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A Multidisciplinary Study of Finds from Suchu Island (1973 Season, Excavation II, Dwelling 1)

We analyze new finds from a Neolithic dwelling 1 from excavation II at the Suchu Island, on the Amur River. We analyzed an assemblage of 3788 lithics and ceramics, along with field records housed at the Institute of Archaeology and Ethnography of SB RAS. The article continues the series of publications in this journal, outlining the findings at Suchu—one of the key Neolithic sites in Northeast Asia. Dwelling 1 is a 0.8-meter-deep round semi-underground structure dug into the sandy loam. In its center, there was a hearth, and walls lacked ledges. On the floor, numerous pits from posts that had supported the roof were found. The stratigraphic and horizontal position of finds was registered; artifacts were analyzed through morphological typology, petrographic and X-ray analysis, and microscopy. Our analysis reveals hunting, fishing, and butchering tools, those for processing stone, wood, and bone, those for plant processing, and digging tools. Various sedimentary and igneous rocks were used as raw material. In terms of cultural chronology, standard pottery was mostly attributed to the Lower Amur cultures (Malyshevo and Voznesenovskoye), while some was apparently manufactured by immigrants. Principal technological, constructive, morphological, decorative, and functional characteristics of each ceramic type were assessed. Unusual artistic and ritual items clustered in dwelling 1 of the Malyshevo type (late 5th to early 4th millennia BC) are suggestive of a domestic shrine.

Keywords: *Suchu, Neolithic, culture, dwelling, tools, analysis.*

Introduction

The article continues the series of publications in this journal, outlining the findings of the 1970s in the Lower Amur at Suchu—one of the most important Neolithic sites in Northeast Asia (Medvedev, Filatova: 2016, 2017, 2018, 2019). Excavations at Suchu started in 1972 at the southeastern end of the island. In 1973, work at excavation I continued (Medvedev, Filatova, 2016), and excavation II was initiated towards the southwest, at an apparent dwelling depression, 9 m in diameter. At the time of excavation, the southeastern part of the dwelling depression had been destroyed by a ravine (Okladnikov, 1973; Derevianko, Medvedev, 1996)*.

*The excavation team included researchers from the Institute of History, Philology and Philosophy of the Siberian Branch of the USSR Academy of Sciences: A.P. Okladnikov (the head of the North-Asian Expedition), V.E. Medvedev (the head of the team), I.V. Aseev, Y.V. Grichan, V.D. Kubarev, V.P. Mylnikov, and seven students from the Khabarovsk Pedagogical Institute.

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Initially, excavation II consisted of a 9 × 9 m excavation area, including the eroded area (which lacked artifacts). In the course of research, southwestern (16 m^2) and northeastern (7.5 m^2) extensions were appended to the excavation. A grid system (1 × 1 m) was established, with long sides oriented along the SW-NE axis (labeled numerically from 1 to 12). The short sides coincided with the SE-NW axis (labeled alphabetically from A to J). To establish stratigraphy, two baulks were left along grid lines 5 and Г, while one additional baulk (at line 1) was preserved during the extension (stratigraphically similar to that of line 5). The profile from the topsoil to the virgin soil level at the dwelling floor was conventionally subdivided into three horizons for the sake of convenient recording of the finds on layer-by-layer plans (Fig. 1, *A–D*). In total, 3788 artifacts were recovered.

Material and methods

Materials for the study consist of the archaeological collection (lithics, ceramics, and art/ceremonial objects) and field records (drawings, partial field journals, and reports) housed in the Institute of Archaeology and Ethnography of SB RAS. Artifacts were studied using stratigraphy and spatial analysis (dwelling 1), petrographic analysis and morphological typology (lithics), X-ray analysis and microscopy (ceramics), and assessment of cultural chronology (ceramics, art/ceremonial objects). Petrographic analysis aimed at identifying rock types utilized an AXio Imager A2m polarized-light microscope, under the supervision of N.V. Berdnikov, the head of the Laboratory of Physical and Chemical Research Methods of the Institute of Tectonics and Geophysics of FEB RAS (Khabarovsk). Morphological-typological analysis of lithics was based on the methods proposed by Russian researchers (Derevianko, Markin, Vasilyev, 1994). Ceramics were analyzed using a MK-10 binocular microscope, while X-ray analysis was carried out using a Rigaku MiniFlex II X-ray diffractometer ($Cu_{K\alpha}$-radiation; Ni-filter; scan rate 2 grad/min; scan range 2θ: 6–90°) by I.A. Astapov, Senior Researcher at Institute of Tectonics and Geophysics of FEB RAS.

Study results

Stratigraphy (Fig. 1, *E*, *F*). Under a layer of sod (12 to 40 cm thick), the uppermost layer of pit fill consisted of a yellow loose sandy loam (30–35 cm). At the northeastern end of baulk along line Г (between units 9–11), the yellow sandy loam overlay the wall of dwelling 1 and extended down to the structure floor. The dwelling pit was filled mostly with dark dense sandy loam, at a thickness of 8 to 50 cm. At the southwestern end of baulk along line Г (between units 1–3), this layer was underlain by dark, nearly black, sandy loam soil admixed with small charcoal pieces. These possibly represented the remains of the collapsed roof. Between units 8 and 9 (at the bottom of the yellow sandy loam layer) and 4–6 (at the bottom of the dark sandy loam layer), excavators recovered lenses of burnt soil saturated with charcoal. In the latter case, the burnt soil represented the contents of the hearth. Sterile soil in the excavation area consisted of a sandy loam.

Dwelling 1 (Fig. 1, *D*, *F*). The rounded foundation pit was 8.8 m wide along the N-S axis and 9.5 m along the E-W axis. The total area of the structure was ca 70 m^2, while the dwelling floor was 55 m^2 in size. During construction, a pit was dug into virgin soil to a depth of ca 80 cm, while the greatest depth of the feature from the modern surface is 120 cm. The walls of the pit are rather steep, inclined at 60°. These walls are up to 80 cm high in the northern part of the dwelling, 70 cm high in the southern and eastern parts, and 65 cm in the western part of the dwelling. There are no ledges at the walls of the pit. The floor is comparatively even, slightly rising at the walls. In the dwelling center, a hearth was located, in the form of oval hollow 122 cm long and 15 cm deep, with uneven floor and sloping walls. There were 74 postholes identified in the excavation. The majority of these holes were located inside the dwelling, and only five (10, 11, 13, 72, and 73) beyond the dwelling. These small pits predominantly derive from the support posts that constituted the base of the dwelling's structure. Diameters of the pits vary from 11 to 44 cm; the depths are from 8 to 50 cm. The pits are either oval (41), or rounded (22) in morphology, usually with a cone-shaped, but sometimes cup-shaped, or (rarely) ledged bottom. Some pits were dug at an angle to the floor surface. Twelve pits (8, 15, 23, 35, 44, 45, 45', 49, 60–63) are apparently related to household structures: their diameters vary from 50 to 86 cm, and depths range from 19 to 65 cm. These are oval (7), round (3), and subtriangular (2) in shape; the bottom of almost all of these pits is ledged. All pits were filled with dark humic sandy loam.

Lithics. The analyzed lithic collection consists of 1335 lithics. Rocks of various types were used as raw material, which is supported by the results of petrographic analysis (Table 1). Small pebbles were mostly used, medium-size pebbles more rarely, and boulders of medium size and various colors were seldom used (Fig. 2).

Instruments (23 specimens or 1.7 % of the total number of lithics) include a hammerstone, nine grinding abrader-stones (two intact and seven fragmented), four burnishers, four grinding stones-anvils, a grinder, a grinder/burnisher, a grinder/polisher for wooden hafts, a

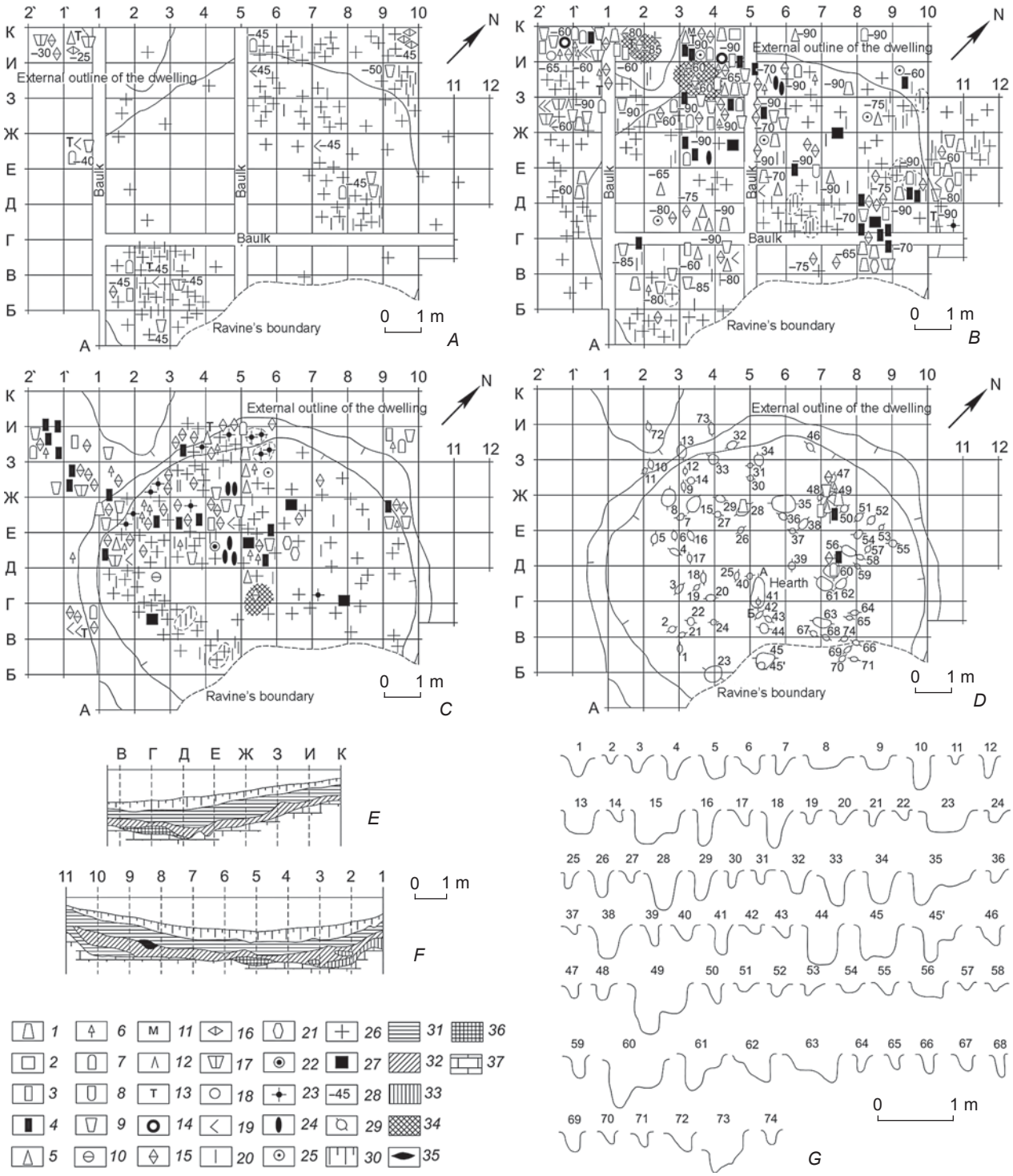

Fig. 1. Plans of excavation II (1973) at the levels of upper layer (*A*), structure fill (*B*) and floor (*C*) of dwelling 1, bedrock (*D*); baulk profiles along lines 5 (*E*) and Γ (*F*), pits (*G*).

1 – adze; *2* – axe; *3* – knife; *4* – knife-like bladelet; *5* – arrow- or dart-head; *6* – borer; *7* – end-scraper; *8* – side-scraper; *9* – combination tool; *10* – sinker; *11* – hoe; 12 – burnisher; *13* – grindstone; *14* – mace; *15* – tool blank; *16* – tool fragment; *17* – core; *18* – hammerstone, pressure stone; *19* – core-like spall; *20* – flake; *21* – lithic artifact; *22* – perforated pebble; *23* – clay figurine; *24* – ceramic rod; *25* – spindle whorl; *26* – ceramics; *27* – vessel (in fragments); *28* – depth from the modern surface; *29* – pit; *30* – sod; *31* – yellow loose sandy loam; *32* – dark dense sandy loam; *33* – dark sandy loam with charcoal pieces; *34* – ocher-rich spot; *35* – burnt soil saturated with charcoal: *36* – carbonaceous layer; *37* – bedrock.

Table 1. **Results of petrographic analysis of the artifacts from dwelling 1**

Sample code	Field code	Square	Depth, layer	Rock
C-1	C-73-PII-58	3/Ж	90 cm	Volcanic glass, partially crystallized
C-2	C-73-PII-121	5/Ж	"	Basalt
C-3	C-73-PII-171	1/Ж	"	Jasper
C-4	C-73-PII-174	"	"	Unidentified (failure to do slice)
C-5	C-73-PII-205	5/Д	Floor	Basalt
C-6	C-73-PII-214	9/E	"	Volcanic glass, partially crystallized
C-7	C-73-PII-216	"	"	Obsidian
C-8	C-73-PII-217	"	"	Basalt
C-9	C-73-PII-222	"	"	Obsidian
C-10	C-73-PII-264	"	"	Aleuropelite
C-11	C-73-PII-282	"	"	Ignimbrite
C-12	C-73-PII-283	"	"	Aleurolite
C-13	C-73-PII-286	"	"	Volcanic glass with phenocrysts of plagioclase and biotite
C-14	C-73-PII-288	9/E	"	Jasper
C-15	C-73-PII-336	2/E	"	Basalt
C-16	C-73-PII-350	1'/B	"	Quartzite
C-17	C-73-PII-407	2'/Ж	"	Volcanic glass, partially crystallized
C-18	C-73-PII-410	"	"	Obsidian
C-19	C-73-PII-420	"	"	Sandstone
C-20	C-73-PII-500	1'/B	"	Volcanic glass
C-21	C-73-PII-501	"	"	Aleurolite
C-22	C-73-PII-520	"	"	Ignimbrite
C-23	C-73-PII-521	"	"	Obsidian
C-24	C-73-PII-563	2'/3	"	Microquartzite
C-25	C-73-PII-728	9/3	"	Jasper
C-26	C-73-PII-982	3/Ж	"	Basalt
C-27	C-73-PII-994	1/Д	"	Flint
C-28	C-73-PII-995	"	"	Chalcedony
C-29	C-73-PII-1111	4/3	"	Rhyolite
C-30	C-73-PII-2234	2/Ж	60 cm	Volcanic glass, partially crystallized

hammerstone/anvil, and a hammerstone/burnisher. These artifacts were found in the upper layer (5), in the structure fill (3), on the floor (1), in the pit (2) of the dwelling, and beyond it (12). The grinding abrader-stones show traces of tool burnishing or polishing, while the anvils have small holes and dents. The working ends of hammerstones show edge fractures, those of the burnishers are smoothed or polished.

Core-like forms (28 spec. or 2.1 % of the assemblage) include five cores and five microcores, a core blank, and 17 core-like fragments. These objects were found in the upper layer (6), in the structure fill (3), on the floor (3), in the pit (1) inside the dwelling, and beyond (15). The cores and microcores were of three types: wedge-shaped (two of each category), sub-prismatic (two of each category), and narrow-face cores (one of

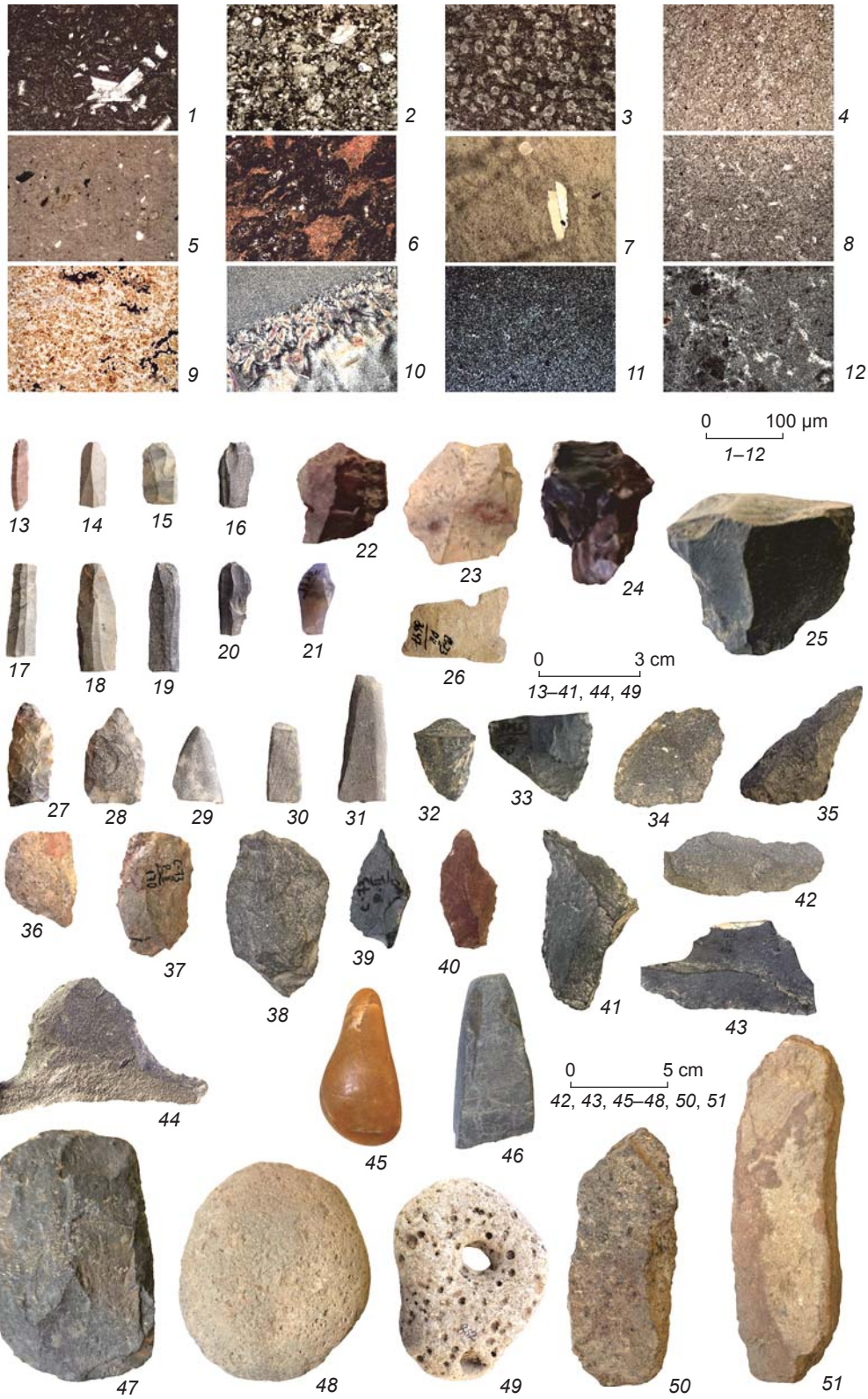

Fig. 2. Photos of slices (*1–12*) and stone artifacts (*13–51*).
1 – C-8 (sample code, see Table 1); *2* – C-19; *3* – C-9; *4* – C-21; *5* – C-12; *6* – C-22; *7* – C-13; *8* – C-30; *9* – C-14; *10* – C-28; *11* – C-24; *12* – C-27; *13–21* – knife-like blades; *22–25* – cores; *26* – grindstone; *27–31* – arrow-heads; *32*, *33* – fragments of dart-heads; *34*, *35*, *42*, *43* – knives; *36–38* – end-scrapers; *39–41* – borers; *44*, *51* – combination tools; *45* – burnisher; *46* – adze fragment; *47* – adze-scraper-like tool; *48* – hammerstone-anvil; *49* – perforated pebble; *50* – hoe.

each category). All the cores were single-platform, with sharpened (often) or backed (rarely) bases; striking platforms were predominantly straight. The core sizes ranged from 5.0 × 4.9 × 3.6 to 6.9 × 7.2 × 1.8 cm; those of microcores from 2.0 × 1.4 × 0.9 to 4.3 × 3.2 × 2.4 cm. Blank types were mainly small pebbles mostly of siliceous rocks.

The spall category from the assemblage (992 spec., 74.4 %) included flakes, blades, and debris. Flakes (440 spec., 32.98 % of the total number of lithics, and 44.4 % of the total number of spalls) were found in the upper layer (26), in the structure fill (165), on the floor (92), and in the pits (2) inside the dwelling, as well as outside the dwelling (155). Medium-sized specimens* dominate (27.4 %). Considering the length to width proportion, the elongated spalls are most numerous (26.6 %). Residual striking platforms are mostly straight (27.5 %), planar (10.5 %), and punctiform (10.4 %). Dorsal faceting of the flakes is predominantly longwise unidirectional (10.6 %). Blades (39 spec., 2.9 % of the total number of lithics, and 3.9 % of the total number of spalls) were found in the structure fill (17), on the floor (9), in the pits (2) inside the dwelling, and outside the dwelling (11). In total, 28 intact blades were found (71.8 %). The medium-sized (0.5 %) and small (0.8 %) blades dominate. The blades bear mainly straight (1.9 %) or planar (2 %) residual striking platforms. Faceting of dorsal surfaces is mostly lengthwise and unidirectional (2 %). The debris category (513 spec.) includes 18 fragmented pebbles, 204 spalls, and 291 shatters.

The tool kit includes 268 artifacts (96 intact, 34 fractured, 137 intact blanks, and one fragment), which is 20 % of the total number of lithics. The tools, fragments, and blanks were found in the upper layer (11), in the structure fill (116), on the floor (58), in the pits (9) in the dwelling, and beyond it (74).

Projectiles (including dart- and arrow-heads) were found in the upper layer (1), in the structure fill (12), and on the floor (6) of the dwelling. Dart-sized projectile points (6 spec.: two intact, three fragmented, and one blank; 2.2 % of the total number of tools) are bifaces foliate in plan view and lens-shaped in cross-section. On the recovered specimens, flat surfaces are covered with flattening, invasive retouch. Arrowheads (13 spec.: eight intact and five fragmented; 5 %) are of three types: 1) bifaces of elongated subtriangular shape in plan view and lens-shaped in cross-section, with either a straight or notched base; 2) arrowheads made on flakes, with a small notch on the base; 3) those that have elongated subtrapezoid shape in plan view, and are rectangular in cross-section. The first two types show preparation of flat sides with flattening through flaking or invasive retouch. Edges were prepared with bifacial, sub-parallel, and parallel flat retouch. Arrowheads of the third type are ground along the flat sides, with the lateral edges sharpened. The sizes vary from 1.3 × 1.3 × 0.2 cm to 2.9 × 1.8 × 0.3 cm.

Cutting tools identified in the assemblage are categorized as knives (16 spec.; five intact, six fragmented, four intact blanks, and one blank fragment; 5.9 %). These were found in the upper layer (1), in the structure fill (6), on the floor (1), in the pit (1) of the dwelling, and beyond it (7). There are three types of knives in the assemblage: 1) bifaces, either foliate or elongated sub-oval in plan view; 2) knives produced on flakes, which are asymmetric and rhomboid in plan view; 3) cranked in plan view. The flat surfaces of all the cutting tools were flattened by flaking; the faces of bifaces and "fish" knives show additional working with the parallel semi-abrupt retouch; the edges were fashioned with the bifacial, semi-abrupt or flat retouch. The sizes range from 3.1 × 3.0 × 0.4 to 9.4 × 4.8 × 0.6 cm.

Chopping tools (axes and adzes) were recovered from the structure fill (13), the floor (2), in the pits (2) of the dwelling, and beyond it (8). Axes (2 spec., a fragment and a blank; 0.7 %) are sub-rectangular in plan view and sub-triangular in cross-section. These were prepared via removals of lengthwise notching or bifacial subparallel spalls. The blank size is 11.8 × 6.8 × 3.3 cm. Adzes (23 spec.; eight intact, 13 fragmented, and 2 blanks; 8.6 %) are of three types: 1) elongated sub-trapezoid in plan view; lens-shaped, sub-oval, sub-triangular or sub-trapezoid in cross-section; 2) sub-rectangular in plan view and sub-oval or sub-triangular in cross-section; 3) elongated sub-triangular in plan view and lens-shaped or sub-triangular in cross section. These artifacts were prepared by trimming, polishing, and grinding. The backs are pointed, rounded, or straight. The sizes of intact specimens range from 6.9 × 3.1 × 1.2 cm to 11.2 × 4.2 × 2.3 cm.

One adze-scraper-like tool (0.4 %) was found beyond the dwelling. The tool is asymmetrical, sub-rectangular in plan view and lens-shaped in cross-section, the size is 9.8 × 6.4 × 2.4 cm. The artifact shows signs of trimming. The back and the cutting edge have been sharpened.

End-scrapers and a side-scraper were recovered from the upper layer (6), in the structure fill (44), on the floor (23), in the pits (3) of the dwelling, and beyond it (32). End-scrapers (107 spec.: 21 intact, 86 blanks; 40 %) are the most numerous tool category. These include end-scrapers, flake scrapers, angle scrapers, beveled scrapers, double-end-scrapers, flake end-scrapers, beveled end-scrapers, double-end beveled scrapers, and those retouched over the longwise edges and ¾ of the perimeter. Working edges were additionally trimmed by parallel and steep, lengthwise semi-abrupt spall removals and by marginal (parallel or sub-parallel, mostly abrupt, but in some cases

*Here and below with regard to the industry of spalls.

semi-abrupt or flat) retouch. Artifact sizes range from 2.2 × 2.3 × 0.5 to 5.7 × 3.0 × 1.0 cm. Pebbles, flakes and spalls served as blanks. A single side-scraper (0.4 %) is of the simple convex variety, sub-oval in plan view and lens-shaped in cross-section. The working edge was trimmed with abrupt, steep retouch. The cutting edge is blunted and shows edge-fractures. The size is 8.3 × 4.0 × 2.0 cm.

Borers (28 spec.: 16 intact, 12 blanks; 10.4 %) were recovered from the structure fill(10), on the floor (9), in the pit (1) of the dwelling, and beyond it (8). We identified the following varieties: dihedral, dihedral shouldered, angle, double (including with tangs on opposite ends), and a Chaleux-type borer. These are mostly rhomboid, sub-triangular, or sub-rectangular in plan view and in cross-section. The sizes range from 1.9 × 1.2 × 0.2 to 4.5 × 4.8 × 0.9 cm.

Combination tools (62 spec.: 32 intact, 30 blanks; 23.1 %) were found in the upper layer (3), in the structure fill (26), on the floor (15), in the pits (2) of the dwelling, and beyond it (16). Five combinations of two types of tools were identified: these include a scraper-borer (16, with 25 blanks), knife-scraper (7, with one blank), knife-borer (5, with one blank), one borer-notched tool, one borer-point. We also found two objects combining three types of tools: a knife-scraper-borer and a burin-scraper-borer. The size range for each is similar to the relevant types of unifunctional tools found in the assemblage. Finally, one adze might have been used as a striking tool, a sawing tool-scraper, and a notched scraping tool.

Other tools (9 spec., 3.3 %) include a digging tool, two mace-head fragments, a sinker, a perforated pebble, and four fragments of unidentifiable tools. These were found in the structure fill (5), on the floor (2) inside the dwelling, and beyond it (2). The digging tool is elongated, sub-oval in plan view, made by trimming of a sandstone pebble (12.4 × 5.2 × 2.7 cm). The "ears" of the tool were fashioned by spall removals in the lateral sides of the tool's upper portion. A large fragment (8.4 × 7.3 × 3.8 cm) of a basalt mace is subrectangular in plan view and elongated sub-trapezoid in cross-section; it was prepared by trimming and grinding all over the surface. The sinker was made of a sandstone pebble by flaking the opposite sides in order to secure fixing.

Retouched flakes (24 spec., 1.8 % of the total number of lithics) were found in the upper layer (7), in the structure fill (6), on the floor of the dwelling (4), and beyond the dwelling pit (7). The intact specimens are mostly elongated in shape and medium-sized. Reworking of the tools was executed mostly through retouching and grinding.

In summary, the collection of the typologically distinct artifacts appears dominated by the tools related to hunting and game processing: end- and side-scrapers (8.1 %), combination tools (4.6 %), borers (2.1 %), projectiles (1.4 %) and cutting tools (1.2 %). The share of chopping tools (1.9 %) is also large.

Household ceramics (Fig. 3, Table 2). The ceramic collection contains 2415 items: vessels (8 intact), vessel fragments (2156), and other clay objects (251). Identified ceramics are mostly attributed to the Malyshevo, Voznesenovskoye, and Belkachi complex ceramics of the Neolithic period, as well as unidentifiable ceramics from the Lower Amur. However, we also identified a handful of Late Bronze to Early Iron Ages ceramic sherds.

The Malyshevo culture is represented by 1666 items: 1 intact vessel and three refit vessels, 39 upper and 3 lower vessel portions, 2 side-pieces, 162 rim fragments, 1119 walls, and 140 vessel bottoms. We also identified 16 spindle whorls (two intact, five fragments, six blanks, and three blank-fragments); 181 scrapers (one finished product, 179 blanks, and one fragment). These items were found in the upper layer (278), in the structure fill (780), on the floor (343), in the pits (14) of the dwelling, and beyond it (251). The collection includes 379 unornamented items, and 53 specimens were painted red. Microscopic analysis demonstrates that the paste of some specimens was tempered with grog, sand, grus, with minor admixtures of mollusk shells. The surfaces of ready vessels were rubbed, smoothed, burnished, covered with engobe, and painted red outside and inside. Vessels were shaped using the base, base-and-body, and body-and-base shaping methods, as well as coil-ring techniques. The assemblage includes items with and without necks, those with open and closed shapes, and vessels ranging from miniature to large in size. The rims of vessels are straight or folded out- or inward; with rounded, pointed, flattened, or beveled margins. Bottoms are flat, mostly without flanges. Few vessels were made using a wheel. Both embossed patterns and high relief were used, as well as flat decoration patterns. The most frequent technical and decorative elements are comb imprints (using two to eight but most often three spokes), and spoon-shaped imprints. There are also imprints of variously shaped toothed wheel images, finger and nail imprints, stamped designs (straight, layered, and wavy), incised lines and grooves, scratches, punctate designs, and others. Separate elements form simple (horizontal, vertical, and oblique lines, arches, etc.) and complex (angles, triangles, segments, nets, spiral, faces, and other) motifs and ornamental compositions. There are two groups of ceramics: those used for household purposes (cooking, eating, and food storage) and those used for ritual*. Household ceramics bear carbonized

*Based on their general characteristics, ritual ceramics are similar to the household objects; hence, they are included in this section.

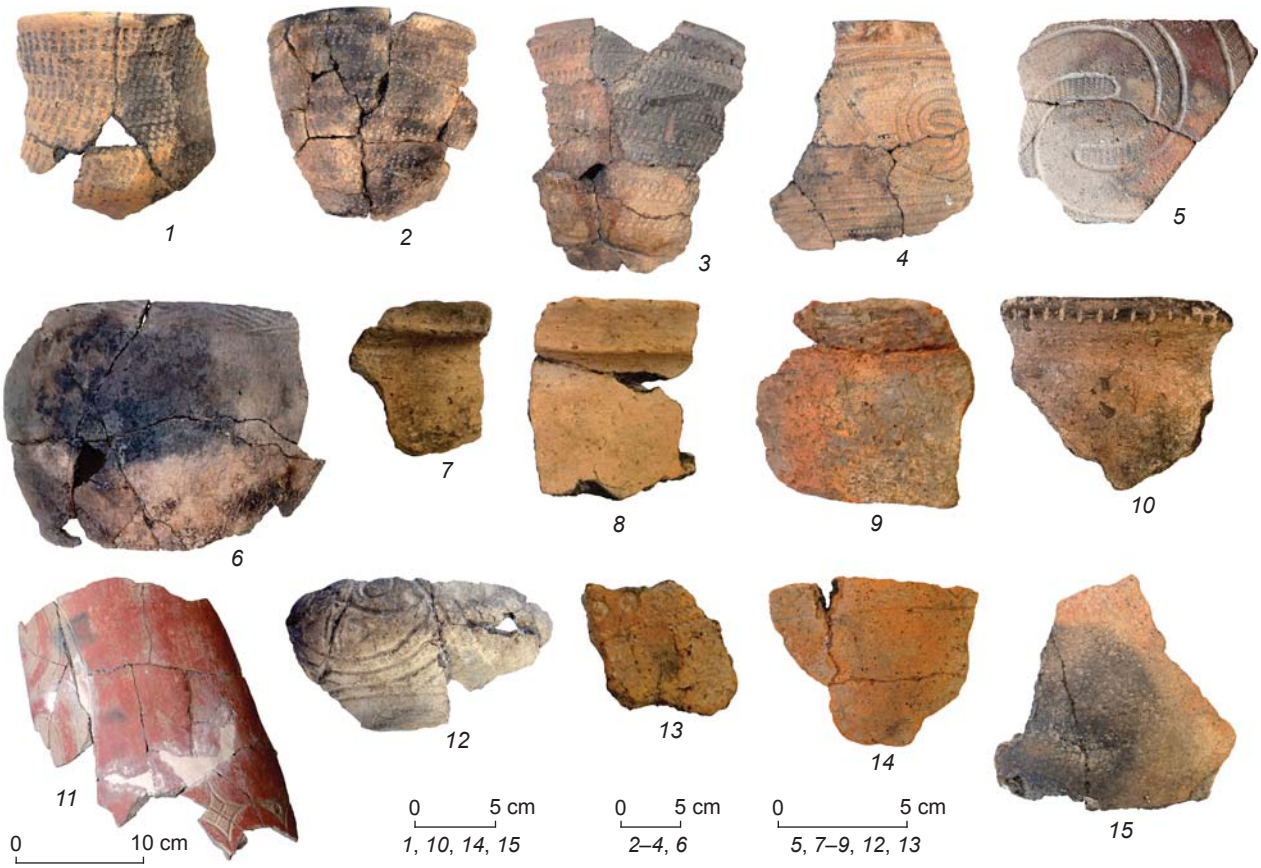

Fig. 3. Ceramics of Malyshevo (*1–5*) and Voznesenovskoye (*7–12*) cultures, Belkachi complex (*6*), with features of various cultural traditions (*13–15*).

deposits on the interior and/or exterior surfaces; while ritual ceramics are painted red (mostly on the interior surface). Scrapers and spindle whorls made from walls of broken vessel were recovered, as well as two specially manufactured spindle whorls, decorated with spiral and wave motifs. Malyshevo ceramics form a consistent, single cultural complex, showing a highly developed state of pottery production.

The Voznesenovskoye culture is represented by 162 items: 4 archaeologically intact vessels, five upper and two lower parts, 10 rims, 111 walls, and 14 bottoms; as well as 17 scraper blanks. These items have been found in the upper layer (16), in the structure fill (99), on the floor (32) of the dwelling, and beyond it (15). The larger portion of the ceramics (120) are undecorated. Binocular microscopic analysis demonstrates that the paste was tempered with freshwater mollusks (both shell and soft tissues) along with solitary grog particles. Prepared surfaces were usually rubbed and covered with engobe. One of the artifacts is painted red and likely served as a ritual vessel. The color of these potsherds is gray or dark gray on the inside and the breakage surfaces, and yellowish gray and grayish brown on the exterior, suggesting that ceramics were fired in the a reduction environment (650–700 °C). These vessels were built using the base-and-body shaping method and coil-ring technique. The vessels are predominantly large- and medium-sized, close-shaped, with necks. The rims are folded outward or direct (more rarely), with a pointed or rounded orifice. Bottoms of vessels in this category are flat. These artifacts can be classified into two groups based on their decorative features: 1) those with the body decorated with vertical comb, toothed wheel, and punctate designs; 2) those with a smooth body. In both groups, rims were formed through stamped impressions decorated with comb imprints or oval punctate designs. Two vessels are the exceptions. The first one, decorated with spiral motifs and "face" images, is similar to other vessels in terms of technology. However, in shape and ornamentation this object is parallel to the vessel from the shrine of the Voznesenovskoye culture, which was found at Suchu in 1993, in excavation 5 (Medvedev, 1994; 1996: 159–160, fig. 17, *18*; 2005: 54, fig. 24, *3*; Medvedev, Filatova, 2014: 81, fig. 54, *6*). The second vessel is exceptional in all its features. The ceramic paste does not contain any organic admixture; the surfaces are painted red and burnished to shine. The vessel bears "face images" composed of incised flutes, with the

Table 2. **Results of X-ray analysis of the Neolithic ceramics from dwelling 1**

Sample code	Field code	Square	Depth, layer	Portion of vessel	Composition of crystalline phase
			Malyshevo culture		
C-1	C-73-PII-1292	10/Г	90 cm	Wall	Quartz, plagioclase, orthoclase, illite
C-2	C-73-PII-1617	4/3	"	"	"
C-3	C-73-PII-1913	1/Б	85 cm	Rim	"
C-4	C-73-PII-2204	5/Д	70 cm	"	"
C-5	C-73-PII-243	3/Е	Floor	Bottom	"
			Belkachi complex		
C-6	C-73-PII-387	1/Ж	Floor	Wall	Quartz, plagioclase, orthoclase, illite
C-7	C-73-PII-479	1/В	"	Rim	"
C-8	C-73-PII-1136	4/3	"	Wall	"
C-9	C-73-PII-1274	10/Г	90 cm	Rim	"
C-10	C-73-PII-2153	1/Ж	60 cm	Wall	"
			Voznesenovskoye culture		
C-11	C-73-PII-677	7/Ж	Floor	Wall	Quartz, plagioclase, orthoclase, illite
C-12	C-73-PII-2057	9/Е	70 cm	"	"
C-13	C-73-PII-2887/2965	1/В	45 cm	"	"
C-16	C-73-PII-1230	7/3	90 cm	Rim	"
C-17	C-73-PII-1433	3/Г	"	Bottom	"
			Ceramics with foreign features		
C-22	C-73-PII-41	3/Ж	90 cm	Wall	Quartz, plagioclase, orthoclase
C-23	C-73-PII-838	4/Е	Floor	"	Quartz, plagioclase, orthoclase, illite
C-24	C-73-PII-1748	3/И	90 cm	"	"
C-25	C-73-PII-2881	6/Ж	45 cm	"	"
C-27	C-73-PII-3105	3/И	60 cm	"	Quartz, plagioclase, orthoclase, sillimanite

space between them filled with toothed comb imprints. This vessel is reminiscent of the painted ceramics from Voznesenovskoye and Takhta (Medvedev, 2005: 47, fig. 8, *1*, *3*, fig. 9; p. 58, fig. 31; p. 59, fig. 34). All ceramics, excluding those ornamented with spirals and "faces", are classified as household vessels. Beyond household vessels, the ceramic collection also includes end-scraper blanks of vessel walls. In general, the Voznesenovskoye ceramics can be described as a consistent, coherent cultural complex, representing a late stage pottery tradition.

The Belkachi complex consists of 557 items: an archaeologically reconstructed vessel, 15 upper vessel portions, one lateral vessel portion, 43 rim fragments, 459 wall fragments, and a near-bottom portion. Additionally, this material includes two spindle-whorl blanks and 35 scrapers made from vessel walls. These items were found in the upper layer (37), in the structure fill (204), on the floor (139) of the dwelling, and beyond the dwelling pit (177). All the ceramics are decorated. Using binocular microscopy, we established that a few specimens contained admixtures of grus and grog, as well as freshwater mollusks. The vessel surfaces were rubbed, smoothed, and covered with engobe. The firing environment was identified as oxidizing, using a temperature not higher than 800 °C, and a "smoking" technique. Vessels were shaped using the coil-ring method. They are open or closed, with slightly marked necks, small, medium, and large in size. Vessel bottoms are either round or round-pointed ("with a spur"). The rims are decorated with impressed designs, covered with toothed wheel or multi-toothed comb imprints. The walls show cord imprints with minor modifications. All the ceramics are identified as

household. The collection also includes spindle whorls and scrapers made of vessel wall fragments. Nearly ⅓ of the Belkachi ceramics were recovered outside the dwelling, and nearly one half of the total collection from within sq. Е–И/1'–2' and З–И/1'–2. This suggests a comparatively short presence of the associated group using this ceramic type at the island upon abandoning dwelling 1.

Finally, we recovered an upper portion of a vessel, two rims, and nine wall fragments showing certain similarity with the Neolithic ceramics from Sakhalin (Vasilevsky, 2008). These items were found in the upper layer (1), in the structure fill (8), on the floor (2) of the dwelling, and outside it (1).

Objects of art and cult. The collection consists of 38 items. These were found mainly at a small area close to the western wall on the floor (30) of the dwelling, and in the structure fill (8). Lithics include three labret fragments and a part of a phallic cone-shaped item with a feminine symbol. Clay items are a discoidal churinga, an anthropomorphic (female) figurine, six zoomorphic sculptural representations (one bear, five flying birds of the family Alcidae; their sizes are 3.2–4.0 cm), five ambiguous figurines (a head of a bear – small animal and four double-ended phalluses 2.8–4.0 cm long with the upper ends in the form of the seal heads), one figurine fragment, ten variously shaped miniature vessels, eight rods (one intact and seven fractured), and two wheel-stamps (Derevianko, Medvedev, 1996: 218–219; Medvedev, 2000: 58, fig. 4; p. 59, fig. 3, *2*; p. 62, fig. 6, *4–6*, *8–10*; p. 67, fig. 8, *3*; 2005, p. 55, fig. 28, *3*, *4*; p. 56). This large assemblage of objects with artistic or religious significance discovered in the dwelling suggest an important role for solar and animal worship, as well as fertility and ancestor cults. The cult objects suggest elements of totemism and magic in the ideology of inhabitants of this dwelling.

Conclusions

Spatial analysis of half-dugout dwelling 1 with a hearth in the center revealed its main construction features: a medium size, comparatively shallow foundation pit, and absence of ledges along the walls. A large number of postholes identified inside the dwelling can suggest structural rows: five stretched along the NW-SE axis, and three along the SW-NE axis. These are the pits from posts that had supported the dwelling's roof. Other hollows noted on the bottom of the foundation pit were likely used for food storage, household utensils, and other functional activities.

Lithics and household ceramic items clearly indicate that the ancient population of the island had complex subsistence strategies, dominated by hunting and fishing, as well as foraging. The large share of scrapers (40 %) (their morphotypes repeat in the ceramic collection) in the stone tool kit suggests a possible economic specialization of the inhabitants of dwelling 1; they were engaged either in scraper manufacturing (a "workshop"), or in mass processing of game. In terms of cultural and chronological attribution, the majority of the lithic artifacts belong to the Malyshevo cultural tradition, as supported by the Malyshevo ceramics associated with dwelling 1.

Analysis of the ceramics indicates a well-developed pottery-manufacturing tradition. These data also point to migration or cultural interactions with the northern mainland and eastern island territories, starting as early as the Middle Neolithic (late 5th to early 4th millennia BC). Numerous objects of artistic and religious significance reveal not only well-developed spiritual traditions, but also speak to Suchu's significance as a religious center in the 4th millennium BC. Judging by the number of such artifacts found in cluster in dwelling 1, we hypothesize that there was a domestic shrine in this house.

Newly analyzed data from dwelling 1, as well as lithics, ceramics and unique art and ceremonial objects found at the site, some of which have no parallels, provide the new insight into the Middle Neolithic period in the Amur basin and contiguous regions.

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A Zoomorphic Antler Staff from an Early Neolithic Burial at Pushkinsky, the Orenburg Region

I describe a rare artifact—a staff with a zoomorphic finial, carved from the curved part of an elk antler. It was found in 1982 on a bank of the Tok River, in the western Orenburg region. The artifact was in a seated burial, discovered by chance. The archaeological context is described, and a cultural and chronological attribution is proposed. It is concluded that the burial is associated with the Early Neolithic Elshanka culture. Similar staffs were found mostly in Mesolithic and Neolithic burials in the forest zone of Eastern Europe. Radiocarbon analyses suggest that seated burials with zoomorphic antler staffs date to the interval from the 6th to the early 3rd millennium BC. The peculiar feature of the Pushkinsky specimen is that it likely depicts a horse rather than an elk, probably because the economy in the steppe and forest-steppe focused on horse hunting. Such artifacts were apparently ritual, and the practice could have originated in the steppe and forest-steppe from whence it spread to the forest zone.

Keywords: *Zoomorphic staff, burial, Mesolithic-Neolithic, Southern Urals.*

Introduction

A staff made of antler with zoomorphic finial has been discovered on the bank of the Tok River (Samara River basin), 500 m south of the modern settlement of Pushkinsky, in the Krasnogvardeisky District, Orenburg Region (Fig. 1). The present-day landscape of the area can be described as steppe; typical forest-steppes begin a little northerly. During the Holocene, the natural and climatic conditions in the western Orenburg region could have repeatedly changed towards greater humidity or greater aridity. Accordingly, owing to climate fluctuations, the boundary between the steppe and forest-steppe could have shifted from south to north or from north to south.

As has been established during research at the settlement of Ivanovskoye, in the immediate vicinity of Pushkinsky, the Neolithic and Chalcolithic in the Volga-Urals region corresponded to the Atlantic Period. According to scholars, this was the stage of the second optimum of the Atlantic Period of the Holocene, distinguished by a humid and cool climate accompanied by increase in forestation of the region with pine and birch (Lavrushin, Spiridonova, 1995). These conclusions have been confirmed by the data on the paleofauna hunted by the inhabitants of the Ivanovskoye settlement during that period, which included elks, beavers, deer, badgers, otters, wild boars, and even bears; but the main objects of hunting were wild horses (Petrenko, 1995).

Studies at Ivanovskoye and other sites were carried out in 1977–1982 and in 2014–2015 (Morgunova, 1995, 2011; Morgunova et al., 2017). The archaeologists obtained the staff in 1982. A resident of Pushkinsky, V.N. Myachin, brought a bag of human bones, which he discovered on the Tok River bank, about 7 km upstream the Ivanovskoye. Bone remains included fragments of an antler object with a finial in the form of either an elk's or

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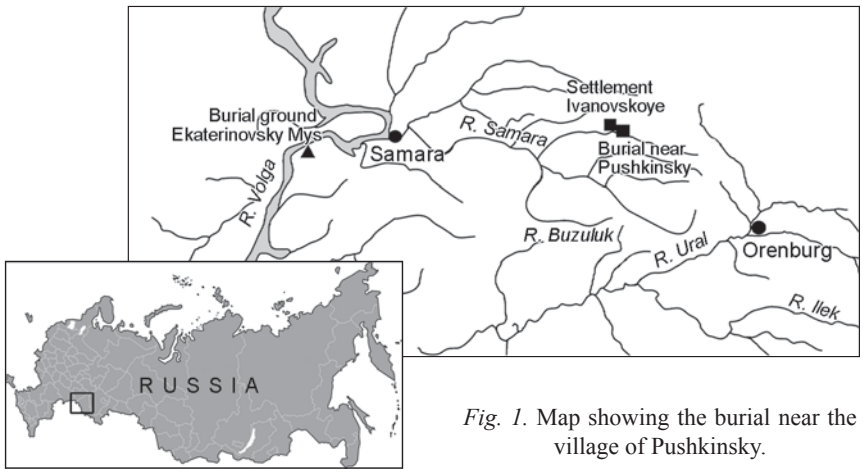

Fig. 1. Map showing the burial near the village of Pushkinsky.

a horse's head. While identifying the type of animal, the opinions of specialists became divided; disagreement on this subject remains until today. Information about the find was published in the Journal *Arkheologicheskiye otkrytiya 1982 goda* (Morgunova, 1984); later, the staff was described by S.V. Bogdanov in his own interpretation (1992). Since then, the Pushkinsky staff (I believe that it should be named exactly thus, according to the place of discovery) has been mentioned in a number of studies on such items (Kashina, 2005; Zhulnikov, Kashina, 2010; Savchenko, 2018; and others). This staff should certainly be considered together with other elk-headed staffs, although it is separated quite far from them both territorially and chronologically. This explains the need to re-address this item, which is certainly an outstanding work of prehistoric art.

Descriptions of the burial near Pushkinsky and the staff

First, we should mention the place where the staff was discovered. There is no doubt that the item was in a burial. According to Myachin, while fishing on a steep bank, he saw, in a side view, a skeleton of a man "squatting", with his legs pulled to his chin. Since the ongoing archaeological excavations were well-known in the area, the burial was "lucky", and all evidence was carefully collected.

The location of the find was inspected by archaeologists. The height of the bank (cliff) above the level of the river reached 5 m. An excavation ditch 4 m wide was made along the cliff. No remains of a burial ground have been found in the deposits. The following sequence of soil layers has been established. An even layer of dark gray humus 0.8 m thick, which did not contain any artifacts, was below the sod layer. Usually, in such layers, settlements from the Late Bronze Age have been found. This layer covered the buried soil, which consisted of light gray loam 1 m thick, without any finds. Next, there was a layer of brown loam of lumpy structure 0.9 m thick, under which pure layers of clay lay up to the surface of the water. The burial with the staff was located exactly in the last humus layer, at a depth of 3 m from the surface. Judging by the soil features and depth of deposition, this layer could have emerged during the Mesolithic or Early Neolithic. Scarce finds confirm the connection of the burial with that period. Five small fragments of undecorated pottery, pieces of ocher, flakes of flint, two fragments of microblades without traces of retouching, and a phalanx of a human toe were found during unearthing of the excavation ditch in this layer. Although the finds in the layer do not show clear diagnostic features, they can, together with lithological data, be compared to similar evidence from the Mesolithic Staro-Tok site and the Neolithic layer at the Ivanovskoye settlement, which contained the items from the Early Elshanka culture (Morgunova, 1995).

All anthropological evidence from the burial near Pushkinsky was transferred to the Institute of Ethnography of the USSR Academy of Sciences. According to the identification by R.A. Mkrtchyan, anthropologist from this Institute, the skeleton belonged to a male of the proto-Caucasoid type, 45–50 years of age. Unfortunately, the interpretation of the evidence was suspended; data were not described, and the finds were lost.

