hearth has demonstrated that its chemical composition is similar to that of an artificially shaped disc found near the hearth in cultural layer 2B (Table 2, Fig. 6). This is well-packed, dense, terrigenous, fine-grained,

*Paleomagnetic analysis was conducted under the Public Contract of the Schmidt Institute of Physics of the Earth RAS (Theme No. 0144-2014-0091).

Table 2. **Results of X-ray fluorescent analysis**

Sample	Content of petrogenic elements, mass%											
	C	Na_2O	MgO	Al_2O_3	SiO_2	P_2O_5	S (total)	K_2O	CaO	TiO_2	MnO	Fe_2O_3
IV-2016(2B)	5.82	1.63	1.8	9.83	64.7	0.34	0.02	0.13	3.84	0.44	0.45	11.17
IV-2014a(6)	6.01	2.4	1.37	12.4	59.7	1.38	0.03	2.64	4.06	0.71	0.12	4.11
IV-2014b(6)	6.19	2.53	1.32	12.4	62.7	0.84	0.03	2.65	3.74	0.71	0.11	4.02

Note. Samples with fraction exceeding 0.3 mm, purified from feldspar grains, charcoals, and quartz, were ground.
Analysis was performed with the aid of S8 TIGER Wavelength Dispersive X-ray Fluorescence Spectrometer (produced by Bruker).

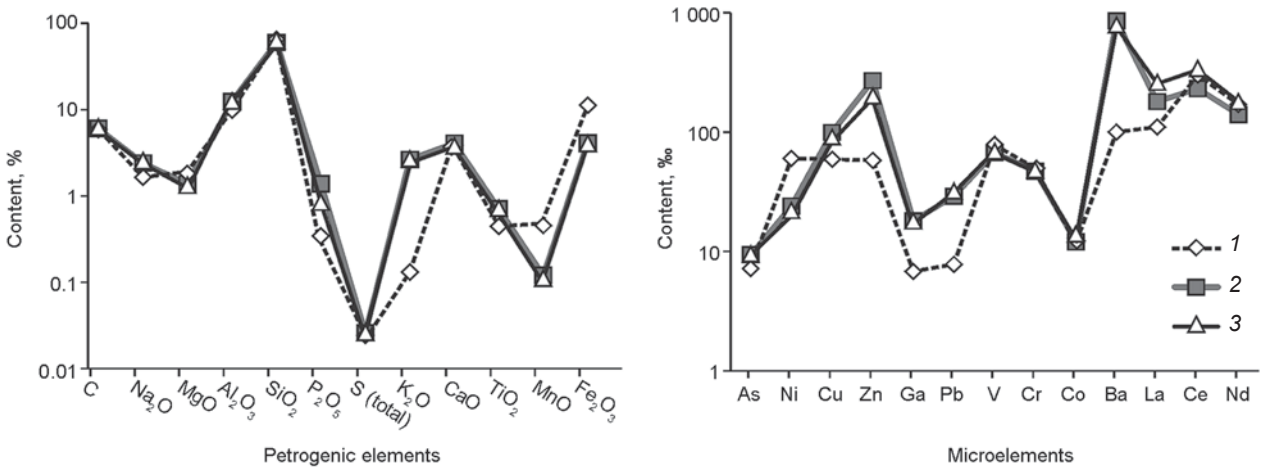

Fig. 6. Comparison of chemical composition of black aleurite from cultural layers 2B and 6.
Samples: *1* – IV-2016 (2B); *2* – IV-2014a (6); *3* – IV-2014b (6).

aleuritic material, with visible grains of mica differing in composition. The different K_2O content in the disc sample may be due to the fact that both samples taken from the ground covering the charcoal were contaminated by grains of feldspar and quartz. High levels of Ga, Pb, and Ba in samples could also be explained by contamination. The similarity between the composition of the hearth fill and this artifact suggests a longstanding practice of bringing this aleurite material to the site and using it for some manipulations with the hearth. No direct parallels to this practice have been reported for Upper Paleolithic sites in Eastern Siberia. However, in a hearth covered with sand in cultural layer 4 at Ust-Kyakhta-17, in the southern Trans-Baikal region (Tashak, 2005: 34–35), V.I. Tashak found a "phallus-shaped" pebble and a sandstone anthropomorphic figurine with female features at opposite margins of the hearth.