The staff was undoubtedly a creation of an outstanding artist of his time (Fig. 2, 3). The sculpture was made in the style merging the image of the animal with an object for a utilitarian or religious purpose, which style was widespread during the Mesolithic and Neolithic. The staff was carved of the curved part of an elk antler (as identified by V.N. Danilchenko, archaeozoologist from the Institute of Archaeology of the USSR Academy of Sciences). The length of the artifact from the bend to the

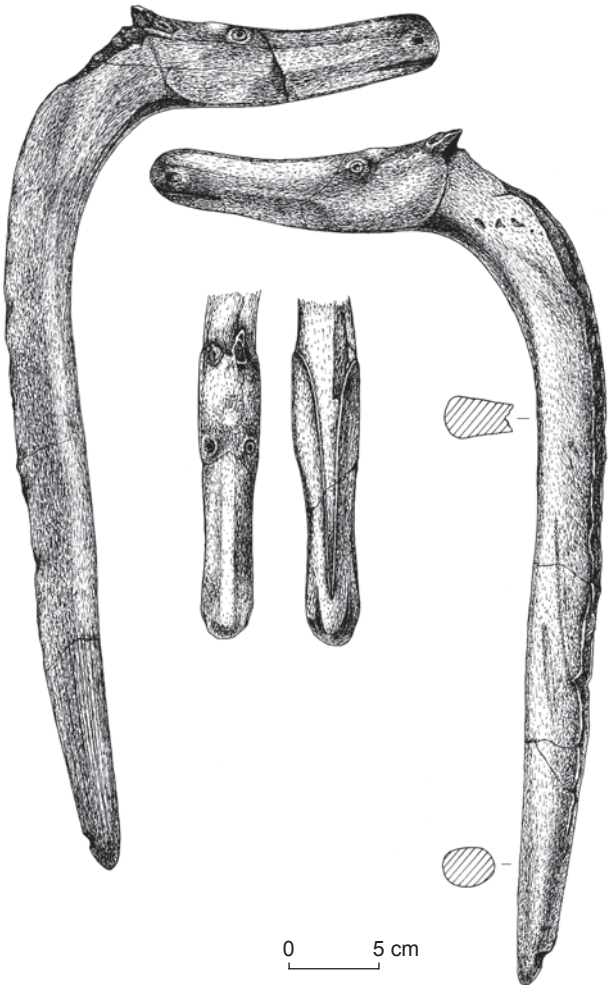

Fig. 2. Antler staff with zoomorphic finial from the burial near Pushkinsky.

end of the handle is 48 cm; length of the finial is 18 cm. The item consists of two parts, handle and finial, but is perceived as an integral image of an animal with rather expressively rendered muzzle (finial) and body (handle). Having combined the features of two animals (elk and horse), the artist created an abstract-syncretic image. The gracefulness of the figurine is emphasized by the elongation of the muzzle, probably caused by the shape of the antler blank.

Cultural and chronological interpretation of the staff

Parallels to the Pushkinsky staff are rare, and occur only in the forest zone of Eastern Europe in burial grounds and settlements, and in rock art.

In terms of size and style, three antler staffs from the graves of males buried in a standing position at the Oleniy Ostrov cemetery, on Lake Onega, show the greatest similarity to the staff under discussion (Gurina, 1956: Fig. 129–131; 1971, 1989). Seven more staffs, which are much smaller, have a slightly different configuration, and go back to much later period, were discovered at the Kola Oleniy Ostrov cemetery (Kolpakov, 2018: 176–177). Two antler staffs with finials in the form of elk heads were found in the layer with items of the Narva Neolithic culture at the Šventoji-3 site, in the Baltic region (Rimantene, 1975). A staff similar to the Oleniy Ostrov items was found at the Mesolithic-Neolithic burial ground of Zvejnieki in Latvia (Zagorkis, 1983: Fig. 2, *1*).

Interesting sculptural representations of elk's heads (the handles have not survived) made of antler were found in the Shigir peat bog, Sverdlovsk Region, the Middle Urals (Chernetsov, Moshinskaya, 1971: Fig. 81). The cultural and chronological context of the finds is unknown, but their similarity to the artifacts from Karelia and the Baltic region, as well as to the Pushkinsky staff, is obvious. Another finial was extracted from the Shigir peat bog, which differed from the finial under study in the manner of its attachment to the handle—there was a drilled hole for fastening to the handle. Another feature of the artifact was that the animal was depicted in an abstract style, and represented a fantastic beast with frighteningly bared teeth (Savchenko, 2018). The similarity of this finial and elk-headed staffs is manifested not only in their general configuration, but also in rendering the muzzle. For example, a V-shaped notch was drawn under the lower jaw. Notably, the AMS-date obtained from the antler has made it possible to attribute this sculpture to the Mesolithic (Ibid.: 198).

Noteworthy parallels include large dagger-shaped items made of elk antler. In the Kama region, in the Neolithic burials with extended skeletons at the cemeteries of Mellyatamak V and Russky Shugan, such artifacts have a smoothly curved shape and slightly distinguished finials without zoomorphic features (Kazakov, 2011: 38, 45, fig. 106, 118). The length of one of the daggers is 40 cm; grooves for flint blades were made along its narrow edge. Interestingly, in the Pushkinsky staff, there is also a deep groove in the back, where flint inserts might have been attached. In this form, the item could have been used as a tool, probably for sacrifice.

Thus, the area of parallels to the Pushkinsky staff does not extend beyond the forest zone from the Middle Urals to the Baltic region and Karelia. Each find is unique in its own way: it has artistic value and is associated with rather rare extraordinary complexes, mainly funerary ones.

Elk-headed staffs from the vast expanses east of the Urals are unknown. An exception are small horn staffs up to 20 cm long with finials in the form of bird heads, from the burials of the Sopka-2 cemetery of the Odino culture of the Early Bronze Age (in the Baraba forest-steppe region) (Molodin, 1985: 56; 2012, 166–168).

Fig. 3. Antler staffs with zoomorphic finials from the burial near Pushkinsky (*1–5*) and the Ekaterinovsky Mys burial ground (*6*).

Importantly, the image of an elk played a big role in the art and mythology of the population of Siberia in the preceding stages of the Neolithic and Chalcolithic. Small-sized sculpted representations of elk carved out of bone and rendering the animal at its full height, which is a peculiarity of ancient Siberian art, are known (Okladnikov, 1950a: 280–282; 1971). Large-sized figures of elk appear at numerous monuments of rock art (Okladnikov, 1950a: 283–284; Formozov, 1969: 82–93). The study of the ethnographic evidence from Siberia has made it possible to substantiate the hypothesis about a special status of elk in the life of the ancient forest population; images of elk and bear had the highest rank in the mythological hierarchy and shamanistic practices (Okladnikov, 1950b: 12–14).

In the rock art and sculpture of Europe and Siberia, the image of an elk was represented in various ways, which may have been caused by different aspects of mythology and cultic rituals. However, both in Siberia and in Eastern Europe, the image of elk was widespread; it played a leading role in the spiritual sphere of ancient communities from the Mesolithic to the Early Bronze Age, and was associated with the cultic practices of forest hunters (Kashina, 2005: 15–19). This connection is especially distinctive in the rock art of Fennoscandia. A.D. Stolyar analyzed in detail the purpose of elk-headed staffs found at cemeteries. In his opinion, these could have been used in shamanistic rituals in the same way as long pole-handles depicted on the rocks, which had a similar staff in the middle and a triangular crown at the end (Stolyar, 1983: 153–158). Many scholars consider the complexes with elk-headed staffs to be the burials of shamans (Gurina, 1956; Bogdanov, 1992; Serikov, 1998) The ideas about the magical and ritual importance of elk-headed staffs have surfaced in a number of studies based on analysis of rock art, sculptural representations, and ethnographic evidence (Zhulnikov, Kashina, 2010; Kolpakov, 2018).

An overview of the parallels to the Pushkinsky staff allows a conclusion to be drawn that the image of elk, embodied in various types of prehistoric art, was widespread in the forest zone of Eurasia in the Mesolithic, Neolithic, and Chalcolithic, along with other zoomorphic images, but occupied a leading place among them. In the light of this conclusion, the Pushkinsky staff, which was found practically in the steppe–forest-steppe, should be considered an extremely important discovery.

Several zoomorphic finials have been found in the flat-grave burial ground of Ekaterinovsky Mys, in the Samara region of the Volga. The study of this burial ground has recently started, and continues

until now (Korolev, Kochkina, Stashenkov, 2018). Judging by first publications of radiocarbon dates, the site belonged to the Samara culture of the Early Chalcolithic (the calibrated date is late 6th to the end of the first quarter of the 5th millennium BC). One of the finials is very similar to the Pushkinsky staff. It probably formed a single whole with the lost handle (Fig. 3, *6*). Similarly to the Pushkinsky staff, the image of the animal is stylized: the head is elongated, the most distinctive features of an elk (humpback nose, lower sagging parts of the lips and jaws, and small ear) are not marked (Korolev, Kochkina, Stashenkov, 2019: 395, fig. 14).

Analysis of the burial rite in the burial place where the item was discovered may help us with establishing the chronological period and cultural attribution of the Pushkinsky staff. As was mentioned above, the man was buried in a sitting position, with his knees pulled up to his chest. Such a method of burial was relatively rarely used in the cultures of the steppe zone; in the forest cultures of Eurasia it is unknown (Telegin, 1976: 17–18; Khlobystina, 1991). Scholars have observed the connection of such a rite mainly with male burials, containing rare or prestigious equipment and even human sacrifices, which suggests a special status for the buried person in the prehistoric social hierarchy (Khlobystina, 1991: 36; Potemkina, 1985: 150–153; Shilov, Maslyuzhenko, 2006: 189).

The practice of burying the deceased in a sitting position has been known since the Late Paleolithic (Kostenki), but it was most widespread in the Mesolithic and Neolithic. Burials made according to such a rite have been discovered at the Khvalynsk burial grounds of the Chalcolithic and at the sites of the Pit-Grave culture of the Early Bronze Age; they are always regarded as extraordinary (Vasiliev, 2004: 57–58). Two "seated" burials, unfortunately without grave goods, have been found in the western Orenburg region. They were located under the mound of one of the kurgans at the Labazy cemetery of the Timber-Grave culture dated to the Late Bronze Age, but did not fit the standard funerary rite of this site. Radiocarbon dating conducted in the laboratories of Moscow, Tomsk, and the University of Pennsylvania made it possible to obtain three dates for each burial. Notably, all the dates were very close, and showed the calibrated interval within the last quarter of the 7th millennium BC (Kuptsova et al., 2019: 134). According to the results of the dating, the burials were not associated with that kurgan, since they had been made long before its construction, probably during the Early Neolithic, when the Elshanka Neolithic culture was emerging (Vybornov et al., 2016: 85–90). It is worth mentioning that pottery fragments, comparable to the Elshanka ceramics, were discovered in the layer where the Pushkinsky burial was located.

The conclusion about the time when the "seated" burials appeared leads us to the issue of the chronological attribution of the above-mentioned parallels to the elk-headed staffs from the forest zone. Here, they were widespread during the Mesolithic and Neolithic. However, according to the current radiocarbon data, these chronological periods in the forest zone occurred much later than in the steppe zone (Timofeev, 2000; Zaitseva, Mazurkevich, 2016).

A large series of ^{14}C dates is available for the burials of the Onega Oleniy Ostrov cemetery, which point to the Mesolithic attribution of the site (Gurina, 1989: 30). The date of burial No. 153, where one of the most famous elk-headed staffs was found, is 7140 ± 140 BP (GIN-4452); other complexes are dated to a slightly later time (Zaitseva et al., 1997: 121–122). All ^{14}C dates for the Oleniy Ostrov cemetery were obtained by the scintillation method using human bone, and the reservoir effect might not have been taken into consideration while dating. However, even without the reservoir effect, the dates of these burials are unlikely to extend beyond the boundaries of the 6th millennium BC. According to the evidence from other sites, the boundary between the Final Mesolithic and the Initial Neolithic in the forest zone of Eastern Europe was rather vague, and the transition in various regions happened unevenly within the 6th millennium BC. It has been established that the emergence of the Neolithic traditions in the forest zone was associated with impulses from the southern steppe regions of Eastern Europe (Zaitseva, Mazurkevich, 2016).

For other sites, there are ^{14}C dates corresponding to the Neolithic of the northwestern regions of Eastern Europe. For example, a series of ^{14}C dates within the 6th–5th millennium BC was obtained from bones for a number of burials at the Zvejnieki burial ground; the date for burial No. 57 with the staff was 6825 ± 60 BP (Ua 3636) (Zaitseva et al., 1997: 125; Timofeev et al., 2004: 107–108). An even later date (4th to early 3rd millennium BC) characterizes the Narva culture (Rimantene, 2000).

Thus, the tradition of using elk-headed staffs emerged in the forest zone in the Mesolithic and continued to exist in a stable hunting and fishing economy throughout the Neolithic—from the 6th to the early 3rd millennium BC. In the steppe zone of Eastern Europe, in the period corresponding to the Mesolithic of the forest zone, there were already well-developed Neolithic cultures, and transition to the Chalcolithic began at the end of the 6th millennium BC (Neolit Severnoy Yevrazii, 1996: 330–348, 378).

In the steppe regions, there are fewer artifacts representing the art of the Mesolithic and Neolithic as compared to the forest zone, which is primarily explained by the fact that wooden (and often also bone) items do not survive in the steppe soils. In addition, sites such as

burial grounds are rare in the steppe zone. However, in a few burial grounds of the Mesolithic (for example, at the Vasilievsky I and III cemeteries in the Dnieper River basin, where dozens of burials have been studied), only flint insert-blades were found (Mezolit SSSR, 1989: 122–124). Individual small-sized sculptures were discovered at the sites of the Neolithic and Chalcolithic (Neolit Severnoy Yevrazii, 1996). These artifacts were made of stone, clay, or bone; on rare occasions, they render zoomorphic images. In the west of the Northern Black Sea region, anthropomorphic portable art and painted pottery were widely spread already in the Neolithic. The evidence of the artistic creativity of the population inhabiting the eastern part of the steppe belt is exclusively ornamental motifs on pottery and rare small objects of portable art. It is noteworthy that these figurines represent the image of bull or horse. The cult of these animals was common in the ritual practices of the steppe population, and later became popular in funeral rites and in arts (Formozov, 1969: 135–138; Vasiliev, Matveeva, 1979; Yudin, 2004). Deification of the horse, its role, and its place in the religion of nomads of the Early Iron Age has been analyzed in a number of studies (see, e.g., (Kuzmina, 2002: 46–73)).

Many scholars have observed the connection of artistic activities and preferred imagery in prehistoric art with the environment and the main aspects of subsistence (Okladnikov, 1950a, b; Formozov, 1969; Gurina, 1971; and others). It is obvious that during the Mesolithic, Neolithic, and Chalcolithic, the hunting activities of the population living in the steppe and the adjoining southern parts of forest-steppe differed from those of the forest regions, and were associated with different species of animals: for the inhabitants of the steppe–forest-steppe regions, of the greatest importance were aurochs, horses, and saigas (Belanovskaya, 1995: 145–147; Morgunova, 1995: 81–83; Kotova, 2002: 111–119; Yudin, 2004: 195).

Conclusions

The burial near Pushkinsky was probably made in the Early Neolithic, most likely by representatives of the Elshanka culture. The staff discovered therein is one of the most outstanding works of prehistoric art. In terms of its meaning, the staff belongs to a number of similar artifacts found mainly on the sites of the forest Mesolithic-Neolithic in Eastern Europe and associated with hunting cults and myth-making. At the same time, the Pushkinsky staff has some peculiarities in its style and choice of the prototype, which probably depended on the specific hunting activities of the local population inhabiting the steppe–forest-steppe. Therefore, although the ancient artist intended to create the image of a horse, and not an elk, the item itself, which is close to canon, reveals a connection with some traditions common to the entire range of such artifacts.

When analyzing artifacts in the form of staffs with zoomorphic finials, it is necessary to take into consideration the differences in chronology of the epochs in various landscape zones. Taking into account the data on the emergence of the Neolithic in the northern regions as a result of impulses from the southern areas, and on the wide occurrence in the pottery of the forest zone of many features typical of the Elshanka, Surskoy-Dnieper, and other steppe cultures, it can be hypothesized that the tradition of using curved staffs with zoomorphic finials in cultic practices originated in the steppe–forest-steppe. After that, this tradition, adapted to other natural conditions, spread to the forest cultures.

Notably, the burial in which the staff was found belonged to a man of advanced age, according to the standards of his time; judging by the position of the bones, he was buried in a sitting position. A burial of a person in a standing position has been found at the Oleniy Ostrov cemetery. The funeral rite of both burials is exceptional. The circumstances of the burial, as well as the presence of a unique artifact in the burial, indicate the high prestige of staffs with zoomorphic finials and their connection with people who were at the highest level of the hierarchical ladder, and as is known, in prehistoric societies these were ministers of religion.

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Cultural Attribution of Early Bronze Age Tombs Under Kurgans in Azerbaijan

This study focuses on the cultural attribution of a distinct category of Early Bronze Age burials in the eastern piedmont of the Lesser Caucasus, northwestern Azerbaijan, known as "tombs under kurgans" or "kurgans with collective burials in tombs". There was an opinion that such burials belong to the early period of the Kura-Araxes (or proto-Kura-Araxes) culture. To test this idea, we analyzed ceramics from tombs under kurgans at Shadyly, Uzun-Rama, and Mentesh-Tepe, all of which have radiocarbon dates. Results suggest that the vessels are hand-made, their paste contains no organic temper, and they are a coarse imitation of the Uruk ceramics. This tradition is unrelated to the Kura-Araxes culture, marked by a handmade red-and-black burnished pottery. Also, at the highly developed stage of the Kura-Araxes in any of its local versions, collective burials in tombs were not practiced. Thus, before the emergence of the Kuro-Araxes culture in the Southern Caucasus, there was a population practicing the tradition of kurgans with collective burials in tombs. The origin of this tradition is a contentious matter. What we know only is that it emerged in the 34th century BC and disappeared around the 31st–30th centuries BC, following the Kura-Araxes expansion in the Southern Caucasus.

Keywords: *Tombs under kurgans, collective burial, Kura-Araxes culture, Early Bronze Age, Southern Caucasus, Leyla-Tepe culture, Pit-Comb Ware culture.*

Introduction

A special group of kurgans of the Early Bronze Age has been found in northwestern Azerbaijan, along the eastern piedmont of the Lesser Caucasus (Fig. 1) in Dashly Tepe (Qabala District), Dashly Tepe (Shamkir District), Borsunlu (Tartar District), Dashuz (Shaki District), Osman Bozu (Shamkir District), Mentesh-Tepe (Tovuz District), Uzun-Rama and Shadyly (Goranboy District), as well as Ganja, Göygöl, and Khankendi (near the towns of the same names). They all have chambers with collective burials, rectangular or round in plan view. Burials of this type are known by scholars under the name of "tombs under kurgans" and have been attributed to the early stage of the Kura-Araxes culture. Their classification in accordance with various features was made by T. Akhundov (1999).

For quite a long time, it was assumed that tombs under kurgans existed during the transition from the Early to Middle Bronze Age. Only three kurgans of this type, studied in the beginning of the 2010s (Shadyly, Uzun-Rama, and Mentesh-Tepe) have radiocarbon dates. Their dating has disproved the opinion about the age of these sites. Moreover, common features of the kurgans of this type, belonging to the second half of the 4th millennium BC, that is to the beginning of the Early Bronze Age, are not typical of the Kura-Araxes culture. Information on the Uzun-Rama kurgan has been published by

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B. Jalilov (2018); the Mentesh-Tepe kurgan is described by B. Lyonnet (2014), as well as in collective studies of Azerbaijan and French scholars (Lyonnet, Quliyev, Bouquet et al., 2011; Lyonnet, Guliyev, Helwing et al., 2012; Lyonnet, Pecqueur, Guliyev, 2013; Lyonnet, Guliyev, Baudouin et al., 2017).

Despite the opinion that tombs under kurgans belong to the early stage of the Kura-Araxes culture (or to the proto-Kura-Araxes culture) (Poulmarc'h, Pecqueur, Jalilov, 2014: 231, 239), the analysis of the evidence from these sites suggests a lack of unity between the funerary rite and pottery complex of the Kura-Araxes population and the population who created the tombs under kurgans, which disappeared for unknown reasons during migration of the Kura-Araxes people to the Southern Caucasus. The similarity of their traditions is associated with common cultural roots (the Uruk tradition).

Fig. 1. Location of kurgans with collective burials in tombs. *1* – Dashly Tepe (Shamkir District); *2* – Ganja; *3* – Göygöl; *4* – Dashuz; *5* – Dashly Tepe (Qabala District); *6* – Osman Bozu; *7* – Khankendi; *8* – Borsunlu; *9* – Shadyly; *10* – Uzun-Rama; *11* – Mentesh-Tepe.

Problems of cultural identification

Before addressing this issue, we should mention the problem of the chronology of the Mentesh-Tepe kurgan, discovered at the Neolithic settlement of the same name. Judging by the evidence from the site, Lyonnet (one of the leaders of the Azerbaijan-French archaeological expedition) identified four periods, the latest of which lasted from the second half of the 4th millennium BC until the mid 3rd millennium BC (Lyonnet, Guliyev, Helwing et al., 2012: 87). On the basis of ^{14}C dates, three chronological periods were identified: 3500–2900 BC (stage 1), to which the kurgan with the collective burial in the tomb belongs; 2800–2450 BC (stages 2 and 3), and 2536–2300 BC (stage 3) (Lyonnet, 2014: 118–119, 121, 125, 127).

We have already mentioned the chronological paradox associated with the radiocarbon dates of the Mentesh-Tepe burial tomb. Similar kurgans at Uzun-Rama and Shadyly functioned in the 34th/33rd–32nd centuries BC (Poulmarc'h, Pecqueur, Jalilov, 2014: 242), that is, for no more than two hundred years. This gives reason to doubt the dating of the Mentesh-Tepe tomb to 3500–2900 BC (36th–30th centuries BC) or to the second half of the 4th millennium BC (Lyonnet, Guliyev, Helwing et al., 2012: 92–93; Lyonnet, 2014: 119; Lyonnet, Guliyev, Baudouin et al., 2017: 137–139; Poulmarc'h, Pecqueur, Jalilov, 2014: 240–242). It is hard to imagine that the kurgan could have functioned for six hundred years, especially since only 39 persons were buried in it (Lyonnet, Pecqueur, Guliyev, 2013: 103). We also face the problem of sampling for radiocarbon analysis (Qasimov, 2019: 34–36). In a brief report published in 2015, the Mentesh-Tepe kurgan was attributed to 3100–2900 BC, and the period of the tomb functioning was established as 150–200 years (Guliyev, Lyonnet, 2015: 363), which looks more realistic.

The tombs under the kurgans of Mentesh-Tepe, Shadyly, and Uzun-Rama have been dated to the period corresponding to the early stage of the Kura-Araxes culture. M. Poulmarc'h defined such sites as a "special group of kurgans" and attributed them to that culture (Poulmarc'h, Pecqueur, Jalilov, 2014: 239). However, is this really the case?

Lyonnet observed that the pottery found in the Mentesh-Tepe kurgan at the level of stages 2 and 3 was similar to pottery discovered in the Uzun-Rama and Borsunlu kurgans, in the tomb under the kurgan in Qabala District, at the settlement of Garakopaktapa in Fuzuli District, and at the sites of the Early Kura-Araxes culture in Georgia. The analysis of pottery from the tomb under the kurgan at Mentesh-Tepe has shown that the vessels were not made using a potter's wheel. The main part of the pottery was made of low-quality clay of reddish or grayish color with brown tint, which was not thoroughly mixed. Pure black pottery has not yet been discovered. Fabric imprints have not been observed on the fragments. Most of the vessels had pot-like shapes; the handles were located between the rim and the upper part of the shoulder (Lyonnet, 2014: 118–119, 120, fig. 4).

At first sight, the tombs at Mentesh-Tepe, Shadyly, and Uzun-Rama contained pottery of the same type. Similar pottery has been found in other regions of the Southern Caucasus and Anatolia. There is a serious disagreement between the views of Lyonnet and Jalilov on the problem of cultural identification of tombs under kurgans. Pottery found in the Shadyly (in 2011) and Uzun-Rama (in 2012) kurgans by the Göygöl-Goranboy archaeological expedition was similar to the evidence from the Mentesh-Tepe kurgan. Jalilov observed that the Mentesh-Tepe pottery differed from the classic Kura-Araxes pots. This difference was especially evident in

the shape of the handles. Handles on vessels from tombs under kurgans were simple and oval in cross-section. There were no hemisphere-shaped handles resembling a bull's nose, or handles with convex decoration, like the classic Kura-Araxes pots. The latter have a clearly distinct transition area from the body to the neck, which was not the case with the vessels from the burial tombs. Specific shapes of the body have also been observed (Jalilov, 2012: 151; 2013: 132, ill. 6; 2018, fig. 9–11; Lyonnet, 2014: 120, fig. 4). Comparative analysis of artifacts from the tombs under kurgans and the Kura-Araxes sites has shown that they have different typical features. According to the opinion of Jalilov, supported by historical and analytical studies, the evidence from the burial tombs belongs to the same period as the Kura-Araxes evidence, yet it was a different culture (Jalilov, 2012: 146–152; 2013: 128–134). Initially, he dated these sites to the transitional period from the Early to Middle Bronze Age, following the classification by T.I. Akhundov (1999: 46, 84–87). However, after obtaining the ^{14}C dates of the Shadyly and Uzun-Rama kurgans, Jalilov accepted that these kurgans belonged to the initial stage of the Early Bronze Age (Poulmarc'h, Pecqueur, Jalilov, 2014: 242).

According to Lyonnet (2014: 118–119), pottery from the tomb under the kurgan at Mentesh-Tepe shows parallels to the pottery complex of the VIA stage at Arslantepe. According to the studies of J. Palumbi, that complex is divided into two groups: dishware made on the potter's wheel in accordance with Uruk traditions, and hand-molded and burnished red-black pottery. Palumbi also emphasized that pottery from the first group was not a simple imitation of the Syrian-Mesopotamian pottery of the same period, but revealed a mixture of Uruk and local pottery traditions. The second group gradually increased by stage VII of Arslantepe. Palumbi associated the roots of this pottery with the traditions of Central and Northeastern Anatolia (2008: 79, 81).

There are significant differences between pottery from tombs under kurgans of the Early Bronze Age and stage VIA at Arslantepe both in terms of paste and shape of the vessels. The difference in shape is evident when we compare pottery from Arslantepe (Ibid.: 82–87, fig. 3, *15*, *20*) and from kurgans in Mentesh-Tepe (Lyonnet, 2014: 120, fig. 4), Shadyly, and Uzun-Rama. The only exception was the tomb under the kurgan of Dashly Tepe (Shamkir District), where four ceramic vessels out of 11 had hemispherical handles similar to the Nakhchivan ("bull's nose") handles typical of classical Kura-Araxes pots (Akhundov, 1999: 15–16, pl. XI, 1, 2, 4, 5). However, this was the only tomb under a kurgan containing vessels similar to the Kura-Araxes pottery.

It can be concluded that during the development of the Kura-Araxes culture in the Southern Caucasus, there existed a completely different community with the tradition of collective burials in tombs under kurgans. If this community was transformed into one of the components of the Kura-Araxes culture, the tombs under kurgans should have been built in the Southern and Northern Caucasus, Anatolia, or the Levant after 3000–2900 BC. However, they have not been found in the area of the advanced Kura-Araxes culture.

The pottery from Mentesh-Tepe was similar to the pottery from the Shadyly and Uzun-Rama kurgans with known ^{14}C dates. Similar pottery has been found in other tombs under kurgans, which have been explored, such as kurgan 103 at Khankendi (Hummel, 1939: 87–88, pl. VI, 18).

We should mention another interesting point. According to Lyonnet, textile imprints (on the inner or outer surface?) have not been found on the pottery from the Mentesh-Tepe kurgan (Lyonnet, 2014: 118–121). However, such imprints have been discovered on the inside or in the fracture of wall fragments on some vessels from the Uzun-Rama kurgan. According to Jalilov, this feature manifests a continuation of the Chalcolithic pottery traditions: "…the specimens were shaped in molds using fabric bags. In this case, relatively large particles of sand and small stones were added to the clay mixture. Then, the inner and outer surfaces of the finished vessels were smoothed and burnished. Nevertheless, in some areas, fabric imprints are clearly visible at the base of the pot, especially in hard-to-reach places" (Jalilov, 2018: 99). It should be mentioned that textile imprints on the inner surface of pottery from the Uzun-Rama kurgan were discovered after the first publication of evidence from the site (Jalilov, 2013: 132–133). On the basis of this, it would be have been interesting to reexamine the evidence from the Shadyly and Mentesh-Tepe kurgans for the presence of such imprints on the inside of pots. Pottery made using fabric bags ("bag pottery") has been found at the settlements of the Chalcolithic and Early Bronze Age in the Southern Caucasus and Dagestan (Gadzhiev, 1983: 6–15; 1991: 23, 140–143). Y.I. Hummel described the weave of the fabric ("plain/tabby/linen/taffeta weave") on the imprints on the inner surface of some pots from the tombs of kurgans 103 and 119 at Khankendi (1939: 87–88, pl. VI, 18; 1948: 19).

The technology of pottery production using fabric bags, combined with the tradition of collective burials in tombs under kurgans, gives grounds to support the opinion of Jalilov that we are dealing here with a completely new archaeological culture (2012: 146–152; 2013: 128–134).

Problems of origins

Tombs under kurgans have been discovered along the eastern part of the Lesser Caucasus (Lyonnet, 2014: 118–119). We completely agree with the opinion of Lyonnet

that it is not yet possible to confirm the hypothesis on their location only in this region, because the territory of the Republic of Azerbaijan near the Caspian Sea has not yet been sufficiently explored; there has not been a targeted search for sites of this type (Ibid.: 128). It is difficult to establish the origins of the tradition of collective burials in tombs under kurgans. For a long time it was assumed that it existed during the transition from the Early to Middle Bronze Age. The radiocarbon dates of three tombs under kurgans (Shadyly, Uzun-Rama, and Mentesh-Tepe) have refuted this claim. We can no longer speak about the introduction of this tradition by tribes from the north, as it had been previously assumed (Akhundov, 1999: 77–87), nor can we associate its origins with the Maikop or Novotitorovka cultures (Gey, 2000: 197–198; 2009: 16), which lack a similar funerary rite.

The tradition of collective burials in chambers with the *dromos*, the ritual of burning them at the end of their use, as well as most pottery varieties are mainly concentrated in the western part of Azerbaijan. According to Lyonnet, this may indicate that these were introduced from the west, that is, from Georgia (2014: 128). However, similar tombs under kurgans belonging to the first half of the 4th millennium BC have not been found in Georgia (perhaps, as yet). Similar types of mass burials in chambers in Georgia (kurgans in the Alazani Valley, Kiketi, Koda, Bedeni, and Samgori) were dated to the late stages of the Early Bronze Age (Jalilov, 2018: 95).

Could the carriers of the Leyla-Tepe culture have participated in the genesis of tradition of tombs under kurgans? As is known, the emergence of the kurgan burial rite in the Late Chalcolithic was associated with that culture (Museibli, 2014: 65–72). Kurgans of the Southern Caucasus are earlier than those from Northern Eurasia (Kohl, Trifonov, 2014: 1577). Late ^{14}C-dates of the Leyla-Tepe kurgans indicate the mid 4th millennium BC (Museibli, 2010), which is two hundred years earlier than the dates of the tombs under the kurgans. Lyonnet pointed out that structural elements of the objects under consideration show parallels to the dwelling structures such as dugouts and semi-dugouts of the Leyla-Tepe culture and to the use of raw bricks in burial chambers. However, the tombs under kurgans of the Early Bronze Age do not contain children's burials in vessels typical of the Leyla-Tepe culture; and the tradition of collective burial with the custom of burning the tomb at the end of its functioning has not been registered in the Leyla-Tepe culture (Lyonnet, 2014: 120–121).

The main information on the Leyla-Tepe culture is derived from ancient settlements, while dwelling places of the creators of the tombs under kurgans have not been discovered. It is possible that scholars have still not been able to connect the settlement complexes of the Late Chalcolithic and Early Bronze Age with these sites. There are also some differences between the pottery of the Late Chalcolithic (Museibli, 2016: 284–287; Almamedov, 2009–2010; Museibli, 2012a: 21) and pottery from the tombs under kurgans.

Fig. 2. Examples of pottery similar to Pit-Comb ware from the upper layers of the Neolithic site of Alikomek Tepe in Jalilabad District (from the archaeological collection of the Institute of Archaeology and Ethnography of the Azerbaijan National Academy of Sciences, Inv. Alikomek Tepe-71, No. 2, 8).

The conclusions of T. Akhundov and H. Almamedov on cultural processes in Southern Transcaucasia on the eve of the development of the Kura-Araxes culture are of interest to the present discussion. Pottery (very similar to the Pit-Comb ware) unknown from the local settlements of the previous period, and from Southwestern Asia and Anatolia, has been found (Fig. 2) in the upper layers of Neolithic settlements of the first half of the 4th millennium BC in the region from the Mugan steppe to the plains of the Middle Kura River*. According to Akhundov and Almamedov, the carriers of the Uruk tradition, who were expanding their habitation area, reached the Southern Caucasus in the second quarter of the 4th millennium BC. They contributed to the genesis of the Leyla-Tepe culture, which subsequently spread to the Northern Caucasus. In that region, it influenced the development of various local cultures and later the Maikop culture. The "Uruk expansion" was interrupted by the appearance of the Kura-Araxes tribes in the

*I am grateful to T. Akhundov for providing photographs of these pottery fragments.

areas adjacent to the Southern Caucasus, which cut off communication routes and halted the transition from the Neolithic to the Bronze Age. The carriers of the Maikop culture moved southwards, primarily to the Southern Caucasus. This advance was interrupted in the early 3rd millennium BC, when the Kura-Araxes tribes, settling in the Southern Caucasus, blocked the passageways to the north (Akhundov, Almamedov, 2009: 33–34).

Some ceramic vessels from the tombs under the kurgans were similar in shape to the Uruk or even Ubaid pottery. For example, pottery from the Shadyly (Jalilov, 2012: 151) and Uzun-Rama (Jalilov, 2018: 102, fig. 11) kurgans shows parallels to the pottery from the northwestern area of the Uruk tradition (Meskine area, Northern Mesopotamia, Western Syria, and the basin of the Upper Euphrates) from the collection of M.G. Trentin (1991: Vol. 2: 22, pl. XVIa, *1–4*; p. 26, pl. XXIa, 1, *1–5*; p. 77, pl. Ib, *4*, *a–c*; p. 86, pl. VIIb, *1*, *4*; p. 100, pl. XXIb, I, *2*; p. 141, pl. LXIIIb, 4; p. 149, pl. Ic; p. 151, pl. IIIc, *13–15*; p. 171, pl. XXIIc, 3; p. 276, pl. LXXIId, *1*, *5*, *9*, *10*), while two specimens from the tomb under the kurgan at Mentesh-Tepe (Lyonnet, 2014: 120, fig. 4, *1*, *2*) show parallels to the pottery of the Uruk period from Northern Mesopotamia and Western Syria (Trentin, 1991: Vol. 2: 77, pl. Ib, *4*, *a–c*; p. 149, pl. Ic, 2, *6*; p. 207, pl. Id, *6*, *6a*). However, the vessels from the tombs under the kurgans were not made using a potter's wheel; their paste composition does not contain organic temper, and they were not skillfully and variegatedly decorated. It seems that these specimens constituted crude imitations (reminiscences) of some varieties of pottery belonging to the Ubaid-Uruk circle.

Ceramic vessels from the tombs under the kurgans were made in molds using fabric bags; most of them had one or two horizontal clay band handles on the sides, and in some vessels handles connected the shoulder and rim or neck (Jalilov, 2018: 99). How should this pottery be interpreted: as the "proto-Kura-Araxes" tradition or the "pre-Kura-Araxes" tradition, which existed on the eve of the advancement of the Kura-Araxes population to Eastern Transcaucasia?

The Azerbaijan-French archaeological expedition in Mentesh-Tepe discovered a collective burial of the Late Neolithic. This can be considered an important find not only for the Southern Caucasus, but also for the entire Middle East. It should be emphasized that no "transitional tombs" in terms of space and time have been found, which suggests that the tradition of collective burials in tombs under kurgans of the Early Bronze Age was not rooted in the Neolithic. Over 2300 years (!) separates the tombs under the kurgans and the Neolithic collective burial, which was dated to 5700 BC (Pecqueur et al., 2017: 163–164).

However, we should point out that some features of the tombs under the kurgans were similar to collective burials (*tholoi*) of the Namazga III period (Bonora, Vidale, 2013: 143) in Turkmenistan, which were dated to 3200–2800 BC, such as the use of mudbricks, presence of *dromoi*, the custom of moving the bones of those buried earlier to the walls during the burial of new bodies, etc. (Alekshin, 1986: 22–24). Nevertheless, these are the monuments of different cultures, and no "transitional tombs" have been found on the territory dividing them. At present, it can be assumed that we are dealing with similar traditions, which emerged in approximately the same period in different regions, that is, with convergence (Qasimov, 2019: 40).

Discussion

It is worth addressing one more question: is the custom of burning the tomb at the end of its functioning representative of all tombs under kurgans? For example, the tombs in kurgan 7 at the Borsunlu cemetery (Akhundov, 1999: 20–21) and in kurgan 103 (Ibid.: 22–23; Hummel, 1939: 82–88) and 119 (Akhundov, 1999: 24–25; Hummel, 1948: 15–19) at Khankendi were not burnt, and the position of bones was not changed. However, the information of Hummel about the latter two barrows shows some inconsistencies associated with tombs under kurgans (Jafarov, 2000: 31, 34). Generally, the problem of correlating chronology and cultural attribution of kurgans at Shadyly, Uzun-Rama, and Mentesh-Tepe (whose ^{14}C dates are known) with other tombs under kurgans discovered in the 20th century is still awaiting study.

The influence of the Ubaid-Uruk tradition in the Southern Caucasus is undoubted (Museibli, 2012b). As we have mentioned above, Palumbi also observed the Uruk component in the proto-Kura-Araxes pottery. The Ubaid-Uruk traditions (pottery, construction, etc.) appear in varying degrees in the Leyla-Tepe, Maikop, and Kura-Araxes cultures. Could they be one of the constituents in the culture of the population that left burial tombs? Can this population be considered "proto-Kura-Araxes" or "Kura-Araxes" only on the basis of traditions common to the entire region (Ubaid-Uruk)? Should in this case, the Leyla-Tepe and Maikop cultures also be interpreted as "proto-Kura-Araxes" cultures (?!), that is, should we "blur" the boundaries between archaeological cultures?! We suggest that the ancient society that left the tombs under kurgans existed on the eve of the movement of the Kura-Araxes tribes to the Eastern Transcaucasia. It was influenced by the Uruk culture, but retained its distinctive identity in funerary and pottery traditions.

There is another more general research problem, namely, the correspondence between the name of the type of archaeological site, similar to tombs with collective burials under an artificial mound (in our study, these are "tombs under kurgans"), and the term "kurgan type of burial monuments". According to archaeology and

ethnography, nomadic and semi-nomadic peoples did not bury many of their dead tribesmen in tombs under artificial mounds. Such tombs were used for a short span of time as compared to collective burial tombs of the Early Bronze Age from the eastern piedmont of the Lesser Caucasus. We are possibly dealing here with a burial in a burnt tomb (tomb-dugout or tomb-semidugout), and not with the kurgan type of burial monuments. Generally, there is the problem of designating archaeological sites of this type. There is a need for extensional and intentional definition of the terms, such as "burial mound", "kurgan", "tumulus", "tomb under kurgan", etc.

Conclusions

Thus, the available information has not yet produced sufficient knowledge of cultural and social life of the population that left tombs with collective burials. We can only summarize the following points. The tradition of collective burials in tombs appeared in the 34th century BC (mid 3rd quarter of the 4th millennium BC) and disappeared at the turn of the 31st and 30th centuries BC (in the late 4th to early 3rd millennium BC). The carriers of this tradition lived along the eastern piedmont of the Lesser Caucasus. They were mobile cattle breeders, who did not have long-term settlements. Only the Uruk tradition connects this population with the people of the Early Kura-Araxes culture, who lived in the same period. No archaeological sites are known, which indicate the migration of the creators of tombs under kurgans to the above region from other regions of the Southern Caucasus or from more distant neighboring regions. This tradition ceased to exist in 3000–2900 BC, when the Kura-Araxes tribes came to this territory. Specific pottery and collective burials from tombs under kurgans are not known in the advanced Kura-Araxes culture (even after 3000–2900 BC) and its local versions. The disappearance of that tradition may be associated with depopulation caused by famine, infectious diseases, etc., or by synthesis of cultures, or by assimilation of the local population by a migrant population. Once again, a reservation should be made that these conclusions were formulated in the context of a working hypothesis, and can be corrected by further research.

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Two Rare Finds from the Maikop-Novosvobodnaya Sites in the Black Sea Region

We describe two unique finds from the 2018 excavations at the Maikop-Novosvobodnaya settlements of Pervomayskoye and Chekon in the Krasnodar Territory: a pendant and a clay figurine of a goddess, respectively. The parquet ornament on the pendant is paralleled by that on a cylindrical pendant-seal from Chekon. Such ornamentation is frequent on Near Eastern button-seals, and occurs on Anatolian artifacts symbolizing the fertility goddess and the magic related to her. Therefore, the Pervomayskoye and Chekon pendants, too, may be associated with the fertility cult. The figurine of a goddess from Chekon can be attributed to the Serezlievka type of the Late Tripolye culture. It testifies to ties between Maikop and Tripolye in the late 4th to early 3rd millennia BC. Both finds shed light on the vastly diverse beliefs of the Maikop-Novosvobodnaya tribes at the middle and late stage of that culture.

Keywords: *Maikop-Novosvobodnaya community, settlement, amulet, cult, figurine, Tripolye culture.*

Introduction

Two unique finds from the 2018 excavations at the Pervomayskoye and Chekon settlements in the Krasnodar Territory are of great interest as cult symbols of the Maikop-Novosvobodnaya community (MNC) tribes, which, far from being alike in the source of their formation, reflect their different beliefs. As an excursion into the historiography of the MNC concept, note that this was introduced instead of the former term "Maikop culture", in order to preserve the originality of sites included in this culture against a rapid accumulation of new materials, and to distinguish their typological features. For example, analysis of the entire ceramics of MNC allowed us to reveal the diagnostic types of ware, indicative of four typological variants of this community (Maikop or Galyugaevskaya-Sereginskoye, Psekups, Dolinsk, and Novosvobodnaya). Their common features are the absence of artificial mineral admixtures in pottery paste, reddish or yellowish, ochreous tones of burnished ware, elements of ornaments finding analogies at the Eastern Anatolian sites of Arslantepe Phase VI A, the customs of burying the deceased in a flexed position on one side, covering bodies with red paint, and often placing them on a pebble spread on the bottom of grave. Each of the distinguished variants can be considered a special culture in terms of its formation conditions, but detailed mechanisms of their development are unclear so far (Korenevskiy, 2004: 49–64).

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Fig. 1. Location of the Pervomayskoye (*1*) and Chekon (*2*) settlements.

The find from the Pervomayskoye settlement

The settlement is located on a terrace above the flood-plain of the right bank of the Psif (left tributary of the Kuban River). Its area is about 3.4 ha. The main territory of the settlement is built up with houses along Pervomayskaya Street in Keslerovo village, Krymsky District, Krasnodar Territory, which is 16 km southeast of Varenikovskaya village, and approximately 55 km northeast of the town of Anapa and the Black Sea coast (Fig. 1).

The total area covered by the archaeological studies at the Pervomayskoye settlement came to nearly 3000 m^2. The cultural layer, covered by a plowing horizon, is a brown loam 0.4 to 0.6 m thick. 76 items, including three burials without grave goods, have been discovered during the excavations. Two buried people found at the lower level of the cultural layer were laid in flexed positions on their right sides. The third skeleton was in a round burial pit located above the utility pit's mouth. The deceased was buried on his back, with his legs bent at the knees, his right arm extended along his body, and his left arm bent at the elbow.

The archaeological materials obtained include MNC ceramics of two main types (Fig. 2); cone-shaped hearth-attachments typical of the MNC Psekups variant; discs from the walls of vessels, with drilled holes; a clay model of wheel; a fragment of a clay ladle in the form of a small spoon; bone and stone items, including fragments of stone axes; and a bronze knife. The Maikop layer's age can be determined according to the date obtained from the human bone found in burial 1: 4150 ± 70 BP (Ki-19677), 2979–2892 BC, i.e. the 30th–29th centuries BC. It corresponds to the final stage of MNC.

A pendant (Fig. 3) was found in the site area near the terrace's edge, at a depth little more than 0.3 m from the surface, in the upper part of the cultural layer, at the same level as the Maikop ceramics (see Fig. 2, *1–4*) and stone items (a flint flake, an axe fragment). The square where the pendant was discovered contained utility pits, but these were located 0.9 m below, in subsoil.

The item is probably made of horn. It has a yellowish color, a trapezoid shape, and an oval cross-section. The item's surface is polished up. Obviously, it was rubbed

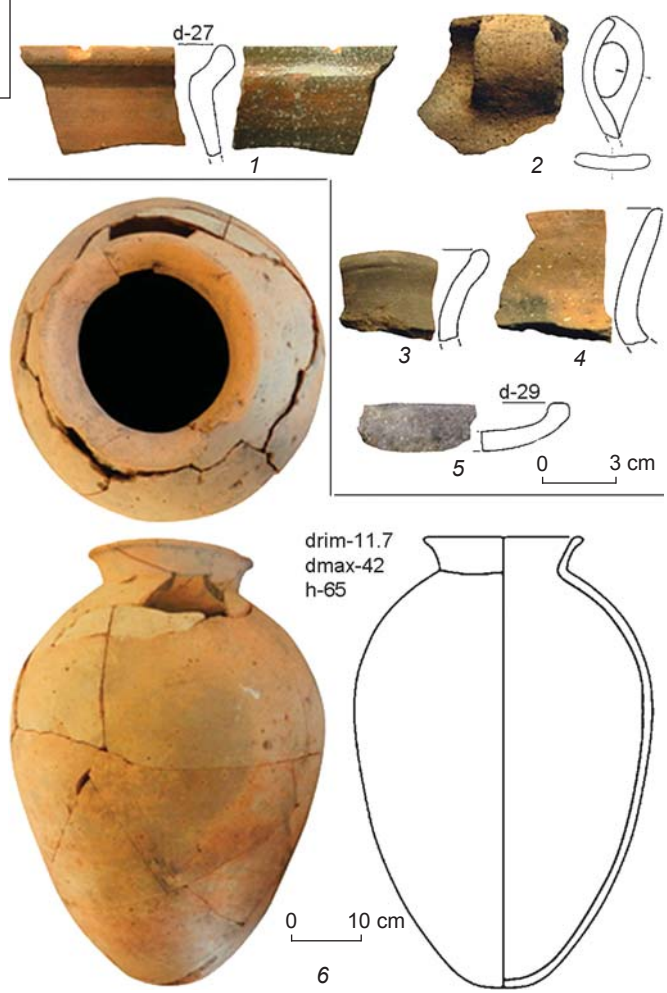

Fig. 2. Ceramics from the Pervomayskoye settlement.

Fig. 3. Pendant from the Pervomayskoye settlement.

repeatedly in ancient times. The item is 30 mm long, 20 mm wide, and 7 mm thick; the diameter of the hanging-hole is 3 mm. A similar ornament is applied to the pendant on two sides: some kind of a sidelong cross at the center, and four surrounding cross-hatched triangles. The composition can also be represented as four joined triangles hatched using the parquet ornament.

The pendant was probably an amulet. However, its ornament resembles those on Near Eastern geometric stamps, which allows the artifact to be attributed to this category of items. But, certainly, its function as a seal is conventional. Among the materials of MNC sites, two finds of this category are known. The first one is a jetty cylindrical bead from a burial of the MNC Psekups variant in a mound near Krasnogvardeyskoye village (Fig. 4, *1*). There is a Tree of Life, with a deer standing in front of it, engraved on the bead. The bead is 1.9 cm long, its diameter is 1 cm (Nekhaev, 1986: 247, fig. 3). A.A. Nekhaev finds parallels among the Near Eastern button-seals. One of them originates from the Tepe-Gawra settlement, the other one (Fig. 4, *2*) is obviously also from Mesopotamia (Ibid.: Fig. 3, *2, 4*).

The second Maikop seal in the form of a cylindrical bead (3 cm long) has been found at the Chekon settlement (Bochkovoy et al., 2013: 11) (Fig. 4, *3*). Its surface is smooth, burnished, and dark. The bead is apparently made of a clay mass saturated with mineral admixtures. It shows an incised ornament, whose development drawing presents a row of adjoining rhombuses hatched using the parquet ornament. On top and bottom, they are limited by double horizontal lines (Fig. 4, *4*). Thus, the version of the parquet ornament on the cylindrical seal from Chekon is the same as that on the pendant from Pervomayskoye.

Two impressions of the same Psekups-type seal have been discovered on a fragment of the head of a cone-shaped hearth-attachment from the Natukhaevskoye-3 settlement near Novorossiysk (Fig. 4, *5*, *6*) (Shishlov, Kolpakova, Fedorenko, 2013). A geometric ornament with zigzags, resembling elements of the parquet ornament, is discernible on them. What could this ornament type have meant for ancient people? Let us give our version.

The parquet ornament on the button-seals is recorded in Mesopotamia since the Ubaid period (Amiet, 1961: Pl. 8, 154, 155). It is well traced on the finds from the Sialk III settlement in Iran (Fig. 5, *1–6*) (Ghirshman, 1938: Fig. 8, *1*, *4*, *5*; pl. LXXXVI, 117, 417, 1701). Seals with such an ornament have been discovered in layers XVI, XII, XI at Tepe-Gawra (Fig. 5, *7–9*) (Tobler, 1950: Pl. CLIX, 21, 26, 27; CLXXII, 19, 24). At the same site, pendants with similar geometric designs have been

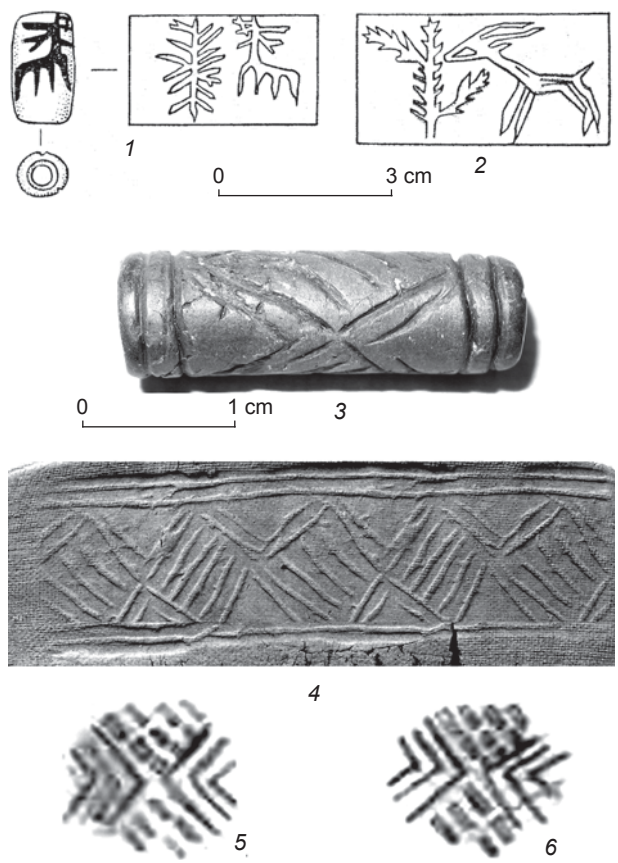

Fig. 4. Seals of the Psekups variant.
1 – cylindrical seal from burial 4, kurgan 1 of the Krasnogvardeyskoye cemetery (after (Nekhaev, 1986)); *2* – seal impression from Mesopotamia (after (Amiet, 1961)); *3* – cylindrical seal from the Chekon settlement (photo by S.N. Korenevskiy); *4* – development drawing of ornament thereon; *5*, *6* – seal impressions on the upper part, i.e. on the head of the cone-shaped hearth-attachment from the Natukhaevskoye-3 settlement (after (Shishlov, Kolpakova, Fedorenko, 2013)).

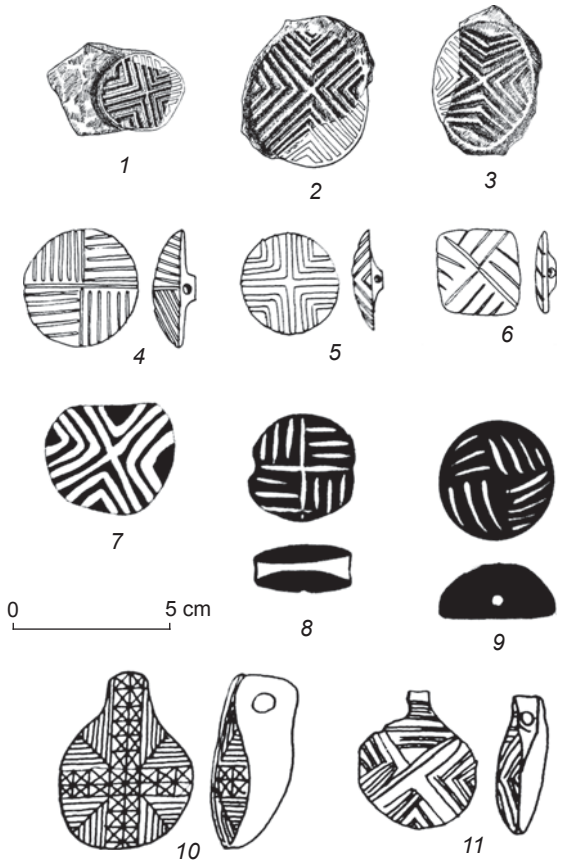

Fig. 5. Parquet ornament on the button-seals (*1–9*) and pendants (*10*, *11*).
1–6 – Sialk III (after (Ghirshman, 1938)); *7–11* – Tepe-Gawra, layer XVI, XII, XI (after (Tobler, 1950)).

found (Fig. 5, *10*, *11*). The Sialk III antiquities generally pertain to the final Ubaid period and the Early-Middle Uruk epoch, with the overall range of ca 4500–3500 BC (Voigt, Dyson, 1984), like the above-mentioned Tepe-Gawra layers (Porada et al., 1984). The range of analogs for seals with the parquet ornament in the Near East can be wider, but currently we have enough information about such items that existed a little earlier than the MNC time, and about analogs from MNC period in Ciscaucasia in the 4th millennium BC.

Presumably, a stable use of such geometric ornament on the items could hardly have been a chance phenomenon. In terms of its function, the pendant-seal could have played the role of a property mark, or be understood as something whose ornament took on a magical meaning. Analysis of later Anatolian seals can be a help in clarifying the situation. Items from Izmir, from the Abu-Habba (Sippar) settlement, and accidental finds from the collections of Anatolian antiquities (Fig. 6) show representations of the fertility goddess, surrounded by various symbols and items, including round and square tokens with parquet ornament (seals?). Thus, the semantics of this ornament is directly related to the magic of a Great Goddess and her magical functions. The above items are dated to 2400–2200 BC (Tonussi, 2007: SM/4, SM/6, SM/8, SM/9). In all probability, this interpretation of the parquet ornament's symbolism can be extended to more ancient beliefs of Near Eastern peoples, taking into account a deep conservatism inherent in the cults of the goddess—the patroness of every living thing.

Thus, pendants from Chekon (see Fig. 4, *3*) and from the Pervomayskoye settlement (see Fig. 3) can be considered amulets with symbols of the fertility cult. Seal impressions on the head of the cone from Natukhaevskoye-3 were probably symbols of a goddess responsible for the flourishing of all living beings, on something associated with her cult (Korenevskiy, 2013). In terms of its significance, a cylindrical seal from the kurgan near the Krasnogvardeyskoye village (see Fig. 4, *1*) also belongs to the artifacts with fertility cult symbolism, personified, in particular, by the Tree of Life depicted on the seal.

Seals as an economic phenomenon of the Near Eastern population were a conspicuous indicator of the development of ownership rights in pre-state formations relating to the beginning of the establishment of a production economy, such as, for instance, the finds from the Tell Magzaliya settlement, a site of the pre-Hassuna

Fig. 6. Impressions of Anatolian seals with representations of goddess and tokens with parquet ornament, 2400–2200 BC (after (Tonussi, 2007)).
1 – Izmir; *2* – Abu-Habba (Sippar); *3*, *4* – the exact place is unknown (Anatolia).

period of the 8th–9th millennia BC (Bader, 1989: 103, pl. 39, *2*; p. 314). In the Caucasus, seals appeared in the Northern Mesopotamian cultures in the 4th millennium BC, known as the Leyla-Tepe culture of the Southern Caucasus (Museibli, 2007: 173, fig. 14, *1*) and its close analog—MNC of Ciscaucasia. Did these pendants play the role of the property marks in the Caucasian population? The question is still open, since the number of such finds is very small. It is more justified to regard them as symbolic amulets, which were worn in the form of beads and pendants.

In the MNC materials, the parquet ornament is also encountered on bone "pins" from the Solomenka kurgan (Kruglov, Podgaetsky, 1941: 195, fig. 33,*7*) and burial 9, kurgan 11 of the Klady cemetery (Rezepkin, 2012: 145, fig.16, *6*). It is also represented on the Dolinsk-type ceramics; for example, from the Inozemtsevo kurgan studied in 1976 (Korenevskiy, 2004: 88, fig. 58, *1*) and burial 13, kurgan 5 of Nezhin group II (Ibid.: 189, fig. 59, *6*, *7*). Such decoration was recorded on the ridge vessel from burial 20, kurgan 11 of the Klady cemetery (Rezepkin, 2012: 151, fig. 23, *5*) and on a Psekups-type vessel from a burial of the Ventsy kurgan in the Trans-Kuban region (Korenevskiy, 2004: 186, fig. 56, *10*). In general, it can be said that the parquet ornament became a rather widespread symbol of the fertility goddess among various tribes of the MNC at the late stage of its existence.

The find from the Chekon settlement

The settlement is located near the village of the same name in the Anapsky District, Krasnodar Territory, on the left bank of the Chekon River (right tributary of the Kapilyapsin River, the right bank of the Kuban River). Its total area exceeds 25,000 m^2. Earlier, excavations at the site were conducted by V.V. Bochkovoy (2011) and A.D. Rezepkin (2014). They opened more than 1000 m^2 of area (Bochkovoy et al., 2012; 2013: 5–16; Rezepkin, 2014). In 2018, more than 6400 m^2 of cultural layer ca 1 m thick were studied (Yudin, Kochetkov, 2019). Here, saturation with various artifacts is greater than that at Pervomayskoye, but in general the materials are culturally comparable. This site also pertains to the MNC Psekups variant. Two dates have been obtained for it: from the animal bone found in the cultural layer of the settlement – 4480 ± 80 BP (Ki-19621), 3352–3120 BC; from the human bone found in burial 1 – 4380 ± 60 BP (Ki-19679), 3091–2911 BC, which corresponds to the late 4th to the early 3rd millennia BC.

During the 2018 excavations, dwellings, utility pits, cult structures (?), and burials were discovered at the Chekon settlement. No traces of hearths have been revealed, though accumulations of adobe and lumps of calcined clay are common in the cultural layer. Deep pits expanding towards the bottom and filled with adobe bricks, ceramics, and stones are, presumably, the remains of cult structures. On their bottoms, ash and several pieces of charcoal are recorded; however, no traces of red calcination caused by long-term use of hearths have been found. Nine burials have been studied, among which four are paired, and one is triple. There is no unified burial rite.

The bulk of the finds is composed of bone animals and pottery. The latter includes two classes. The first is ware with strict symmetrical shapes, without mineral admixtures in paste. The reconstructed types are typical of the MNC Psekups variant (Fig. 7, *1–3*, *8*, *9*). There are round-bottomed vessels of various size. Small fluted-body vessels are encountered. There are a lot of round-bottomed bowls. Vessels with an undulating line incised along the rim are encountered. The second class consists of molded ware with mineral admixtures in paste. Ceramic fragments with admixture of shells are observed.

Other ceramic items are hearth stands with hollow bodies (Fig. 7, *5–7*), spindle whorls or wheel models (Fig. 7, *4*), lids, and corks for vessels. Items made of copper-

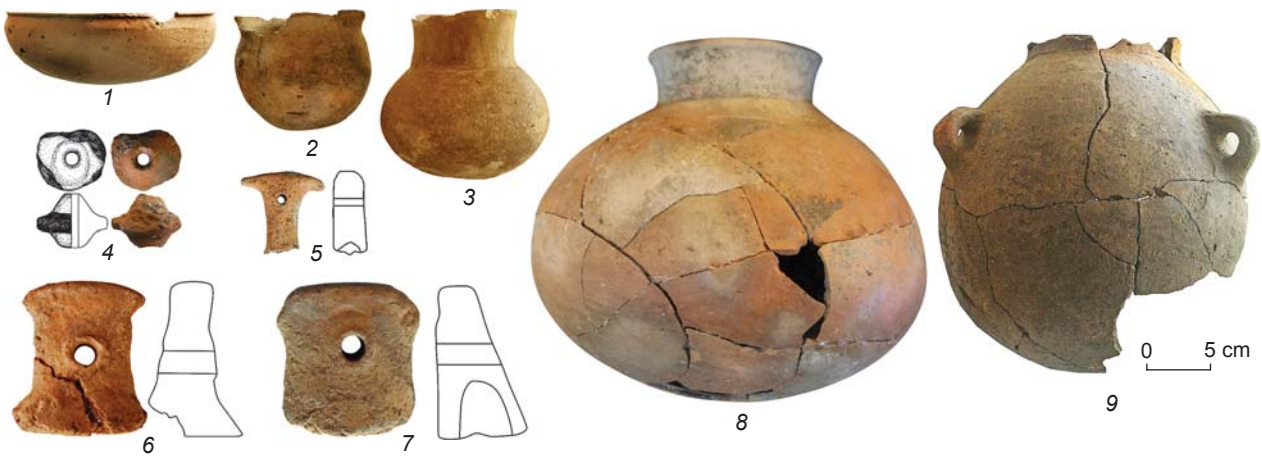

Fig. 7. Ceramics from the Chekon settlement.

based alloys (20 spec.) have been found: small dagger-knives, awls, pins, rods, a socketed axe, and production waste. Numerous stone items occur: large flint inserts, including those with serrated retouch, bored axes, hoes, pestles, burnishers, grinders, hammerstones, and abraders. Among stone items, borers, pipe-shaped beads, spindle whorls, a pickaxe, and a stemmed arrowhead occur (Yudin, Kochetkov, 2019; Yudin, Korenevskiy, Barinov, in press).

The clay anthropomorphic figurine under consideration, which can be interpreted as a statuette, has been found in the filling of a building located in the central part of the settlement. The contour of the structure resembles a rectangle with strongly rounded corners. The long axis of the building is oriented along the SE-NW line. The premises are ca 4.4 × 3.4 m. The pit's bottom is uneven and sloping. It is seemingly divided into two parts with different directions of surface slope. It was possible to trace the walls to a depth of 14 to 50 cm. At the center of the building, there is a small pit about 1 m in diameter and max. about 20 cm deep from floor level. This structure is most probably the lower part of a half-dugout dwelling, while the upper one was above the native soil level and could not be clearly determined in the cultural layer.

Similar half-dugouts at Chekon are known from the excavations conducted by V.V. Bochkovoy (2013). The first publication about them has already been presented by E.N. Bulakh (2014). The typology of half-dugouts at the Black Sea region settlements of the MNC is under development currently. It can only be noted that they can be rounded or subrectangular. Such a subrectangular half-dugout is known at the Tuzla-15 settlement, located on the Taman Peninsula, in the Temryuksky District, Krasnodar Territory. The spot of the structure was recorded below the plowing layer, 25–30 cm above the native soil level. The excavations have demonstrated that the building had dimensions of 3.4 × 3.2 m and was oriented according to cardinal points. At the pit's bottom, there was a depression. It was possible to trace the structure's walls to a depth of 40 cm in the native soil (Korenevskiy, 2014).

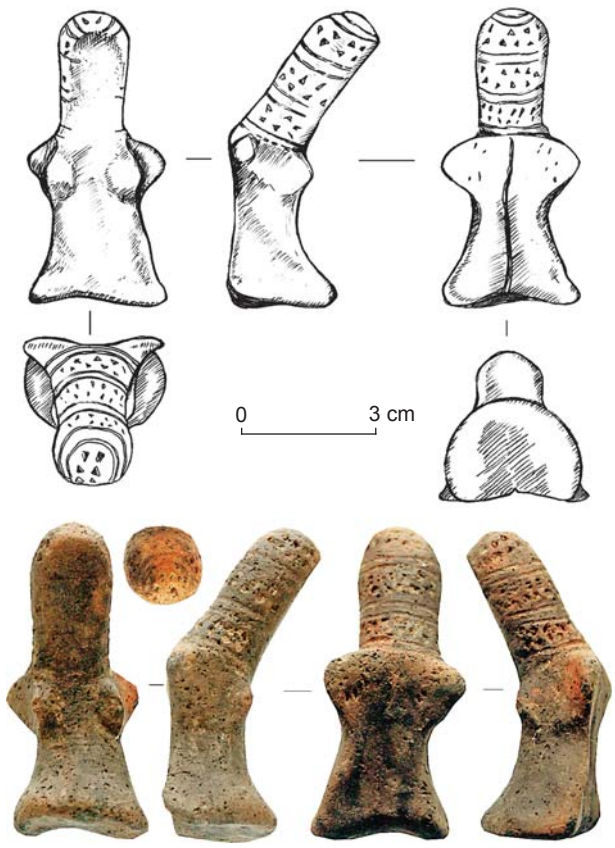

Fig. 8. Ceramic statuette from the Chekon settlement.

A set of finds from the building where the statuette was found is typical of the assemblages from half-dugout dwellings of the MNC Psekups variant. Pottery breakage is observed therein. As a rule, intact items are not encountered. Fragments of the so-called wheel-thrown vessels, made using rotating devices, are present. Such ceramics do not contain mineral admixtures. Sherds of molded vessels with mineral admixtures also occur (Korenevskiy, 2004: 173, fig. 43, *77*, *81*). Fragments of clay cone-shaped hearth-attachments are regularly found in such sets. Such domestic waste probably appeared as a result of filling the abandoned structure with fragments of ware and cone-shaped attachments as a special ritual finishing the use of the structure. What could this ritual have been associated with? Possibly, with the idea of revival and worshiping the fertility goddess, whose cult attributes in the MNC population were the attachments to hearths (Korenevskiy, 2013).

The clay statuette was in the northern corner of the building, almost on the bottom of the half-dugout. It is hard to say for certain whether it was left by the inhabitants of the structure or thrown into the dwelling to be abandoned. However, this item could have had the same symbolism as the hearth-attachments associated with the mother-goddess and revival cults. Therefore, discovery of a magic item relating to the great fertility goddess in the abandoned Maikop building is possibly not coincidental.

The anthropomorphic figurine has a slightly concave base, which ensures it can be placed in an upright position (Fig. 8). The height of the statuette is only 66 mm. The human figure is rendered schematically. The head and neck are well marked. This part of the figurine is slightly inclined forward. Its front surface is flat, without any images or details, while the back and side surfaces and the top of the head are covered with ornament. Possibly, such a manner renders a headdress resembling a scarf or a cape. The ornament includes horizontal strips, with two rows of pricks, divided by double lines.

In the upper part of the figurine's body, there are two projections that could designate arms. The female breast

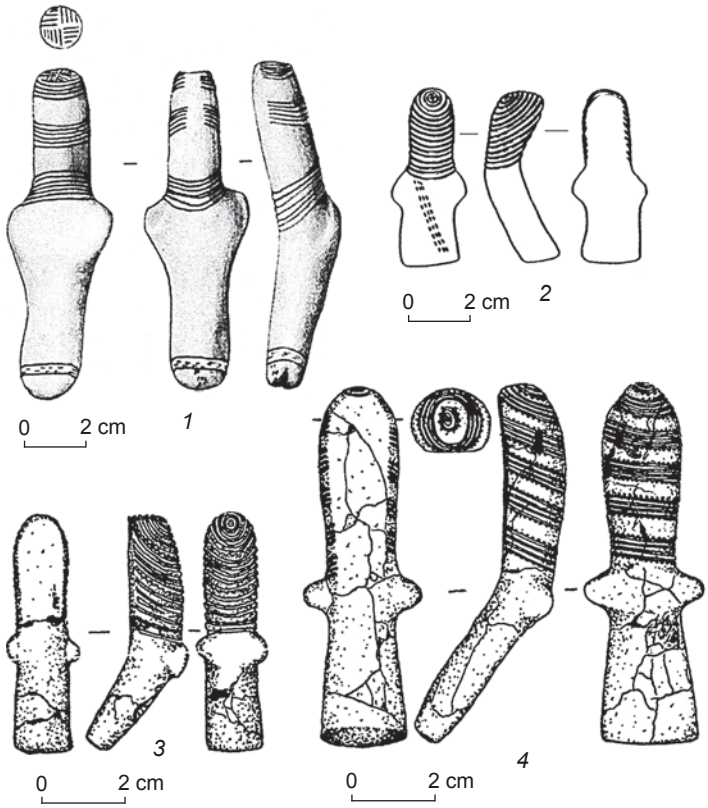

Fig. 9. Serezlievka-type statuettes (after (Burdo, 2018)).
1 – Sandraki; *2* – Shirokoye; *3*, *4* – Zeleny Gai.

is rendered by two convexities. This suggests that it is a representation of a female goddess. The lower front part of the figurine looks like a long garment (?). The rear side of the torso is bisected by a vertical bar. It is not quite clear what this means. The bend of the torso most probably corresponds to the sitting posture, which is typical of many Chalcolithic anthropomorphic figurines of the Caucasus and those belonging to the Tripolye culture (Kovaleva, 2004: 498).

The closest analogs to the anthropomorphic figurine are among the Serezlievka-type statuettes (Fig. 9), including those from burial 26, kurgan 6 near the Zeleny Gai village, Dnepropetrovsk Region (Kovaleva, 2003: Fig. 3). I.F. Kovaleva points out that such statuettes occur in the right-bank steppe area of the Dnieper River, in kurgan burials, as attributes of the local Dnieper-Bug group of the post-Mariupol culture. In the burials of this group, the deceased were laid in a flexed position on their left or right sides, sometimes on the back (Videyko, 2004: 475). Sites of Serezlievka, Sofievka, Usatovo, Gordineshty, and Gorodsk types pertain to the Tripolye CII phase, dated back to 3200–2750 BC (Videyko, 2003: 115). The dates obtained for the Chekon settlement in 2018 are in good agreement with this period.

The issue of cultural contacts between the Tripolye population and the Northern Caucasian tribes was raised earlier, also in connection with the Late Maikop sites (Zbenovich, 1974: 144–149). But in this case, the Serezlievka-type statuette found at a MNC settlement is a unique and incontestable example of such contacts. Notably, this is nearly the only evidence of ideological influence by the steppe people on the Maikop population.

N.B. Burdo has compiled a map of the distribution of Serezlievka-type statuettes (2018). Their area of distribution is associated with the Southern Bug and the right bank of the Dnieper River. One such statuette was found in kurgan 17 of the Zaozernoye burial ground, near Yevpatoria, in the southwestern Crimean Peninsula, though outside of burials (Popova, 2016). This find reflects the spread of the Tripolye ("Serezlievka") goddess cult from the Late Tripolye tribes' habitation area to the south. The discovery of a statuette of such a type at Chekon points to the penetration of this tradition even into the environment of tribes belonging to the MNC Psekups variant (Fig. 10). In this environment, the statuette of the Tripolye goddess looked like an unusual object of worship, since it is well known that there are no other clay statuettes of female goddesses at the MNC sites. Figurines of sitting goddesses of the Southern Caucasus or Ciscaucasia pertain to the earlier time and the cultural context of the Southern

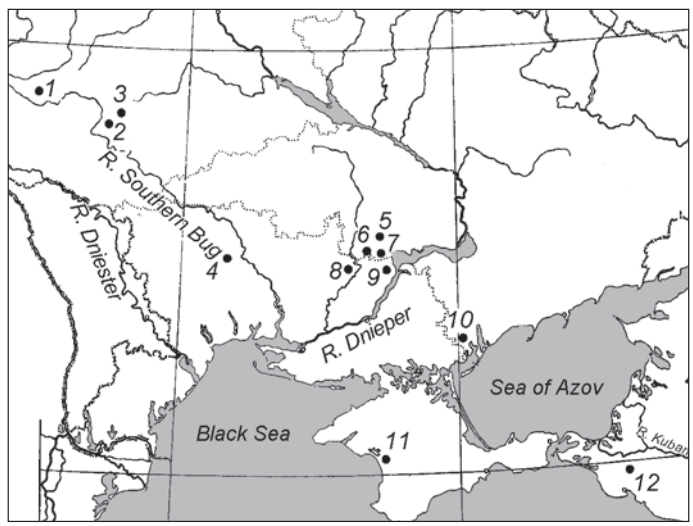

Fig. 10. Distribution of Serezlievka-type statuettes (after (Burdo, 2018), with addition of Chekon).
1 – Sandraki; *2* – Serezlievka; *3* – Dolinka; *4* – Petropavlovka; *5* – Zeleny Gai; *6* – Shirokoye; *7* – Ordzhonikidze; *8* – Baratovka; *9* – Chkalovo Group; *10* – Novoalekseevka; *11* – Zaozernoye; *12* – Chekon.

Caucasian Chalcolithic; for example, a statuette from the Galgalartepesi settlement in Azerbaijan (Narimanov, 1987: 224, fig. 28).

Thus, the discovery of the Serezlievka-type statuette at a settlement of the MNC Psekups variant testifies to obvious ties between the local population and territorially remote tribes belonging to the Dnieper-Bug group of the post-Mariupol culture, which possibly had their mediators in the Crimea. Moreover, the fact of finding such a cult figurine suggests that it was necessary exactly to people who adhered to the beliefs of a population influenced by the Late Tripolye culture rather than by the cults of the Maikop tribes. However, we did not manage to reveal ceramics of any other culture in the Chekon pottery assemblage. Is it possible, on the basis of this find, to speak about the presence of people of a different, "Tripolye world" at a settlement of the MNC Psekups variant? This question is worthwhile; however, it is hard to solve.

Conclusions

Let us sum up the results of our publication. Both the described items belong to the so-called markers of cultural relations. The pendant with the parquet ornament reflects the penetration of the symbolism of the Tree-of-Life cult and its associated mythology of revival and fertility from the south. Such a conclusion is in good agreement with the known concept, according to which formation of MNC in Ciscaucasia was conditioned by the migration of population from Northern Mesopotamia and the Southern Caucasus.

At the same time, it is more important to find an answer to the question why seals and a parquet ornament occur at the sites of the Psekups and Dolinsk variants and of the Late Novosvobodnaya group of the Klady cemetery, but not of the MNC Early Maikop variant, whose establishment pertains to the first half of the 4th millennium BC (3900/3800 to 3600 BC) (Korenevskiy, 2011: 27–30). It is poorly provided with sources so far; besides, such southern influences could have taken place in the Uruk time and in the Jemdet Nasr epoch, i.e. in the late 4th to early 3rd millennia BC (Vignola et al., 2019). Finding a statuette of the Serezlievka-type at Chekon points directly to absolutely different contacts between the local population and the Southwestern Black Sea region tribes—representatives of the Late Tripolye culture. These contacts were caused by some events of the MNC final stage that influenced the nature of the local cultural process.

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The Marfa Kurgan in the Stavropol Territory: An Example of an Ancient Architectural Structure

This study focuses on the analysis of structural elements of the Marfa kurgan in the Stavropol Territory. We list and examine terms referring to such elements, and suggest our own. A description of the kurgan, its natural environment, excavation techniques, sampling, and analytical methods is provided. The material of which the kurgan was made is assessed, and its advantages over other materials are demonstrated. We studied mud blocks (or "bricks"), their clay coatings, and a striped adobe element from the kurgan. Results of chemical and granulometric analyses are outlined, along with those of the micromorphological analysis of soils underlying the kurgan, of the material of which the "bricks" and the coatings were made. The blocks were molded by thoroughly kneading and compacting a moistened material consisting of loess with the addition of river silt, without plant admixture. Clay coatings were much denser, as it consisted of a coherent finely dispersed clay-carbonate material. Clay mortar, similar to coatings in composition and properties, was used to connect the blocks and the stones of the crepidoma. The same mortar was used for foundations of clay "bricks" buildings. The adobe element with thinnest variously colored stripes resulted from a destruction of an earlier structure.

Keywords: *Kurgan construction, Early Bronze Age, clay blocks, "bricks", soil science methods, micromorphology, Stavropol Territory.*

Introduction

In the past, the steppes of Eurasia were inhabited by various tribes and peoples, who left behind kurgans, which are striking (and often the only) evidence of their distinctive and expressive culture. These kurgans are the most numerous archaeological sites on the continent, located in large or small groups, and they are an integral part of the steppe landscape. Even according to rough estimates, in each of the steppe regions there are several thousand kurgans (Nagler, 2015).

Kurgans usually look like sod hills with rounded bases, sometimes with a flattened peak, often surrounded by moats. In the Central Asian region, there are also structures built of stones and rectangular in plan view. Kurgans, having originally been temples or sanctuaries, may not contain burials (Parzinger et al., 2003).

In the archaeological literature, the prevailing opinion is that a kurgan is a mound over the graves (see (Efremova, (s.a.))). When describing a kurgan, archaeologists, even when seeing that such a barrow is formed, say, from pieces of sod, do not decline from using

the word "mound". The term "mound" appears in works devoted to kurgans, which were constructed using clay, sod blocks, wood, and stone (see, e.g., (Rolle, Mursin, Alekseev, 1998; Mozolevsky, Polin, 2005; Chernykh, Daragan, 2014)).

As far back as 1960, the archaeologist M.P. Gryaznov pointed out that a kurgan is a collapsed ancient architectural structure (1961). However, this definition has not become common in archaeology; the terms "mound" and "filling-ups" continue to be used, and the kurgans are not excavated as architectural structures. This situation has already been analyzed and discussed in the archaeological literature (Nagler, 2013b, 2015, 2017).

According to a definition proposed by A. Nagler, a kurgan is a funeral-memorial complex, which includes:

burials, hoards, sacrificial complexes;

structures built above them, sometimes complex and monumental, which are the monuments of a particular architecture; and

the territory adjacent to the structure, or the kurgan periphery, on which there are cultural remains associated with both the construction of the complex and the ritual activities; artifacts, and sometimes graves (Ibid.; Nagler, 2013a).

As a rule, when excavating kurgans in the steppe zone of Russia, archaeologists and soil scientists carry out their research in order to reconstruct paleoclimatic conditions or past anthropogenic impacts on the natural environment only on paleosols buried under objects. The materials which the kurgans proper are composed of are studied much less often (Zdanovich, Ivanov, Khabdulina, 1984; Aleksandrovsky, Khokhlova, Sedov, 2004; Bazhenov et al., 2013; Plekhanova, Demkin, Manakhov, 2005; Borisov et al., 2019). A kurgan could be built from pieces of sod—"sod blocks", cut from the soil, and laid down in a certain order. For adhesion between them, clayey ground was poured. The use of plant material was also noticed (Golyeva, Khokhlova, 2010). However, when describing the kurgans, the terms "mound" and "filling-ups" are used, which does not assume that they be considered integrated structures.

Preliminary findings from the Marfa kurgan in the Stavropol Territory indicate that clay (earthen) blocks were used to create the structure (Nagler, 2015; Khokhlova, Khokhlov, Nagler, 2017; Khokhlova, Nagler, 2018). Phytolith analysis of samples taken from the kurgan structure evidenced the absence of plant materials in blocks and other elements of the kurgan. According to international researchers, in areas with an arid climate, structures were constructed from unburnt clay or sun-dried mud "bricks"; these blocks are used in construction today (Love, 2017). And although clay blocks are archaeological artifacts, archaeologists study them relatively seldom. Sun-dried mud "bricks" were used as a building material as early as eleven thousand years ago (Friesem et al., 2014). At the beginning of the 4th millennium BC, the Sumerians built temples, palaces, dwellings, and outbuildings from them (Kramer, 2010). In ancient Egypt, exact recipes for making such blocks were known. For construction, most often they made blocks of clay mixed with chopped straw. No plant components were added to the earthen material with sufficient clay content. Unbaked mud bricks with a clay content of no more than 30 %, and sand no less than 50 %, were considered the best (Emery, 2011; Hohn, 2003; Kemp, 2000). If the clay content exceeded 50 %, then such blocks shrank when dried, and got covered with cracks (Rosen, 1986). Buildings erected from earthen blocks were strong and durable, more resistant to various environmental influences than structures made of stone and wood. Many archaeological monuments and architectural structures were built of clay or sun-dried mud "bricks".

In geoarchaeology, structures constructed from earthen blocks are widely studied by science-based methods, chief of which is the micromorphological approach (Goldberg, 1979; Courty, Goldberg, Macphail, 1989). Using this approach, it was found that there were most often three grades of clay used (Friesem, Watter, Onfray, 2017).

The clay served as the basis for the manufacture of sun-dried mud "bricks". To do this, it was mixed with water, and often with plant material, which acted as a bonding agent. Structures were then laid out from lumps of the clay mass, also obtained by mixing earth (mud) material with water, without preliminary molding and drying (formwork was sometimes used for this). The clay put into structure was compacted in the dry state in situ.

In the course of experimental studies conducted by international scientists using a light microscope, the relationship between the appearance of the earthen block and the technological methods of the construction of an adobe structure was traced (Cammas, 2018). There are no data on the study of earthen archaeological structures by Russian scientists using the science-based methods, in particular micromorphological (Bronnikova et al., 2016).

The purpose of this work is to study the earthwork of the Marfa kurgan in the Stavropol Territory by geoarchaeological methods, in particular micromorphological one. Notably, the space of this article does not allow us to consider the entire construction of Marfa kurgan in detail; therefore, most of our attention will be focused on the study of clay blocks, their coating, and the technology of adobe construction.

Object and methods

Object

The Marfa kurgan is located on the territory of the Kirovsky District of the Stavropol Territory, near

Komsomolets village and the city of Novopavlovsk (43°58′37.98″ N, 43°30′58.49″ E). In geomorphological terms, this is the Kabardin foothill plain, with absolute heights in the range of 200–500 m a.s.l. The kurgan is located on a high terrace of the Zolka River, which is a right tributary of the Kuma River. Although the territory all around the kurgan was completely ploughed, the kurgan itself was not; large tracts of arable land are separated from each other by forest belts. The kurgan, with a height of 7 m and a diameter of 40–60 m, began to be built by members of the Maykop culture in the Early Bronze Age (second half of the 4th millennium BC). It was completed in the Middle Bronze Age (3rd to 2nd millennium BC) and in the Early Iron Age (1st millennium BC). The Marfa kurgan was completely excavated in 2013–2015 by a joint expedition of LLC "Naslediye" (Stavropol, Russia) and the German Archaeological Institute (Berlin, Germany).

Natural conditions

The climate in the territory near Novopavlovsk is temperate continental, the average annual temperature is 11–12 °C, the average temperature in July is 22.4 °C, in January –3 °C; winters are short and mild, summers are long and warm (https://ru.climate-data.org/location). According to hydrothermal conditions, the climate is characterized as arid, the average annual rainfall is 520–570 mm, the moisture coefficient (the ratio of the average annual rainfall to evaporation) is 0.7–0.8.

According to the vegetation cover, the territory under consideration belongs to the subzone of plain-forb-grass-steppes, with a high and dense grass stand. Currently, areas with natural vegetation adjoin arroyos inconvenient for sowing, steep slopes, and places with shallow occurrence of stony rocks. The basis of the soil cover of the flat part of the territory is ordinary black earth (migration-segregation or *Calcic Chernozems*), which is characterized by an increased thickness of the humus horizon. Soils are formed of carbohydrate and in some places gypsum loess-like clays and loams from the Quaternary period.

The methodology of the archaeological work

When excavating the Marfa kurgan, archaeologists were guided by the field research methodology adopted in Russian archaeology. Since it does not include excavation of the kurgan as an architectural structure, not only the vertical surfaces of the stratigraphic baulks were cleaned, but also the horizontal surfaces of the kurgan (Fig. 1, *a*, *b*), as well as its structures in deep layers (Fig. 1, *c*), with clearing the clay sun-dried mud "bricks" from which it was built. In accordance with the proposed definition of the kurgan, the study of the so-called kurgan periphery was suggested; therefore, horizontal scraping was carried out on the territory adjacent to the object. This made it possible to identify sites, on one of which there was a heavily damaged clay block structure (Fig. 1, *d*, *e*). The sites were paved with clay blocks similar to those used to create the kurgan. It is important to note that the objects found on the periphery, although they were in the zone of recent intensive tillage, were not completely destroyed.

The material evidence for construction consists not only of the blocks, but also of mud coating—pieces of hardened mortar, which had cementing properties. Blocks-"bricks" were coated with liquid mortar for fastening, or the masonry was fixed. The clay mass, laid out in an even and relatively thick layer (10–20 cm) on the blocks, formed the "foundation" for the next structures of blocks inside the kurgan. Three types of coating were identified: the "foundation" for construction, found in the northern part of the kurgan, as well as coatings on the blocks or stones of yellow (loess) and gray-brown color (Fig. 2, *b*).

On the southern side of the kurgan, during the vertical cleaning of baulk R3 under the masonry, an unusual fragment of the structure was discovered—a lens of earthen material with a thin-striped pattern on the surface (Fig. 3, *a*, *b*). The difficulty of studying it was that the smallest multicolored stripes were visible in the baulk only in the first half hour after scraping; as soon as the wall dried out, everything merged into a single mass.

In total, five baulks were cleared in the kurgan; R0 in the central part, R1 and R3 in the southern, and R2 and R4 in the northern part.

For laboratory study, samples were taken from the clay blocks located on the surface of the kurgan (1); in the kurgan, at a depth of about 1.0–1.5 m from the surface (2); and from the remains of the structure on the periphery of the kurgan (3). In the depths of the kurgan, samples were taken from various mud coatings. Two types of samples were taken from blocks and coatings: loose samples (for analytical study) and undisturbed micromonoliths (for micromorphological analysis). From the element with a striped pattern, samples were taken only for micromorphological study.

Under laboratory conditions, the grain size analysis of bulk samples, using sodium pyrophosphate for dispersion, was performed; the content of organic carbon was determined by the Tyurin's method as modified by Antonova et al. (Orlov, Grishina, 1981). The content of CO_2 released during oxidation was determined on a chromatograph, and the CO_2 of carbonates was determined manometrically by the pressure difference in the control and in the sample in sealed vessels with rubber plugs, in

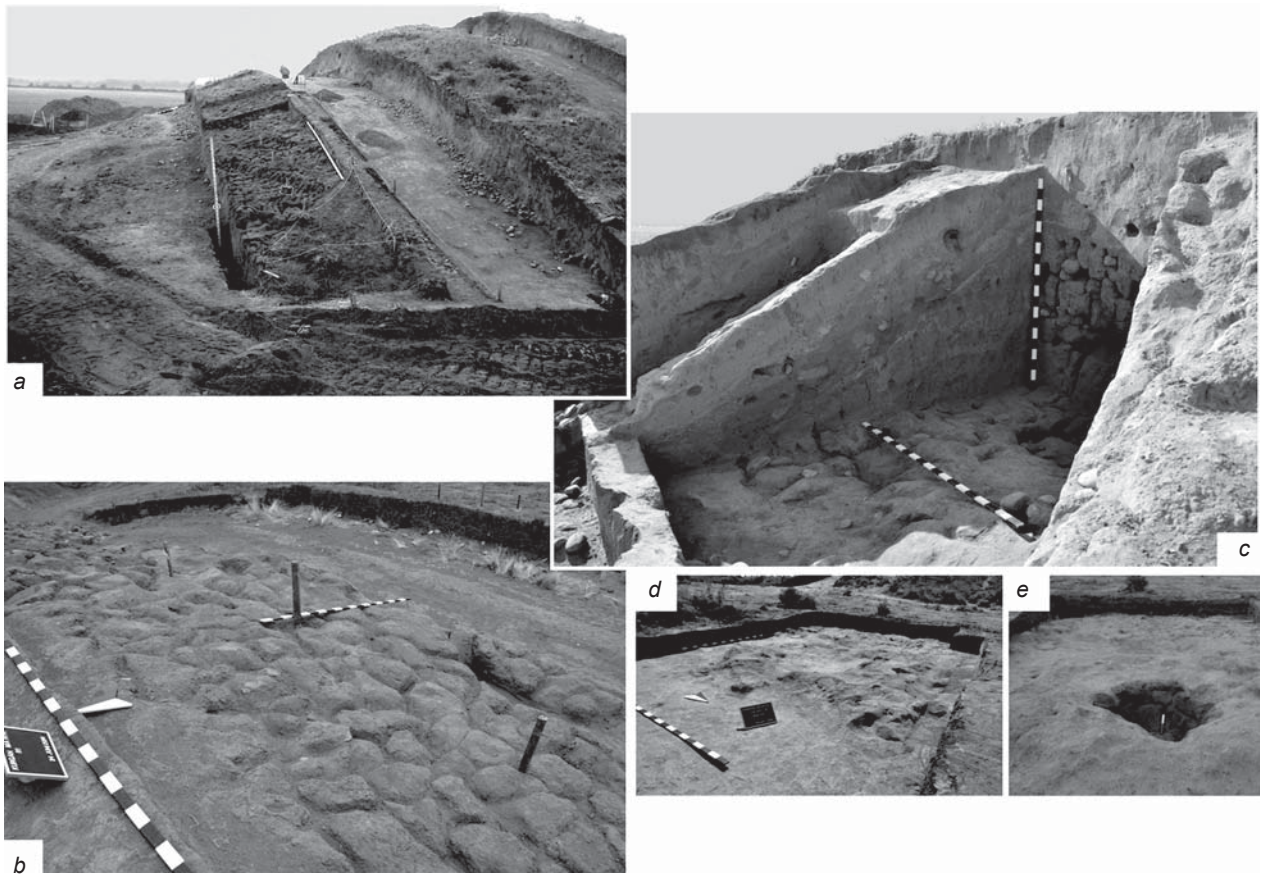

Fig. 1. Sun-dried mud "bricks" in the construction of the Marfa kurgan.
a, *b* – on the surface of the kurgan (immediately below the sod); *c* – at a depth of the kurgan, about 1.0–1.5 m from the surface; *d*, *e* – from a heavily damaged building on the periphery of the kurgan, eastern side.

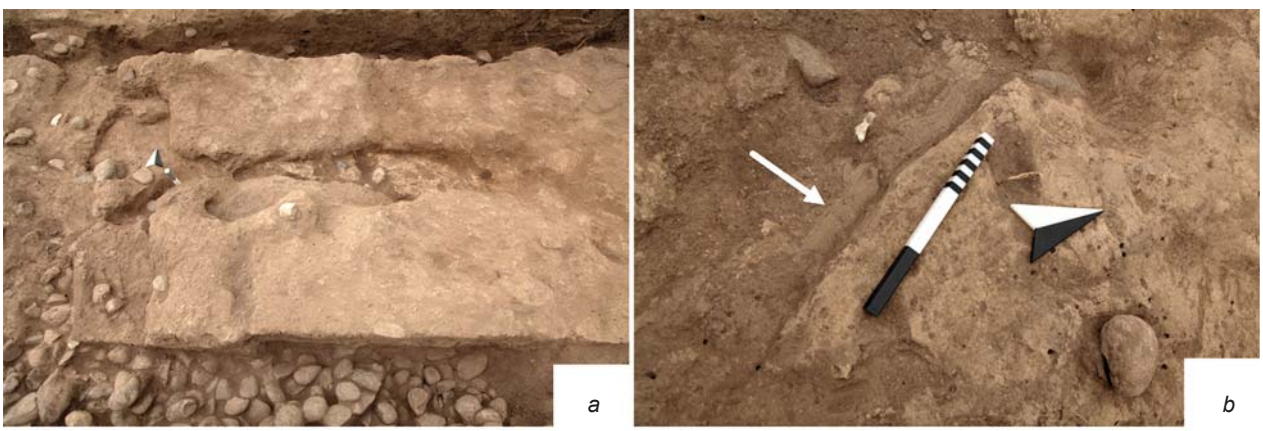

Fig. 2. Clay coatings in the construction of the Marfa kurgan.
a – the "foundation" of a building made of mud blocks-"bricks" in the northern part of the kurgan; *b* – coatings fastening the blocks of yellow (black and white arrow, location of the scale bar) and brown (white arrow) color.

which the samples reacted with 10 % hydrochloric acid; the results were converted to C (Vorobyeva, 1998).

Sections were made from undisturbed samples. Micromorphological analysis of thin sections was carried out with an AxioScope A1 Carl Zeiss microscope at the Center for Collective Use of the Institute of Physicochemical and Biological Problems in Soil Science of the Russian Academy of Sciences. For comparison

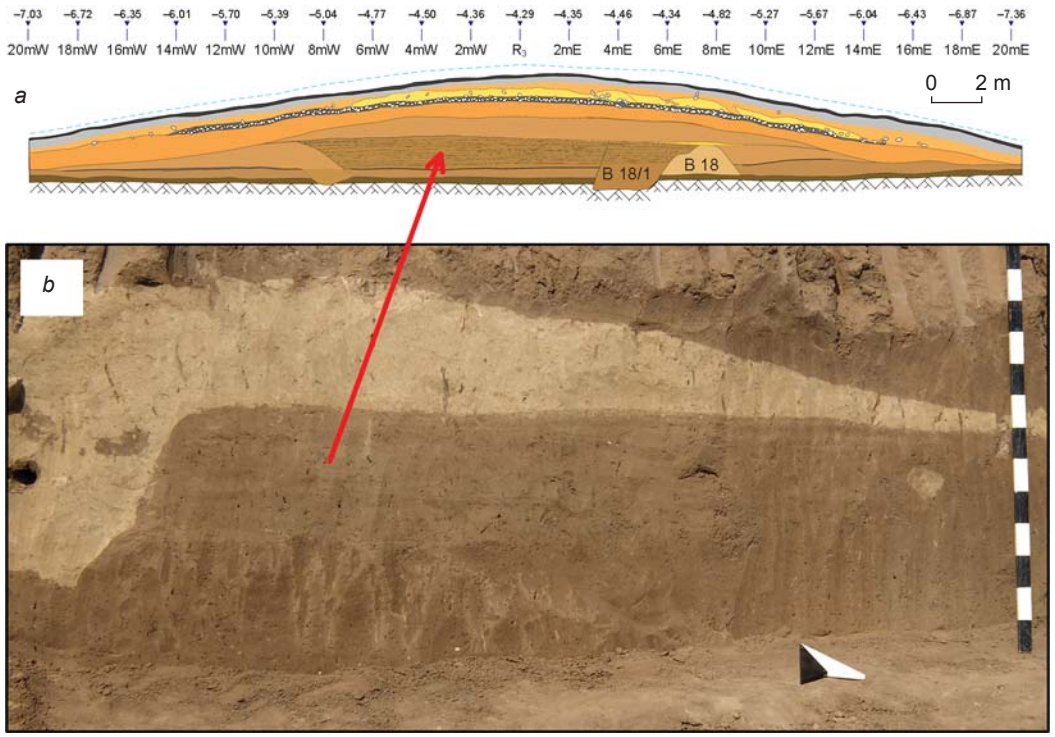

Fig. 3. The striped element on the scheme of baulk R3, southern face (*a*), and in the photo (*b*).

with samples from the construction of the Marfa kurgan, thin sections were made from samples taken in the deep horizons of soil sections under the kurgan (buried soils) and near it (background surface soils), and loess from the quarry 15 km north-north-west of the kurgan.

Results

Research into the chemical and granulometric composition

Preliminary studies (Khokhlova, Khokhlov, Nagler, 2017) have shown that in the surface layers of the kurgan, the construction material underwent robust processing during soil formation processes; therefore, in this work, only samples from the internal parts of the structure, as well as from blocks on the periphery of the kurgan, are studied to identify their chemical and granulometric composition and compared to samples from soils and loess.

For all of the analyzed characteristics, the blocks and coatings vary significantly, so analysis of the data obtained allowed us to make more or less reasonable assumptions.

The content of organic carbon (C_{org}) in the coatings is mostly high, 0.92–0.58 %, while in blocks it is most often within 0.41–0.34 %; but there are also very small values, 0.03–0.11 %, which are not recorded in the coatings. It can be concluded that in most cases the coatings contain more organic carbon than blocks, in which its content can be very small. In loess samples, the organic carbon content varied from 0.01 to 0.15 %. Some blocks in terms of this characteristic were close to the loess samples.

The carbon content of carbonates (C_{carb}) in the blocks is greater than in the coatings. If in the blocks the value of this index is no less than 1.07, but not more than 1.64 %, then in the coatings the minimum is 0.52, and the maximum is 1.53 %. According to the content of C_{carb}, the samples of loess show values close to the blocks, in which the variation of this characteristic is in the range of 1.20–1.65 %.

Values for water pH and loss-on-ignition for blocks and coatings are higher than for loess. With a high degree of probability, coatings and blocks were made with the addition of some material.

Both blocks and coatings correspond to a rather uniform sample of the content of silt fraction (<0.001 mm) within 12–13 %. Single samples contain more (15–16 %) or less (9.2–9.6 %) silt. We can conclude that the blocks and the coatings show similarity in the content of the silt fraction. In this case, both blocks and coatings differ from the loess in the content of this very finely dispersed fraction. In the analyzed structural elements of the kurgan, the silt content is often higher than in natural loess. Only in the sample of loess from the quarry 15 km from the monument, the silt content is 18.5 %, which exceeds the content of this fraction in all samples from Marfa's construction. This fact suggests that the material for

creating the kurgan was mined in the immediate vicinity of the construction site.

To continue the discussion in this direction, the contents of the average proportion of sand (0.25–1.0 mm) are very important, which are the first to be determined when analyzing the particle size distribution by filtering the suspension through a sieve with 0.25 mm mesh. In the total sample, coatings show the lower contents of this proportion more often than blocks; but on the whole, the differences in this indicator between blocks and coatings are insignificant. At the same time, in the loess sample taken in the quarry, the content of this fraction is much lower than in all samples from Marfa's structural elements (2.5 % versus 15–24 %). Concurrently, the content of the 0.25–1.0 mm fraction in loess samples from the deep layers of surface and buried soil is very close to that in the samples of blocks and coatings. This fact also argues in favor of a version about the location of the source of material for construction near the kurgan.

The content of physical clay (<0.01 mm) and physical sand (> 0.01 mm) (both in the blocks and in the coatings) is close to the "ideal" recipe for a clay product in which the clay content does not exceed 30 %, and the sand is not less than 50 % (in our case, 25–35 and 65–75 %, respectively). This appears to be not accidental; the ancient builders probably knew the recipe for getting the "right" clay mixture.

Micromorphological analysis

Soil and loess. First, a micromorphological analysis of soils not affected by human activity is given—the background surface soil (section Mf1f-13) and the soil buried under the southern hollow of the kurgan (section Mf2p-13), as well as loess used as a reference for comparison.

In the layer at a depth of 50–55 cm of surface soil, the following signs were visible: (i) vigorous activity of soil biota—plant debris in voids, discharges of the mesofauna, and the crushing of soil material; (ii) humus accumulation process—round, brown-colored aggregates of various dimensions and order; (iii) mobility of humus-ferrous material—porostriated and granostriated b-fabric.

In the layer at a depth of 85–90 cm of surface soil, the most noticeable are the signs of carbonate accumulation and transformation of the initial (lithogenic, inherent to loess) carbonate substance under the influence of pedogenesis. Nodules, both cryptocrystalline, inherited from the original rock (loess), and recrystallized, composed of relatively large sparite crystals, were found in the groundmass. A significant microarea of the thin section prepared from samples of this layer was occupied by carbonate coatings in relatively large voids. The micromass contained small elongated and rounded, occasionally recrystallized, fragments of carbonate shells.

In the buried soil at a depth of 50–55 cm, organic matter is represented by amorphous black or brownish-black spots scattered in the micromass and on top of the grains of minerals. The lithogenic carbonate nodules in the micromass were mainly recrystallized and were rarely found in their "initial" cryptocrystalline appearance; carbonate acuumulations were present in the form of coatings in the voids or created a granostriated b-fabic of the clay-carbonate composition.

In the layer at a depth of 85–90 cm of buried soil, there are numerous small cryptocrystalline and recrystallized carbonate nodules in micromass, and a lot of elongated fragments of carbonate shells. Thick carbonate coatings were located in the voids, and granostriated b-fabric of clay-carbonate composition was visible. There was a specific type of plagioclase grains; such grains were not found in horizons located closer to the surface in the studied soil profile.