The first ivory figurine represents one of the most interesting finds at this locality. The orientation and location of the artifact may be especially important. The figurine was found in the right part of the dwelling, which could represent the female or household area of the dwelling. Its "head" was directed to the east. This figurine was also recovered near a stone knife, broken into three parts (with all fragments in close proximity). The morphology of the knife's fracture suggests breakage by bending, which would be uncommon during the normal usage of a knife—raising the possibility that the artifact was broken intentionally at the time of deposition. The figurine can be described as anthropomorphic, with bent knees turned to the right. The "stalk" at the lower portion of the figurine could have served for attachment. The impressed angle on the torso likely represents a pubic triangle, so the figurine can be interpreted as female. Transverse grooves found near the shoulders on this figurine are similar to features interpreted as breast bands on female figurines from eastern Gravettian sites on the Russian Plain, such as Kostenki 1, Mezhirichi, Avdeyevo, Eliseyevichi, and Khotylevo-2 (Abramova, 1966: Pl. I, *1*, *4*; 1995: Fig. 11, *2*; 21, *3*; 42, *1*; 43, *3*; 59, *1*; 73, *2*; 74, *4*; Gavrilov, 2012). In the Baikal region of Siberia, Paleolithic female figurines have also been found at the sites of Malta, Buret, and Krasny Yar (Abramova, 1966: Pl. VII, VIII, *1–7*, *11*; 1995: Fig. 101, *6*; 102–105, 115, *1–3*, *5*, *6*; Lipnina, 2008). The figurine from Kovrizhka IV differs stylistically from Malta and Buret "Venuses". It is nearly flat, having been fashioned on a thin ivory plate. In this regard, the figurine is closer to Late Neolithic and Bronze

of black aleurite from cultural layers 2B and 6

Content of microelements, ‰												
As	Ni	Cu	Zn	Ga	Pb	V	Cr	Co	Ba	La	Ce	Nd
7.2	60	59	58	6.8	7.8	79	50	13	100	110	300	170
9.4	24	99	270	18	29	67	47	12	850	180	230	140
9.5	22	91	200	18	32	69	48	14	790	260	340	180

Age anthropomorphic statuettes of the Cis-Baikal region (Studzitskaya, 1987). However, because of its advanced degradation, the surviving outline provides few if any clues as to the bodily proportions and posture, and the only warranted conclusion is that it represents a female figure.

The outline of the second figurine can be described as anthropomorphic in general terms only. It resembles the contours of Malta female statuettes (Abramova, 1966: Pl. VII, *8*, *14*; 1995: Fig. 104, *3*; 105, *5*). This artifact is less readily interpretable than the first one. Diagnosing it as a figurine or a blank thereof would be easier, if one assumes a symbolic connection with the pieces of hematite found near its "head" (Fig. 3, *6*).

Because both figurines are very abstract, they can be compared with those from the Upper Paleolithic sites of Listvenka (layer 19), on the Yenisei, and Shestakovo (layer 6), on the Kiya River, in Western Siberia (Paleolit Eniseya…, 2005: Fig. XXXI; Derevianko et al., 2000: Fig. 4, *23*).

Conclusions

In our view, the first ivory figurine from Kovrizhka IV is an artistic, anthropomorphic figurine, whose deposition can be related to human symbolic behavior based on a number of contextual traits at Kovrizkha IV. These include:

– utilization of paired stones stereotype in dwelling construction;

– spreading of crushed hematite (ocher) across the habitation zone;

– covering the hearth in the center of dwelling with black aleurite, and placing the cobble and tablet on the opposing margins;

– at the final habitation stage, the ivory figurine was (likely intentionally), placed in the prone position, whereas its head, painted with ocher, was directed eastwards.

The context of these finds within the dwelling indicates a complex symbolic behavior, to which the works of portable art were likely related. In addition to the anthropomorphic figurines, the category of art objects includes a fragment of a polished graphite pendant with incisions on the edge, from cultural layer 4, dated to ca 15.6–14.0 ka BP (Tetenkin, 2017: Fig. 1, *3*).

Materials from Kovrizhka IV layer 6 make up the earliest well-stratified archaeological complex on the Vitim River, and the first distinct remains of a dwelling to be found in the region. Manifestations of art are likewise the earliest in the Paleolithic of the Baikal-Patom plateau and Vitim basin, while the more expressive ivory figurine is the only Upper Paleolithic anthropomorphic representation from northeastern Siberia thus far.

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