Samples of loess material that was practically unaffected by pedogenesis, which were taken from deep horizons of surface soil and of soils buried beneath the kurgan, as well as from the loess quarry 15 km from the Marfa kurgan, demonstrate a high degree of carbonation. Basically, these are the so-called primary (or lithogenic) carbonates: fragments of shells of various sizes and shapes (Fig. 4, *a–c*, orange arrows), and many cryptocrystalline rounded nodules (Fig. 4, *a*, *b*, yellow arrows). Recrystallized nodules and sparite grains dispersed in the groundmass are rare in loess samples from soils near Marfa. At the same time, the loess sample from the quarry exhibits a high degree of saturation of the micromass with carbonates, and gypsum is also found in it (Fig. 4, *d*), which we could not find in deep soil horizons near the kurgan.

Blocks-"bricks". A micromorphological study of samples from the surface layers of the kurgan structure made it possible to record the nearly complete processing of the material by soil-forming processes: a lot of coprolites, zoogenic crushing and loosening of the soil mass, plant residues with preserved cell structure in the voids (Fig. 5, *a*, orange arrow), porostriated b-fabric of the humus-clay-ferrous composition (Fig. 5, *a*, yellow arrow). At the same time, inside this processed and loosened material, there occur microfragments of a darker, and most importantly, much more densely packed and saturated with fine-dispersed (clayey) substance of an "extraneous", "foreign" material (Fig. 5, *a*, green arrow; *b*). Their size is 5–6 thousand microns (5–6 mm) and less. These microfragments are more common, and their sizes are larger in the layer at a depth of 25–30 cm than in the layer at a depth of 35–40 cm (Fig. 5, *c*, *d*). In the layer at a depth of 35–40 cm, these "foreign" microfragments are more difficult to distinguish from "ordinary" soil mass, since the degree of development by pedogenic processes

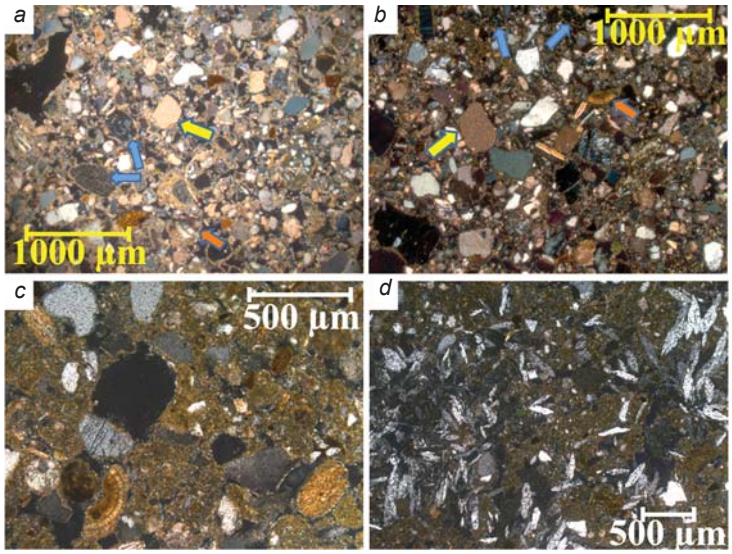

Fig. 4. Microstructure of loess from a layer at a depth of 160–170 cm.
a – section Mf1f-13; *b* – section Mf2p-13; *c*, *d* – quarry 15 km from the Marfa kurgan.
a, *b* – strongly carbonated material: rounded fragments of shells with a preserved pattern (orange arrows) and a lot of elongated fragments, a lot of cryptocrystalline nodules (yellow arrows), granostriated b-fabric of carbonate-clay composition, clearly visible grains of plagioclase (blue arrows); *c* – rounded and elongated fragments of shells, carbonates impregnate micromass; *d* – in the carbonate impregnation, there are many leafy crystals of gypsum. All photos were taken with an analyzer, XPL.

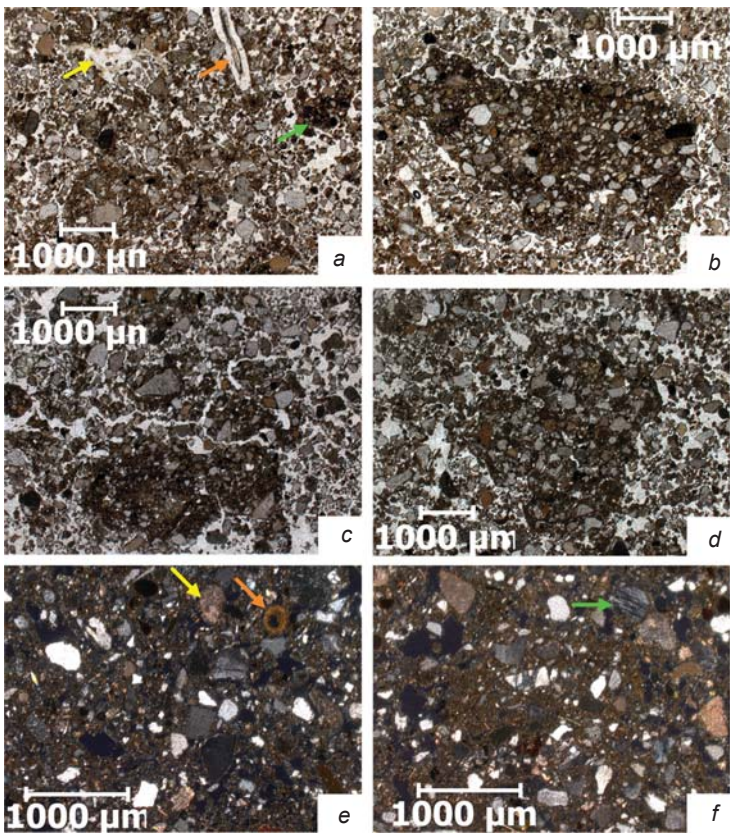

Fig. 5. Microstructure of samples from the kurgan construction, sampling depth 25–30 and 35–40 cm from the kurgan surface.
a – the "normal" structure of the humus horizon of soil in the mound: plant residue with preserved cell structure in the void (orange arrow), humus-clay-ferrous finely dispersed material in the void (yellow arrow), zoogenic crushing of the soil mass, rounded amorphous humic aggregates (green arrow), layer (sampling depth) 25–30 cm; *b* – an angular microfragment of a darker and densely packed material with sharp boundaries, layer (sampling depth) 25–30 cm; *c* – destruction of a fragment of a densely packed dark material: broken by cracks, rounded in shape, diffuse border, layer (sampling depth) 25–30 cm; *d* – microfragment of a darker and densely packed material inside the biogenically mixed and loosened micromass, its boundary is sharp, layer (sampling depth) 35–40 cm; *e* – shell fragments (orange arrow) and recrystallized carbonates in micromass (yellow arrow), layer (sampling depth) 35–40 cm; *f* – plagioclase grain (green arrow), layer (sampling depth) 35–40 cm. Photos *a*–*d* were taken without an analyzer, PPL, *e*, *f* – with an analyzer, XPL.

decreases as they move deeper into the kurgan structure, and the "foreign" fragments merge together to form a "body" of a block. Fragments of carbonate (aragonite) shells and recrystallized carbonate nodules, as well as plagioclase grains, are found inside microfragments (Fig. 5, *e*, *f*).

Thin-sections from blocks from a depth of more than 1 m from the surface of the kurgan were studied, as well as blocks found on the periphery of the kurgan (Fig. 6). This allowed us to establish common features of the microstructure of the mud blocks of the Martha kurgan:

porphyric c/f related distribution—finely dispersed material completely fills the space between coarse particles; grains of the mineral skeleton show a predominantly medium sand size (Fig. 6);

around almost every mineral grain, a cavity (hollow) is observed, repeating the contour of this grain, which is typical of material dried after compaction in the wet state (Fig. 6, *a*);

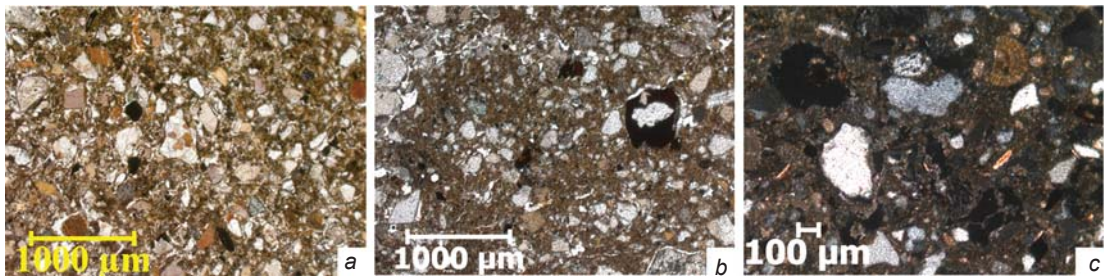

Fig. 6. Microstructure of mud blocks from the construction of the Marfa kurgan.
a – around the grains of the mineral skeleton, there are voids repeating the contour of each grain; in general, the micromass is highly compacted, small coatings of clay-ferrous composition are observed in small voids; *b* – porphyric c/f related distribution, crack network around large grains of the mineral skeleton, and in the upper part—drying cracks, black and brown spots in the voids, and micromass; *c* – a fragment of a round carbonate shell, dispersed sparite grains and recrystallized carbonate accumulations in voids and in micromass, plagioclase grains are visible in the lower part. Photos *a*, *b* were taken without an analyzer, PPL, *c* – with an analyzer, XPL.

black or dark brown spots of organo-ferrous composition are scattered in the micromass, or appear in the voids (Fig. 6, *b*);

many carbonate accumulations, such as rounded or elongated shell fragments, recrystallized sparite grains, or cryptocrystalline nodules (Fig. 6, *c*); and

plagioclase grains (Fig. 6, *c*, lower part) clearly show that the material for the blocks was extracted from deep soil horizons, since there are no such grains in the surface horizons.

Based on the analysis of micromorphology and material composition, it was found that the material for the blocks-"bricks" was taken from the pits that revealed soil horizons at a depth of about 70–100 cm from the surface (i.e., from deposits lying below the soil layer stained with humus), in the immediate vicinity of the kurgan, and was mixed with river silt. The addition of river silt to this material is evidenced by the data of phytolith analysis (Khokhlova, Khokhlov, Nagler, 2017).

Coatings. A micromorphological analysis of composition of the coatings that fastened the "bricks" into a single masonry during the construction of the kurgan structure showed that the carbonate substance served as the predominant binder in these cementitious masses. According to micro observations, carbonates completely penetrate the micromass of such cement (Fig. 7, *a*), there are a very large number of carbonate shells (Fig. 7, *c*) that retain their original appearance (Fig. 7, *c*, yellow arrows), with initial signs of dissolution (Fig. 7, *c*, the edge of a large fragment of the shell on the right side of the photo), as well as some that are swollen, recrystallized, and almost completely lost their original appearance (Fig. 7, *c*, white arrows). It is likely that upon soaking loess and river clay material, in which clay and carbonates were originally presented separately, under the influence of water and as a result of thorough mixing, a physicochemical transformation took place in it, and a single micromass of clay-carbonate composition was

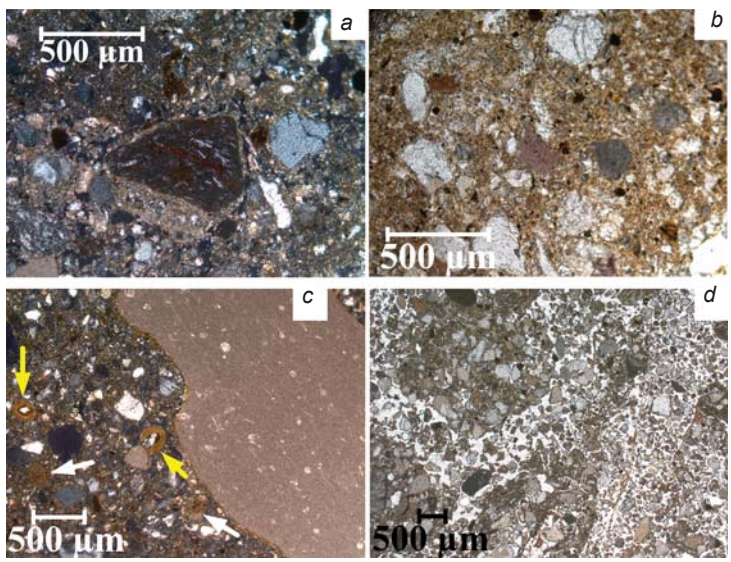

Fig. 7. The microstructure of coatings.
a – carbonates completely impregnate the micromass; *b* – micromass of clay-ferrous composition with a small addition of organic matter; *c* – there are a lot of carbonate shells scattered in the micromass, which retain their original appearance (yellow arrows) and show initial signs of dissolution (the edge of a large fragment of the shell on the right side of the photo), many of them melted, recrystallized, and lost their original appearance (white arrows); *d* – loosening of the coating as a result of the activity of the mesofauna: the passages of small worms with crashed plant debris are visible, and darker compacted undisturbed microfragments are nearby. Photos *b*, *d* were taken without an analyzer, PPL, *a*, *c* – with an analyzer, XPL.

obtained. In the blocks-"bricks", the formation of a single fused clay-carbonate substance (carbonate impregnation) occurred on a much smaller scale.

Sometimes, the coatings had a brown or reddish hue (see Fig. 2, *b*, white arrow). During micro-observations, it was found that in the brown coating, the binder was iron; its oxides impregnated the micromass, which in this case had a clay-ferrous composition (Fig. 7, *b*). To obtain brown coatings-cements, clay was necessarily taken from the river, since the clay-ferrous composition of the fine soil is not at all characteristic of the chernozem surrounding the kurgan. This clay was also enriched with organic matter, but iron oxides were the main coloring component. Notably, clay-ferrous cements were used singly, for special cases, while the carbonate component absolutely prevailed in the coatings when bonding building blocks or stones in the structures of the Marfa kurgan. In general, the coatings, although they were distinguished by a much denser addition than even the clay mass from which the mud blocks-"bricks" were composed, were just as active as the blocks, which were destroyed under the influence of burrowing forms—worms, insects, larvae, etc. (Fig. 7, *d*).

Considering that in the material composition of the coatings, the content of organic carbon was most often higher than in the blocks, and carbon content of carbonates was lower, we can conclude that there were minor differences in the methods of preparing the material for blocks and coatings. More river silt was added to the clay coating solution; it was held for a much longer time in water, and subjected to more prolonged and more thorough mechanical action (mixing), due to which the initially heterogeneous clay and carbonate substance was converted into a single, finely divided mass of clay-carbonate. It can be argued that the carbonate substance in this method of manufacturing the coatings became quite adhesive. If the composition of the coatings was clay-ferrous, then the material for them was most likely taken from river silt, since only in river sediments was silt carbon-free.

Striped structural element. A micromorphological analysis of material of the striped structural element found on the southern periphery of the kurgan made it possible to trace the sorting of coarse and finely dispersed mineral grains that made up laminas with a thickness of ca 1 mm (Fig. 8). Sometimes a lamina consisted of very finely dispersed particles of clayey or finely dusty dimensions (Fig. 8, *a*, *c*, yellow arrows). Microareas were observed in thin sections, where the laminas were sustained very clearly along the strike (Fig. 8, *a*, *b*), but more often they were unstable, intermittent, and sinuous (Fig. 8, *c*, *d*). When studying thin sections with an analyzer (Fig. 8, *b*, *d*), another important observation was made: the laminas were not interconnected by clay-carbonate or clay-ferrous finely dispersed material. Among the mineral grains, small fragments of shells or carbonate nodules occur, but they act as components of the mineral skeleton, and do not form a finely divided binder.

The striped structural element underlying the stone crepidoma probably refers to a layer formed during one of the early periods of Marfa's construction. Previously, researchers noted the striped structure of the clay material, which could be the result of sorting the material during the destruction of adobe structures (Friesem et al., 2011). Obviously, weather events such as precipitation, wind, etc. caused damage to the structure created from sun-dried mud "bricks"; it gradually collapsed, and sedimentation (sorting) of variously-sized mineral fractions under the influence of gravity occurred. The fact that this was a process that occurred from time to time and under the influence of various forces (either light rain, heavy rain, strong wind or light) is suggested by the discontinuity, intermittence, tortuosity of small layers inside this structural element.

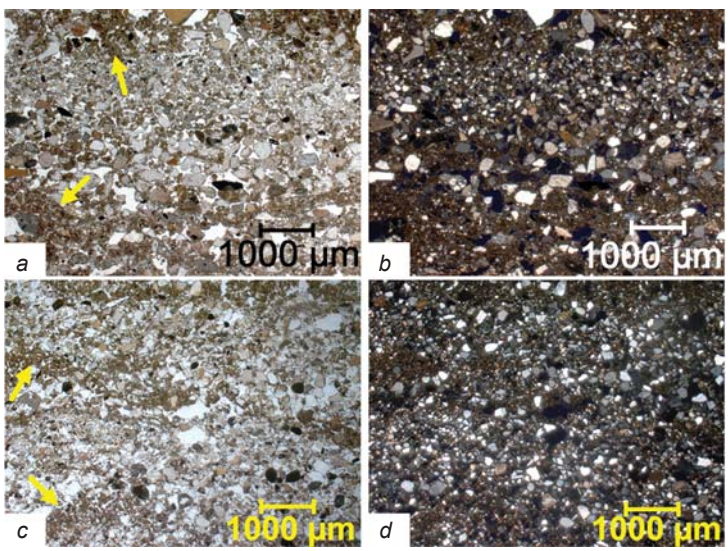

Fig. 8. The microstructure of the striped element in the construction of the Marfa kurgan.

a, *b* – laminas of mineral grains of various sizes are clearly sustained; *c*, *d* – laminas are not sustained along the strike, intermittent. Yellow arrows indicate laminas of finely divided material. Photos *a*, *c* were taken without an analyzer, PPL, *b*, *d* – with an analyzer, XPL.

Conclusions

Structural materials and technical-technological approaches used in the construction of the Marfa kurgan were studied using methods of soil science and micromorphology. The kurgan began to be built by bearers of the Maykop culture in the Early Bronze Age (second half of the 4th millennium BC);

construction continued in the Middle Bronze Age (3rd to 2nd millennium BC) and in the Early Iron Age (1st millennium BC). The study of the remnants of sun-dried mud "bricks" from the surface of the kurgan, well-preserved blocks that were inside the structure and on the periphery of the object, made it possible to establish their common origin (use of common raw materials). That is, the blocks were molded by thoroughly mixing and compacting the material from the loess, taken from the relatively deep pits adjacent to the kurgan, with the addition of river silt, without using plant materials.

The coatings had a much denser addition than the blocks, but the contents of the silty and finely dusty granulometric fractions of the coatings and the blocks did not differ. The binder component in the coatings was predominantly carbonate, much less often a ferrous substance, converted by mechanical action in the presence of water into a clay-carbonate-(ferrous) mass. The high density of the coatings is the result of the fact that clay material for them was kept in water much longer than for blocks; the disparate and coarse carbonate material that we observe in loess and soil horizons was transformed into a coherent finely divided clay-carbonate material.

On the periphery of the kurgan, a striped structural element was recorded, formed owing to the natural sedimentation of variously-sized mineral fractions under the influence of gravity in periods of showers and winds, during the destruction of the initial adobe structure. The next generation of builders used this element as the basis for stone crepidoma.

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On the Earliest Use of Plate-Formed Cheekpieces and the Emergence of Horse Riding (Based on Finds from the Novoilyinovskiy II Cemetery in Northern Kazakhstan)

This study addresses the description, use-wear analysis, and date of three plate-formed cheekpieces from kurgan 5 at Novoilyinovskiy II, Kazakhstan. They were found in the same context with two sacrificed horses (a stallion and a mare), placed on the bottom of a ritual pit in the "flying gallop" posture. The emergence of horse riding, marking a new type of mobility and warfare, has been traditionally dated to ca 900 BC. However, cheekpieces suggest that this process spanned the entire 2nd millennium BC. They testify to the evolution of horsemanship and the search for the most efficient means of controlling draft and riding horses. Results of the use-wear analysis suggest that all three specimens likely belonged to riding horses' harnesses. Two AMS radiocarbon measurements referring to kurgan 5 suggest that these cheekpieces are among the earliest used for controlling riding rather than draft horses, implying that horse riding emerged on the Eurasian steppes as early as the beginning of the 2nd millennium BC.

Keywords: *Bronze Age, cheekpieces, use-wear analysis, radiocarbon dating, horse riding.*

Introduction. Plate-formed cheekpieces and the emergence of horsemanship

The origin of the horseback riding marks the emergence of new types of mobility and warfare. The development of horsemanship dates back to the 2nd–1st millennium BC (Drews, 2004: 149). However, this process can be traced back to the Eurasian steppe throughout the entire 2nd millennium BC, as these cheekpieces reflect the evolution in equestrianism, as well as the search for the most effective ways to control horses in various conditions (Kuzmina, 1994: 180).

We agree with the opinion of those researchers who distinguish two main classes of cheekpieces, according to their morphological features: shield-like and rod-shaped (for more details on the accepted typology, see (Chechushkov, 2013)). The defining feature of the former

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is the presence of a flat shield-like bone or antler, which bears all the other details on itself. Such cheekpieces are interpreted as controls for the draft horses. The second class includes cheekpieces made from a long narrow bone, or an outgrowth of an antler and usually not equipped with spikes. These were used to control a riding horse (Smirnov, 1961; Kovalevskaya, 1977: 15–17; Zdanovich, 1988: 138–145). Among the cheekpieces of the first type, it is reasonable to distinguish shield-like and plate-formed (although other options for classification do exist too) (Bochkarev, Kuznetsov, 2013). Both cases are characterized by spikes on their shields, which cause pain to the animal. The difference lies in the fact that the plate-formed cheekpieces are made of easily available tubular bone (usually split lengthwise) that is easy to process. The fact of finding such a pair of cheekpieces on the horse's skull in kurgan 5 of the Komarovka cemetery (Alikhova, 1955) allowed for their interpretation as means of controlling of a riding horse (Smirnov, 1961: 51; Usachuk, 2014).

However, it is difficult to determine the exact time when the historical process of horsemanship originated, as many plate-formed cheekpieces come from open settlement contexts, and archaeological finds from burial contexts are often dated relatively (cemeteries of Aksaiman, Komarovka, Obilkin Lug III, Novye Kluchi III, etc.). Nevertheless, the use of the radiocarbon method for dating the complexes with cheekpieces allows to outline the main milestones in this process.

This paper will examine three plate-formed cheekpieces from the Novoilyinovskiy II cemetery (the sites of the Lisakovsk area of the Bronze Age, in the Beimbet Mailin District, Kostanay Region, Kazakhstan). In kurgan 5, there were two funeral complexes with the Petrovka type ceramics, as well as ritual object 1a with the offering of two full horses, alongside with three cheekpieces (for more details, see (Usmanova et al., 2018; Snitkovskaya, Usmanova, 2019)).

A brief description of the burial structure

The burial structure was an earthen mound 0.4 m high, 18 m in diameter. At the level of the "B" soil horizon, the outlines of two graves and seven pits located around them were identified (Fig. 1). In the fill of grave pit 1, there were bones of the upper part of human skeletons and ceramic sherds (Fig. 2, *1)*. At the bottom of the pit, there were lower parts of the skeletons of four buried human bodies *in situ*. The dead were buried in two pairs in crouched poses, heads to the west. Among the offerings were beads and small fragments of plait ornaments, a bronze frame, a bone arrowhead, and a bronze spearhead (Usmanova, Malov, 2016). In grave pit 2, the bones of a child were found buried lying on its left side, head to the west, and also decomposed remnants from a rectangular wooden item, as well as several paste beads and a vessel.

Ritual object 1a was located in the southwestern sector of the complex. At the bottom, the pit acquired an oval shape; in this space, there were the bones of two horses and an upright 60 cm high post of hewn quartzite sandstone located behind them, interpreted as a symbolic hitch (Fig. 2, *2*).

In the process of clearing the stone, three plate-formed cheekpieces were discovered (Fig. 3). Cheekpiece No. 1 laid flat on the east side of the stone, the bottom end of a shield directed towards the stone, with the rostral outset pointing away from the stone. The other cheekpiece (No. 2) was situated vertically, with the rostral outset pointing down, on the west side. Judging by such an arrangement, possibly a full bridle could be thrown on the stone, the organic part of which has not been preserved. Cheekpiece No. 3 was located above the stone, and was probably moved there during the post-depositional process. In addition, a small wedge of non-ferrous metal was found above the stone.

At the bottom of the pit, parallel to each other, there were two full skeletons of horses: remains of a 18-20-years-old stallion and of a 16-18-years-old mare (see Fig. 2, *2*). The horses were arranged in complex poses, and it appears that special manipulations were performed with their remains purposefully: limbs were cut, ligaments were also cut at the joints, and the body parts were bended. This positioning of the horses' skeletons can be interpreted as an attempt of spatial symbolism, which aimed to give the horses the posture of a "flying gallop" (Usmanova, Gumirova, Chechushkov, 2019). The age of the animals, and the presence of the cheekpieces, leave no doubt that both animals were used as work horses, and the further analysis of the artifacts aims to establish what sort of work exactly they performed.

The morphology of the cheekpieces and the results of use-wear analysis

The method to study the cheekpieces has been previously described in detail in several publications (Usachuk, 2013: 3–5; Bersenev et al., 2014; Chechushkov, Epimakhov, Bersenev, 2018), what makes it possible to switch to the description of the artifacts. All three artifacts were made from tubular bones split lengthwise, and all three have the similar shape: a rectangular, flat shield plate, and a trapezoidal rostral outset. In the center of the shield plate, a rectangular mouthpiece hole is located, in the rostral outset, an additional round hole. Spikes are carved along the edges of the bone on the inside of the piece. There are visible traces of a cut 4 mm wide and 10 mm long. The tool used for the cut had a 2–3 mm wide surface, which suggests the use of a stone knife.

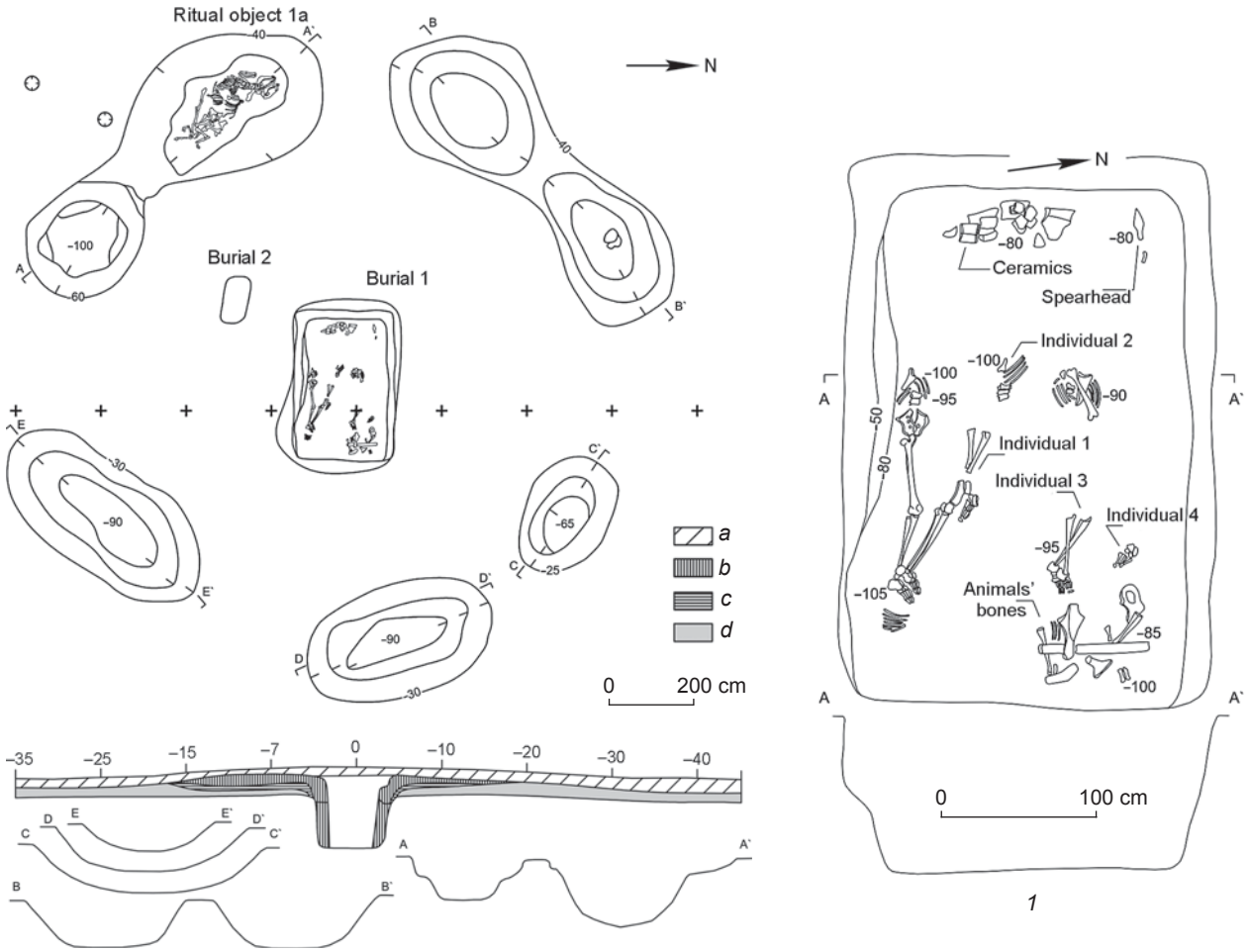

Fig. 1. Plan and section of the kurgan ground, kurgan 5.
a – mound (dark brown loam); *b* – spoil heap from the pit (whitish loam); *c* – buried soil (gray humus); *d* – bedrock loam.

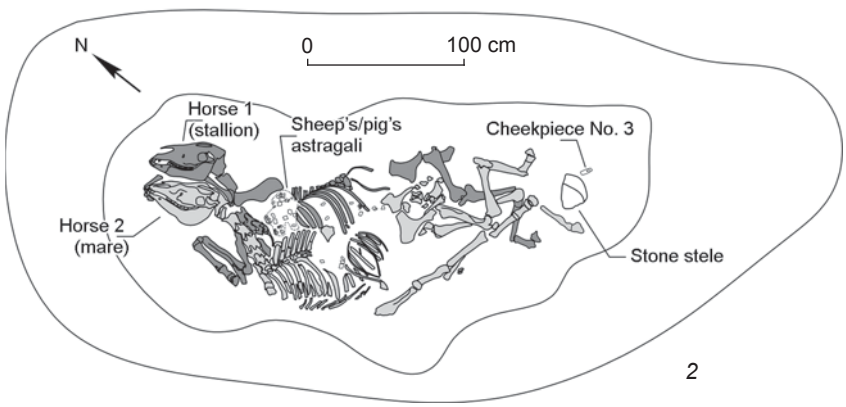

Fig. 2. Burial 1 (*1*) and ritual object 1a (*2*).

Cheekpiece No. 1 (Fig. 4, *1*). On the outside, under the mouthpiece hole, there is decoration: four rows of stamped equilateral triangles made by pressing, possibly with a use of heat, and an incised horizontal line. The approximate dimensions of the triangles: height 4 mm, base 2 mm, and stamp depth up to 1.5 mm.

The mouthpiece hole has uniform signs of wear in the form of a slightly beveled lower edge, as well as signs of wear in both lower corners. At the conjunction of the rostral outset to the shield plate (on the right and the left sides) the surface appears to be polished. An additional hole in the rostral outset is flared from wear, the portion of the hole with the most wear is located at a "five o'clock" sector.

The spikes are arranged symmetrically, five on each side. There are three rectangular spikes on the shield plate, size 5 × 6 × 3 mm, 8–9 mm apart. On the right side, between the spikes, the surface is polished. On the left side, the upper and lower spikes are partially worn down, but the middle spike is well preserved. The rostral outset

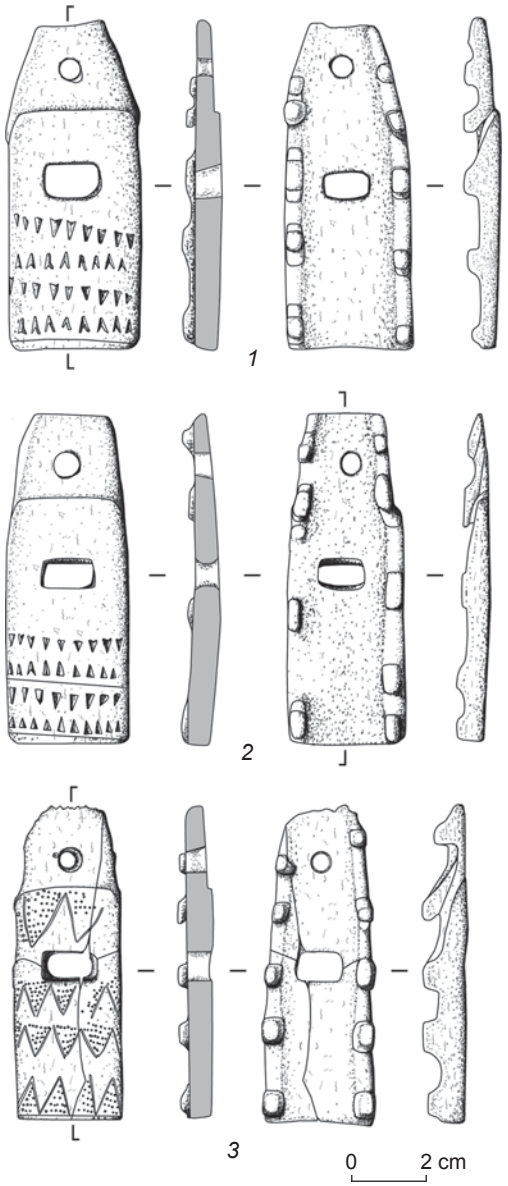

Fig. 3. Plate-formed cheekpieces from ritual object 1a.

has two spikes on each side. On the right side, the upper spike is partially destroyed, the other has sub-triangular shape. A groove is cut under it, so that the spike forms a hook. On the left side the upper one is worn down completely to the base, the other one is partially worn out. Notably, on the left side, spikes are showing more wear than on the right.

Cheekpiece No. 2 (Fig. 4, *2*). The surface of the artifact is slightly polished. Under the mouthpiece hole, there is decorative ornamentation similar to cheekpiece No. 1 in style and technique. On the left side, at the convergence of shield plate and the rostral outset, there appears to be a polished area 4 mm wide and 11 mm long; and it is less pronounced on the right side. The mouthpiece hole has signs of wear in the form of a slightly beveled edge in the area between "six o'clock" and "eleven o'clock", with pronounced vectors at its extreme points, as well as at the bottom left corner ("seven o'clock"). Also, there are parallel lines on the surface of the shield plate, left by the abrader, visible at ×16 magnification. At the place of their convergence with the mouthpiece hole, the lines are smoothed out, which indicates the effect of interaction with the organic-made reins. The edge of the hole in the rostral outset is slightly polished, with the main vector at "one o'clock".

The cheekpiece has nine spikes. There are five on the right side. Two spikes located on the rostral outset show the signs of heavy wear. A groove is cut out under the second spike, so the spike forms a hook. In the gap between the spikes (8 mm), there is a lightly polished 2–3 mm wide area. Three rectangular spikes on the right side of the shield plate are located 8–9 mm from each other. Between them, there are 3–5 mm wide polished areas. On the left side, there are remains of four spikes. Two of

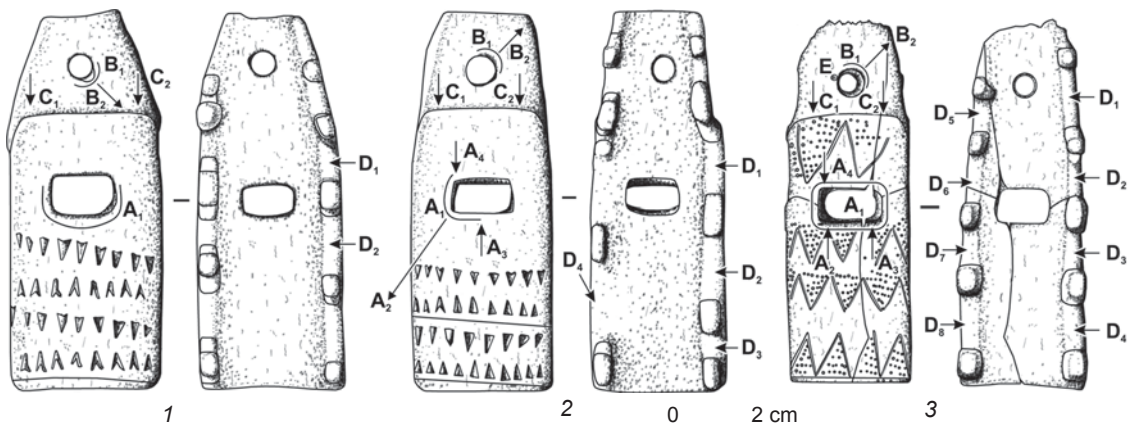

Fig. 4. Location of signs of wear on the cheekpieces.

A_1–A_4 – at the edges of the mouthpiece hole (A_2–A_4 – zones with the heaviest signs of wear); B_1 – at the edges of the additional hole (B_2 – direction of signs of wear); C_1, C_2 – at the point of convergence of the rostral outset and the shield plate; D_1–D_8 – between the spikes.

them are located on the rostral outset, the bottom worn down almost to the base, the top has an oval shape due to heavy wear. Two spikes on the shield plate are completely worn down to the base. Between them, at the edge of the cheekpiece, there is a 2 mm wide polished area.

Cheekpiece No. 3 (Fig. 4, *3*). On the rostral outset, at the edge of the additional hole, at an "eleven o'clock" sector, there are traces of the initial markup, but the craftsman apparently changed their mind about its location. The outside surface of the cheekpiece is thoroughly polished. Its entire rectangular part has a carved ornamentation: four rows of equilateral triangles, the inner spaces of which are filled with dots, marked with an awl-like tool, possibly with the use of heat. At the point of convergence of the rostral outset and the shield plate, there is a zone with less polish, which is 3 mm wide, 10 mm long. The mouthpiece hole shows signs of heavy wear in the form of significantly beveled edges on all four sides. Zones with the heaviest wear are located at its upper left corner (an "eleven o'clock" sector), and along the bottom edge, where the decorative dots, which fill the triangles, are almost worn-out by the friction. An additional hole in the rostral outset is also significantly worn all around from the wear, but the most pronounced vector is at an "one o'clock" sector.

The spikes are arranged symmetrically (except for the first two), five on each side. On the right side, there are polished areas between all the spikes, which are 4 mm wide between the first two, and up to 5 mm wide between the rest of them. On the left side, the first and third spikes are heavily worn down and protrude only by 2–3 mm, while others by 4–5 mm. Between the spikes, some polished areas can be observed (approximately 3 mm wide), less polished as compared to the right side. Apparently, the main load was on the right side.

Thus, all three artifacts are made from diaphysis of tubular bones of a large mammal, and belong to the class of plate-formed cheekpieces with all-in-one spikes and accentuated rostral outsets (Table 1). The same decorative design on cheekpieces No. 1 and No. 2 suggests that they form a pair, while the third artifact is significantly different. The position of these artifacts in relation to one another also makes it reasonable to interpret them as accessories from two bridles: the first two cheekpieces were located on the sides of the upright stone behind the horses, and the third on top of it. Apparently, there were two bridles in the complex, but one of the cheekpieces of the second bridle was lost.

The analysis of the handiwork traces allows us to conclude the following. The cheekpieces were carved with a blade of small width; the surfaces were smoothed or sanded and, possibly, polished. The decorative design is made using a technique of carving and stamping, possibly with the use of heat. Round holes were drilled with some type of a bow drill, since there are visible crescent-shaped marks. In the making of the mouthpiece holes, first, a round-shaped hole was drilled, which was then sawn to a rectangle.

The polishing that overlaps the manufacturing traces indicates that artifacts were in use. For example, in cheekpiece No. 3, the sum of bevel of the surface (1 mm) and on the edges of the hole (≈0.5 mm) is approximately 1.5 mm, which according to experimental data corresponds to 7–13 hours of work (Chechushkov, Epimakhov, Bersenev, 2018: 132). Cheekpieces No. 1 and 2 show much less wear, although there are still some irregular polished areas on top of the fabrication marks.

When it comes to the method of attaching of the cheekpieces to the bridle, it should be noted that the morphology and signs of wear allow certain conclusions to be drawn about the bridle type (Fig. 5). First, there is no doubt that some straps were fastened to the rostral outset: the mounting cord was fitted at the convergence of the rostral outset and the shield plate, covering the cheekpiece with a loop, then it was fixed on the spikes on the inside (therefore, the polished area between the spikes), went out through an extra hole, and then headed up (so, it resulted in polishing the upper part of the rostral outset). Second, the mouthpiece hole of cheekpiece No. 3 has the most pronounced wear located along its lower edge, with a vector at five o'clock. Similar signs of wear are visible on the plate-formed cheekpieces from kurgan 5 at the Komarovka cemetery (Usachuk, 2014), and burial 1, kurgan 2 at the Aksaiman cemetery. These signs of wear are closest to those obtained in the experiments with the bridle in which a noseband was attached to the rostral outset (bridle type 2, intended for riding). However, in this case, it is not clear how the headpiece was fastened, since there are no other holes in the cheekpieces. From our point of view, two options are possible. Judging by the polished

Table 1. **Formal characteristics of cheekpieces**

Cheekpiece	X, mm	Y, mm	Z, mm	Size of mouthpiece hole, mm	Number of spikes	Height of spikes, mm	Diameter of additional hole, mm
No. 1	32	78	9	14 × 6 to 8	10	3–4	4
No. 2	30	80	9	14 × 4 to 5	10	2–3	5
No. 3	27	75	10	14 × 5 to 7	10	3–4	6

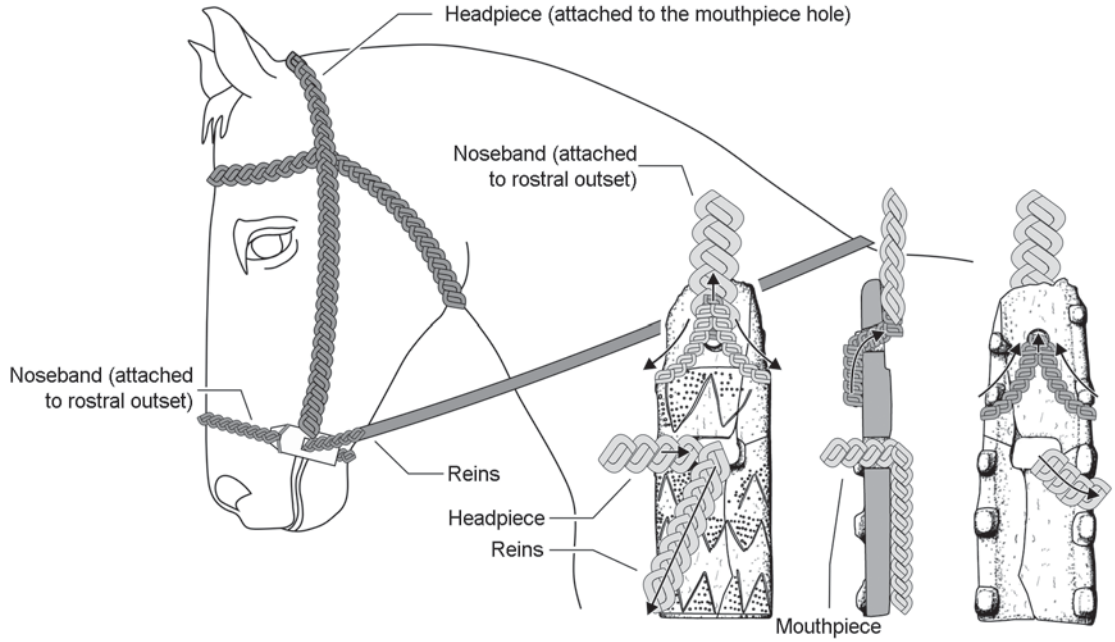

Fig. 5. Reconstruction of the bridle with plate-formed cheekpieces (belts are shown conventionally braided, because the experiment with the cheekpieces demonstrated the greatest reliability of this particular method of cheekpiece installation (Chechushkov, 2007)).

areas between the spikes of cheekpieces No. 1 and 3, as well as the pronounced signs of wear of cheekpiece No. 2 in the upper left corner (at "eleven o'clock") of the mouthpiece hole, the headpiece could have been looped through the mouthpiece hole over the shield plate and between the spikes. In another option, it is attached to the noseband mounted on additional holes of the shield plate (Bakhshiev, Usachuk, Verbovsky, 2020), which reduces the risk of control loss in case of breaking of the organic bits (Chechushkov, 2007).

Typology and absolute dating of cheekpieces

The multidimensional scaling of a series of cheekpieces ($n = 81$), with the use of the Gower's similarity coefficient, has demonstrated that plate-formed cheekpieces form an independent cluster, which is significantly separated from the antler-made shield-like and rod-shaped ones located on the same two-dimensional field, owing to significant morphological differences (Chechushkov, Epimakhov, Bersenev, 2018: 129). In addition, it revealed a chronological trend: the earliest artifacts are localized at one edge of the field, and the most recent ones at the opposite. Plate-formed cheekpieces occupy intermediate position, which correlates well with ideas about the relative chronology of archaeological cultures (Fig. 6). Although the statistical analysis of morphology demonstrates a temporal trend, it does not allow us to determine absolute chronological positions of the specific artifacts. Thus, the use of radiocarbon dating, derived from materials from the same contexts as cheekpieces, is the only dating method available.

For kurgan 5 of the Novoilyinovskiy II cemetery, two radiocarbon measurements were obtained: for a sheep's astragalus from ritual object 1a, and a human rib from burial 1 (Table 2)*. Their comparison with each other makes it possible to suggest that the ritual complex with the horse sacrifice was built later than the human burials, at least during the subsequent year or even up to several decades. According to the results of the radiocarbon analysis, the cheekpieces may be dated to the early 19th to the first third of the 18th century BC. Because the cheekpieces were in operation for a short time, it is unlikely that they were made much earlier than the equine sacrifice. The dating results can be compared with fourteen radiocarbon dates obtained for other closed (burial) complexes with cheekpieces (Fig. 7).

The calibrated radiocarbon interval of the ritual complex of Novoilyinovskiy II is located in the third quarter of the chronological series. The resulting interval intersects with the earliest date from the Lipetsk kurgan

*Dating was performed at the University of Arizona, with financial support from the US National Science Foundation (NSF # 1640341), the results were calibrated using the IntCal13 scale in OxCal 4.3 (Bronk Ramsey, 2009; Reimer et al., 2013).

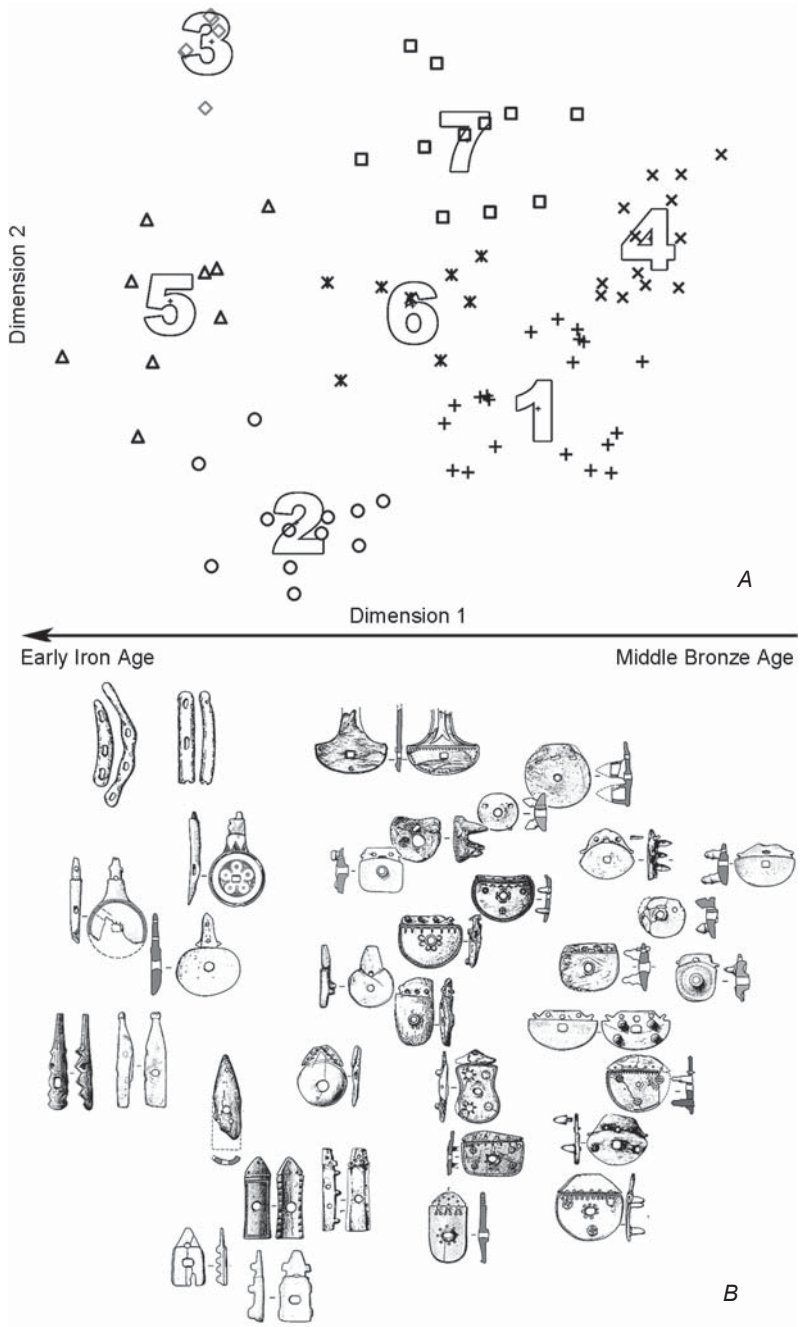

Fig. 6. Results of multidimensional scaling of similarity coefficients for a series of the Bronze Age cheekpieces (*A*), and part of the cheekpieces from the sample (*B*).

Table 2. **Results of the AMS radiocarbon dating**

Sample	Material	^{14}C-date, BP	Fraction of modern carbon, Fm	δ^{13}C (± 0.1), ‰	Calibrated interval, years BC	
					± σ (68.2 %)	± 2σ (95.4 %)
AA109587	Sheep's astragalus from ritual object 1a	3514 ± 30	0.6457 ± 0.0024	–19.7	1890–1774	1921–1751
AA109588	Human rib from burial 1	3572 ± 30	0.6410 ± 0.0024	–18.4	1956–1885	2024–1781

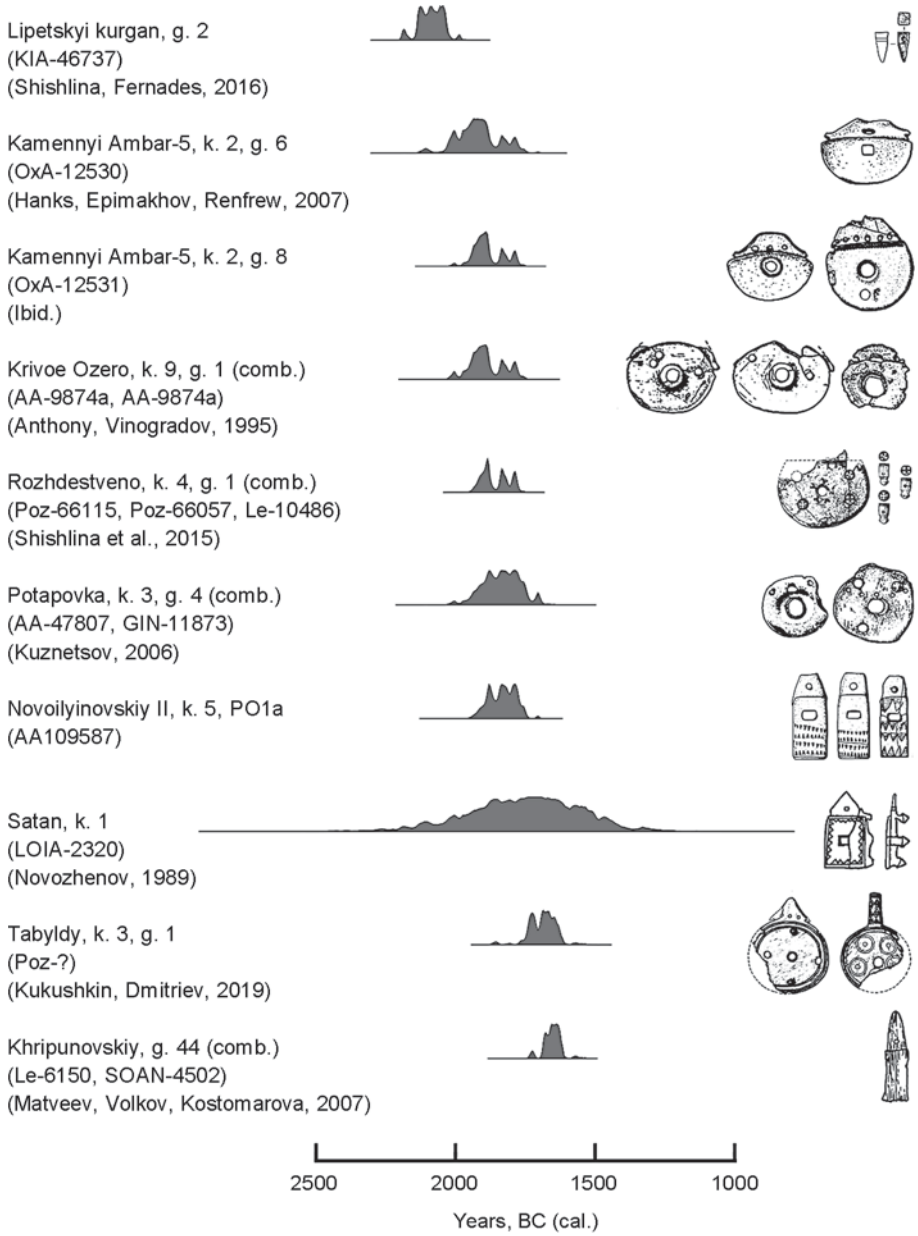

Fig. 7. The absolute chronology of the cheekpieces of the Eurasian steppes ("*comb.*" means using the OxCal 4.3 R_Combine method (Bronk Ramsey, 2009; Reimer et al., 2013)).

that yielded a spike from a shield-like cheekpiece, and practically does not differ from combined intervals for the cemeteries of Potapovka, Rozhdestveno, and Krivoye Ozero, where shield-like cheekpieces were found. At the same time, this complex is earlier than the bone cheekpieces from the cemeteries of Tabyldy and Khripunovsky. It follows that the plate-formed cheekpieces from Novoilyinovskiy II are some of the earliest artifacts of this kind, which began to be used when the typical shield-like antler-made cheekpieces were not yet obsolete and the skills and traditions of their carving were still maintained (Usachuk, 2014).

Discussion

It is quite difficult to give a definite answer as to the question of how the studied cheekpieces were applied. On the one hand, they were found in the context with a pair of horses, which is usually interpreted as symbolism for a harnessed vehicle. On the other hand, the observed traces of wear on the cheekpieces rather correspond to the work of a riding horse, and not to harnessing to a vehicle. We can only suppose that the semantics of the funeral rite required a symbolic representation of a chariot carrying away the "souls of the deceased" to another world.

However, only the cheekpieces that were used for horse riding were available. Moreover, the pair of artifacts No. 1 and 2 could have been made specifically for the ceremony with cheekpiece No. 3 as a model, and they were used only for a very limited time shortly before the sacrifice.

In favor of the idea that the plate-formed cheekpieces could have served to control both draft and riding horses, the following facts are indicated. First, they are not found in burials with chariots. Second, the later rod-shaped cheekpieces probably evolved from plate-formed ones, since the latter are transitional between shield-like and rod-shaped ones. Third, plate-formed cheekpieces often come from settlement complexes (there are 15 of 23 monuments with such finds), which suggests their everyday use. Most shield-like cheekpieces are found in kurgans (75 of 95 monuments) and are associated with chariots. This implies their use only in special cases (Chechushkov, Epimakhov, Bersenev, 2018; Usachuk, 2014).

This observation supports the idea that the role of the chariot was gradually diminishing during the Late Bronze Age, while the use of horses for riding was increasing. The control of a ridden horse requires no less skill, but at the same time a person has a variety of means to control the animal, including his own weight and the use of his arms and legs (Kovalevskaya, 1977: 5–10). Fewer numbers of plate-formed cheekpieces than shield-like cheekpieces (30 : 192) indicate the disappearance of the need for increased control of the external parts of the horse's head, which is necessary for chariot riding and much less necessary in horse riding, owing to the reduced distance between horse's mouth and the rider (Brownrigg, 2006). At the same time, the fact of the preservation and further development of cheekpieces testifies to the emergence of new, more complex tasks in managing a riding horse, namely in warfare, as compared to previous eras when simple halters could have been used (Kovalevskaya, 2014). The emergence of a full-fledged warrior-rider, and the beginning of nomadism was the culmination of this process.

Conclusions

Considering radiocarbon dates, the results of use-wear analysis and experimentation, we can conclude that the plate-formed cheekpieces from the Novoilyinovskiy II cemetery are among the earliest used to control the riding horses, not the draft horses. The signs of wear on all three artifacts and their comparison with the experimental data work in favor of this assumption. Thus, the investigated artifacts may indicate the emergence of horsemanship in the Eurasian steppe as early as the beginning of the 2nd millennium BC. Unlike the Near East, where the mass use of horses for work began relatively late, namely at the turn of the 2nd to 1st millennium BC (Drews, 2004: 29–32), in the Eurasian steppe a long evolution of the relationship between humans and horses can be traced. It is these early experiments in using horses for riding (for which these cheekpieces serve as evidence) which directly influenced the emergence of warriors on horseback, as well as new forms of mobility at the beginning of the Early Iron Age.

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Wooden Constructions in Bronze and Iron Age Burials in Japan and Korea

Throughout the period from 300 BC to 700 AD, significant changes took place in the life of population of Japanese Archipelago and Korean Peninsula, which were reflected by the burial rite. Specifically, the practice of using wood in mounded burials became particularly common. Such numerous instances in both regions are analyzed, the placement and several elements of wooden structures, accompanying artifacts, sorts of wood etc. are described in this work. The changes in burial rite practiced in ancient Japan can be seen. During the Yayoi period (300 BC to 300 AD), jar burials gave way to those with wooden structures in Western Japan regions closest to the mainland. It's established that traditions co-occurred with innovations, as seen from the fact that such structures were coated with clay. Further development took place during the Kofun period (300–538 AD), when first log coffins appeared, then composite coffins, and eventually stone coffins. Similar burial practice existed in Korea earlier than in Japan, the peak of this tradition coinciding with the period of Three Kingdoms (200–600 AD). The comparison of the ways the tradition evolved in both regions suggests that it had originated on the mainland, was introduced to Japan by successive immigration waves, and was then adapted to local conditions.

Keywords: *Bronze Age, Iron Age, Yayoi period, Kofun period, burials, wooden constructions, coffin.*

Introduction

Tree is one of the earliest sources of raw materials and symbols of the universe structure, eternal life, and cycles of death and revival, that appear in the beliefs of traditional societies of Eurasia. In some regions, mostly with indistinct seasonal cycles, the concept of the tree does not exist in such accentuated and explicit form, and in the distant past it may have coexisted with, or even replaced by, other symbols of the universe. Their appearance and distribution, observed in archaeological evidence, may indicate active contacts between human communities. This study discusses a rare and specific case of exchange of ideas in the spiritual area, which does not often occur in the pre-literate stage of the history of Northern and Eastern Asia. Contemporaneous evidence from the geographically and culturally close regions of the Japanese Archipelago and the Korean Peninsula provides interesting information for discussing this topic. This study intends to compare the traditions of using wood in the burial rites of the ancient populations inhabiting these territories, identify the common features in using wooden elements in burial structures, and indicate the direction in which this phenomenon spread.

Through the course of the Yayoi period, burial practices in Japan were quite diverse. Burial places were chosen far from the settlements and were marked by moats; earthen mounds (*hōkeishūkōbo*) were built over the burials. Most

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often, people were buried in ceramic vessels (less often in pits), and sometimes in wooden structures. It is difficult to establish the structural features of the latter burials because of the poor preservation of wood; nevertheless, it can be asserted that in the Middle and Late Yayoi period mainly composite wooden coffins were used. Wooden coffins (*mokkanbo*) made of longitudinal or transverse planks had the form of a long box with a cover. Stone coffins (*sekkanbo*) were assembled in burial pits from rectangular slabs or large stones. They had the form of a bottomless box; four to five stones served as the cover. A flat burial with a large stone or dolmen on the surface (*shisekibo*) was typical of the Yayoi period. Graves with wooden burial chambers (*mokkakubo*), similar to those created in China in the Yin period, have been discovered in Japan and on Korean Peninsula. The appearance of such burials in Japan can be explained by the influence of Chinese or Korean culture.

Burials with wooden structures in the Japanese Archipelago

Wooden structures in burials appear mainly in western Japan, including Kyushu Island. Given the specific features of such structures, this region can be divided into three zones.

Burial grounds in the Kinki region (modern name Kansai) were usually round- or square-shaped ditch-enclosed slightly elevated burial precincts. There were several graves inside each enclosed area. It is considered that some of these enclosed areas were initially low mounded tombs, whose mounds subsided over time (Yayoijidai-no haka…, 2014: 10). Jar burials, small square grave pits and stone shield graves of eight to nine stones, as well as burials framed around with stone or wood and burials in wooden coffins, have been discovered in this area (Kaneko, 1966: 24). The assumption on the presence of wood in burial structures of the Yayoi period was first confirmed during special studies at the Tano site in 1965. The Tano burial complex in Amagasaki (southeastern part of Hyōgo Prefecture) includes seventeen burials under earthen mounds, including burials with wooden coffins. Their lateral parts and bottoms were made of long planks; the covers were made of short planks (Fig. 1, *1*). This is a typical structure of wooden coffins of the Yayoi period. The assumption that coffins were placed in the graves, not just the planks on which the bodies were laid, is confirmed by distinctive imprints left by the structure on the bottom of the grave. There were probably several varieties of wooden structure for burials (Fig. 1, *2*). The above-mentioned structures were made of Chinese yellowwood (*Podocarpus chinensis*). Typical grave goods included bronze swords, jasper beads and shells-imitating bracelets, and can be considered to be evidence of the influence from the Northern Kyushu Island.

Twenty-two burials were explored at the Tokugo site in Amagasaki; each of the burials was square-shaped ditch-enclosed. Fragments, possibly the plank remainders, were found in several burials. Unfortunately, it was impossible to identify the finds more accurately due to poor preservation resulting from prolonged exposure to an acidic environment. The data about the structural features of the wooden elements have been clarified, making it possible to establish that the remains of wood found at the Ashiya site belonged to Japanese umbrella pine (*Sciadopitys*), and the thickness of the bottom board of the coffin in grave No. 3 was about 13 cm. During the study of the Katsubu site (Osaka Prefecture), elements of a wooden structure were found; its lower part with recesses was preserved relatively well (Yayoijidai-no haka…, 2014: 13).

Several wooden structures, including large ones, have been discovered and investigated at the Tamatsu Tanaka site (Hyōgo Prefecture). For example, a wooden coffin in a good state of preservation, 167 cm long and 52 cm wide, was found in burial No. 40023. The bone remains belonged to a woman 35–45 years old and ca 150 cm tall. A wooden coffin from burial No. 40024 reached 172 cm in length and 57 cm in width; the boards were made of Japanese umbrella pine (Fig. 1, *3*). Thirteen graves were found at the Ashiya site in burial No. 2, which was square-shaped ditch-enclosed. A man ca 40 years old was buried in grave No. 1 in a wooden coffin 164 cm long, made of Japanese cypress (*Chamaecȳparis obtūsa*).

The best known burial sites in the San'in region (modern name Chūgoku) are the Nishidani and Satadani burial complexes. The Satadani complex dates back to the beginning of the Late Yayoi period. Graves were located under earthen mounds, upon which large single round stones or groups of stones were placed. The deceased were placed inside wooden coffins. The walls of the graves were lined with wood. Mounded tomb No. 3 of the Nishidani complex (one of the largest in the San'in region) dates back to the Early Yayoi period. The diameter of its mound was 40 m east-west, and 30 m north-south; its height was 4 m. In the central burial of the mounted tomb, a wooden burial chamber with a coffin, as well as 200 fragments of pottery (both locally produced and brought from the territory of the modern Kyoto and Fukui Prefectures), were discovered, which suggests a fairly well-developed exchange between the territories.

The Tatetsuki mounded tomb (Okayama Prefecture) relates to the end of Late Yayoi period. Its mound was rounded, 80 m long, 43 m wide, and 4.5 m high. On the top, stones were set vertically in one line. In the center of the mound, a pit, a wooden chamber, and a coffin were found. Grave goods contained red lacquered ceremonial vessels (Ibid.: 62–65).

Fig. 1. Burials with wooden structures on the Japanese Archipelago.
1 – coffin-box (reconstruction) from Tano; *2* – constructions of coffins in the burials of the Yayoi period (Jajojdzidaj-no haka…, 2014: 10); *3* – coffins in the burials of the Tamatsu Tanaka site (Ibid.: 14); *4* – types of coffins from the Kofun period: *a* – split-log-shaped coffin (*waritakegata*), *b* – boat-shaped coffin (*funegata*), *c* – box-coffin (hakogata); *5* – burial chamber in the Hokenoyama mounded tomb (Hokenoyama…, 2001: 19); *6* – diagram of the burial of the Hokenoyama mounded tomb (Ibid.: 18); *7* – wooden log coffin from the Shimoikeyama mounded tomb (Okabayashi, 2006: 33).

The Hyakkengawa-Sawade site (Okayama Prefecture) is located on the banks of a river and includes a settlement, a burial ground, and ritual constructions. The deceased were buried in stone or wooden boxes under dolmens. Most likely, this tradition was brought from the Korean Peninsula (Mizoguchi, 2013: 59). The dolmens continued to be built at cemeteries until the Middle Yayoi period.

The sites on Kyushu Island are especially noteworthy. The Etsuji burial complex (Fukuoka Prefecture) is surrounded by moats; burials are grouped in two zones. Excavations in the eastern zone have revealed thirteen composite wooden coffins, one pit burial, and two burials in ceramic vessels. Graves are arranged in rows. The complex with burials includes "granaries", raised-floor storehouses, and dolmens (Ibid.: 62).

At the Sinmachi cemetery (Fukuoka Prefecture), burials can be clearly divided into groups: northern and southern. In the northern group, graves are placed randomly; they contain wooden coffins and vessels; dolmens are set at the top. Graves in the southern group form rows; some burials are closely adjacent to each other, which may indicate the kinship of the buried (Ibid.: 96).

At the Shimo-Tsukiguma Tenjinnomori site (Fukuoka Prefecture), the graves are arranged in rows. Grave pits are square. The deceased were most often buried in composite wooden coffins. Jar burials have also been observed. The burials, where urns were placed on the covers of coffins, can be associated with the transition to this new burial tradition.

The Yoshitake-takagi site (Fukuoka Prefecture) shows burials in wooden coffins and jars arranged in pairs in rows. Burial No. 3, with a composite wooden coffin, is considered the richest. Two daggers, a point, a pickaxe, a *magatama* decoration, a mirror, and 95 jasper beads were found inside. The skeleton has not been preserved (Yoshitake-takagi, 1986: 22).

The study of information about wooden structures in Yayoi burials allows a conclusion to be drawn that the construction of wooden coffins from boards and the presence of red pigment in the burials were typical of the Kinki (Kansai) region. Some burial pits had wooden lining on the walls. Umbrella pine, Chinese yellowwood, and Japanese cypress were usually used as sources of timber. Adults were most often buried in wooden coffins; children and infants were buried in vessels and sometimes in wooden coffins. In the San'in (Chūgoku) region, square-shaped earthen mounds were made over the graves with wooden coffins; the burial place was often marked by large stones. Rich grave goods were left in the burials; cinnabar was used as a red pigment. On Kyushu Island, graves were arranged in rows. Together with the wooden coffin, a vessel was often placed inside the grave, and a dolmen was built on the surface. The rows of graves included burials in wooden coffins (mainly adults), jar burials, and pit graves (mainly children). Throughout the entire territory, burials in wooden coffins and stone coffin-boxes, similar in design to wooden coffins, have been found. By the end of the Yayoi period, wooden structures had been replaced with ceramic urns.

Wooden structures have also been found in the burials of the Kofun period. Initially, coffins were made from a whole tree-trunk. Later, the tradition of burying the dead in wooden coffins coated with clay (in mounded tombs without the stone chamber), as well as wooden composite coffins and boat-shaped, split-log-shaped or house-style stone sarcophagi, became dominant. At the end of the Kofun period, wooden coffins covered with lacquer appeared, as well as coffins made of cloths glued together with lacquer.

Wooden log coffins have been found in large mounded tombs of the Early Kofun period. Starting from the Middle Kofun period, the deceased were buried under large mounds in box-shaped sarcophagi made from wooden planks. Later, wooden coffins were replaced with stone sarcophagi of the same shape.

A split-log-shaped coffin (*waritakegata*) (Fig. 1, *4*, *a*) was made by sawing a round tree-trunk and hollowing it out. Log coffins were made of Japanese umbrella pine. They occur in mounded tombs of the Initial Kofun period. A boat-shaped coffin (*funegata*) (Fig. 1, *4*, *b*) is similar in shape to log coffin of the previous type, but differs in the presence of protrusions in the ends. Due to its unsatisfactory degree of preservation, it is rather difficult to reconstruct its original appearance. Such log coffins have also often been found in mounded tombs of the Initial Kofun period. Wooden coffins in the form of boxes (*hakogata*) (Fig. 1, *4*, *c*) were made of boards. They had been used for burials since the Middle Kofun period. Such structures most often occur in the burials of ordinary members of society.

The earliest log coffin of the Kofun period was discovered in the burial chamber of the Hokenoyama mounded tomb (Nara Prefecture), dated to the period from the early to mid-3rd century AD (Hokenoyama…, 2001: 47). The mounded tomb was built of two mounds adjacent to each other: one round and another trapezoidal. The total length of the mounded tomb was about 80 m. In the round mound, there were two burials from different periods. The earlier one is represented by a burial chamber (Fig. 1, *5*), containing log coffin. The length of the coffin, made of Japanese umbrella pine, is ca 5.3 m; the width in the widest part is 1.3 m. The structure of the burial chamber in the Hokenoyama mounded tomb can be considered a transitional form to the classic arrangement of chambers in the Early Kofun period. The log coffin was located on a stone base inside the wooden enclosure made of boards attached to posts. On the outside, the wooden structure was completely covered with stones (Fig. 1, *6*). The length of the wooden enclosure was ca 5.5 m; the

width was 2.6 m, and the estimated initial height of the chamber was 1.5 m (Okabayashi, 2006: 27). It should be mentioned that typical wooden log coffins of the Early Kofun period usually reached 5–6 m. At a later time, a wooden enclosure was not created in the burials; the log coffin was placed on the pebble or clay base, and a burial chamber of stones or stone slabs was constructed around the log coffin.

The Shimoikeyama mounded tomb is an example of a classic Early Kofun burial chamber. This is the mounded tomb with two mounds adjoining each other: one mound of a square shape at the base, another one trapezoidal. The total length of the mounded tomb was 120 m; the length of the square mound, under which the burial was located, was 60 m, width 57 m; the length of the trapezoidal mound was 57 m, width 27 m. A burial chamber 6.8 m long, 1.3 m wide, and 1.8 m high was found in the central part of the square mound. Although the mound was looted several times in the past, a wooden log coffin made of Japanese umbrella pine has survived inside the chamber. The chamber floor was completely covered with fine gravel; a small elevation about 30 cm high and about 1 m wide had been made in the central part (Ibid.: 29). Grave goods included *magatama* and *kudatama* adornments, glass beads, an iron sword, an iron spearhead, and arrowheads. In addition, a bronze mirror, oriented with its back side up, was discovered in the burial chamber (Yamato-no ko:kogaku…, 2002: 163). The wooden log coffin was poorly preserved; its initial length could have been about 6 m. The central part was hollowed out, length/depth is 3 m and 0.2 m, which means that the space for the buried person was small (Fig. 1, *7*).

A log coffin probably similar to the coffin from the Shimoikeyama mounded tomb was found in the Kurotsuka mounded tomb, Kansai Region (Nara Prefecture). The length of the find was ca 6.2 m; the diameter in the widest part was 1 m. The length of the hollow made in the central part for the body of the deceased was 2.8 m (Kawakami et al., 1999: 99).

A part of a wooden log coffin about 2.7 m long was found inside the burial chamber in the Yamato Tenjinyama mounded tomb (Nara Prefecture). Initially, it was a wooden split-log coffin 5 m long and about 0.7–0.9 m diameter. In the hollow, wooden partitions were retained, dividing it into three parts; human remains were in the central part (Okabayashi, 2006: 29). Thus, it was typical for the Initial Kofun period to place the body of the deceased and the accompanying goods in a hollow in a central part of the log coffin (for example, the Shimoikeyama and Kurozuka mounded tombs). Log coffins with hollows divided into three parts by partitions have also been known. The skeleton of the deceased was placed in the central, usually largest part, while the grave goods were placed in two other parts (the Yamato Tenjinyama mounded tomb).

The log coffins found in the Shimoikeyama and Tenjinyama mounded tombs were made of Japanese umbrella pine. Giant trees 400–500 years old were chosen for that purpose. Wooden coffins of umbrella pine have also been found in the burials of the Late Yayoi period. During the Kofun period, umbrella pine was widely used for creating burial structures in Kansai region (the central part of Honshu Island). In rare cases, it was replaced with cryptomeria (*Cryptomeria japonica*), Sawara cypress (*Chamaecyparis pisifera*), camphor tree (*Cinnamomum camphora*), Japanese zelkova (*Zelkova serrata*), or Japanese chestnut (*Castanea crenata*). Notably, the log coffin discovered in Kurotsuka mounded tomb was made of mulberry (*Morus*) (Ibid.: 30), which is rare for the burials of the Kofun period.

It is unclear why tree-trunks of large sizes were used for burials. Japanese scholars proposed several hypotheses. According to some specialists, large tree-trunks were chosen for containing numerous grave goods; others think that free space inside such a tree-trunk was necessary for carrying out the ritual of transferring the spirit of the chief, during which the candidate for the place of new chief was enclosed for a certain time inside the tree-trunk together with the deceased (Ibid.). However, these explanations do not take into account the fact that hollows in the tree-trunks, although big, were still not large enough to accommodate all the grave goods. Tripartite log coffins (the Tenjinyama mounded tomb) could not have been used for the ritual, because it was impossible to place another person in them. Thus, specialists have not offered convincing explanations for this phenomenon yet. It is possible that first log coffins from the Initial Kofun period burials were boats, which had been used in real life, or models of such boats, specifically made for the burial and reproducing real items in their shapes and sizes.

Box-coffins made of planks were found at the cemeteries where ordinary members of the community were buried. For example, in the group of the Miyanotani mounded tombs (Hyōgo Prefecture), dated to the first half of the Kofun period, wooden box-coffins were found in most of the investigated burials, while stone box-coffins were found in two burials (Terayama…, 2010: 20). The sizes of the wooden coffins varied from 0.95 to 1.9 m in length and from 0.4 to 0.85 m in width. The grave goods included Haji ware, iron knives, swords, and tools (sickle and axe), as well as iron plates, which strengthened working surfaces of wooden shovels and hoes.

Wooden box-coffins (*hakogata*) have also been found in large mounded tombs, although in the structures of the Middle and Late Kofun period, sarcophagi made of stone occur more often. In the Inouchi-inarizuka mounded tomb (Kyoto Prefecture) of the Late Kofun period (first half of the 6th century), a composite wooden box-coffin was discovered in the crypt located under the mound.

The wooden coffin (planks 1.7–1.8 m long, 0.4–0.5 m wide, about 1–2 cm thickness) was located directly at the entrance to the burial chamber (Inouchi-inarizuka…, 1997: 12). There were no grave goods in the coffin; iron swords were found near the wall, in the "corridor", right in front of the entrance to the chamber; iron arrowheads, ceramic vessels, fragments of ceramics, *kudatama* adornments, earrings, and fragments of horse harness were found inside the chamber.

On the Japanese Archipelago, burials in wooden log coffins have been most often discovered in the "elite" large mounded tombs with two mounds, dated to the Early Kofun period. These mounded tombs had burial chambers. Wooden box-coffins were rarely found in the mounded tombs with round and trapezoidal mounds, stone sarcophagi began to be widely used since the Middle Kofun period.

Burials with wooden structures on the Korean Peninsula

The earliest burials with wooden structures (Goejeong-dong, Namsong-ri, Dongseo-ri, Hapsong-ri, Cheongsong-ri, Hoam-dong, Daegok-ri, Chopo-ri) are located in the southwestern part of the Korean Peninsula, and have been attributed to the Early Iron Age (4th–2nd centuries BC). Wooden structures are represented by wood decay. However, judging by the outlines of the finds, these were coffins placed into deep grave pits. Numerous stones found in the filling of the pits probably belonged to stone or stone-earthen mounds (Hanguksa…, 1997: 78–88).

The evidence from the Daho-ri site in Uichang County of Gyeongsangnam-do Province gives an idea of wooden structures in such burials. This site was discovered and partially explored in 1988. In the initial stage of works, it already became clear that it was a cemetery, mostly consisting of burial pits with wooden coffins (Lee Geongmu et al., 1989: 8, 13).

The only well-preserved wooden structures were in burial No. 1, made in a subrectangular grave pit 2.78 × 1.36 m and 2.05 m deep. The buried person was placed with the head possibly to the southeast. Such an assumption can be made taking into account the greater width of the coffin in the southeastern part, as well as glass beads associated with the headdress or upper part of the clothing of the buried (Ibid.: 14).

The wooden coffin discovered in the burial was a log chopped in a longitudinal direction, with a diameter of about 1 m, and a hollowed core. Its length was 2.4 m and width 0.85 m (Fig. 2, *1*, *a*, *b*). The lower part of the split log served as a coffin, while the upper part was the coffin's cover. Four symmetrically located grooves were at one end (at the head) of the coffin. Four square-like through-holes were made in the opposite ends of the coffin and in its cover (Fig. 2, *1*, *c*, *d*). Given the preserved rope fragments, it's safe to assume that the rope was passed through the holes for getting the coffin into the grave pit. The cover and bottom of the log coffin also had square-like through-holes, located one above the other. These holes were used for inserting wedges to secure the attachment of the coffin and its cover in the grave pit, preventing the coffin from falling to the side. It has been established that the coffin was made of about 350 years old oak (*Quércus*) (Ibid.; 2008 teukbyeoljeon…, 2008: 108–124).

Grave goods were found in various parts of the filling of the burial pit, both inside and outside the log coffin (Fig. 2, *2*). A unique find was a distinctive box measuring 65 × 55 × 12 cm, which was a part of the funeral goods. That box was placed in a special pit in the middle part of the burial. The grave goods from the box included two bronze daggers in wooden scabbards, an iron dagger in wooden scabbard, an iron knife with a ring-shaped pommel in a wooden scabbard, a bronze spearhead, four iron spearheads, six iron adzes, two sickles with wooden handles, a bronze mirror with the so-called nebular* design, round bronze plaque with geometric décor and hole in the center, four bronze rings, three Han *wu zhu* coins, bronze bell, and five brushes for painting lacquer products.

Inside the log coffin, there were fragments of plain pottery, fragments of a small wooden table or jewel-box, an iron adze, and glass beads. Iron adzes, a chisel-like tool, a celt axe, hoes with wooden handles, lacquerware objects (a fan handle, a scabbard, a cylindrical box with a lid, lids for vessels, goblets on a *dou* tray), fragments of ceramic pots, wooden onlays on the bow, and fragments of basket and rope were found in the filling of the grave pit (Lee Geonmu et al., 1989: 15–27; Sin Yongmin, 2009: 169).

Burial No. 1 differs from the rest of the burials at the cemetery in its richness and variety of grave goods, including not only local, but also imported items (mirror with the nebular design, *wu zhu* coins), which indicate the elite status of the buried person. The date of burial No. 1 and the Daho-ri site was established from the Han *wu zhu* coins as the first century BC to the first century AD (Lee Gonmu et al., 1989: 15–27, 53).

The presence of the numerous iron tools in the burials under consideration indicates that iron was widely used in this period. Iron was even exported to the neighboring territories. The "Descriptions of Byeonjin" in the

*Nebular design (Japanese 星雲紋 *seisunmon*, literally 'stars and clouds', Korean 성운 문 *sonunmun*) is a type of ornamental décor on bronze mirrors from East Asia. The symbolism of the design is associated with the cosmogonic beliefs of the ancient population, and renders the structural elements of the heavenly vault.

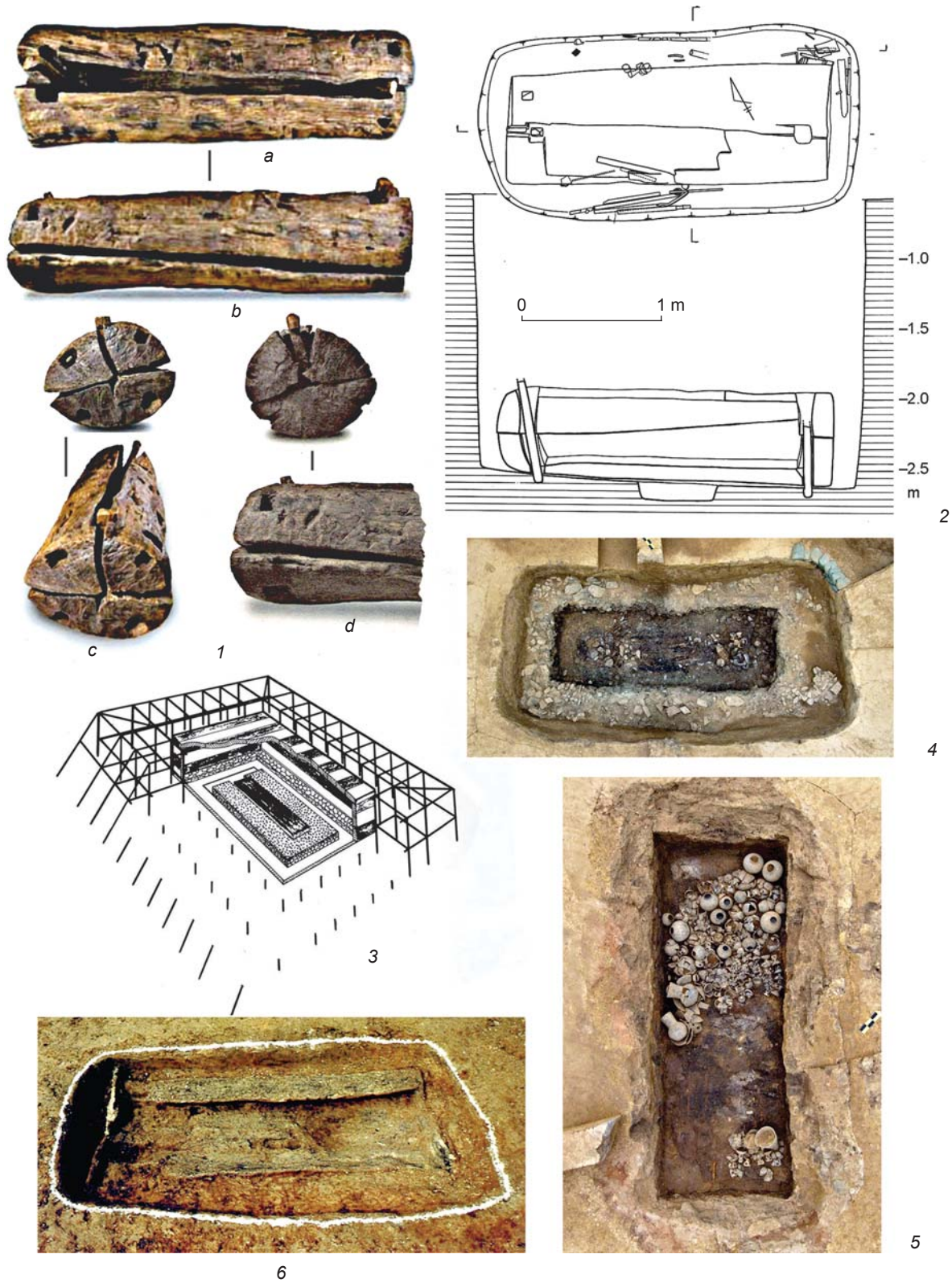

Fig. 2. Burials with wooden structures in the Korean Peninsula.
1 – log coffin from Daho-ri mounded tomb No. 1: *a* – top view, *b* – side view, *c*, *d* – view from the ends (2008 tkhykpkhel'dzhon…, 2008: 118–123); *2* – diagram of the Daho-ri burial with log coffin No. 1 (Lee Geongmu et al., 1989: 133); *3* – burial with wooden chamber in the Hwangnam Daechong mounded tomb (Hwangnam Daechong I…, 1985: Fig. 5); *4*, *5* – burials with wooden coffins No. 1/1 and 1/2 in the Daeri-ri A-2 mounded tomb (Kwon Hyein et al., 2012: 5); *6* – burial with wooden coffin in the Seokchon-dong mounded tomb (Kim Giun, 1991: 33).

"Sānguózhì" ("Records of the Three Kingdoms") about the Korean tribes *Byeonhan and Jinhan*, whose culture included the Daho-ri cemetery, says the following: "The country exports iron, which is acquired here by (Ma)han, Ye, and Wo (Japan). Iron is in circulation on the market here just as coins are used in the Middle Kingdom. Iron is also exported to two districts (Daifang and Lolang)" (cited after (Park, 2001: 32)). A ceramic vessel of the Yayoi period is a testimony to the contacts between the population of Korean Peninsula and islands of the Japanese Archipelago. It was excavated from the cultural layer outside the zone of the burial structures, but initially it probably was in one of the burials. The item belongs to the late version of the Sugu II type (Inoue, 2009: 225–226, 232, 240–241).

Thus, the evidence from burial No. 1 at the Daho-ri cemetery provides unique information on the earliest wooden structures in burials in Korea. In the first century BC, the tradition of burying the dead in stone coffins and burial chambers of megalithic structures typical of the Bronze Age was fading already away, being replaced with skillfully made wooden log coffins. According to the evidence from other sites, burials in wooden log coffins were found in mounded tombs with stone or stone-earthen mounds.

The tradition of constructing wooden coffins was widespread in the Korean Peninsula during the period of the Three Kingdoms (3rd to 6th centuries AD) among the populations of Silla, Gaya, and Baekje kingdoms. Mounded tombs with stone-earthen mounds, wooden chambers and coffins were typical for the Early Silla culture. In most cases, burial took place on the ancient daylight surface level, preliminarily covered with several layers of pebble. The wooden coffin with the body of the deceased and a box with the grave goods were placed on the pebbles. At first, the burial chamber was built over the coffin and grave goods box using wooden boards; then a stone mound was made and covered with soil (Kim Giun, 1991: 63–64). Such a structure was typical of the Hwangnam Daechong mounded tomb (Hwangnamdong No. 98) (Fig. 2, *3*) and Cheonmachong mounded tomb ("Tomb of the Sky Horse"), located in Gyeongju city, in the center of the Silla Kingdom (Hwangnam Daechong I…, 1985: 40–45, 173–174, 383; Hwangnam Daechong II… (dopan, domyeon), 1993: 390; Hwangnam Daechong II… (bonmunpyeon), 1994: 32–36, 221–225; Cheonmachong…, 1974: 58–62).

Mounded tombs with earthen mounds were one of the common types of burials in the Gaya Kingdom. The deceased were buried in wooden plank coffins, which were placed in shallow subrectangular grave pits. The space between the walls of the pit and the coffin was packed with stones. An earthen mound was built over the grave pit (Kim Giun, 1991: 74–75). Five graves in wooden plank coffins were discovered in Daeri-ri mounded tomb No. A-2 in Uiseong County of Gyeongsangbuk-do Province. Wooden plank coffins (No. 1/1, 1/2, 3, and 4) were placed in relatively shallow burial pits, and the space between the walls of the coffin and the pit was packed with soil. Wooden plank coffin No. 2 was set upon the ancient daylight surface level and was covered with rock debris. Wooden plank coffin No. 1/1 had double walls; the space between the outer and inner walls was filled with stones. The width of coffin planks at this site was 0.5–0.7 m (Kwon Hein et al., 2012: 64–161) (Fig. 2, *4*, *5*).

A burial with a wooden coffin was discovered in mounded tomb No. 2 with a stepped stone mound at the Seokchon-dong cemetery, which belonged to the Early Baekje culture (late 3rd to early 4th centuries AD). This burial was located on the rear part of the mound; it was made in a subrectangular grave pit measuring 2.26 × 1.04 m and 0.3 m deep. A wooden coffin 1.81 × × 0.6 × 0.2 m, made of six planks, was placed in the pit (Fig. 2, *6*). On the floor of the burial in the northern part, a ceramic vessel was found, and in the middle part, an iron knife was discovered (Kim Giun, 1991: 32–34; Seokchon-dong…, 1987: 48–52).

In the Bronze and Iron Ages, the practice of using wooden structures in burials was quite widespread in the Korean Peninsula. In the tomb of the Middle Baekje ruler, King Muryeong, and his wife (5th–6th centuries AD), wooden coffins made of Japanese umbrella pine growing in Western Japan were found. It is believed that these coffins were made in Japan and were imported (Park Sangjin, 2013).

Conclusions

Funeral complexes with wooden coffins or wooden planks have been found at the Yayoi and Kofun sites on the Japanese Archipelago, along with burials of other types, mainly in its western part. Later, along with plank coffins, there appeared wooden log coffins destined for burying the high social status people. In the Korean Peninsula, wooden structures in burials appeared a little earlier than in Japan. At the earliest stages, they were placed in rich burials. In the Early Iron Age, the inhabitants of the Korean Peninsula brought tree-trunks from Japan, which indicates constant contacts between the most ancient populations of the two regions. This study has made it possible to assume that the appearance of wooden structures in burials on the Japanese Archipelago was most likely associated with the migration of the Korean Peninsula population to the Archipelago. The inhabitants of the Peninsula introduced their mythology; some of its subjects could have delved into the traditional beliefs of the inhabitants of ancient Japan. It can be supposed that these beliefs reflected the

ideas about the World Tree and woody vegetation as a symbol of the cycle of life. Magical activities could have been performed, aimed at returning the deceased person to the life-giving and regenerating powers of the tree; one of them was associated with placing the body of the deceased into the tree-trunk with which the log coffin was linked. However, the use of wooden structures in burials did not become a ubiquitous and prevailing practice in Japan. This should not be explained by a lack of wood: it is known that storehouses and ritual buildings, which required a huge amount of long and thick logs, were built of wood during the Yayoi and Kofun periods. Most likely, this was a reflection of the stable ideas of the Japanese Archipelago population concerning the universe, which were associated with the symbolism of natural objects, such as stone or clay, which served as tangible manifestations of eternity.

Wood could have been exported from the Japanese Archipelago to the Korean Peninsula. This is confirmed by the coffin from the burial of King Muryeong. However, the choice of wood growing on the Japanese Archipelago as the coffin material can be explained by the fact that according to the chronicles, the King was a native of Honshu Island. It is noteworthy that wooden structures in burials could have been used several times. For instance, in the key-hole-shaped Hazaike mounded tomb (Ehime Prefecture, Shikoku Island), which dates back to the Middle Kofun period, three people were buried in horizontal burial chamber No. 1. Studies have shown that initially the body of about 30 years old deceased was placed in the wooden composite coffin. In ten years, the remains were removed from the coffin and were laid nearby, and the body of a second person of about 40–50 years old was placed in the coffin. In about ten more years, the cover was removed from that wooden coffin and put nearby and the third deceased of about 40 years old was placed on it (Kofunjidai-no osoushiki…, 2014: 14). It is possible that the deceased who were placed in the same burial chamber at different times were relatives. It was believed that placing them in one wooden structure (or its part) ensured the opportunity for the deceased to move on one route to the final point of their afterlife travel, and consequently, to meet each other.

The study of the wood usage in burial structures in ancient Japan over a long period of time (3rd century BC to 4th century AD) allows the conclusion to be drawn that this tradition gradually spread along the Japanese Archipelago from the Korean Peninsula, and was adapted there to the local circumstances.

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The Southeastern Sindica Frontier: The Raevskoye Fortified Settlement

The expansion of the Bosporan Kingdom (the interior colonization of Bosporus) was caused by the need for commercial grain in the Greek markets of the Mediterranean. The steep rise in the Bosporan rulers' incomes followed the annexation of Sindica—one of the most fertile lands of the Northern Pontic region, situated in the Lower Kuban basin. This study discusses the history of the vast chora of the Greek Gorhippia in the southeastern fringes of Sindica, focusing on findings from a Bosporan fort—the Raevskoye fortified settlement. We reconstruct the evolution of the anthropogenic landscape of the area over four centuries (Hellenistic and Early Roman period). The chronology is based on a collection of Bosporan coins from the fortified settlement. We analyze the factors due to which the habitation layers of the fortified settlement span a period from the Early Bronze Age to the High Middle Ages. We provide a new topography of the Early Iron Age aboriginal site, along with that of the fortified site existing during the three Bosporan stages. Special attention is paid to the fortification system, arranged in the Hellenistic period. Studies in recent decades have suggested that the fortifications were constructed according to the typical Bosporan technique of adobe-stone architecture. The fortified settlement evolved over a long period as an economic and political center of a large borderland zone between the Greek civilization and the archaic societies of the Caucasian piedmont—a peculiar frontier of the classical era.

Keywords: *Bosporan Kingdom, contact area, fortification, frontier, Hellenistic period, Early Roman period.*

Introduction

The Bosporan Kingdom, which emerged ca 480 BC from the union of Greek *poleis* on the shores of the Cimmerian Bosporus (now, the Kerch Strait), gained economic power and political influence in the ancient world from large-scale wheat export. The expansion of possessions, in particular in Sindica (Strabo, *VII*.IV.6), which was one of regions most abundant in grain crops in the Northern Black Sea region, was largely aimed at increasing export opportunities. The borders of the region, which was named after one of the indigenous tribes—the Sindi people (Σινδοί), were the Gipanis (now Kuban) River in its lower reaches, and the spurs of the Greater Caucasus mountain range. According to the titles of the Bosporus rulers (KBN* 6, 6a, 39, 40, 1014, 1037, 1038, 1042), in the 4th century BC, the Sindi people, like the Sindi Harbor, which was renamed Gorgippia (Pseudo-Scymnus, 888), were subordinate to the Bosporus. According to

*(Korpus…, 1965).

archaeological evidence, the process of the intra-Bosporan colonization was manifested in the formation of *chora* of the Gorgippia polis, extending up to 20 km (Alekseeva, 1997: 22–23) and reaching the southeastern borders of Sindica (Anfimov, 1987: 90) (the Anapa Valley) later, in the Hellenistic period (3rd to 2nd centuries BC).

In the Early Iron Age, the right bank of the Kuban River was outlined by a chain of fortified settlements (Kamenetsky, 1989: Map 21, p. 235), while the no less convenient steep slopes of the Anapa Valley rivers (Anapka, Maskaga, and Kotlama) remained almost unused. This fact emphasizes the importance of the fortified settlement founded in the middle part of the Anapa Valley, on the right bank of the Maskagi River. The advantages of that fortified settlement, known in the 19th century as Nogai-Kale (the Nogai fortress), were summarized by one of the first researchers of these places, V.I. Sizov, according to whom the fortress was conveniently located relative to the river and land communications not only in the Anapa Valley, but also in the entire Abrau Peninsula; it literally "reigned" over the area (1889: 112).

On the ground plan published by Sizov, the fortress had a configuration that was more typical of fortifications of the Modern Age, constituting a polygon of a rampart-like embankment with eight tower-shaped ledges-bastions (Fig. 1, *1*) (Ibid.: Pl. XXV). Excavations in the northeastern corner of the Raevskoye fortified settlement revealed the ruins identified by Sizov as the "barracks of the Early Roman (?) period". Therefore, he dated this monument to Antiquity, and linked it with the "Sindi fortress" of Ptolemy and the "Aboraka" of Strabo (Ibid.: 113–117, 132). New data from spatial stratigraphy and the chronology of the Raevskoye fortified settlement became available in the 1950s–1960s. Cultural layers were identified in its north-northwestern part, under the rampart-like embankment of the fortress; one of the layers was associated with the horizon of the monumental complex of the 3rd–2nd centuries BC. N.A. Onaiko identified two periods of the fortification system at the settlement: 2nd–1st centuries BC and 1st–2nd centuries AD (1984: 92).

The strategy for conducting comprehensive archaeological excavations at the Raevskoye fortified settlement, which were resumed in 1998, resulted from remotely surveying the terrain and features of the monument located in that terrain, using aerial photography of the mid and third quarter of the 20th century (Fig. 1, *2–4*), satellite photography of 2018, as well as instrumental surveys of the ancient settlement within the rampart-like embankment (performed by M.O. Zhukovsky). A two-level system of defensive structures, with the "citadel" in the northeastern part, was discovered. As a rule, survey works preceded excavations:

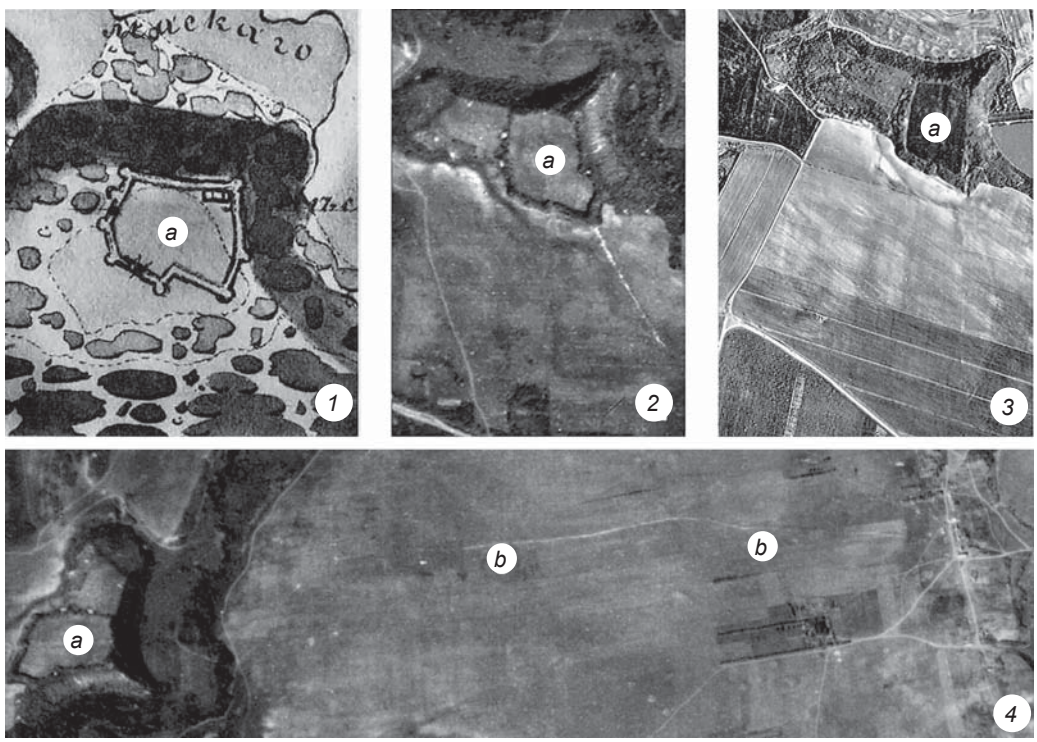

Fig. 1. Landscape features of the fortress.
1 – ground plan of the Nogai-Kale fortified settlement, 1880s; *2*, *4* – aerial photographs of the 1940s; *3* – aerial photograph of the 1970s.
a – Raevskoye fortified settlement; *b* – rampart to the north of the settlement.

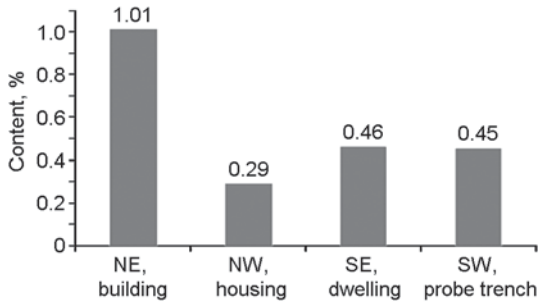

Fig. 2. The content of gross phosphorus in the layers of the Raevskoye fortified settlement.

about 11 % of the total area (ca 1 ha) has been studied by magnetic survey, including almost all tower structures.

Excavations unearthed 3.4 % (0.35 ha) of the entire area (8.71 ha) of the settlement. The thickness of the cultural layers, as well as their phosphorus content (Fig. 2), have revealed the sophisticated vertical and horizontal stratigraphy of the site. Its existence from the Chalcolithic and the Early Bronze Age to the High Middle Ages turned out to be the longest for the entire Abrau Peninsula. At the same time, almost all of the buildings studied, despite the rather unusual outlines of the fortress, have been confidently dated to Antiquity. The duration of the Bosporus presence (from the late 4th century BC to the mid 1st century AD) can be evaluated on the basis of the numismatic evidence (Fig. 3).

Thus, exploring the evolution of the anthropogenic landscape at the Raevskoye fortified settlement for four centuries (the Hellenistic and Early Roman periods) plays a key role in the study of the Bosporus colonization at the foothills of the Northwestern Caucasus. The fortification complex deserves special attention, since (judging by the comprehensive work by V.M. Ivanov (2005)) the observation of the leading Russian scholar of Antiquity V.D. Blavatsky that the data accumulated in scholarship "are so fragmentary and random that, relying on them, it is absolutely impossible to outline a general picture of defensive and siege warfare in the Black Sea region" (1950: 145) remains valid until now.

Studying the evolution of anthropogenic landscape

One of the starting points of these studies is the collection and systematization of evidence regarding the original landscape before the Antiquity, based on remote sensing data: on the north, the outer contours of the settlement are outlined by the high bank of the Maskagi River; on the west and south, a very clear natural boundary is formed by a ravine connected to the valley of the meandering Maskagi River. The talweg of the ravine was indicated on the plan of Sizov, and is clearly visible in the aerial photograph; it has an extensive water catchment area (see Fig. 1, *1–3*). Judging by its irrigation canals, the area adjacent to the settlement on the south was susceptible to swamping (see Figs. 1, *4*), which clearly complicated the access to the settlement. This fact contradicts the suggestion of Sizov, who argued that both entrances, main and auxiliary, were on the side facing Anapa (1889: 112). Thus, unimpeded access to the territory of the settlement was possible only from the eastern side, along the high bank of the Maskagi River.

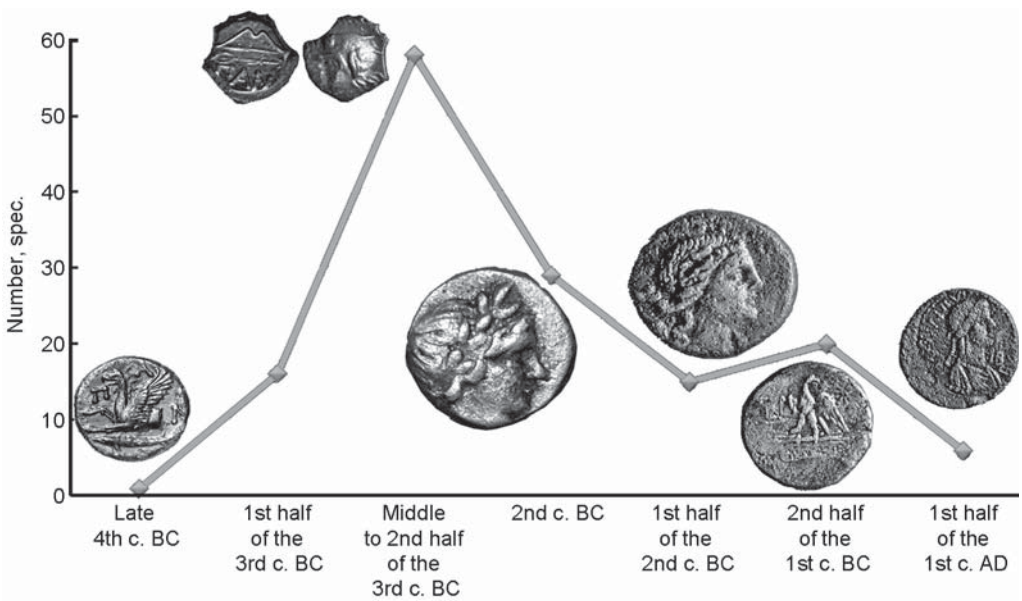

Fig. 3. Chronology of the Bosporus presence at the Raevskoye fortified settlement according to numismatics.

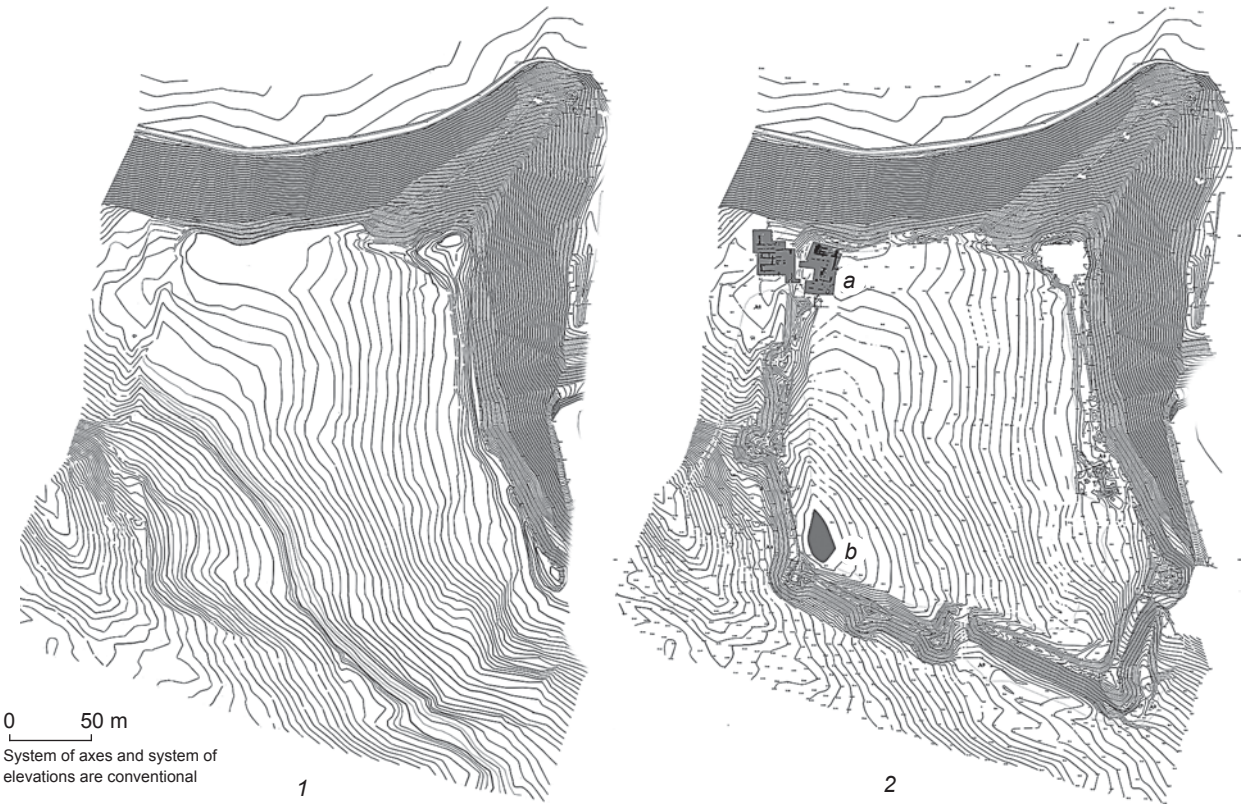

Fig. 4. Terrain of the Raevskoye fortified settlement.
1 – before Antiquity; *2* – anthropogenic landscape of Antiquity (*a* – monumental complex of the Hellenistic period; *b* – reservoir formed by the rampart-like embankment).

The terrain at the site was no less expressive: the height difference was almost 14 m; the highest place was in the eastern part, and the lowest part was in the southwestern corner. The shallow areas convenient for settlement stretched along the high bank of the Maskagi River, decreasing stepwise from east to west (Fig. 4, *1*). On the aerial photograph of the 1940s, they are distinguished by a darker color; surfaces with a larger angle of inclination to the south clearly appear lighter (see Fig. 1, *2*, *3*).

As a rule, the inhabited sites are tied to a water source. The aquifer at the Raevskoye fortified settlement, like the surrounding area, has a significant inclination in the southwestern direction*. Thus, the western part of the area is most suitable for settlement, which is confirmed by the presence of a cultural layer of the pre-Greek period, where a small quantity of mostly amphora-type pottery of the 5th–4th centuries BC have been found, testifying to sporadic contacts between the Greek and Barbarians.

The Bosporus presence at the settlement is indicated by the cultural remains of the Hellenistic period (3rd–2nd centuries BC), which have been found everywhere at the site. The composition of the finds (numerous coins, a wide range of antique pottery, including cultic terracotta, and lamps) is comparable to the evidence from the settlements of Antiquity on the Black Sea coast.

The topography of the Hellenistic buildings does not fit the outline of the Raevskoye fortress, well known to us from the time of Sizov, which is more consistent with the above-mentioned pre-antique landscape. In particular, a high-status complex oriented relatively precisely to the cardinal directions (according to Hippodamian Plan), was built over the area of about 0.15 ha (Fig. 5) on the place of the indigenous settlement of the Early Iron Age in the western part of the settlement, in the safest place (taking into account the landscape-related features of the site) and in the immediate vicinity of the water source.

The filling of the premises and the height of the stonework of local rocks (sandstones and limestones) suggest the use of the typical Bosporus technique of erecting adobe walls on a stone basement (of adobe-stone architecture) (Kryzhitsky, 1984: 202). They were built according to a purely Greek tradition, which involved the flatwise placement of blocks. Stretchers alternated with binders, usually without back filling; for strengthening the structure, elongated blocks (δατονοι) were inserted in such

*A well outside the embankment has survived until our time.

a way that their end surfaces appeared in both faces of the wall (Vitruvius, *II*.VIII.7). More compliant imported shell rock was used for manufacturing architectural elements.

There is a lot of evidence indicating the high status of the complex owner. The thickness of stone walls (up to 1.6 m) suggests that buildings in the northern part had two levels. On the outside, the walls were covered with white single-layer plaster, and on the inside with two-layer plaster, on which fragments of polychrome mural paintings have been preserved. Similar to public and sacred buildings in the centers of mainland Greece* and Panticapaeum (Kryzhitsky, 1993: 149, fig. 102), there was a closed peristyle courtyard in the core of the complex. It has survived in the form of a portico stylobate of processed shell rock blocks placed 2 m from each other, with bases of columns surviving on some of them. The walls of the courtyard were decorated with polychrome painting. The monumental building was "crowned" by a tiled roof, which was typical of the Greek tradition. Judging by the numerous "ΕΥΜΕΛΟΥ" stamps, its elements were made in the town workshops of Gorgippia, and were apparently delivered by the Maskagi River, navigable at the time.

The almost complete absence of hearth structures and an unusually low phosphorus content in the cultural layers (see Fig. 2) testify to the low intensity of using the premises in the complex. Ordinary residents of the settlement lived in houses of wicker coated with clay, typical of the local house-building traditions for thousands of years. The remains of burnt grounds (floors or hearth structures) have been found in the northwestern and southeastern parts of the settlement.

The construction of such a prestigious architectural complex testifies to the extreme interest in the territories located at a considerable (20 km) distance from the Black Sea coast. The intense economic and political activities of the Bosporians in this frontier region without a doubt were accompanied by military danger due to inevitable armed conflicts with the population of the neighboring territories. In this regard, the need for constructing fortifications had to arise in the 3rd century BC. The blank outer walls of the monumental complex could hardly provide the necessary security.

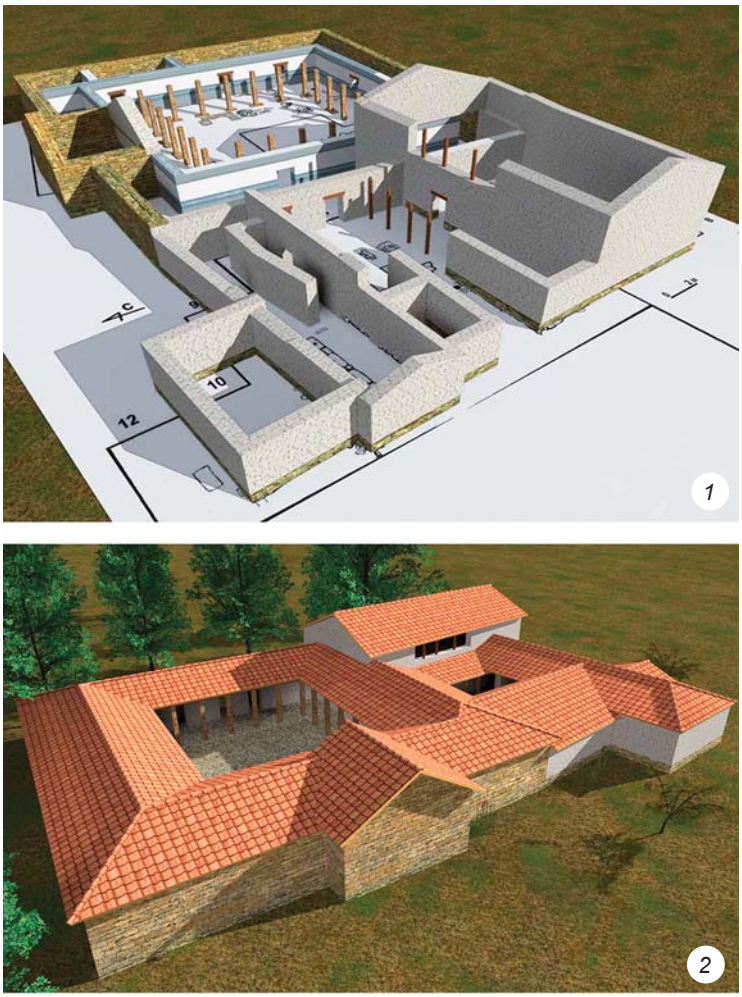

Fig. 5. Monumental structure of the Hellenistic period (3D reconstruction of the building was made by V.V. Moor).

As we have mentioned above, the landscape features of the site primarily required protection of the eastern approaches (see Fig. 1; 4, *2*). The northern part of the eastern border, described by Sizov as the main frontal surface of the fortress (1889: 112), was located in the area dominating the heights of the settlement: it passed along the ridge of a steep and extended slope. Therefore, the southeastern border had to be secured first and foremost. The main difficulty in creating fortifications was a significant (5–6 m) height difference over the 80-meter stretch. The erection of a substructure of a powerful multi-meter rampart-like embankment compensated for this drop and largely made it possible to avoid slope deformations. Defensive ramparts were typical of both Greek and "barbarian" fortifications of the Northern Black Sea region. However, on the Abrau Peninsula, they became widespread, like building in stone, during the period of the Bosporus development of the region. Research into the structure of the embankment has revealed that it was built from disintegrated products of local flysch rocks. It was

*Prytaneion in Olympia, Heroon of Calydon, and palace complex in Larissa (Lawrence, 1957: 219–221, fig. 89–90, 123; p. 245, fig. 138).

possible to date two humus horizons of buried soil under the embankment*. The first horizon (level 65–80 cm) was formed not earlier than 2380 ± 110 BP (IGAN-2450), according to calibrated data—in the period from the 8th to the late 3rd century BC; for the second horizon (level 130–150 cm), the date of 3250 ± 180 BP was obtained (IGAN-2451), which indicates the development of soil in the exposed mode for at least a thousand years. The dating results make it possible to speak about the beginning of intensive earthworks in the construction of the defensive rampart in the Hellenistic period.

The southeastern and hundred-meter wide southern sections of the rampart-like embankment flank the three largest towers in the system of the Raevskoye fortress. To this day, they have been preserved in the form of rounded mound-like hills 5 m high, like the rampart. Excavations have revealed** that fortifications were made in the adobe-stone technique typical of Bosporus. The stone bases of the towers have survived to the height of 4 m, and the defensive walls adjacent to them have survived up to 1.5 m high.

The towers were multi-level structures of a rectangular shape up to 10 m high (Koltukhov, 1999: 64). For ensuring the stability of the walls in the fortifications, large blocks of sandstone (especially in the foundation rows), stepwise expansion of stonework towards the base, and buttresses were used. The embankments around the remains of the towers resulted from the destruction of walls in the upper levels. In some places, it was possible to trace the disintegrated rows of adobe bricks, which significantly differed in size (about 0.2 × 0.2 × 0.4 m) from the usual Bosporus bricks (Kuznetsov, 2015: 289), and more likely correspond to pentadorone blocks for public buildings (Vitruvius, *II*.III.3).

If the Eastern tower located at the highest point of the Raevskoye fortified settlement slightly protruded beyond the line of the rampart-like embankment, the Southeastern (corner) and Southern (1) towers extended far beyond the ramparts because of the postern-gallery (Fig. 6, *1*, *4*, *6*, *7*)***, which compensated for the length of curtain walls, exceeding the usual aiming range of the arrow (40–60 m) (Medvedev, 1966: 32), and also made it possible to control the movements from east to west in the area south of the fortress. Thus, small groups of professional archers dispatched on the three towers described above could control the 180 m long perimeter of the fortress.

The arrangement of access and the location of passage structures are important features, which, as we know, was a necessary but usually weak link in any fortification system. The Southeastern (angular) and Southern (1) towers, built far beyond the boundaries of the fortress, formed a ricetto, in the corner of which the passage structure could have been located. In addition to the two towers, the access to the entrance was complicated from the north by a five-meter embankment, and from the south by a ravine.

Instrumental and aerial photography recorded the rise to the fortified settlement along the ridge of the promontory (see Fig. 1, *2*, *3*; 4). A relatively small slope made it possible to use it not only for horse and pedestrian traffic, but also for wheeled vehicles. In recent years, the remains of a sentinel tower with a square layout (7 × 7 m) (Fig. 7) were excavated on the northeastern promontory. The tower made it possible to control access to the passage structure located apparently to the west of the northeastern promontory. The tower was included in the system of defensive walls on the northern and northeastern side of the fortress, along the edge of a high bank, which were built on the mainland rock and not on rampart substructure. These walls were somewhat thinner than the stonework of the towers (about 1.2 m); traces of the internal gallery along these walls have not been found, which suggests their use as adobe-stone fence 3–4 m high.

Thus, the data derived from archaeological research in recent decades confirm the conclusions of N.A. Onaiko about the existence of fortifications in the 2nd century BC within the known perimeter (see Fig. 4, *2*). Along with burials of the indigenous population (the Sinds, Torets, and Kerkets) in the vicinity of the Raevskoye fortified settlement, an extensive burial ground was studied, showing the placement of a bowl under the head of the buried person, typical of the Maeotian rite (Malyshev, 2007: 138). The presence of the carriers of the Maeotian culture has been established in the pottery complex from the Southern tower of the settlement (see Fig. 6, *3*). Apparently, the need for fortifications was caused by the changes in the ethnic and political situation on the southeastern borders of Sindica—in the middle part of the Anapa Valley.

The construction of a rampart-like embankment over abandoned buildings of the monumental Hellenistic complex indicates radical changes in the fortification system of the Raevskoye fortified settlement. The layout of the fortress was reoriented in the meridional direction. The resulting fortification system manifests a sharp decrease in the height of the rampart-like embankment and the sizes of tower hills from east to west, as well as an up to 40–50 m doubling of the tower front. The southwestern curtain wall, blocking the runoff of surface

*Radiocarbon analysis was performed by O.A. Chichagova in the Laboratory of Radiocarbon Dating and Electron Microscopy at the Institute of Geography of the Russian Academy of Sciences.

**All towers were excavated, and the areas of the Eastern and Southern towers (1) were fully explored.

***In Ancient Greece, this building method had been known from the 6th century BC: Eleusis, towers 4 and 7 (6th century BC) (Adam, 1982: 198, fig. 112); Macedonia, Mount Goritsa, tower 29 (4th century BC) (Bakhuizen, 1986: fig. 130, 132).

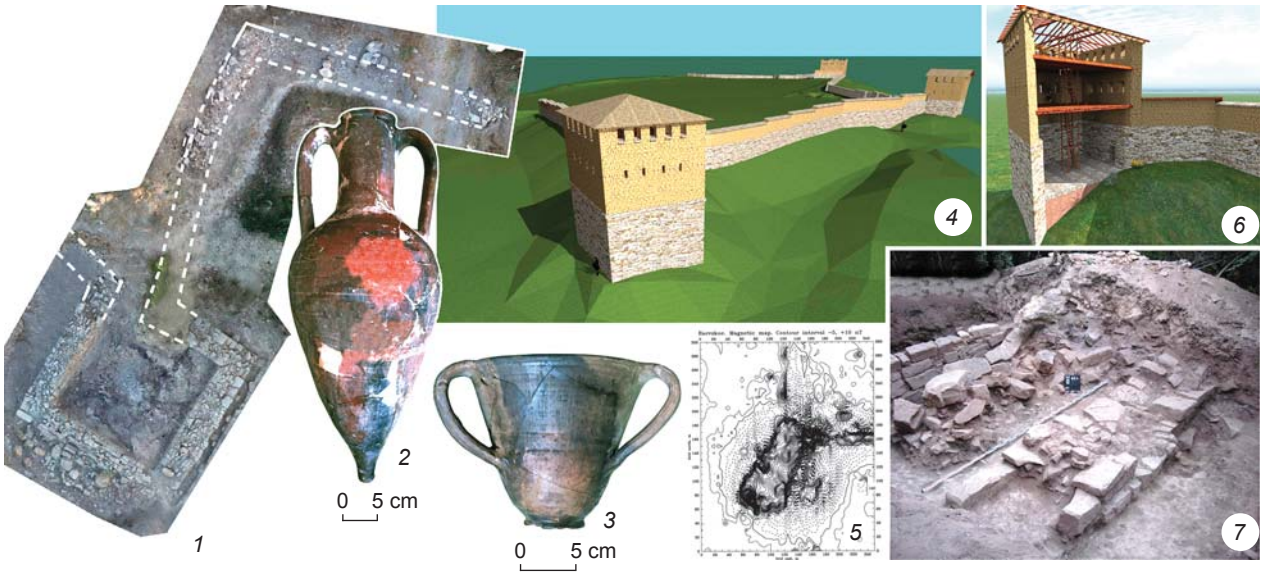

Fig. 6. Tower structures of the Raevskoye fortified settlement.
Southern tower (*1*): *1* – orthophotographic plan of the tower and adjacent walls; *2* – Late Sinop amphora (late 2nd century BC); *3* – gray-polished "Maeotian" kantharos with three handles. Southeastern tower: *4*, *6* – 3D reconstruction of the structure (by V.V. Moor); *5* – results of magnetic survey (1998, by T.N. Smekalova); *7* – stone walls of the postern leading to the tower structure.

and groundwater, has a noticeable length (80 m). Thus, the reorientation of the outer contours of the fortress in the meridional direction can be explained by the desire to secure the approaches not only to the "citadel", but also to the water source, which was important for ensuring the inhabitants' autonomy in the case of siege. Unlike the monumental Hellenistic complex, where there is no evidence of destruction and all evidence points to a gradual desolation, traces of powerful war-related (?) fires have been found in the ruins of tower structures in the external defensive complex, whose existence and destruction were dated to the Hellenistic period (see Fig. 6, *2*). Despite many years of research, residential and fortification adobe-stone structures of the Hellenistic period in the deeper areas of the Anapa Valley have been found only at the Raevskoye settlement. This may point to small number in the Bosporus population in the region, and there are more likely political rather than economic reasons for large-scale construction at the fortified settlement.

Serious changes in the ethnic and political situation of the Gorgippia *chora* also occurred in the Early Roman period (1st century BC to 1st century AD). In addition to the disappearance of a network of Hellenistic estates in the vicinity of the ancient polis, assimilation of vast spaces of the Abrau Peninsula by the Maeotian people has been observed against the background of an almost complete absence of the indigenous Sindi-Kerket sites belonging to that period (Malyshev, Batchenko, 2018: Pl. 1). At the same time, around the turn of the Common Era, the area with the traditions of Bosporus adobe-stone architecture reached its maximum, outlining the new borders of the Gorgippian *chora*. The preservation of the borderland nature of the region and a rigid (possibly militarized) organization of economic activities is confirmed by the spread of fortified multi-level and multi-chamber buildings both in Gorgippia (house 60) (Alekseeva, 1997: 84, 128–129), as well as throughout the entire Abrau Peninsula (Vyazkova, Golieva, Malyshev, 2009).

Owing to its convenient geographical position, the Raevskoye fortress turned into the central core of a large cluster of settlements scattered throughout the entire Anapa Valley. Building activities and evidence from the Early Roman period, like at the early stage of the Bosporan presence there, were concentrated along the bank of the Maskagi River. However, the "citadel" moved to the promontory part of the northeastern corner of the fortified settlement. It had a rectangular shape and an area of 0.12 ha. On the side facing a possible enemy attack (western and southern), the citadel was protected by the 2 m thick fortress wall. The haste of its construction is manifested by placement of stonework upon the cultural layer of the Hellenistic period, as a result of which it sinks deeply into utility pits in several places (see Fig. 7, *3*).

The wall defended the monumental structure, which began to be studied by Sizov in the 1880s, as we have mentioned above. The stonework of three semi-basement rooms with thick (up to 1.2 m) external walls, as well as a number of structural solutions, indicates similarities with tower-like multi-level structures on the Abrau Peninsula. For instance, the resistance of a two- or three-level

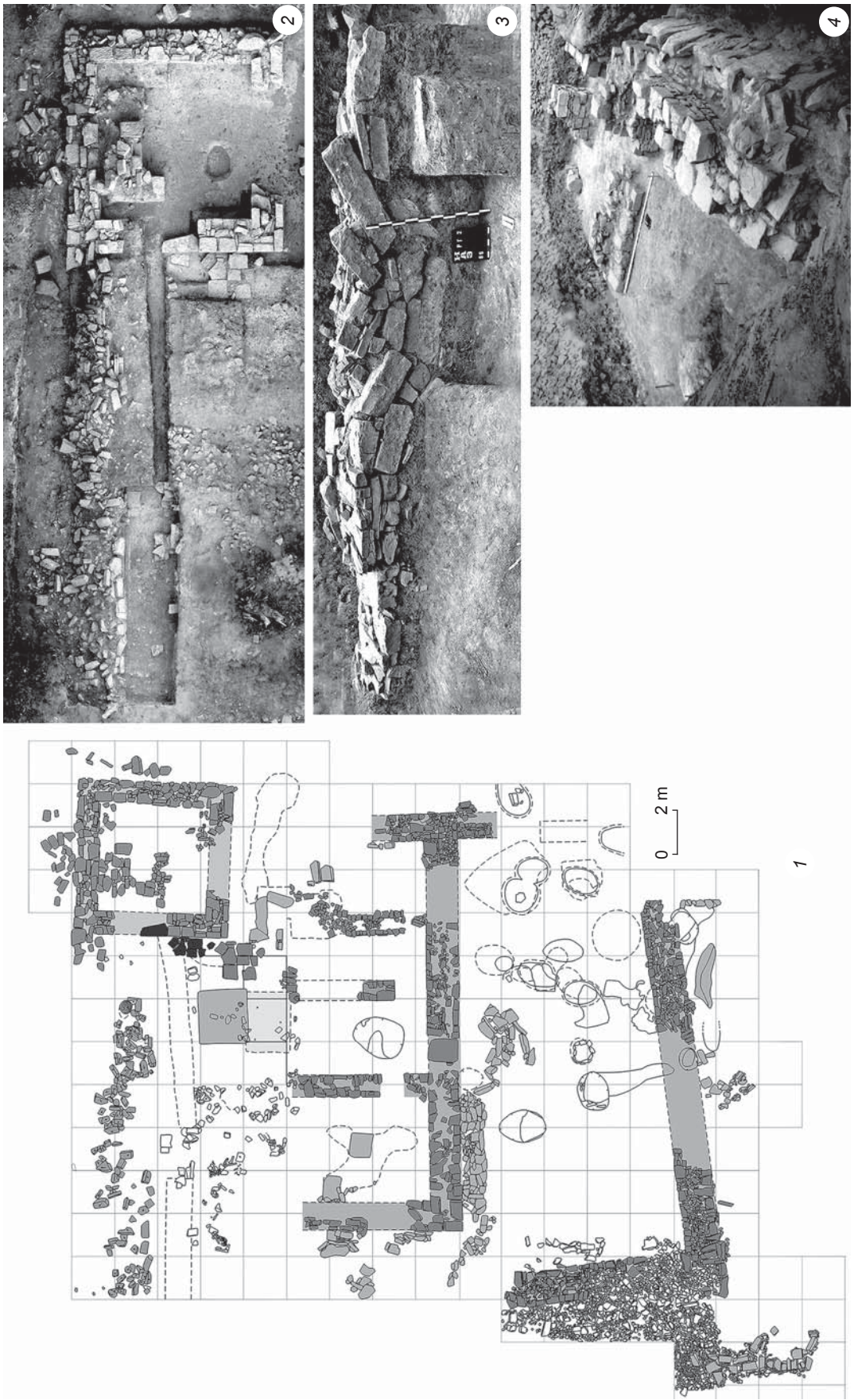

Fig. 7. "Citadel" of the Raevskoye fortified settlement.
1 – ground plan of the identified structural remains; *2* – tower structure; *3* – face surface of the southern defensive wall sagging into an earlier utility pit; *4* – stonework of the wall of the monumental structure, reinforced with a buttress of dug-up slabs.

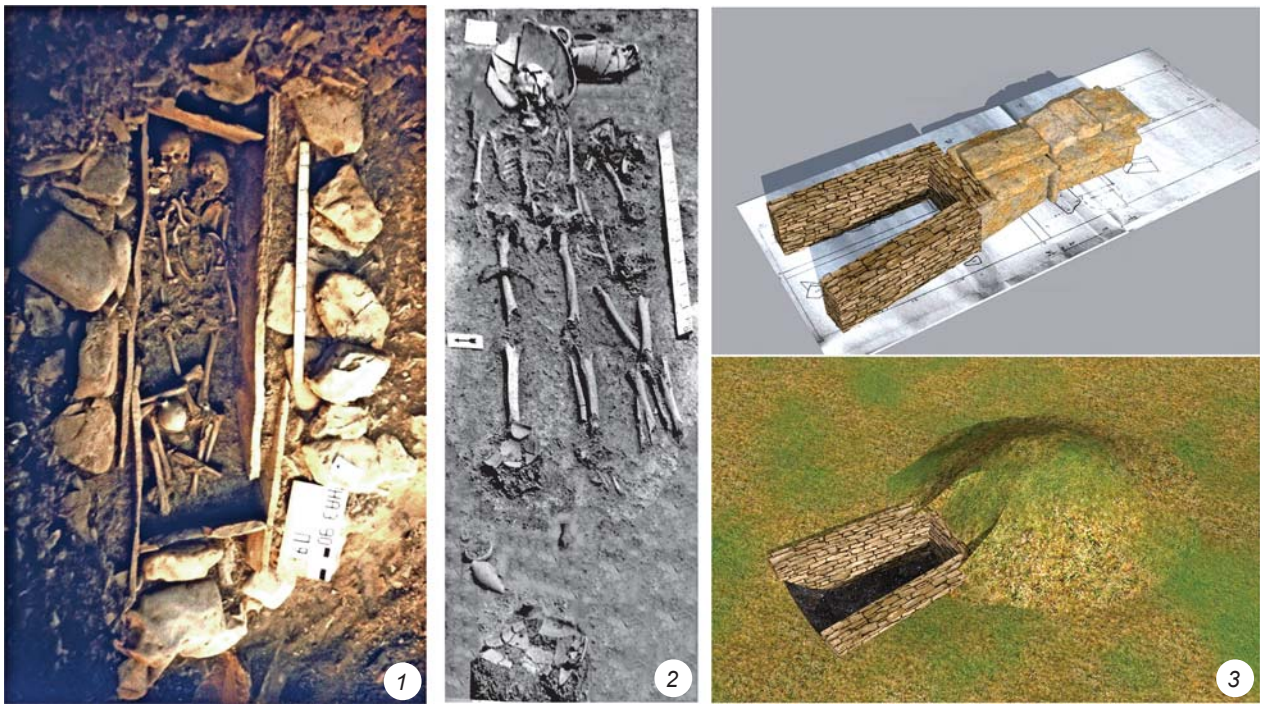

Fig. 8. Burials of various cultures, illustrating the ethnic and political situation in the southeast of the Bosporus during the Hellenistic period.

1 – burial in the stone box, belonging to indigenous population of the foothills (Lobanova Shchel cemetery); *2* – burial according to the Maeotian rite (vicinity of the Raevskoye fortified settlement); *3* – antique burial in a stone crypt (Shum-rechka).

building to longitudinal deformation*, as is also the case with the structure at the Rassvet settlement (Ibid.: 219–220), was ensured not only by the general massiveness of the foundation part, but also by the buttresses made of massive blocks (about 0.6 × 1.4 m in size) and set up on the west and southwest.

The military defeat of the fortress is also manifested by the traces of fire that destroyed the structures of the "citadel", and numerous remains of its inhabitants of various ages found at different levels of the ruins and on the adjacent area. The latest numismatic evidence of this period, such as the coins of Mithridates III (38–45 AD), has made it possible to date these events to the mid 1st century AD (see Fig. 3).

In addition to a large number of container vessels (amphorae and pithoi) of Antiquity, agricultural tools, a set of stone-cutting tools, and a whole arsenal of weaponry were found in the western room on the lower level of the "citadel", covered with ashes from the conflagration. Thus, the inhabitants of the fortress included military troops, farmers, and builders. We often have to speak about the economy of this settlement in general terms, since traces of artisanal production have been found in the areas inhabited for three or four centuries, and testify to the spread of technologies and economic practices of Antiquity in the region.

Discussion

The evidence analyzed above testifies to the key role of the ancient center on the high bank of the Maskagi River (Raevskoye fortified settlement) in strengthening and expanding the Bosporus presence in vast expanses of the foothills of the Northern Caucasus to the east of the ancient Gorgippia. The unstable development of this region was also associated with natural and climatic conditions (a peculiar combination of the steppe and mountain landscapes, northeastern hurricane bora winds, increased average annual rainfall) (Vyazkova, 2009), as well as ethnic and political instability (with a location on the ancient border inhabited by the indigenous tribes of the foothills—"meek" Sinds and "pirating" Kerkets and Torets, on whose possessions the inhabitants of the Kuban plains periodically encroached) (Fig. 8) (Malyshev, 1995).

The Bosporus settlement at the Raevskoye fortress, remote from the Black Sea coast by dozens of kilometers, developed for a long period as the economic and political center of vast borderland between the civilization of Antiquity and archaic communities of the foothills

*In the latitudinal direction, a meter difference in height along the length of the building (about 19 m) has been observed.

(a kind of frontier* of Antiquity). The frontier nature of its environs is confirmed both by the data of a member of the Society of the Local Historians of the Kuban Region A.S. Lizarev, who discovered a system of earthen fortifications (ditch and rampart) north of the Nogai-Kale settlement (Gorodishche Nogai-Kale, 1924: 163), and by aerial survey materials from the 1940s (see Fig. 1, *4*, *b*).

The arrangement of the defense system of the settlement reveals the great expertise of its creators. On the one hand, they successfully used sophisticated terrain, and on the other hand, they made the fortifications to have a ground plan close to a geometrically correct figure. The flank defense system based on the density of the tower front may indicate the peripheral nature of this center, which could have had a rather small military unit at its disposal.

Conclusions

The magnitude of changes in the anthropogenic landscape at the settlement during the Hellenistic period is emphasized by numerous finds of coins (3rd–2nd centuries BC). The Hellenistic Tanais in the delta of the Don River (Arsenieva, 1984: 93) and the settlement of Elizavetinskoye in the Middle Kuban region (Gorodtsov, 1936: 172), which existed in the same period, provide a rationale for the argument that the ancient center on the banks of the Maskagi River (Raevskoye fortified settlement) was not a local phenomenon, but one of many testimonies to the most significant territorial expansion of the Bosporan Kingdom. Undoubtedly, the main task of this peripheral center throughout the entire period of its existence was to ensure the military and economic presence of the Bosporians in the southeast of Sindica. Despite the flourishing of Gorgippia after the military defeat in the mid 1st century BC (Alekseeva, 1997: 129–130), its vast *chora* gradually fell into decline, apparently owing to drastic changes in the ethnic and political situation, together with the priorities of economic activities (Malyshev, Trebeleva, 2018: 149–150), and thus the need to maintain a fortress in the depths of the Anapa Valley also disappeared.

*This concept was proposed a century ago by F. Turner to describe the historical and cultural process of development of the Wild West (2009: 13–43). It implies a synthesis of geographical and historical space. Further studies have shown the universal nature of the concept of frontier as borderland or zone of interaction between two or more cultures or political structures (Riber, 2004: 199). The complexity and versatility of this phenomenon has been observed; its most important structural element is the state of unstable equilibrium (primarily natural extremeness combined with military and political instability) (Zamyatina, 1998: 75–82).

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Polychrome Style in Mangystau, Kazakhstan

We describe artifacts from a burial from the period of Barbarian Invasions on the northeastern Caspian coast (Mangystau Region, Republic of Kazakhstan), near the contemporaneous settlement of Karakabak. The principal finds, representing the Shipovo horizon, suggest a date of late 5th to early 6th centuries. They reveal a mixture of Sarmatian and Late Sarmatian features with certain innovations. The origin of the latter is discussed. Metal artifacts belonging to the polychrome style (cloisonné work) make it possible, for the first time, to include the Mangystau Peninsula in the distribution range of the "Pontic fashion". We propose that these artifacts are of local origin, and that the craftsman replicated certain standards without the appropriate tools. The technological characteristics of the pendant and rings had been observed by previous scholars in late Eastern European artifacts associated with the Byzantine school. Their dates (5th–6th centuries) correlate with those of the fifth stylistic group of polychrome artifacts described by I.P. Zasetskaya. Our findings suggest that Karakabak, a craft and trade center, was the place where Byzantine-style cloisonné artifacts were manufactured. These were supplied to nomadic tribes inhabiting the Aral-Caspian area during the Hun and post-Hun periods.

Keywords: *Mangystau, Karakabak, Hun Period, Shipovo horizon, undercut burials, polychrome style, cloisonné.*

Introduction

During recent decades, the term "polychrome style" has been broadly used in archaeological papers with respect to both chronology and cultural-historical context. On the one hand, it is easy to use this term as "scientific slang". On the other hand, it is absolutely wrong to attribute every piece of decoration with inlayed colored stones or glass to the polychrome style, because we deal with a certain cultural phenomenon typical of the period of Barbarian Invasions. It is important for us that the "process of forming and developing the polychrome style is far from being unambiguous", because it originated from various "ethnocultural roots" and in "different manufacturing centers" (Zasetskaya, 1994: 69). For the artifacts of this style from the western distribution area, there are classification charts with possible places of origin established (Yakobson, 1964: 12–15; Ambroz, 1989: 6–54; Zasetskaya, 1994: 68–112; Zasetskaya et al., 2007: 83–101; Bazhan, Shchukin, 1990; Shchukin, 2005: 340–358; Furasyev, 2007: 23–24), while the information relevant to the Aral-Caspian and Central Asian regions is comparatively scarce (Alkin, 2007: 94–99; Kazakov, 2017). In this respect, the discoveries made by us recently on the Mangystau Peninsula are dramatically important. The Aral-Caspian area is an interlinkage between the

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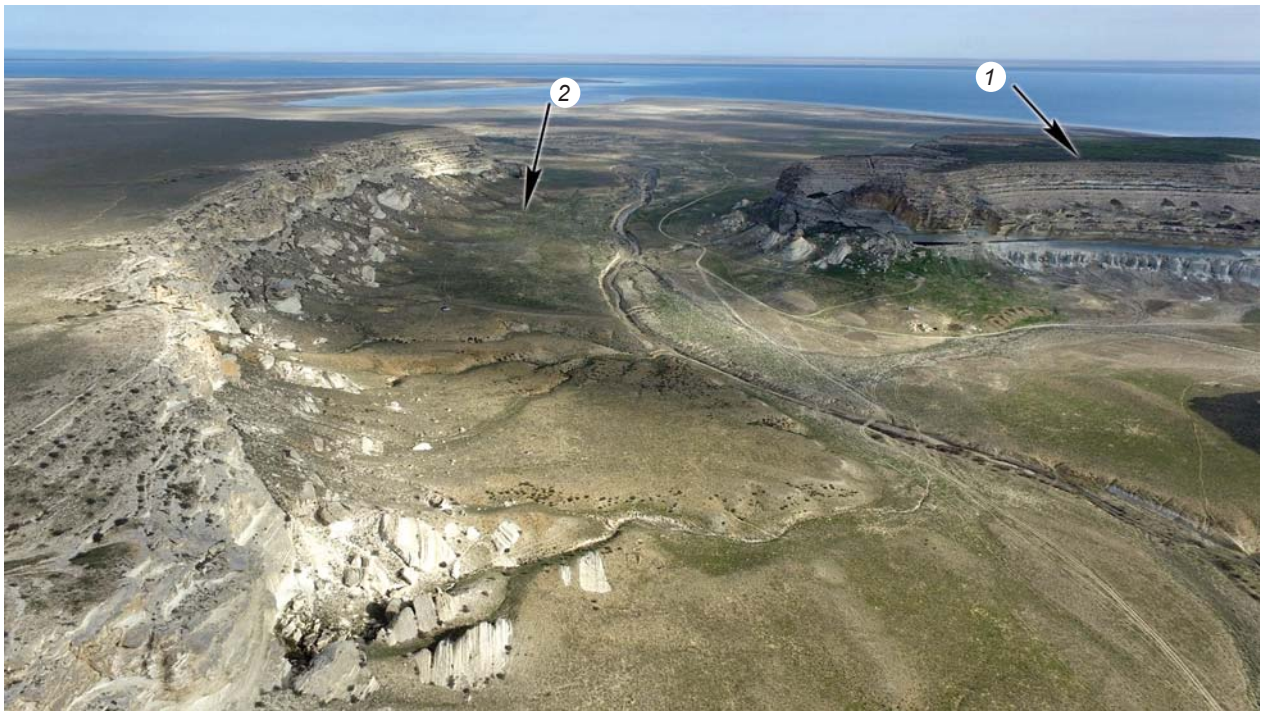

Fig. 1. View on the Karakabak canyon and the Caspian coast.
1 – Karakabak; *2* – cemetery No. 10.

"south" (Sasanian Iran and Central Asia), "west" (Eastern Europe, Caucasus, northern Black Sea region), "north" (Volga region and Urals) and "east" (Tian Shan, Western Siberia, and Altai Mountains).

The first polychrome artifacts were found in the "hoards" in the ritual stone structures at Altynkazgan (Astafyev, Bogdanov, 2015: Fig. 4, *12*; 2018: Fig. 4, 5). In 2019, several cemeteries from the Hun period (Fig. 1) were found in the vicinity to the settlement of Karakabak, which belongs to the period of Barbarian Invasions (for more details, see (Astafyev, Bogdanov, 2019)). This article presents the archaeological materials discovered during excavations at burial 2.

Description of the works and the burial rite

The Karakabak Canyon stretches from south to north, with its mouth reaching the shallow Kochak Bay at the Caspian coast. The eastern side of the canyon is formed by a large residual hill; the Karakabak settlement is located on its top. The canyon's western wall is cut by numerous scours, which form deluvial aprons (slope washes), containing groups (from 3 to 20) of stone structures-piles near the stone circles (Fig. 2).

Before the excavations, Object No. 2 was a stone fill, circular in plan view, 5 m in diameter, with a looters' (?) pit in the center, which destroyed the stone pavement (up to 50 cm thick) constructed of slabs and rock at the level of the ancient horizon. Along the eastern wall of the pit, to the south, at the same level, a low-ashy spot of burnt soil was uncovered. Along the same line, at the opposite side, 0.3 m from the pit, there was a molded jar-shaped vessel with a handle, dug into the soil up to its neck (Fig. 3, *a*). The stone pavement covered the entrance to

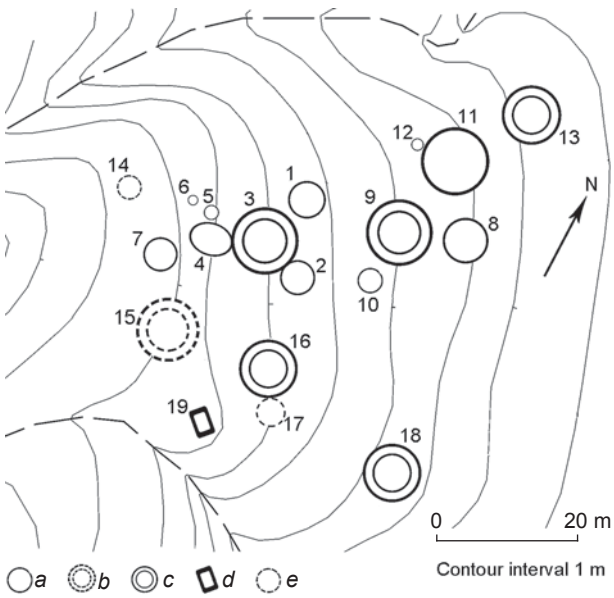

Fig. 2. Location of features at cemetery No. 10.
a – mound; *b* – mound (?) with a depression in the center; *c* – stone circle; *d* – burial of ethnographic time; *e* – stone fill.

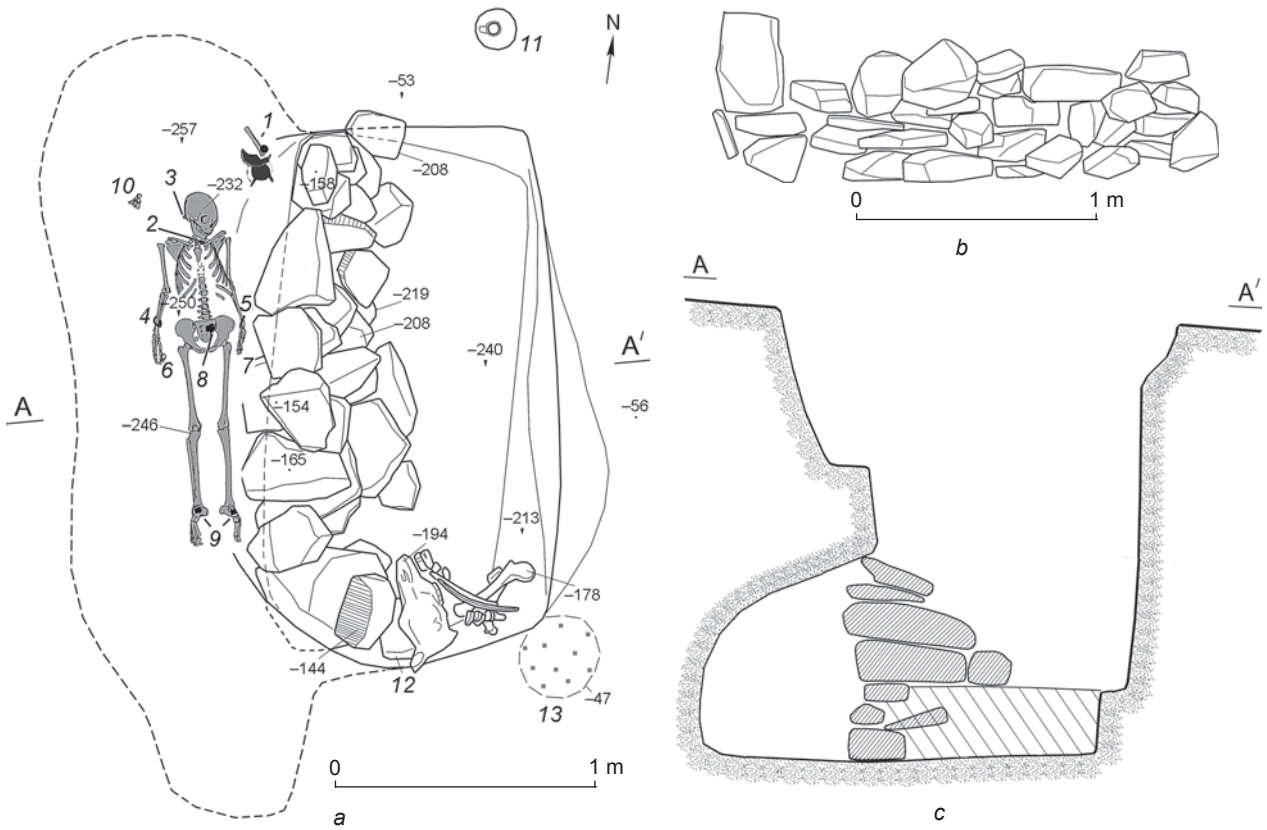

Fig. 3. Plan (*a*), undercut pavement (*b*), and profile (*c*) of burial 2.
1 – a set of grave goods on a wooden dish-tray (a bronze mirror with a stem-handle, a fragment of a bronze mirror showing circular ornament, copper tweezers, a disc-shaped ceramic weight (spindle whorl?), a perforated ammonite piece, a "needle-case" made of the tibia of a caprine animal); *2* – silver pendant; *3* – temple rings; *4*, *5* – copper bangles; *6*, *7* – finger-rings; *8* – silver belt buckle; *9* – silver shoe buckles; *10* – sheep sacrum; *11* – dug-in vessel; *12* – accumulation of ox-bones (skins?); *13* – a patch of burnt soil.

the grave-pit, rectangular in plan view (2.15 × 1.00 m) and oriented along the N-S line. At a depth of 1.0–1.2 m from the ancient surface level, along the western wall, the upper stones of the four-tier pavement, covering the undercut burial chamber, were discovered. The pavement is carelessly made of medium-sized limestone blocks, placed on the step's edges (Fig. 3, *b*). In the southeastern corner of the entrance grave-pit, an accumulation of ox-bones (skull with atlas, four hoofs, femur bone, and two ribs) was found.

At the bottom of the burial chamber (the vault is 0.9 m high), in the northern sector of the grave, a skeleton of a woman 20–30 years of age was found, in an extended supine position, with her head towards the north-north-west (Fig. 3, *a*). The skull shows fronto-occipital deformation. To the right of it, sacral vertebrae of a caprine animal were found in anatomical order. To the left of the skull, at the line of the step, near the burial wall, a set of grave goods was located: copper tweezers (Fig. 4, *2*), a disc-shaped ceramic weight (spindle whorl?) 38 mm in diameter, made from a wall fragment of the wheel-thrown gray-clay ceramic vessel (Fig. 4, *5*), a bronze mirror with a stem-handle (Fig. 4, *6*), a fragment of a bronze mirror showing circular ornament (Fig. 4, *7*), a perforated ammonite piece (Fig. 5, *8*), and a "needle-case" made from the tibia of a caprine animal (the upper end of the tibia being cut off). Judging by the surviving decay, all these items were situated on a wooden tray or a plate ornamented with the oblique grid motif, with a square of 30 × 30 mm.

Near the mastoid processes of the female skull, there were two paired crescent solid-cast golden earrings (Fig. 5, *2*). Under the mandible, a necklace (Fig. 5, *1*, *3–5*, *9*, *10*) was found, consisting of a silver pendant an the inlay of almandine, a heavily patinated rounded glass bead, three global-shaped beads (coral?), and three silver spiral-shaped long beads. Open bronze bangles with slightly broadened ends were found on the forearm bones (see Fig. 4, *1*). One of them showed a fragment of coarse fabric (clothing?) (see Fig. 4, *1a*). A golden finger-ring with a flat rhomboid signet (see Fig. 5, *6*) was located in the right clenched fist; a ring of similar type, but smaller in size, was placed on the middle finger on the left hand, with its signet towards the palm (see Fig. 5, *7*). On the

Fig. 4. Finds from burial 2.
1 – bronze bangles with a textile fragment; (*1a*); *2* – copper tweezers; *3* – silver belt buckle; *4* – silver shoe buckle; *5* – ceramic spindle whorl; *6*, *7* – bronze mirrors.

sacrum, a silver buckle (Fig. 4, *3*) was found; on the tarsal bones, two similar but smaller buckles (see Fig. 4, *4*).

Interpretation of the artifacts

One of the phenomena of the period of the Barbarian Invasions is that all the Late Sarmatian features in the burial rite (for instance, head deformation) were also typical of the Hun Period in the territory of the Ural-Kazakhstan steppes, Volga region, Caucasus and northern Black Sea region (see (Botalov, Gutsalov, 2000: 125–128; Moshkova, 2009: 108–110; Simonenko, 2011: 174–180; Malashev, 2013: 9; Smirnov, 2016: 26–28; Skripkin, 2017: 221–245)). These burials were made under individual mounds, mostly in undercuts or in narrow rectangular (oval-shaped) pits. The researchers mentioned above note that the pits with undercuts (mostly in western wall) occur in 70–75 % of the total number of cases. Most often, the undercut is of the same shape as the entrance pit, but slightly larger (2.00 × 0.75 m on average). The deceased were usually placed in an extended supine position, with their heads towards the towards the north. These facts suggest that the population composition in the discussed territories did not change considerably; the processes of migration and assimilation did not alter the worldview, but only corrected dissemination of foreign (Hun) features in clothing and rituals. The custom of circular cranial deformation cannot be considered a chrono-indicator of the Hun Period, and was not directly connected with the Huns. The majority of scholars believe that this custom was initially borrowed from the Sarmatian and Alanian tribes (Iranian-

Fig. 5. Finds from burial 2.
1 – silver pendant; *2* – golden earrings; *3–5* – beads; *6*, *7* – finger-rings; *8* – ammonite; *9*, *10* – fragments of a neck decoration.

speaking steppe dwellers); but exactly during the Hun Period, its distribution range dramatically expanded from the Northern Caucasus to the Middle Danube (for more details, see (Kazanski, 2006)).

The burial rite showed not only features typical of the Late Sarmatian sites, but also some innovations that have not been recorded at the earlier sites in the Aral-Caspian area. For example, it concerns the heap of ox-bones (skins?) at the wall of the entrance pit (see Fig. 3, *a*). Also known are horse skins buried in the undercut (mostly female) chambers of the Hun Period in the Lower Volga, Crimea, northern Black Sea region, Central Kazakhstan, and Aral Sea region (Zasetskaya, 1994: 17–19; Levina, 1996: 120). Burial of bovine (cow) skins or heads are less typical in the above regions.

The grave goods from burial 2, excluding belt buckles and polychrome items, show broad parallels and "vague" vectors of cultural influences. Noteworthy is a set of goods situated close to the head of the buried woman These artifacts belong to the group of the "Pontic fashion", and separately they are typical of the cultures of either sedentary or "barbarian" tribes populating Tanais, Crimea, western Ciscaucasia region, as well as more distant peripheral areas. For example, parallels for the copper cosmetic tweezers of a highly trapezoidal shape, with straight or curved ends (see Fig. 4, *2*), have been reported from the artifacts of the period of Barbarian Invasions in Hungary (Gencsapáti (Bona, 1991: 103, Abb. 75, *3*)); Krasnodar Territory (burial 1, 1948, Pashkovsky cemetery (Smirnov, 2016: Fig. 100)); Crimea and the Lower Don (Mastykova, 2009: 89, fig. 106), and Aral Sea region (Levina, 1996: Fig. 150, *23–25*). The mirrors in the Sarmatian style bearing an engraved circular ornament (see Fig. 4, *7*) are rather rare; there is only one similar specimen from burial 91 at the Suuk-Su cemetery, in the Crimea (Zasetskaya et al., 2007: Fig. 4, *5*). The flat bronze mirrors with thin fillets along the margins and long pin-handles at the sides (see Fig. 4, *6*) are comparatively rare in the western part of the ecumene in the Hun period. In the "classic" Shipovo assemblages, only one such artifact was recorded, in kurgan 3 at Shipovo (Zasetskaya, 1994: Pl. 40, *5*). However, a similar type of mirror (type II according to A.M. Khazanov's classification (1963)) with a shorter handle is known from the Scythian period. It was particularly popular among the ordinary nomads of the Sarmatian period in the Volga region and Urals (Smirnov, 1964: Fig. 14, *2a*; Khazanov, 1963: 58, fig. 1; Glebov, 2019: Fig. 2), Central Asia, and Kazakhstan (Litvinsky, 1973: 75–76, pl. 1–8). A considerably large collection of such mirrors (but with long handles) came from the Dzhetyasar assemblages (Levina, 1996: 230, fig. 152–155). Other artifacts from burial 2 (spindle whorl, necklace, and "needle-case"), as well as the noted mirror fragments, are generally typical of the Sarmatian and Late Sarmatian periods not only in the northern Caspian region, Volga region, and Southern Urals, but also in the northern Black Sea region.

The solid-cast silver buckles (2 spec., 24 × 13 mm; 1 spec., 32 × 20 mm) with ovoid frames (semicircular in cross-section), rectangular plates with beveled flanges, and cast broad prongs (semicircular in cross-section) with the tips bent down (see Fig. 4, *3*, *4*), can be dated more precisely, and demonstrate clear vectors of cultural influence. The buckles of this type belong to the Shipovo horizon*, are dated to the 5th to 6th centuries, and have broad parallels among the Bosporan and Central European antiquities (Zasetskaya, 1994: 90–91, pl. 40, *3*; 42, *6*; fig. 19, *c*).

The polychrome decorations are of the greatest interest among the artifacts from burial 2. Since the recovered finger-rings have very few parallels, we provide a detailed description of them. The first specimen (see Fig. 5, *6*) shows a rhomboid flat signet (20 × 17 mm) and a similarly-shaped cast 15 × 12 mm in size and 1.5 mm high, with four flat *cloisonné* inlays of semi-transparent reddish stone (almandine) and one rhomboid inlay of light-brown soft material. Each corner of the signet is decorated with three cylinders 2.5 mm in diameter, to the height of the holder. Three corners preserved inlays of soft light-brown material. At the edges of the signet, bands of corrugated fillets are soldered. The ends of the slightly deformed rail with a triangular cross-section (4 mm wide, the exterior diameter 19 mm) are heavily flattened, brought together, and soldered at the signet. The signet is supported by the corrugated pins, soldered at slight angle to the rail. The second finger-ring (see Fig. 5, *7*) also has a rhomboid flat signet (16 × 12 mm) and holder (12 × 8 mm, 2 mm high) with a flat semitransparent reddish stone (almandine). The corners of the signet are decorated with cylinders 2.5 mm in diameter, to the height of the holder. One of the corners preserved inlay of soft light-brown material. At the edges of the signet, bands of pseudo-granulation are soldered. The ends of the rail, triangular in cross-section (4 mm wide, the exterior diameter 19 mm), are brought together, and soldered at the signet. Exactly this type of jewelry R.S. Minasyan, the leading Russian expert in the ancient metalworking, considers *cloisonné* work

*"…'Post-Hun', or Shipovo, horizon, bracketing the period between 430/470 and 530/570, the initial phase of which in the general "barbarian" chronology corresponds to the periods D2/D3 (the Smolin horizon or the Middle Danube phase MD 1: 430/440–470/480), D3 (Karavukovo-Kosino horizon or the Middle Danube phase MD 2, for the 'Prince's' artifacts—Bluchina-Apakhida-Turne horizon: 450–480), D3/E1 (or the Middle Danube phase MD 3: 480–500/510), and the Middle Danube phases MD 4 (510–540/550) and MD 5 (540–560)" (Mastykova, 2009: 19). The dating of the Shipovo assemblages of the 6th to 7th centuries (Ambroz, 1989: 67–75) is not currently acknowledged by researchers.

(Minasyan, Shablavina, 2009: 257, fig. 9). Decoration with the similar thin almandine plates has been noted on the sword-belt buckles and pendants, and elements of the sword and quiver from the Volnikovsky "hoard" (Volnikovsky klad…, 2014: Cat. No. 1–5, 103, 115–117), which most likely dates to the second half of the 5th century, though the authors of the publication argue in favor of an older date (Ibid., 24–25). The closest parallel to our artifacts is a finger-ring with the signet decorated with cylinders at the corners and containing ruby inlays, from the cache of Bosporus crypt No. 40 (necropolis of Dzhurga-Oba) (Ermolin, 2009: Fig. 5, *3*).

Following the view of Minasyan and Zasetskaya that upon the fall of the Western Roman Empire, the only centers of jewelry production remained the workshops in Germany and Byzantium, pursuing the Ancient Greek traditions (Zasetskaya et al., 2007: 84), then, the *cloisonné* artifacts, e.g., decorations from the Volnikovsky "hoard" or from the burials near the farm of Morskoy Chulek, as well as rings and pendants from Dzhurga-Oba, were undoubtedly produced exactly in those workshops and not earlier than the second half of the 5th century. M.B. Shchukin believed that "the *cloisonné* work could have been revived somewhere in the Western Asian and Eastern Mediterranean countries, in the Rome-Sasanian frontier region" (Iberia) (2005: 346–347). In this respect, the technique of decoration of the Karakabak finger-rings with gem inlays is noteworthy. Originally, the craftsman had laminar blanks of perfect quality with even well-polished edges, but of a size larger than necessary. The blanks were made smaller through rough treatment of the edges made by vertical pressure retouch, and were pressed into the holders. This is clearly seen at magnification (see Fig. 5, *6a*). In this case, we undoubtedly deal with imitation: the craftsman was familiar with the original artifacts and the standards of jewelry, but did not have the appropriate tools. Meanwhile, he followed the technology of production for this type of jewelry. For instance, there is a survived thin layer of some light-colored material underlying the gem inlays in the Karakabak finger-rings. At the time of production, this paste-like material was soft and viscous, and later became hard. According to the research carried out by B. Arrhenius, cement and gypsum with various organic admixtures were used mainly (Ibid.: 344). Exactly owing to the chemical analysis of the admixtures, it has become possible to distinguish between the artifacts from the period of Barbarian Invasions and the younger artifacts from the Merovingian Period. Notably, the gems in the younger artifacts were ground twice; this means that the garnets from the artifacts out of use were reused in the new decorations (Ibid.: 345). Application of various pastes made it possible to use very thin plates and save the precious materials, and not to adjust them to the inlay's width. On the other hand, Arrhenius pointed to another problem: gems fixed with the paste lost their iridescence in the light-rays (Ibid.). In order to avoid this, craftsmen began to place thin golden leaf under the gems, which we noticed in the Karakabak rings. This technique has been recorded in the late Eastern European artifacts, and is associated with the Byzantine school. Their dates (5th–6th centuries) correlate with those of the fifth stylistic group of polychrome artifacts described by I.P. Zasetskaya (1994: 72, fig. 15).

The silver pendant from burial 2 was made in a similar imitative, rough manner (see Fig. 5, *1*). The edge of the pendant (35 × 21 mm) is formed by a finely corrugated fillet, soldered on an ovoid laminar base. The eyelet is made of three similar fillets soldered together. The holder is low and ovoid (20 × 13 mm); the flattened red stone (carnelian?) projects from it. The inlay is well polished and fixed in the same way as in the finger-rings; the inlay does not show signs of secondary working. In terms of technology, the pendant falls within the chronological limits proposed above for the rings. In this case, the method of forming the holder (ribbed rim) is neither the chronological indicator nor does it reflect the development of technology in the Hun period from complicated (granulation, pseudo-granulation) to simple*.

Unlike the rings, the pendant has so many parallels in Europe, Black Sea region, and Volga region, that to save this paper's length we will not enumerate all these artifacts here**. This fact proves that such items were very popular among both nomadic and sedentary populations. Apparently, gems of particular shapes and standard sizes were used. This observation made Arrhenius suppose that there was a set of technical standards accepted by the Byzantine craftsmen (see (Shchukin, 2005: 354)). Further treatment of the items (from women's neck-chest decorations to the onlays on belts and horse harness) might have varied. Currently, a clear picture of the dissemination of the polychrome artifacts of this type from west to east during the Hun and post-Hun periods has been established. During the last twenty years of archaeological studies, the border of the polychrome-style dispersal shifted significantly eastwards in the steppe belt. Formerly, the parallels to the Karakabak pendant would have been limited to the grave goods from the Aral Sea region (Altynasar (Levina, 1996: Fig. 119)); Northern Kazakhstan (near Borovoye Lake (Bernshtam, 1951: 219, fig. 4)); Kyrgyzstan (Kenkol necropolis (Bernshtam, 1940: 24)), and Western Siberia

*Artifacts showing various types of rim-forming can be found in the same site and in the same burial (Morskoy Chulek (Zasetskaya et al., 2007: Pl. I, II, *3*; VIII, *1–3*)).

**Detailed information is available in the monographs by A.K. Ambroz (1989) and I.P. Zasetskaya (Zasetskaya, 1994; Zasetskaya et al., 2007), which provide analysis and classification of polychrome decorations with both onlay ornamentation of gold wire (ribbed rim) and granulation.

(Tugozvonovo (Umansky, 1978: Fig. 4), Timiryazevo-1, kurgan 35 (Belikova, Pletneva, 1983: Fig. 45, *1*, *2*), Krokhalevka-23, kurgan 6 (Troitskaya, Novikov, 1998: Fig. 17, *55*), Krokhalevka-16, kurgan 1 (Sumin et al., 2013: Fig. 155, *1*, *2*), and the burial at the Eraska River (Kazakov, 2017: Fig. 1)). Today, the database has been supplemented by the artifacts from burials at the Ilek River (Northern Kazakhstan) (Bisembaev et al., 2018: Fig. 5), in Shamsi Gorge and Boma kurgan (Tian Shan) (Kozhemyako, Kozhomberdiev, 2015: Fig. 14, 16, 17, 19; Kožomberdieva, Kožomberdiev, Kožemjako, 1998: Abb. 3, *7*; 2, *9*, *10*; Alkin, 2007: Fig. 2, *10*; Koch, 2008: Abb. 8), and at Arzhan-Buguzun (Altai Mountains) (Kubarev, 2010: Fig. 1). And these are only the eastern parallels to the Karakabak silver pendant; the total of the polychrome artifacts found is considerably larger (see, e.g., (Molodin, Chikisheva, 1990: Fig. 3, *1*; Borodovsky, 1999: Fig. 1, *1*)). However, S.V. Alkin (2007: 94–95) and A.A. Kazakov (2017: 83) were absolutely right to note that the topic of polychrome style in Central Asia requires further study.

Conclusions

The discovery of the Altynkazgan complex and the Karakabak settlement, containing burials of the Hun period, provides a new insight into the issue of the existence of manufacturing centers in the eastern part of the steppe realm. Presuming that there were no such centers, then all the discovered polychrome artifacts were produced in Europe or Byzantine workshops, and were imported to the Ural-Kazakhstan steppes, Central Asia, and Western Siberia through trade links or with human migrations. M.M. Kazanski (1995: 192–193) believes that these processes were originally stimulated by the politics of the Roman Empire aimed at employment of Sarmatian nomads in its military conflict with Iran. However, we suggest that the process was far more complicated.

First, we should take into account the well-developed jewelry industry in China in the Han period, producing decorations with gold granulation and inlays for the "barbarian" tribes (Alkin, 2007: 95). The fact that Chinese craftsmen were aware of the Western jewelry style, and could produce perfect replicas, is well-known to the researchers of the Scytho-Siberian animal style (for details, see (Bogdanov, 2006: 27–28)). Second, taking into account the mass westward migrations of nomadic tribes upon collapse of Atilla's Hun Empire, it is highly possible that the captured craftsmen moved together with the aggressors and settled in some distant places. One such place could have been Karakabak, "hidden" in a remoteness, but along the Great Silk Road. Through this settlement, gems (garnet and others) from India might have been transported to Europe. The possibility of manufacture of the polychrome artifacts in Karakabak is suggested not only by the recorded "barbarian" treatment of gems. The Altynkazgan "hoards" yielded items identical in terms of manufacture: with inlays of almandine and amber and made by *cloisonné* work (Astafyev, Bogdanov, 2018: Fig. 4, *1*, *2*; 5, *5–8*, *15–18*), dating to the same period of the 5th to 6th centuries (about parallels and dating, see (Ibid.: 74–75)). Notably, the ritual complex of Altynkazgan is situated at a distance of only 18 km from Karakabak. It is also important that the majority of gold and silver items found at this settlement were produced especially for ritual purposes and were never used in everyday life. The noted identity of items from different "hoards", as well as the stylistic similarity of the griffin head images on the plates of the horse harness and festive belt from Altynkazgan (Ibid.: Fig. 4, 5), suggest that these artifacts could have been purchased in a single (possibly nearby) craft center, which might have been Karakabak. The most important argument supporting this assumption is the materials recovered during excavations there: 1) hundreds of scraps of copper plates and broken fragments of belt fittings; 2) abundant waste from metallurgical treatment (slags, splashes, and removals) suggesting casting process; this is also supported by the presence of bars and fritted pieces of waste; 3) several dozen small pieces of gems and semi-precious stones (with and without signs of treatment), collected by sieving the soil from the "streets" of the settlement and the rubbish piles. Thus, we can assume that craftsmen of the Byzantine school might have worked in Karakabak and provided the nomadic elite of the Aral-Caspian area with the artifacts in the "Hun fashion". The links with the Byzantine Empire are indirectly supported by the Byzantine copper coin of Arcadius (395–408), which was found at the Karagan (Mangystau) trade wharf, which was located in the vicinity of Karakabak and was actively used in the Middle Ages (Astafyev, Bogdanov, 2019: 31). It should be noted that at present, only one quarter of the total area of this settlement has been examined. Undoubtedly, subsequent excavations at the cemetery and settlement, as well as anthropological and scientific research (analysis of precious inlays, metal composition, etc.), will provide new data supporting or refuting the assumptions expressed in this article.

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Metal Artifacts from a Newly Discovered Cemetery in the Severnaya Sosva Basin, Northwestern Siberia

We describe artifacts from a medieval cemetery near the village of Lyulikary, in the Berezovsky District of the Khanty-Mansi Autonomous Okrug–Yugra. The village was first mentioned in the 14th to 15th centuries, when it was a major trade center on the route from Russia to Siberia. The place adjoining the cemetery and horizons overlying it relate to a medieval sanctuary. Some artifacts were found apart from the burials, near the surface. These include silver and copper decorations, ceremonial ware, and weaponry (a helmet, chain mail, and sabers). We describe round silver pendants representing mounted falconers, and metal shields protecting the wrist. There are also arch-shaped dangle pendants with stone inserts. Because most decorations are gilded and nielloed, and show typical decorative elements, we propose that most were manufactured in the Kama area. On the basis of comparative analysis we conclude that certain decorations, including hinged bracelets, are replicas of late 12th to early 13th century Russian prototypes. The metal ware includes fragments of a 12th century Iranian dish, fragmented goblets, bowls, and dishes, which reveal parallels with Eastern and Western European toreutics. On the basis of these parallels and characteristic features of design, these artifacts are dated to the 13th century.

Keywords: *Middle Ages, Western Siberia, cemetery, jewelry, niello, filigree, grain, gilding, bracelets, iron helmet, saber.*

Introduction

The set of goods described in this paper was found by local citizens in the summer of 2015. The exact location of the find is unknown. The scarce available information holds that the set of these items was found on the left bank of the Severnaya Sosva River, near the former village of Lyulikary, in the Berezovsky District of the Khanty-Mansi Autonomous Okrug (KhMAO)–Yugra. A cemetery with poorly preserved organic substances was situated here on the narrow conifer ridge about 2 m high above the river's level. It is possible that at the place adjoining the cemetery (or rather on horizons overlying it) there was a medieval sanctuary, since some of the goods were found apart from the graves, in topsoil layers. Exactly here, almost on the surface, pieces of weaponry were revealed.

The cemetery was most likely associated with the Lyulikary summer yurts situated on the right bank of the Severnaya Sosva, 5 km downstream from the modern village of Igrim (Berezovsky District, KhMAO-Yugra). Lyulikar was mentioned in the Big Book of Drawing (mid-16th century) (Bakhrushin, 1935: 77). Lyulikar yurts were described in G.F. Miller's diary (1740):

"In those times when the route along the Sosva River through the Yugra Range to the Pechora River and to Russia was often used, and many traders traveled along this route from Russia to Siberia…, the mentioned summer camp of the Berezovo served as a summer customs point for inspection of travelers… (Sibir XVIII veka…., 1996: 238).

The site does not show any visible features. Its area is approximately 100 × 300 m. Judging by the location of the finds, the burials were arranged in groups of three to four graves. The locals informed us that the artifacts were deposited in the uppermost soil layer; for instance, the bracelets were found almost on the surface. But such items as weapons were "interred" far deeper in the ground. The set includes iron sabers and axes, chain mail, copper cauldrons and decorations.

Composition of the finds

I. Items of non-ferrous metal.

A. Head decorations.

1. Crown (fig. 1, *2*) – lamellar item 2 cm wide; includes two fragments. The obverse side is even, slightly convex, the edges are slightly thickened. The ornamental area is divided into rectangular sections with engraved design. One section contains a schematic representation of a pair of birds with puffy tails, turned with their beaks to one another. Other sections show a network composition running along the frame's perimeter and connected in several places of the wide side by vertical line segments. The remains of gilding are visible at the crown's edges. Ornaments of this type were typical of Old Russian women's headgear prior to the Mongol invasion (Saburova, 1997: 107).

B. Neck and neck-chest decorations.

1. Torque or crown (Fig. 1, *1*)—a lamellar item, decorated with gilded and nielloed engravings. The preserved part is 15 cm in diameter. Ornamental motifs are comparatively simple: stylized floral sprout, network, and knot compositions. The pattern is divided by vertical cartouches containing a nodal network motif into several sections with peculiar ornamentation: in the center, there is a floral sprout framed above and below by a twining motif; at the sides, a complex composition of intertwining bands with ordinary knots inscribed into circle. Most motifs reveal parallels in the design of the Old Russian jewelry, in particular, nielloed bracelets (Makarova, 1986: 88–89, fig. 41, 42, cat. No. 225, 232). Judging by the stylization of the motif, its rough rendering, and the replication of the main composition techniques used by craftsmen of the Kiev and Vladimir schools, the artifacts are not older than the late 12th to the first half of the 13th century.

2. Shoulder-mantle medallion, decorated with two relief cordons at the edge, round, with a diameter of 4.3 cm (Fig. 2, *1*). In the center, there is an engraved image of a cross with two crossbars; the lower part of the cross is bifurcated into two sprouts. The vertical bar bears a vague zigzag or wavy motif. The sprout's leaves are shown rather realistically. The motif's composition is similar to those from the Old Russian silver medallions in the shoulder-mantles of the 12th to early 13th centuries (Ibid.: 108–109, cat. No. 297, 307). The stylistic feature

Fig. 1. Crown or neck decoration (*1*), crown (*2*), and a pair of pendants (*3*) made of non-ferrous metal.

of the motif on the described artifact (large petals overlapping the sprout) was recorded only on one medallion, manufactured in a Vladimir workshop in the early 13th century (Ibid.: 107, cat. No. 307). The medallion described here is a replica of the Vladimir products.

3. Medallions (3 spec.) with representations of a horseman, discoid, about 6 cm in diameter, with a broad plate forming a hanging loop on top, soldered to the reverse side (Fig. 3). The medallions show a standard subject: a horseman surrounded by animals, birds, and celestial bodies. On two medallions, the motif is highlighted with gilding, while the background is nielloed (Fig. 3, *1*, *2*). One medallion is decorated with corded filigree (Fig. 3, *1*). Such items were widespread in the Cis- and Trans-Urals (Belavin, 2000: 91–93, fig. 40; Komova, Pristupa, 2012: 127, cat. No. 51, ill. 60); currently, several dozens of such artifacts are known. The medallions date to the 12th–14th centuries. Such artifacts have been studied in detail by N.V. Fedorova (2014).

4. Brooch or onlay of round shape, with a hanging loop on the reverse side (missing) (see Fig. 2, *2*). The obverse side shows openwork ornament made of gilded wire in the form of a sprout; the center is decorated with an eight-petal rosette made of thin foil, with relief details of leaves. The center of the rosette is marked with a hemisphere. Two-layered jewelry became popular in Eastern Europe in the 13th – 14th centuries (Sedova, 1981: 162, fig. 64, *12*, *13*), although, judging by the available jewelry pieces, their manufacturing techniques were known in the 12th to early 13th centuries. Examples can be found among the well-known jewelry items from the Staraya Ryazan hoard of 1822 (Rybakov, 1971: 21, 30–31, ill. 19, 29, 30). The on-laid filigree motif on several pendants (Sterligova, 2017: 584, fig. 1–4) are almost identical to the décor on the artifact described here. The technologically similar ornaments were recorded on other artifacts from Old Rus; for example, on the cloisonné icon-pendant worn on the chest, likely manufactured in Byzantium in the first third of the 13th century, and currently deposited in the Moscow Kremlin Armoury (Rybakov, 1971: 25, ill. 22). On the basis of the mentioned parallels, the artifact date to the early 13th century.

Fig. 2. Medallion (*1*), brooch (*2*), and wrist-shield (*3*) made of non-ferrous metal.

5. Two arch-shaped dangle pendants of white metal (3 × 4 cm), with cylinder suspensions on chains (see Fig. 1, *3*). The suspensions, 1.5 cm high and 1 cm in diameter, are made of two hemispherical elements connected with a narrow metal band fixed with double filigree "cords", gilded and decorated with coarse granulation. The lower part of the suspension is decorated with a soldered large granulation blob. The bottom of the signet shows four through-holes, framed with filigree, where the chains are fixed.

The main ornamentation area is gilded and framed with coarse corded filigree; the interior is additionally decorated with a "pseudo-filigree" fine stamped wire. In the center, there is an arch-shaped holder with a large ornamental stone of red wine-color. The base of the holder is decorated with granulation; the granules form a triangle on top and additional rhomboids at the bottom corners. In the middle of the spare area, one more arch of stamped "pseudo-filigree" is arranged, connected with exterior and interior outlines by rhomboids of granules.

Fig. 3. Medallions representing a horseman, made of non-ferrous metal.

Such decorations are common for the Perm antiquities of the 12th century (Belavin, 2000: 88, fig. 37, *7*). Their replicas have been recorded at the sites of the 12th–14th centuries in Trans-Urals (Komova, Pristupa, 2012: 85–88, cat. No. 32, ill. 38, *2*; 40, *3*). The abovementioned suspending beads are typical of the Kama basin and Trans-Urals (Ibid.: 54–55, cat. No. 18, ill. 19, *1*, *2*).

C. Arm ornaments.

1. Shield on the wrist, ovoid, curved to fit the wrist (see Fig. 2, *3*). Paired through-holes are made along the long sides for attaching straps. The artifact's edge is convex. The exterior surface is decorated with an engraved geometric pattern. The composition is standard: two ornamental bands and a central medallion, subdivided into two sections. The main motif is a network with ring or similar links, the additional one is an S-shaped motif. Sections of the central medallion are filled with uneven rhomboids decorated with inscribed arch-shaped figures, which make them look like fish-scales.

Variously decorated silver shields mostly found in Western Siberia are deposited in the State Hermitage Museum and museums of Yamal-Nenets Autonomous Okrug (Sokrovishcha Priobya…, 2003: 70–71, cat. No. 33, 34; Baulo, 2007; Komova, Pristupa, 2012: 26–27, cat. No. 7, ill. 7). The shield described here belongs to the Siberian set of similar artifacts. Judging by the older prototypes, such shields appeared in the region in the 1st millennium AD and were in use here till the recent past. The chronology of these artifacts has not been established. Bone wrist-shields were in use in the Perm region of the Kama and in Volga Bulgaria in the 12th to early 13th centuries, and in the Bulgaria Region of the Golden Horde in the second half of the 13th to 14th centuries (Belavin, 2000: 112, fig. 52, *1*, *2*; Rudenko, 2005). These shields were most likely used as personal ornaments rather than to protect the wrist from a bow-string hit. Judging by the representation of a network with ring-links that occurs on the Old Russian bracelets of the 12th to 13th centuries (Sedova, 1981: 109, fig. 42, *10*), this artifact can be attributed to the same period.

2. Hinged bracelet-rings (3 spec.) (Fig. 4), made according to the Old Russian traditions (Makarova, 1986: 64–99). The distinctive feature of these items is decoration with filigree, granulation, and gilding. In some cases, the background of the motif is roughly crosshatched. The construction of the artifacts and most of the ornamental motifs (mainly complex knots of interweaving bands) is identical to that of the Old Russian tradition. Similar items have been recorded in Western Siberia: for example in the Saygatinsky III cemetery (Komova, Pristupa, 2012: 80–81, cat. No. 30, ill. 33, 34; Sokrovishcha Priobya…, 2003: 72, cat. 35). The artifacts date to the 12th–14th centuries. Bracelets-rings occur in the Kama basin (Belavin, 2000: 102, fig. 45), where these were probably produced not earlier than the late 12th–13th century.

D. Metal ware.

1. Goblet—shallow, cup-like vessel, 20 cm in diameter, with a tall cone-shaped stem (Fig. 5, *1*, *a*).

The rim is thickened. The upper edge is decorated with a wavy pattern framed by two dotted lines, executed with a pointed chisel. The ornamentation-band in this part of vessel is gilded. In the lower portion of the stem and at the very base, there is also a gilded ornament in the form of joined rounded brackets, formed by a narrow strip; in the places of the brackets' joints, flowers are depicted, resembling lotus with volute-shaped leaves and hemispherical blossom. A little gilded crosshatched arch is engraved between the brackets. Traces of nielloing are notable both on the bowl and the stem.

On the reverse side of the stem, an Old Russian inscription is scratched (Fig. 5, *1*, *b*). This can be interpreted as: "Grigor. Gri(ven) polo chotve(rte)"*, which means 3.5 grivnas. Next to it, there is a line of incisions possibly designating the number 17½. This is one half of 35, which number is spelled out in letters in the inscription.

On the tray, in northwestern Siberia, the image of a mythical animal with a lion head and possibly wings (Fig. 5, *1*, *c*) was engraved. This suggests that the goblet was used by the indigenous people of Siberia as a cult attribute.

The shape of the goblet is standard, and typical of the European and Byzantine toreutics of the 11th to 14th centuries. Similar items have been recorded among the Novgorod wooden ware of the late 11th to 13th centuries (Rosenfeldt, 1997: 45, 280, pl. 34, *14–16*).

2. Stem of a goblet (?) (Fig. 5, *2*). The stem is cone-shaped and ornamented with engravings, niello, and gilding. The motifs are distributed among two levels. The even and nielloed upper level shows alternating gilded almond-shaped medallions filled with stylized motifs; between them, cross-shaped figures are arranged, with a composition suggesting motifs of trefoil. These trefoil-like images demonstrate close similarities with the décor on some Old Russian bracelets of the late 12th to early 13th century (Makarova, 1986: 81, fig. 38, No. 224). The technique of working the background with deep crosshatching was also typical of the Old Russian bracelets.

Fig. 4. Hinged bracelets made of non-ferrous metal.

The lower level is decorated with a representation of a floral sprout, the relief outline of which, highlighted with niello, is clearly visible on the crosshatched gilded background. Certain minor details, such as a miniature heart shown instead of the ordinary projection at the curve of the sprout, close to the node, or an extra trefoil at the end of the petal, are original features.

3. Bowl—deep, with a tray of hemispherical shape (Fig. 6, *1)*. Inside the bowl, on its bottom, an eight-rayed rosette with narrow petals is engraved on the chased background. The motif is gilded. The vessel's prototypes can be found among the wooden bowls of the 12th–13th (Rosenfeldt, 1997: 278, pl. 32, *25*). The shape of such metal bowls was typical in the East in the 13th–

*The interpretation of the inscription is proposed by A.A. Gippius (Institute of Slavic Studies of the RAS), who dates the inscription to the (presumably) 12th century. The authors express their gratitude to him.

Fig. 5. Goblets of non-ferrous metal.
1 – goblet No. 1: *a* – general view; *b* – fragment of inscription with the word "Grigor" and incisions on the reverse side of the stem, *c* – drawing of the motif on the stem; *2* – stem of goblet No. 2.

14th centuries (Khudozhestvennaya kultura…, 2012: 277, fig. 5). The motif of the multiradiate rosette is widespread in toreutics, and has no territorial or cultural association.

4. Dish (?)—flat, round, decorated with the pseudo-spoon ornament (Fig. 6, *3*). In the center, in a round medallion, a complex geometric composition of interweaving narrow bands is depicted, based on the square and star. Parallels to such composition can be found in Eastern toreutics, mostly Iranian, of the 12th century (Baer, 1983: 130, fig. 108). Judging by style and ornamentation of the decoration, this is an Iranian product of the 12th century.

5. Dish with spoon-like imprints (?), about 30 cm in diameter, with a broad edge. The edge shows Arabic inscriptions and round miniature medallions containing octapetal

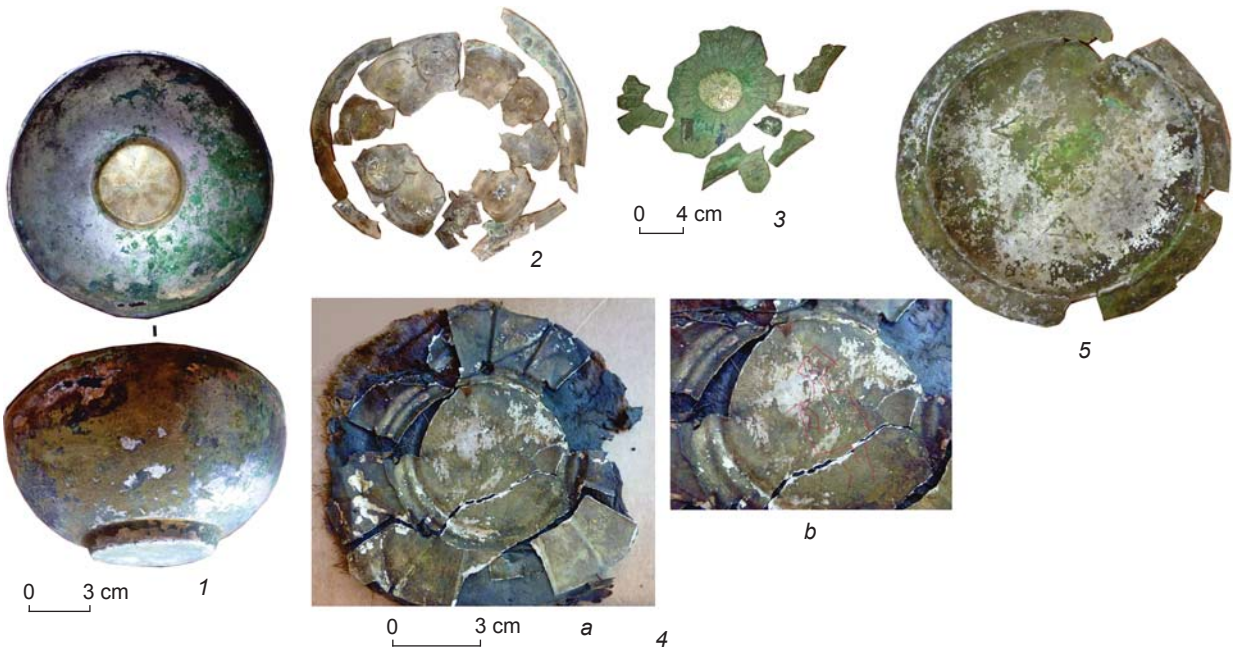

Fig. 6. Bowl (*1*) and dishes (*2–5*) made of non-ferrous metal.

rosettes with rounded petals (Fig. 6, *2*). The medallions' background is nielloed. The dish's bottom shows deep spoon-imprints forming a rosette. A dish of a similar style was found at Barsov Gorodok, near Surgut, and dates to the 13th century (Sokrovishcha Priobya…, 2003: Cat. 31). Ornamentation of the dish bottom in the form of rosette was typical of metal artworks manufactured in many Muslim countries in the 13th century (Khudozhestvennaya kultura…, 2012: 80, ill. XXII).

6. Dish—flat, with a wide everted edge (Fig. 6, *5*). In the center, there is a round medallion containing an engraved octapetal rosette on the nielloed background. The medallion is surrounded by three triangles with a stylized floral sprout on the nielloed background.

7. Dish—round, with spoon-like imprints, 20 cm in diameter, fragmented, sewn on a piece of fabric (Fig. 6, *4*, *a*). On the dish's bottom, there is an image-palimpsest (Fig. 6, *4*, *b*) representing a human. The dish was used as a cult item.

II. Iron items.

A. Armor.

1. Helmet—sphero-conical in shape, with a high finial that has a globe-shaped thickening in the middle and a loop on top, with a ring for the horse-tail (?) (Fig. 7, *2*). The helmet-shell is dome-shaped. In the lower part on the obverse side, it has a nasal and near-eye hollows. The helmet was likely provided with aventail. The helmets of this type were typical of nomadic tribes of the Eastern European steppes in the pre-Mongol Period, though also occurred in the south-Russian regions (Kirpichnikov, Medvedev, 1985: 316). Helmets of similar construction are deposited in the State Hermitage Museum: finds revealed in the vicinity of the village of Nikolskoye, Orel Governorate and the village of Tangacha, Kiev Region, dating to the first half of the 13th century (Ibid.: 356, pl. 142, *2*, *3*; Kirpichnikov, 2009: 59, fig. 41).

2. Chain mail (3 spec.) survived in the form of amorphous oxidized aggregates (Fig. 7, *3*). These were most likely rolled up during the funeral rites.

B. Offensive weapons.

1. Saber with a slightly curved blade, fuller, and pointed tip (Fig. 7, *1*). Sabers of this type were in use in Old Russia in the 12th–13th centuries (Kirpichnikov, Medvedev, 1985: 335, pl. 123, *4*). The earlier specimens have been recorded in the Trans-Urals, for example in Saygatinsky VI cemetery of the 10th–11th centuries (Surgutskiy kravedcheskiy musei…, 2011: 67, 125, cat. 131).

Fig. 7. Saber blade (*1*), helmet (*2*), and chain mail (*3*) made of iron.

Conclusions

The majority of the artifacts from the Sosva cemetery date to the 13th century, most likely to the second part thereof. The jewelry and some other items were manufactured either by sample, or as replicas of the Old Russian products in the Kama area. This is evidenced by the traces of decoration techniques, such as gilding and nielloing, that were popular in this region. It cannot be excluded that these techniques were used by the Old Russian craftsmen who moved to the Kama area after the Mongol invasion. Almost all metal ware from the cemetery under study is either replicas or imitations produced in the Kama area. Judging by the features typical of Bulgarian jewelry (Rudenko, 2015), it is not possible to consider this ware Bulgarian products.

There are only few original imported goods. These include the Iranian bowl of the 12th century, as well as armor and offensive weapons of "steppe" appearance, which were probably brought to the Trans-Urals by the Russian merchants. This assumption is supported by the Russian inscription on one of the vessels.

Since the circumstances of the finding of the items are unknown, it is hardly possible to distinguish between the grave goods and the attributes of the sanctuary. The goblet (see Fig. 5, *1*) and dish (see Fig. 6, *4*), on which the northern graffiti are represented, are the items that can be confidently attributed to the objects of religious and ritual practice of the local Siberian population.

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The Ethnoarchaeology of Russians in the Syro-Palestinian Region (18th–19th Centuries)

This study belongs to a new archaeological subdiscipline in Russian and Israeli research—the archaeology of Russian presence, addressing cultural, ethnic, and geopolitical contacts between the Russian Empire and the Near Eastern, specifically Syro-Palestinian, population in the mid-19th to early 20th centuries. This was the time when a new sociocultural entity emerged, known as Russian Palestine. Many thousands of Orthodox Christians from Russia (including Siberia) traveled to the Holy Land each year. A prolonged Russian residence in the Ottoman part of Palestine, where Russia owned dozens of estates, had a profound impact on Palestinian culture. Important evidence thereof are archaeological sites relating to Russian estates and pilgrimage centers. This article provides information on newly discovered Russian estates in 19th century Jerusalem, remains of buildings with their infrastructure at the Russian and Benjamin's estates, and the Russian Compound outside the Jaffa Gate. Evidence of the Russian presence include numerous 18th–19th century lapidary inscriptions, utensils left by the first Russian missionaries, small cemeteries, and separate burials (some of them very interesting, such as the burial of a Russian pilgrim at Aceldama, Jerusalem). One find is unusual—a family synodikon from Aceldama, printed in Moscow. Among the inscriptions are professional ones, made in the monumental style, and usual prayer graffiti. One inscription has allowed us to determine the date of the pilgrimage to Constantinople and Palestine by the Chernigov monks, described by Sylvester (Dikansky).

Keywords: *Historical archaeology, pilgrimage, cemeteries, Jerusalem, Jericho, cultural contacts.*

Introduction: The archaeology of temporal presence

The study of interaction between different cultures has a separate field that is not always taken into consideration while analyzing cross-cultural relations on the basis of archaeological evidence. This field is the archaeology of presence during traveling for scientific-geographical purposes or pilgrimages to a foreign territory. Traces of such presence are manifested in the best way when atypical artifacts of the local culture are found during excavations, or indirectly by the distribution of special pilgrimage items and specific iconographies associated with a particular holy object (a typical example is pilgrims' badges of the Late Middle Ages in Europe; see the well-known catalog (Spencer, 1998)

and database of the Radboud Universiteit Nijmegen (http://www.kunera.nl/Default.aspx)). Examples of purposeful structuring of the local environment in response to mass pilgrimages are well known and include the development of certain production areas (the industry of "souvenirs" and *eulogia*—simple and mass-produced or very sophisticated, such as the Bethlehem models of the Church of the Holy Sepulchre of the 17th–18th centuries), accumulation of food and facilities for everyday amenities, as well as creation of spatial infrastructural objects (roads, architectural structures, like shelters, hostels, etc.) or transformation of previously existing types of buildings (a well-known example is the emergence of the subtype of "pilgrimage churches" in the Roman and Gothic architecture of Europe). Finally, travelers and pilgrims who died in a foreign land left burials decorated atypically in terms of the local cemeteries (for example, the Christian cemetery of Galata (Düll, 1989; Düll, Luttrell, Keen, 1991)).

In fact, pilgrimages and tourist-type journeys constitute a form of assimilation or colonization, often being followed by the emergence of settlements of foreigners, such as foreign quarters in Moscow in the 17th century, Galata in Istanbul, and the Russian Compound in Jerusalem, which make a strong impact on local culture. This is one of the important forms of exchange also observed using archaeological methods (for pilgrimages as a phenomenon, see (Sumption, 2002; Pilgrimage…, 1995, Reframing Pilgrimage…, 2005)). This article intends to indicate the opportunities for the development of archaeology of the Russian presence in the Holy Land and discuss the first steps in this direction.

Russian Palestine: Ethnoarchaeological version

First of all, we should mention a partly archaic (given the archaic nature of the phenomenon of mass pilgrimage to holy places) and partly extremely modern (if not futuristic) nature of the Russian movement to Palestine. The emergence of ideas about the lands on which the Biblical and Gospel events took place was an extremely important process in the history of Russia, which did not completely coincide with similar mental developments among the Christian people of the West. The interest of Russian literary men (broadly including both writers and readers) in the Holy Land was extremely strong, which for a long time was expressed not so much in the development of a real movement, but in their love for pilgrim literature, both Slavonic and translated. These were "journeys" and other forms of describing the sacred geography and topography. In fact, the inhabitants of Muscovite Rus (peasants, town dwellers, and service people) knew Palestine (or at the very least its anagogical image) much better than the general geography of their own state and surrounding lands (Fedorova, 2014: 62–71, 165–193).

In the 18th century, the lands of the Ottoman Empire became more accessible for the visits of Europeans. After the reforms of Peter I, the mobility of the inhabitants of the Russian Empire also somewhat increased. Visits to the Holy Land became more frequent, which gave rise to a new wave of "journeys" (*khozhdeniya*), which gradually turned into travel notes, diaries, and other forms of travel descriptions, both scholarly and literary. Medieval attraction to holy places, typical curiosity of the European Orientalism, and political necessity gave rise to the phenomenon called "the Russian Palestine", combining mental and practical advancement in the Syro-Palestinian region into a single concept (for the main milestones in the development of this process, see (Velikiy knyaz…, 2011)). For about half a century (the 1860s–1910s), the pilgrims' movement from Russia became large-scale. This alone paved the way for a powerful cultural interaction.

The support of the movement on the part of the society and state, which partly formed it and tried to use it as a tool in foreign policy, gave it a systemically structured centralized structure, so stable that it was possible to keep it from final disintegration, albeit with significant losses, for about a century (not without reason the main actors were not only the Ministry of Foreign Affairs, but also the Russian Spiritual Mission, as well as a special public organization or in fact also a state organization called the Imperial Orthodox Palestine Society; for more details, see (Rossiya…, 2000)). Until recently, traces of the interaction could be seen in the everyday life of Arab villages and towns: Russian samovars were widely used there; silver coins of the last Russian Tsars were a part of necklaces and bracelets, and porcelain made in Russian factories was on tables. All this can be also found to the present day, but mainly as items of antique trade. The Russian contribution of the 19th to early 20th centuries survived in the form of textbooks. Graphic art in journals of the time, which to a certain extent was still used by reporters instead of early photography, also shows Russian presence at the time (Fig. 1). Yet the general situation is different today: in the Arab settlements, the pre-revolutionary Russians are remembered mainly from the stories of grandmothers and great-grandmothers, while the Russian infrastructure has turned from a true working mechanism into a more or less well-preserved heritage. Many elements have been forgotten to such an extent that it is possible to bring back the memories of their existence only with the help of archaeology (Belyaev, 2019).

Although the Israeli law does not recognize evidence that appeared later than 1700 as archaeological records (the Antiquities Law was passed in 1978), the general trend towards making archaeology more recent in the

world requires including monuments from the Late Ottoman period, World War I, and even the British Mandate (1917–1948) into archaeological research. Moreover, exactly these sites, as lying above other cultural layers, become subjected to destruction during any excavation works, and should be treated as equivalent to other historical evidence regardless of whether they are the objects of urban or rural archaeology (for examples, see (Arbel, 2014; Ottoman Jaffa…, 2017; Re'em, 2010; Finkielsztejn, Nagar, Bilig, 2009; Re'em, Forestani, 2017; Re'em, 2018b; Tsuk, Bordowicz, Taxel, 2016; Taxel, 2017; Peretz, 2017; Zilberstein, Shatil, 2013)). In the present-day Russian legislation, a 100-year chronological boundary is recognized as the threshold of archaeology, which makes it possible to consider any pre-revolutionary items as archaeological.

Fig. 1. Russian pilgrims at a church shop in Jerusalem. Engraving of the late 19th century.

An extremely typical example in the field of "archaeology of the Russians" was a find made in 2018 in the area of Jerusalem known as Musrara (north of the walls of the Old City, near the Notre Dame de France complex). After starting works on construction development of a long-abandoned site, the employees of the Israel Antiquities Authority quite expectedly discovered layers of the Byzantine and Early Islamic periods. They were covered by the foundation of a later (not earlier than the 19th century) building with an undoubtedly European layout. It was not easy to identify the structure; prior to the beginning of works, scholars had no information about its existence. Archival research has revealed a three-story building of distinctive architecture on the photographs of the early 20th century. On the map of the period of the British Mandate, it was vaguely named "District Offices". A detailed plan published in 1895 by C. Schick, the Chief Architect of Jerusalem in the second half of the 19th century, has made it possible to identify the building, designated as "Wohnung der russischen Konsulats beamten". Thus, the situation became clear: archaeologists accidentally discovered one of the Russian possessions in Jerusalem in the 19th century, also identifying the name used at that time: the Homsi land plot at the New Gate (3436 m^2), on which a residential building was built for the employees of the Russian consulate. Previously unpublished documents reflect lengthy official correspondence, the process of registration of the building, and other ordeals in Turkish and Russian offices. The house needed by the officials of the Russian Consulate General was built, but after less than a century it was demolished under unclear circumstances (Tchekhanovets, Vach, 2019; Vach, 2018).

In recent years, during the development of the vast zone in Jerusalem that in the past belonged entirely to the Russian Compound outside the Jaffa Gate—the center of the Russian pilgrimage movement in Ottoman Palestine—the remains of other buildings of the last third of the 19th century with their infrastructure (cisterns and canals), traces of construction sites (quarries, lime kilns), etc. were also discovered. Similar components of infrastructure at the site of the Russian Compound were discovered by the excavations of 2015–2017 (Tchekhanovets, Arviv, Vach, in press); more limited evidence was found at the Veniaminovsky Compound (Kagan, 2011). Along with archival data, these finds reveal the development of the city and demonstrate the fusion of European and local elements, and obvious cultural interaction.

These examples of the archaeology of the Russian presence are strictly local. They are supplemented by widespread evidence of primarily epigraphic nature: inscriptions of pilgrims, sometimes very special and unique, made in the monumental style, and ordinary graffiti with prayers, which were left by almost every pilgrim. Scholars eagerly search and publish early inscriptions, sometimes making startling discoveries. For example, the first Russian inscriptions in the Holy Land belong to the 12th century; they have been found in the Church of the Nativity in Bethlehem (Artamonov, Gippius, Zaitsev, 2013). Unfortunately, such "spontaneous" epigraphy of the 18th–19th centuries remains almost unstudied, although it is informative in its own way. The experts from the Israel Antiquities Authority have been working on photographing inscriptions both in the Church of the Holy Sepulchre and monasteries of the Old City. Extensive collections of photographs have already been compiled,

but they have not yet been read (for the first publication, see (Belyaev, Vach, 2019))*.

Dozens of Russian and other Slavic, as well as Romanian and Greek inscriptions have been found in the Monastery of the Holy Archangels. For decades, this monastery served as a stopping place for Orthodox groups, a kind of quarantine for the foreigners. The first Russian spiritual mission was located in its cells before the Russian Compound was built outside the Jaffa Gate. These texts serve as an important addition to the little-known "journeys", since they have the same authors. Monumental forms of epigraphs preserving various visits, which were executed in a quite professional manner and apparently commissioned by the pilgrim, are also of interest. On the contrary, some records look careless, but were made on specially carved fields (the inscriptions of the pilgrims Ivan Birizovsky from Voronezh and Ivan Dorokhov from the Kursk village of Kudenitsyno, 1857) (Ibid.: 96–97) (Fig. 2). Such is the earliest inscription among those found so far, made in 1720. It is located in the monastery in one of the cells, and informs us that "Hieromonks Sylvester and Nicodemus Rikhlovsky from the Chernigov Diocese of Little Russia came here to worship the Sepulchre of the Lord" (Ibid.: 96). Sylvester and Nicodemus, the monks of the Rykhlovsky St. Nicholas Monastery, traveled to Constantinople and Palestine. In 1728, Sylvester (Dikansky) compiled a description of the journey, known in two manuscripts (part of one manuscript was published in 1883, and the complete author's manuscript is kept in the library of Tomsk State University and is being prepared for publication (Opisaniye…, 1883; Slavyano-russkiye rukopisi…, 2009; Putnik…, 1728)). Until now, it was believed that the journey of the Chernigov monks began in 1722, but in fact this could have been the year of their return.

Outstanding inscriptions outside Jerusalem include culturally important Latin graffito left by Bishop Porphyry (Uspensky), the founder of the Russian Spiritual Mission in Jerusalem, at the important intersection of Sinai (Tchekhanovets, 2018). Along with such sophisticated sources as large buildings, urban infrastructure, and construction sites, large-scale archaeological evidence (in the traditional sense of the word) clearly indicates the Russian presence in Palestine. This evidence was left by the first Russian missionaries at the Russian sites in Jericho, Hebron, and other places (Fig. 3). These include small items of glass, mostly pharmacy vessels used for holy water of the Jordan and other revered water sources or for blessed oil, some also probably originating from Russian hospitals. Fragments and intact items have been recently found during excavations in the Holy Sepulchre Church (Avni, Seligman, 2003) and in the City of David (excavations in 2018); their subjects and iconography of the Gospel scenes, similar to the *eulogia* of Byzantine Palestine, demonstrate stability of pilgrimage practices. Fragments of vigil lamps also belong to this group.

It is possible to perceive the already mentioned less specific items, such as household porcelain, details of samovars, and other kitchen appliances, as evidence of the transfer of cultural traditions. These were numerous, for example, in the layers of the Russian possessions in Jericho, and make the distant town of Byzantine and earlier periods a legitimate topic of historical archaeology of both Russia and Palestine. This regards not only the world of things, but also the space of onomastics with the concept of "Moskobiye", attributed by the local population to any Russian sites, and such a stable concept as "Russian mosaics" (that is, Byzantine mosaics found on Russian land plots (Belyaev, 2016: 47–82)) in the scholarly vocabulary.

Not all pilgrims and travelers managed to return to their homeland; burials and small Russian cemeteries, clearly representing the first stage in the development of the sites, have become a natural form of manifesting their presence. For instance, such a cemetery of the 1880s, consisting of four graves marked by tombstones is located in the land plot in Jericho, which was bought in 1883 by Athos Hieromonk Joasaph (Ivan Kirillovich Plekhanov) for establishing St. Michael Monastery of the Holy Trinity. All tombstones were marked with a cross, but only two had inscriptions: a Russian woman Elena Ignatyevna Reznichenkova, monastic name Eulampia, August 8, 1885 (Fig. 4, *a*), who donated money to buy the plot, was buried under one slab; an unknown woman was buried under the other slab with the inscription "Natalia. 1883. NOEM 6". The diary of Archimandrite Antonin (Kapustin), the founder of the pilgrims' hospice in Jericho, tells us the story about the death of a pilgrim with the same name, but who died a year later: Natalia Ivanovna Elungkova, the daughter of an honorary citizen, died at 45 from gangrene on June 21, 1884, after donating 30,000 rubles for the development of Russian sites and other matters of piety.

As far as individual burials are concerned, some of them are very exotic. On Antonin's land plot in Jericho, there was a grave (or at least a tombstone) of the prominent Orientalist traveler and physician Friedrich Mook (September 29, 1844–December 13, 1880), a native of Bad Bergzabern (Palatinate), who drowned in the Jordan during the famous expedition of Emil Riebeck—another German traveler in the East (apparently there was no other piece of Church land to bury a Christian in Jericho). This is an important example of a curious cohesion of Christian Europeans—a nutrient medium for cultural exchange (Fig. 4, *b*).

*Russian and Israeli archaeologists have recently begun a systematic joint study of such inscriptions. We sincerely thank E. Kagan, the Old City antiquities' inspector, for generously sharing the accumulated evidence with us.

Fig. 2. Commemorative inscription of Ivan Birizovsky and Ivan Dorokhov. 1857, Jerusalem, courtyard of the Monastery of the Holy Archangels (*photo by the authors*).

A find from Aceldama of the Gospel narrative (Matthew 27: 6–8) in the southeastern part of the Hinnom Valley (also "Potter's Field") is even more surprising. Since the Roman period, this place with burial caves hewn in the slopes has become a part of the system of cemeteries surrounding Jerusalem. In the Byzantine period, it was an abode for hermits, and in the Middle Ages it turned to a place of mass burial of pilgrims (Re'em, 2018a: 153–154) (Fig. 5). Aceldama was mentioned literally by all

Fig. 3. Items of the second half of the 19th century from the site of the Russian Museum and Park Complex in Jericho (after (Belyaev, 2016)).
a – porcelain and glass; *b* – metal and ceramics.

people who wrote about Jerusalem, including Hegumen Daniel in 1106–1108 (Zhitiye…, (s.a.)). Its revered soil was exported to Europe by ship (it was assumed that it provided rapid tissue decomposition, but did not cause decay processes) (Bodner, 2015). In the early 14th century, in Aceldama, a large charnel house was built with 15 roof openings for lowering bodies into it; the accumulated bones were subsequently buried in the caves of the Greek monastery of St. Onuphrius the Great (renewed in 1892). The descriptions always emphasized the foreign constituent of buried persons (Khozhdeniye…, (s.a.)). Memorial services and burials were performed there until the 19th century (Tobler, 1854: 274; Conder, 1881: 271; Leonid (Kavelin), 2008: 215). Restoration works in 2002 and 2011 showed the accuracy of the descriptions and made it possible to calculate the capacity of the charnel (almost 13,000 bodies, cf.: (Proskinitariy…, 1889: 181–183)). Skeletons have not been found at the site, but one of the monastery caves that was filled with secondary burials of bones belonging to hundreds of people, mostly adult

Fig. 4. Tombstones at the site of the Russian Museum and Park Complex in Jericho.

Fig. 5. The area of ancient cemeteries of Aceldama in Jerusalem (after (Re'em, Tchekhanovets, 2019)).

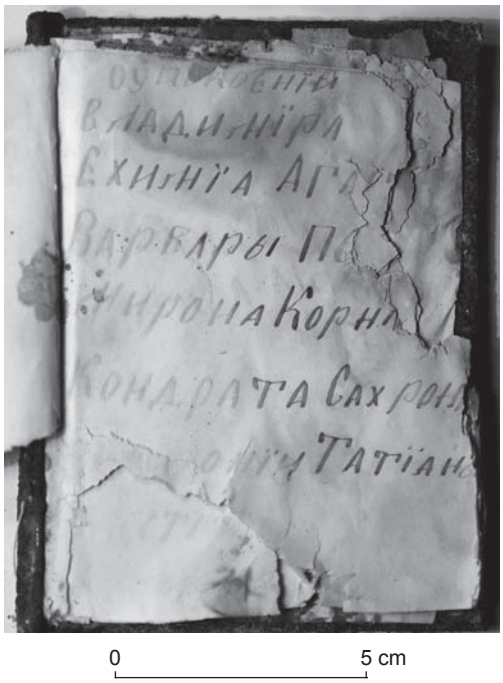

Fig. 6. Page of the commemoration book of the Russian pilgrim Galushkina, buried in the 1910s in the cemetery of the Monastery of St. Onuphrius the Great (after (Re'em, Tchekhanovets, 2019)).

men, was studied in 2010. A few female remains included a skeleton with scraps of clothing and small book bound with a metal cover—a family commemoration book printed in the Wilde typography in Moscow and belonging to a female pilgrim with the last name of Galushkina (Fig. 6). Her exact origin has not yet been established, although a woman with that last name was mentioned in the diary of Father Antonin (Kapustin) (Re'em, Tchekhanovets, 2019). The owner of commemoration book, Galushkina (or Golushkina) apparently originated from Southern Russia and belonged to a low class (peasant?). As is known, the large scale of pilgrimage was made up of peasants and residents of urban outskirts, from the western borders of the Russian Empire to Siberia (journey to and comprehension of the phenomenon of the Russian Palestine for the Siberians generally became one of the ways of forming their self-identity (Valitov, 2019; Valitov, Kibardina, 2019); this topic is now being studied by a group of scholars from Omsk University under the leadership of M.S. Shapovalov).

Conclusions: All in the future

The question of the Russian presence in Palestine has been actively studied since the last quarter of the 20th century, but never from the perspective of "dialogue of cultures", which can be detected by nothing other than archaeology of the late period. Even the former Russian sites retain certain connection with Russia in the eyes of the local dwellers and scholars, which is facilitated by the preservation of the majority of buildings built on them in the 19th to early 20th centuries. It is important that the process of Russian development of Palestine on its own created a kind of cultural layer, left material traces, which include types common for archaeology—from household waste to necropolises. From a scholarly point of view, such cultural and anthropological evidence serves as a field for historical and archaeological experiments; it is also important for museum work on Russian sites, such as the Joasaph plot in Jericho, where the Russian Museum and Park Complex was created in 2011.

The Israeli archaeologists, who possess an enormous ancient heritage at their disposal, are also willing to study local Russian antiquities and thus form a separate field as a part of the archaeology of Israel (international by definition). In 2019, a Russian-Israeli seminar was held at the Tel Aviv University (with the participation of the Institute of Archaeology of the Russian Academy of Sciences), focusing on the archaeology of Russian possessions of the 19th to early 20th centuries ("Russian Archaeological Project, 19th–21st centuries"). In addition to this, public lectures have been held and this topic was announced on the ANET resource of the University of Chicago (Tchekhanovets, Belyaev, 2020). A special annual journal on the study of sources has been published since 2010, reflecting deep mutual interest in the heritage of the Holy Land (completely non-confessional, despite its name "Jerusalem Orthodox Seminar"). Undoubtedly, we have the right to speak about the beginning of the emergence of Russian ethnoarchaeology of the Syro-Palestinian region.

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Traditional Buryat Beliefs About Birds

This study, based on ethnographic, linguistic, and folk materials, describes and interprets Buryat ideas of birds. The analysis of lexical data reveals the principal groups of birds according to the Buryat folk classification. The bat's status is indistinct, since bats are not subordinate to the kings of the animal world. Diagnostic criteria underlying the classification of birds are outlined. The main criterion was whether a bird was beneficial or harmful. Ornithomorphic images in Buryat mythology, folklore, and ritual are described. Cult birds and bird totems are listed, and relics of local bird cults (those relating to swan, goose, duck, pigeon, and eagle) are revealed. Birds with positive connotations are the swan, crane, swallow, pigeon, eagle, and eagle-owl. Those with negative connotation are the kite, raven, crow, quail, cuckoo, and hoopoe). The attitude toward ducks, hawks, magpies, and jackdaws is ambivalent. Certain birds (ducks and ravens) were related to cosmogonic ideas; others (swan, goose, eagle, etc.) were endowed with a werewolf capability. The raven, the cuckoo, and the hoopoe symbolized natural cycles, whereas the magpie and the quail were associated with the soul. The role of bird images in the mytho-ritual practices is discussed. The Buryat mythological ideas reflected not only specific ethnic views of certain birds, but also universal ones.

Keywords: *Buryats, worldview, shamanism, birds, folklore, ritual.*

Introduction

Images of birds are embedded in various areas of the Buryat culture, including beliefs associated with space and time, diseases, totemic ancestors, various mythical characters, etc., as well as family and tribal rituals, such as life-cycle rituals. Pre-revolutionary and Soviet ethnographers (Khangalov, 1959, 1960; Potanin, 2005; Batorov, 1927; Galdanova, 1987) have touched upon this topic in their studies, but images of birds remain little studied in Buryat ethnography. The purpose of this study is to identify and describe traditional Buryat ornithomorphic beliefs.

This study is based on literary, museum, archival, and field evidence. The main sources are the folkloric data collected by M.N. Khangalov, G.N. Potanin, and T.Z. Zhamtsarano. Linguistic information was taken from the Dictionary "Buryaad-orod toli" (2010), which contains names of birds, their organs and anatomy, etc. in the Buryat language. This study follows the structural and semiotic method.

Bird-related beliefs of the Buryats

Over the past three centuries, in the Baikal region, 363 bird species have been recorded (Baikal…, 2009: 147). Not all of them were given names in the Buryat language; the named birds obviously played a sacred or hunting role among the Buryats.

Buryats distinguished birds in the animal kingdom by type of birth, which was called *yahan turel* 'bone

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birth' (Khangalov, 1959: 219) among the Shamanists, and *yndegenhoo turekhe* 'birth through the egg' among the Buddhists.

Buryat vocabulary contains words and phrases conveying morphological features of birds, such as *shubuunai khonshoor* 'beak', *ude*(*n*) 'feather', *urbeelge* 'tail feather', *zheber* 'flight feathers', *hodo*(*n*) 'flight wings', *ude dali*, *dali*, *zheguur* 'wings', *ere maryaan uden* 'mottled plumage', *uderkheg huul* 'feathery tail' (Buryaad-orod toli…, 2010: Vol. I, p. 255, 361, 362; vol. II, p. 326, 444, 557, 621). These features are reflected in the names of the classes of birds: *dali zheguurte shubuun* 'winged birds', *zheguurten* 'feathered beings'. It is curious that in accordance with such feature as presence of tail, the Buryats united birds and animals in a single community of *huulten* 'tailed beings'. In the class of birds, the Buryats distinguished such groups as, for example, *myakhasha shubuud* 'birds of prey', lit. 'meat-loving birds', or *nugaha zagahad* 'waterfowl'.

Unlike a number of other ethnic groups, the Buryats have an unclear attitude toward the status of bats (the representatives of the Chiroptera order adapted for flight) in the popular classification of animals. The Buryats believed that bats are not subordinate to any kings of the animal world (Khangalov, 1960: Vol. 3, p. 23). This idea was reflected in the plot of some folklore sources; for example, in the following tale: "They elected eagle as king and started to subjugate all birds to him. The bat (*urmushe*) refused to obey, saying that although it had wings, it also had teeth. When the mice began to elect their king and chose Tsagan Amyn Khuluguna, the bat said that she was not a mouse, since she had wings. This is why the birds and mice sentenced her to fly only at night and not during the day" (Potanin, 2005: 174). According to this fragment, the Buryats, like the Slavic and Baltic-Finnish peoples, considered the bat to be a night bird (Gura, 1997: 603; Vinokurova, 2007: 18). The lexical evidence indicates that bats were perceived to be similar to butterflies: along with the name *uremshoo* 'bat', the name *harhan erbeekhei* 'playful butterfly' was used, although the latter definition is not entirely consistent with identifying the class of insects based on the morphology of "very small beings".

Birds were primarily associated with the sky. According to traditional beliefs of the Buryats, the sky is divided into western and eastern portions, which have opposite qualities depending on the celestial dwellers abiding therein. Some birds obeyed the will of the western (white) *tengerinuud* 'celestial dwellers', while other birds obeyed the eastern (black) ones. This division of birds was manifested in the color of their plumage, primarily in the predominance of contrasting colors—black and white. For example, the black plumage of the raven indicates that it belongs to black *zayaan* 'patron spirit'; conversely, the white color of the swan's feathers is associated with luminous powers. Of course, endowing birds with positive or negative connotations depended mainly on their perception as harmful or harmless and beneficial for the Buryats and their economy. We should mention that any birds that were the totems of individual ethnic communities were considered positive.

One criterion for the division of birds was their edibility. Buryats avoided eating bird meat of the Accipitridae, Falconidae, and Corvidae. The main hunted birds were waterfowl and fowl from pine forests.

Buryats believed that the birds had a king. In the above-mentioned tale, this king was the eagle, which indicates the universal nature of such a belief: the Turkic-Mongolian, Slavic, and other peoples considered the eagle to be a royal bird (Burnakov, 2010: 157; Gura, 1997: 610). The mythical hero *Khan Kherdeg shubuun* 'Khan Garudi bird', with its Hindu-Buddhist origins, was called the lord of the birds. Its appearance in mythology probably resulted from the Early Medieval contacts between ethnic groups in Southern Siberia, and the adoption of Tibetan Buddhism in some of these groups in the 17th–19th centuries.

Buryats paid attention to the melodiousness of sounds made by birds, and specified the category of *duusha shubuud* 'songbirds'. In addition, there was a circle of birds whose voices Buryats considered especially attractive; this is confirmed by the presence of the corresponding expressions in their language: *shakhanaa*(*n*) 'chirping (of magpie)', 'affectionately sounding (about cuckoo cuckooing)', *oin duusha shubuukhai* 'forest songbird', etc.

Buryat anthroponymy features appellatives homonymous with the names of birds: *Byrkhuut* 'eagle', *Galuun* 'goose', *Nugahan* 'duck', *Kharsaga* 'hawk', *Kheree* 'raven', *Turlaag* 'crow', *Khukhei* 'cuckoo' (Mitroshkina, 1987: 82–83). Like other "deceptive names", they were believed to protect the life of the child from encroachments of evil spirits.

Birds in mythology, folklore, and rituals of the Buryats

Among the waterfowl, Buryats gave an important position to the swan. Traces of its cult have been found in a number of ethnic communities, such as the Khori-Buryats, Khongodors, and others. The Khongodors considered the swan their totem animal, and so did not hunt them. Moreover, they performed a ritual sprinkling of flying swans with milk. However, some groups of Buryats permitted the killing of this bird for ritual purposes. People were obliged to give the hunter a horse for the killed swan; moreover, they tried to quickly exchange such prey from each other, and this happened many times until the carcass started to rot (T.S. (Savenkov Timofei), 1925: 16). The swan might have been associated with celestial grace,

which the Buryats prized. According to Khangalov, the Buryats were afraid of swans, because they believed that these birds had a heavenly patron (1960: Vol. 3, p. 37). According to fairy-tales and legends, swans with red feet were the daughters of the sky (Potanin, 2005: 25), and could turn into earthly women. In Buryat fairy-tales, a graceful female gait was associated with the image of the swan: "the beautiful Khan's wife walks around like a swan bird, steps so smoothly and lightly that flowers and grass arise behind her" (Buryatskiye volshebniye skazki, 1993: 42–47).

Images of the swan appear on cult items of the Buryats. Notably, attributes of the Khori-Buryat shaman, like the *khese* tambourine, had metal pendants with representations of this bird (Galdanova, 1987: 41). A pair of copper figurines of flying swans (male and female) decorates the shaman's outfit among the Agin Buryats, which is kept in the Russian Museum of Ethnography (RME, No. 783-39). During the shaman's travels, swans were his assistant spirits.

People also associated shapeshifting with another member of the waterfowl—the goose (*galuun*, *turog shubuun* 'gray goose' (*Anser anser*)). For instance, it was widely believed that the Tarasin *akhanuts* (spirits of famous shamans) knew how to turn into geese during their lifetime (Khangalov, 1959: Vol. 2, p. 180). The Yanguts called the goose their mythical ancestor. These Buryats performed seasonal sacrificial rituals: in the spring they were dedicated to the arrival of geese, and in the fall to their departure (Manzhigeev, 1960: 79).

The image of another waterfowl (a duck) was associated with the cosmogonic idea. According to the myth, the *angir* 'turpan' (*Melanitta fusca*) dived into primordial ocean at the request of the demiurge Sombol-Burkhan, and brought a lump of black soil in its beak and red clay in its feet, from which the Creator created earth (Khangalov, 1960: Vol. 3, p. 7). A Buryat legend speaks about *khun-nugahan* a 'man-duck', a rational being: "a man-duck looks very much like a man… A woman-duck looks like a woman: it is like she wears a hat on her head, two braids, a necklace, and a fur coat" (Ibid.: 378). This image was probably not accidental and might echo the ancient local cult of the duck. At the same time, the duck also carries a negative connotation in the traditional beliefs of the Buryats. The nesting of ducks in a summer house before the family would move there from the winter house was a bad sign (Potanin, 2005: 133). There was a widespread belief that the turpan eats its chicks (Khangalov, 1960: Vol. 3, p. 28–29). These examples testify to the ambivalence of the image of the duck in the Buryat culture.

The image of the crane does not surface very frequently in the worldview of the Buryats, but it is obvious that this bird was perceived in a positive way. The Buryats had bans on killing cranes and eating their meat. It was believed that *khara tokhoryuun* 'the black crane' (*Grus monacha*) had heavenly patrons (Ibid.: 71). In fairy-tales, the crane competes with the eagle in the struggle for the place of the king of birds, but the anger shown by the crane in relation to the quail, who opposed his candidacy, incurs disfavor from the assembly of birds (Podgorbunsky, 1915: 92). Mythological beliefs about the crane, which did not become a royal bird, are known among a number of Turkic peoples of Siberia (Potanin, 2005: 185).

There is no reason to claim that the crane was a totemic bird among the Buryats. It is true that one publication cites the appeal of the Alar Buryats to Ongon Boronkhi, mentioning the crane as a totem (Batorov, Khoroshikh, 1926: 56–57), but most likely there was a mistake in the text: the *tsen-shubuun* bird (supposedly, a Siberian white crane) was called the ancestor of the Khori-Buryats along with the swan, although it should have been the *sen shubuun* 'female swan' that was indicated.

Two species of swallows live in southeastern Siberia—the barn swallow (*Hirundo rustica*) and the sand martin (*Riparia riparia*). In the traditional beliefs of the Buryats, swallows belong to positive birds. The plot of the fairy-tale "The Swallow and the Gadfly" confirms this point: the swallow saves people from danger—after learning that a huge gadfly declared the human blood to be the most delicious, it flies to tell this to Erlen Nomon-Khan, the lord of the underworld (Buryatskiye narodniye skazki…, 2000: 91–93). Notably, this plot with slight variations has been found in the folklore of other Turkic-Mongolian peoples (for example, the Dörbet people: (Potanin, 2005: 183)).

It was considered a good sign if a swallow built a nest in a log cabin or barnyard (Field Materials of the Author (FMA)). The popular tradition forbade killing swallows or destroying their nests (Khangalov, 1960: Vol. 3, p. 72). The swallow was considered the carrier of divine grace, which was reflected in a sign: when a swallow arrives, there will always be *kurunga* in the family. The dairy product *kurunga* belongs to the "white" or sacred food and symbolizes *khesheg* 'happiness' of the family—it could not be given to other people, otherwise it was believed that the family well-being would go away. It was considered a bad omen if a swallow threw a chick out of its nest (Potanin, 2005: 133). Such bird behavior was regarded as a sign of imminent disaster threatening the family (FMA).

The image of the dove, which in the Southeastern Siberian outdoors appears in two species—the common pigeon (*Columba livia*) and the oriental turtle dove (*Streptopelia orientalis*)—appears to be unclear. Its celestial semantics is indicated by one of the names used for that bird—*burkhanai shubuun* 'god's bird'. It reflects the ancient religious views of the Cis-Baikal Buryats, and is not associated with the Christianization process. This was the name of a Lower Uda Buryat clan (Buryaty, 2004: 50). In addition, based on the evidence gathered

by Khangalov (1960: Vol. 3, p. 377), bird *Guli ekhe* (lit. 'female dove, the mother') was believed to be the ancestor of the Ikinat clan of the Balagan Buryats. According to popular beliefs, the dove was the orphaned girl, who was mistreated by her brother's wife; God took pity on her and turned her into a bird *tuutei shubuun* 'turtledove' (Ibid.: 29).

Among the daytime birds of prey, the Buryats especially revered the eagle (*ekhe shubuun*, *kharabsar*, *burged*). In the Baikal region, there occur various species of the Accipitridae. Most of them have ornithonyms in the Buryat language: *talyn burged*, *tad shubuun* 'steppe eagle', *dalayn burged* 'sea eagle', *tarbazha* 'forest eagle', *khabtar burged* 'imperial eagle', *tas shubuun* 'bearded vulture', *sagaan huultei burged* 'white-tailed eagle'. The respectful attitude of the Buryats to the image of the eagle is conveyed by popular idioms: *burged kharasa* 'eagle look' and *burged zorig* 'eagle courage'. Admiration for large size, wingspan, height, and speed of flight of the eagle, as well as its fearlessness in battle was expressed in one of its names—*ekhe shubuun* 'great bird'. This name of the eagle is linked with its perception as a bird with extraordinary sacred power.

Analysis of the evidence collected by M.N. Khangalov (Ibid.: 30–31) and P.P. Batorov (1927: 79) has shown that the cult of the eagle (more precisely, the white-tailed eagle (*Haliaeetus albicilla*)) emerged among one portion of Buryats; and this predator was also revered by another group of Buryats. Olkhon Island was considered the place of origin of the eagle cult: according to a legend, the eagle was a man, the son of the mythical owner of Olkhon *Shubuun-noion* 'Bird-lord', but after eating carrion, he could no longer take on the human form; the Olkhon white-tailed eagles originated from him. As we can see, the Buryats associated the idea of shapeshifting with this bird. The transmogrification of the mythical hero Geser into a dark gray eagle is another example of shapeshifting.

The eagle was a totem; it was forbidden to kill it. It was believed that anyone who laid a hand on this bird was subject to cruel punishment by the lord-spirit of Olkhon, who according to the Buryats was one of the thirteen northern Noyans. He served as the chief judge in the *noyohi suglaan* 'assembly of the spirits of tribal leaders' (Shamanskiye poveriya…, 1890: 17), and was revered as the patron deity of marriage (Zhamtsarano, 2001: 93). According to the beliefs of the Upper Lena Buryats, *Shubuun-noyon* had three eagle sons: *Khara ereen burged* 'Black-and-mottled eagle', *Shara ereen burged* 'Yellow-and-mottled eagle', and *Gal shara burged* 'Fiery yellow eagle'. Every year they were offered family sacrifices; the invited shaman "squawked, imitating eagles… prayed, asking for protection and patronage of the householder" (Ibid.: 328). It is curious that in addition to customary domestic animals, pine forest fowl (hazel grouse and black grouse) were sacrificed to all of the characters mentioned above (Ibid.: 336). According to a source from the 18th century, the Buryats, if "an eagle… is flying over their yurt…, sacrifice milk, tea, or whatever is at hand at the moment to it, and they dance around, jump, and hop" (cited after (Zinner, 1968: 193)).

Khan Khoto baabai 'King Khoto the father', who had the ability to turn into an eagle, belonged to the thirteen northern Noyans (Natsov, 1995: 80). Notably, the word *khoto* is paralleled in the Yakut language: *khotoi* 'eagle' (Galdanova, 1987: 37).

According to G.R. Galdanova, devotion to the eagle among the Buryats was associated with the solar cult (Ibid.: 37). It should be mentioned that the images of the eagle and horse, which were also related to the solar cult, have similarities in the beliefs of the Buryats. The sounds made by the eagle and horse are conveyed in the Buryat language by the same word *insagaalga* 'neighing, squawking' (Buryaad-orod toli, 2010: Vol. 1, p. 447). These animals are united by a struggle with the same enemy—the snake, a chthonic creature, although in Buryat myths and tales, the role of the eagle in this confrontation is often played by the mythical bird Garudi. Judging by the shamanic folklore, the eagle can destroy other serpent-like beings, for example the worm (Shamanskiye poveriya…, 1890: 16). The eagle like the horse serves the light forces. Their pantheon included *Khan Burged tengri* 'King Eagle celestial dweller', personifying the daylight. Both animals served as guides from the Middle World to other worlds.

In the Buryat myths and fairy-tales, *dalitan morin* 'winged horse', which carries the cultural hero over long distances, is the bearer of the features of horse and bird. According to the views of the Buryats, the head of the western celestial dwellers, the deity of the light Khormusta, has the winged horse for riding around the celestial dome.

In ancient times, the population of the Cis-Baikal region identified the eagle with the sky. According to A.P. Okladnikov, the figure of the soaring eagle on the petroglyphs from the Trans-Baikal region embodies the image of a bearer of a luminous celestial power, a guarantee of fertility and happiness (Okladnikov, Zaporozhskaya, 1970: Pt. 2, p. 122–123).

The image of the eagle is the key image in Buryat shamanism. According to traditional views, the first shaman was the eagle who handed his gift to an earthly woman (Khangalov, 1959: Vol. 2, p. 130). It is no coincidence that the Buryats believed that a person who tasted the meat of an animal killed by an eagle becomes a shaman. Only men could eat such meat. Women were strictly forbidden not only to taste it, but even to approach the carcass of the animal, so as not to defile the deity who was believed to take the form of the eagle. According to folk beliefs, a shaman could turn into an eagle to go on a journey, for example to the other worlds,

or to fight with another shaman. The shaman's outfit of the Buryats reflected a connection with this bird, as well as with the sacred sky and sun. For example, among the Cis-Baikal Buryats, the shaman had the *orgoi* headdress, which was made of eagle skin removed together with the wings (Ibid.: 183) (the Khakas shamans had similar headgear (Butanaev, 2006: 73)); the shamans among the Agin Buryats had a metal chest mirror *toli*, featuring a representation of an eagle symbolizing *Khan Burged tengri* (RME, No. 783-10). The Cis-Baikal Buryats considered *Khan Khoto baabai* a family patron, and made the required sacrifices. In the traditional views of the Siberian Turkic peoples, the image of the eagle was also associated with the cults of the Sky and Sun (Burnakov, 2010: 162).

Ideas about other daytime birds of prey among the Buryats were extremely limited and mainly concerned the hawk and kite. The traditional Buryat territories were a habitation for *khara shekhetei elee* 'black-eared kite' (*Milvus migrans lineatus*), *bulzhamuurai kharsaga* 'Eurasian sparrowhawk' (*Accipiter nisus*), and *khurdeg*, *hoyrsho kharsaga*, *honosho kharsaga* 'Northern goshawk' (*Accipiter gentilis*). The attitude of the Buryats towards kites was mostly negative. However, it was believed that in the summer these birds were protected by master-spirits, and at that time it was not allowed to hunt them; this prohibition did not apply to the rest of the year (Khangalov, 1960: Vol. 3, p. 37). Among the Buryats, the kite was perceived as an ominous bird. According to a popular belief, if a kite screeches… it portends rain and prolonged misfortune (Ibid.: 74). People believed that an evil spirit could take on the appearance of this bird (Gomboev, 1864: 58). According to traditional beliefs, some shamans could turn into this bird of prey for their travels (Shamanskiye poveriya…, 1890: 9). The kite was revered in the shamanistic invocations of the Cis-Baikal Buryats.

The Buryats admired the physical qualities of the hawk. This is confirmed by the following epithets: *kharsaga solbon khukhy* 'a cuckoo as agile and deft as a hawk', *kharsaga boro morin* 'a gray horse as fast as a hawk', *kharsaga tahartai* 'with hawkish eyes'. In fairy-tales, not only did heroes turn into hawks, but also their opposites (*mangadkhaias*), which could indicate ambivalence of this bird for the Buryats. Hawks played an important role in the ritual practices of the shaman. It was believed that some shamans could take the form of a hawk in a mystic battle with a hostile shaman (Zhamtsarano, s.a.).

The Buryat vocabulary contains ornithonyms related to *tuun turlaag* 'the Corvidae': *tuun*, *alag tuun* 'Alpine chough' (*Pyrrhocorax graculus*), *ubsuu sagaan turlaag* 'Daurian jackdaw' (*Coloeus dauuricus*), *alag shaazgai* 'common magpie' (*Pica pica*), *itag shaazgai* 'Eurasian jay' (*Garrulus glandarius*), *ongolo* 'spotted nutcracker' (*Nucifraga caryocatactes*), *turlaag* 'common raven' (*Corvus corax kamtschaticus*), *khara khiree* 'carrion crow' (*Corvus corone*). Images of the raven, the magpie, and the jackdaw from the Corvidae family occur in the set of Buryat beliefs.

In traditional Buryat consciousness, the raven was one of the first creatures created by the "thousands of celestial gods" along with the swan (Zhamtsarano, 2001: 84). It was perceived as a sacred figure, determining the rhythms of nature, "Black raven has started to croak—the spring has come" (Uligery khori-buryat, 1988: 88). Raven was considered the son of Azhirai Bukhe, the mythical spirit-master of the Lena River, who was one of the thirteen northern Noyans. Therefore, raven was regarded as a messenger of the black eastern celestial dwellers, who had his own patron spirit; killing ravens was prohibited (Khangalov, 1960: Vol. 3, p. 74). In the beliefs of the Buryats, this bird had a negative connotation, which resulted from its biological features, such as black plumage, habit of eating carrion, and sharp croaking. The belonging of the raven to the dark world was emphasized in mythology. For example, the epic "Altan Shagai mergen" has an expression: "Black raven screams, and yellow fox barks" (Skazaniya buryat…, 1890: 17). Fox was called the "dog of Erlen" and was a guide to the Lower World (Khangalov, 1960: Vol. 3, p. 69).

The beliefs concerning "eternal black water", endowing the raven with immortality (Potanin, 2005: 348), were associated with that bird. Such views are also known among other Turkic-Mongolian peoples (Burnakov, 2010: 158).

Raven was addressed to in shamanistic invocations. One of the elements of the vestments worn by Buryat shamans also testifies to the sacred role of this bird: the shaman's hat *malgai* worn underneath the iron crown is decorated with the *zalaa* 'tassel', to which a raven feather was attached (RME, No. 783-2).

According to the Buryats, the crow was a bad bird: it was described by the same set of morphological features as the raven. It was distinguished by a throaty cry which, as people believed, did not forebode anything good. It was considered a bad omen if a crow sat on the roof of the house and croaked loudly (Khangalov, 1960: Vol. 3, p. 74). However, its cry could also be taken as a good sign: "If it screams with another sound, it forebodes wealth" (Smolev, 1900: 28). The crow was credited with the abilities of a shapeshifter; in fairy-tales, the servants of *mangadkhai* turn into it. Among the Buryats, this bird was associated with such human vice as greed: *khentei khun khiree mete* 'the greedy man is like a crow'.

The Buryat beliefs about the Corvidae mentioned above correspond in detail to the beliefs of the Siberian Turkic peoples. For instance, both endow these birds with chthonic properties; the motif of things belonging to this bird appears in their symbolism, and shamanistic practice is connected with the raven.

In the Buryat worldview, the image of other Corvidae (magpie and jackdaw) appears as ambivalent. The fairy-tales of the Buryats indicate that the golden-chested magpie contains the soul of *mangadkhai*. If a magpie builds a nest in the yard, it is a bad omen. The belief that this bird is a harbinger of misfortune was reflected in the legend on the migration of the Khorsites from the Western Trans-Baikal region to Mongolia: this tribe interpreted the appearance of the magpie as a harbinger of the arrival of "people with yellow hair and unusual collars", and left the land of their ancestors forever (Natsov, 1995: 10–11).

The magpie is credited with ability to predict events. Different groups of Buryats had different opinions on the subject. For example, the Cis-Baikal Buryats believed that "If a magpie chatters in someone's yard in the morning, this foreshadows misfortune. If a magpie screams in the evening, this is good" (Khangalov, 1960: Vol. 3, p. 73). The Selenga Mongols interpreted the magpie chattering in a different way: "If a magpie chatters at the yard before morning and evening, this foreshadows misfortune. If a magpie chatters during the daytime with its head to the yurt, this foreshadows well-being" (Smolev, 1900: 28). The Agin Buryats associated pleasant events with that bird: "If a magpie chatters nearby, a joyful meeting should be expected" (Zhamtsarano, 2001: 181). Similar ideas about the magpie as bearing the news have been recorded among the Khakas people (Burnakov, 2009: 431).

In the traditions of the Buryats, the magpie acted as the savior of the mother of the founder of the Narat clan, who happened to be in the taiga on the verge of death (Khangalov, 1960: Vol. 3, p. 378). In a similar role, the magpie is shown in the legend of the Tunka Buryats about the Zangyasan River (Dubrova, 1884: 30).

Traditionally, the features caused by its morphology were emphasized with irony in the image of the magpie. As an example, we should cite a riddle about the magpie: *teeg-teeg yabadaltai*, *tekhe haaral gutaltai*, *alag bulag dakhatai*, *altan urga shereehetei* 'walks with a skip, wears shagreen boots, a mottled coat, drags a gilded pole'. Buryat folklore focused on the bird's selfish behavior, for which all its offspring was punished.

The jackdaw was perceived negatively because of its black plumage and especially because of its habit of feeding on dead flesh, common with the crows. The jackdaw was endowed with ability to foretell bad weather (Khangalov, 1960: Vol. 3, p. 73). Jackdaws were considered useful in popular medicine. For healing from rabies, witch doctors used feathers of Alpine chough, with which the patient was fumigated; for medicinal purposes, the patient was also prescribed to listen to its cries (Potanin, 2005: 707).

The Buryat vocabulary contains ornithonyms for nightly birds of prey, such as eagle-owl, night owl, and horned owl: *shara shubuun* 'Eurasian eagle-owl' (*Bubo bubo*), *bug*, *begserge*, *uuli*, *huukhirdeg* 'long-eared owl' (*Asio otus*), *tazhaa* 'snow owl' (*Bubo scandiacus*), *begserge*, *uuli*, *bukha shubuun* 'boreal owl' (*Aegolius funereus*). Only the eagle-owl has a positive image among the representatives of the Strigidae family listed above. According to popular beliefs, this bird protected young children from *ada anakhai* 'evil spirits' (Khangalov, 1960: Vol. 3, p. 39–40). This is why an eagle-owl chick was brought to live in the families where babies had died. It was the so-called shaman-eagle-owl, which was chosen according to the following criteria: "It gazes without blinking, what other birds cannot do, and has two bundles of feathers like horns on its head" (Chistokhin, 1878: 232). This bird lived with the child and, as the relatives of the baby believed, guarded its life. People also believed that the eagle-owl was under the protection of "white", good celestial beings, and for this reason they dedicated sprinkling with milk to eagle-owls, similarly to eagles and swans (Potanin, 2005: 92). During the ritual of worshiping the ongons, it was customary among the Cis-Baikal Buryats to tie a feather of an eagle-owl to a bride's hat. At the end of the ritual, this feather was hidden in the *dere* head cushion (Zhamtsarano, 2001: 58), which had a sacred purpose. The feather of the eagle-owl in this case symbolized the protection of the young family by deities of light.

According to popular belief, this bird was as a messenger of protracted illness: "If at night an eagle-owl sits in the yard and screams, there will be a sick person for a long time" (Smolev, 1900: 28).

The image of the eagle-owl was included among the Buryat shaman's accessories: eagle-owl feathers were attached between the horns of the shaman's iron crown among the Agin Buryats (RME, No. 783-1).

If the eagle-owl was considered a messenger of the luminous powers of the Upper World, the owl (more precisely, the snowy owl), which was believed to live not only on earth, but also in a watery environment, belonged to the Lower (dark) World (Potanin, 2005: 184). Nevertheless, the owl was an object of devotion: the shamans addressed it in invocations. The Buryat language testifies to the negative attitude towards the owl. For example, one of the meanings of the owl's name is *bug* 'evil spirit'. G. Gomboev pointed out that since ancient times the Selenga Mongols considered the owl a sinister creature (1859: 250). It can be assumed that the image of this bird had an ambivalent connotation. For instance, in the tales about the son of the sky, a celestial being who conceived him appeared to an earthly woman in the form of an owl (Potanin, 2005: 674).

The motif of the soul-bird in Buryat folklore can be illustrated by the quail (*bydke* 'common quail' (*Coturnix coturnix*)). In the tale "Kharasgai Mergen", the souls of the seven grandchildren of an evil old woman were enclosed in seven quails (Buryatskiye volshebniye skazki, 1993: 51–59). In the text "Brave Zhebzhenei", the soul

of the representative of the dark forces *mangadkhai* was hidden in thirteen quails (Ibid.: 88–90). All this indicates a negative connotation of the image of the quail.

The Buryats associated the beginning of the warm season with the cuckoo (*khykhy*, *khybkhuu* 'common cuckoo' (*Cuculus canorus*)): "The king cuckoo is cuckooing, the summer has come" (Uligery khori-buryat, 1988: 88). In the popular calendar, this was reflected in the name of the last month of the spring—*khukhyn duuna hapa* 'month of cuckooing, May' (Zhamtsarano, 2001: 80). In the tradition of the Turkic peoples of Southern Siberia, the cuckoo was also considered a herald of the approaching summer (Burnakov, 2008: 305).

The Buryats negatively perceived this bird. According to legend, in its former life it was a dissolute woman, and for that she was punished by God (Khangalov, 1960: Vol. 3, p. 28). People came up with the figurative name for the cuckoo—*khan khukhy* '"royal" cuckoo (because it does not feed the chick on her own)' (Burayad-orod toli…, 2010: Vol. 2, p. 393). It was considered a harbinger of hungry times: "If a cuckoo cuckoos very much, it will be a bad year" (Potanin, 2005: 133). The Cis-Baikal Buryats paid attention to the time of day when the bird cuckooed: "If a cuckoo cuckoos at night, it will be a lean year, but in a good year it does not cuckoo at all" (Zhamtsarano, 2001: 85).

Buboloshen 'hoopoe' (*Upupa epops*) was among the birds that were negatively perceived by the Buryats. The nesting of this bird under the roof of the house (Potanin, 2005: 133) or under the floor was considered a bad omen for the family. It was believed that this could bring misfortune to the household (Zhamtsarano, 2001: 250). Flights of hoopoe near human buildings also belonged to the category of bad omens (Khangalov, 1960: 73). In the beliefs of the Buryats, this bird was associated with the end of summer and onset of autumn cold. According to the popular calendar, August was called the month of hoopoe.

Conclusions

The study of the traditional ornithomorphic beliefs of the Buryats has made it possible to establish which birds were revered. Some of them, such as the swan, the goose, the duck, the dove, and the eagle, were considered totemic ancestors and had local cults. In popular culture, the swan, the crane, the swallow, the dove, the eagle, and the eagle-owl had positive connotations; the kite, the raven, the crow, the quail, the cuckoo, and the hoopoe bore negative connotation, while the duck, the hawk, the magpie, and the jackdaw carried ambivalent connotation. The Buryats associated the duck and the crow with the cosmogonic idea. One popular subject was the transformation of a person or animal into a bird—a swan, a goose, etc. The images of a number of birds are reflected in the Buryat shamanic paraphernalia, and have been incorporated into mythological practices. In popular belief, birds (ravens, cuckoos, hoopoes) symbolized the rhythms of nature. The Buryats associated beliefs about the bird/soul with the magpie and the quail, and they considered such birds as the magpie, the owl, the hoopoe, the crow, and others capable of predicting future events.

The traditional beliefs of the Buryats concerning a number of birds are similar to the beliefs held by other peoples of Southern Siberia and Central Asia, which indicates the presence of universal and local subjects in the Buryat mythology, and also ethnic and cultural contacts in the past.

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Bridal Symbols in the Don Cossack Wedding

This study presents a new interpretation of symbols of the bride-maiden, already known in the Eastern Slavic, specifically Don Cossack tradition. It is based on findings of ethnographic expeditions of the 1980s–2000s to areas where Don Cossacks are concentrated, and on 19th-century periodicals published in the Don Region. To interpret the essence and meaning of bridal symbols, ritual practices and folklore texts are integrated, viewing both in the context of two principal passages that the bride undergoes during the wedding: 1) transition from the state of maidenhood to that of a married woman; and 2) transition from one family clan to another. Both transitions are related to the ideas of "beauty" (krasota), supposed to be lost during the ceremony, and "lot" (dolya)—part of the life force and benefits allotted to the bride from her family/clan during the rite and added to the common lot of her new family. Material embodiments of "beauty" (the braid, ribbon, and wreath) can be interpreted as symbols of freedom and virginity. These qualities are lost during the rite, whereas their material symbols are either destroyed or passed on to others. Symbols such as a small tree and twig (referring to the folkloric image of the "garden") can be related to the idea of "lot", and rituals in which they feature can be interpreted as a gradual disruption of the braid's ties with her family clan, deprivation of her familial "lot" (symbolic death), followed by rebirth manifested in the acquisition of a new "lot"—that of a married woman in a new family clan. Existing classifications of bridal symbols are revised, while new ones are revealed and interpreted.

Keywords: *Don Cossack tradition, wedding ceremony, bridal signs, virginity symbols, object-related symbols, "lot" symbols.*

Introduction

Symbolism of maidenhood in the Eastern Slavic tradition is very diverse, but in studying it, scholars have usually focused on the objects and imagery that appear in wedding rituals, such as the braid-ribbon, wreath, tree branch, bird, towel, etc. Most of these symbols and images are associated with the concept of "beauty". This concept was discussed by I.M. Kolesnitskaya, L.M. Telegina, T.A. Bernshtam, and A.V. Gura (Kolesnitskaya, Telegin, 1977; Bernshtam, 1982; Gura, 2011). Symbols of maidenhood and the "transitional state" of the bride have been investigated by S.M. Tolstaya and S.V. Tolkacheva using folklore evidence (Tolstaya, 2010; Tolkacheva, 2013). An interpretation of the bridal symbols was made by A.K. Baiburin, who presented the wedding ceremony as a process of "creating new people" (1993). N.V. Zorin studied the Central Russian wedding ritual and elaborated a classification of object-related bridal symbols (2004). As far as the wedding ceremony of the Don Cossacks is concerned, despite considerable scholarly interest in this topic (Tumilevich, 2012b; Protsenko, 2004; Rudichenko, 2000, Grevtsova, 2013, 2017), object-related bridal symbols have still remained understudied.

This article proposes a new interpretation of symbols of the bride-maiden, which have already been discussed using Eastern Slavic evidence, as well as symbols identified during the study of the Don Cossack tradition.

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The published texts of wedding songs (Listopadov, 1947; Tumilevich, 2012a), evidence gathered in ethnographic expeditions of the 1980s–2000s from areas of compact settlement of the Don Cossacks, and data from 19th century periodicals, collected and recently published by the author of this article (Donskaya svadba, 2019), were used for solving these problems.

As the main research method, we tried not only to combine ritual practices and folklore texts, but also to correlate both of them with family-kinship relations, which played a structure-forming role in the traditional wedding. For establishing the essence of the concept of "beauty", crucial for girls of marriageable age, we suggest addressing the concept of "lot", which was widely understood in the Russian folk tradition as life force, energy, or benefits, and was subject to constant redistribution in the life cycle rituals.

"Beauty" and "garden": Images and objects

"Beauty": braid, ribbon, wreath

Although the concept of "maiden's beauty" as applied to the group of girls of marriageable age and brides played a key role in the Russian popular tradition, it was shrouded in a fleur of mystery. This may precisely be the reason why scholars have failed to come to agreement in their attempts to reveal the essence of the concept.

The name of the ritual of "parting with beauty", widespread in the Russian tradition, was absent from the Don evidence we collected, although the word "beauty" does occur in the lyrics of wedding songs. Object-related symbols, such as the braid, braid ribbon, wreath, branch of a tree or other plant, for example the guelder rose tree (*Viburnum opulus*), pine tree (*Pinus sylvestris*), etc., were associated with this image in the common Russian tradition. Ritual actions with these objects while dressing the bride coincided in the Don and Russian weddings: first the ribbon was unbraided, which was followed by "selling" the braid; in some places, a wreath of flowers and ribbons was placed on the girl's head. The branch (the Khopyor Cossacks called it the "garden") was decorated on the eve of the wedding in the house of the bride, and after the wedding night, it was brought to the house of the groom. However, while in the Russian tradition the "garden" was often associated with "beauty" (Bernshtam, 1982: 43), in the tradition of the Don Cossacks, this feature has not been recorded; therefore, in this section, we will focus only on the braid, ribbon, and wreath.

Regarding the Russian tradition, T.A. Bernshtam believed that it was possible to view "beauty" (correlated with the braid, ribbon, wreath, and tree branch) as a personal bridal sign and moreover as the "animated substance of the girl's 'self', in fact, as the soul of the girl, which upon dying and then being reborn, undergoes a series of reincarnations during the ritual" (Ibid.: 66). S.M. Tolstaya agreed with this statement, but added that "beauty" correlated simultaneously with the girl's soul and her virginity, insisting on the particular importance of the latter (2010: 151). Nevertheless, it seems that the search for the deeper meaning of the concept of "beauty" and of the objects associated with it can be continued.

In the Don tradition, virginity was defined by the word "znatá", and was certainly understood as the personal property of the girl:

> Even though she would go out at night,
> She would carry her znata with herself,
> And she carried it for so many years,
> For the council of her Vanyushka
>
> (Mestniye slova…, 1875).

In another song, "beauty" was mentioned in the same context ("Even though she would go out at night, she would carry her beauty with herself…" (Listopadov, 1947: 109)), which confirms the opinion of Bernshtam and Tolstaya that in the popular tradition it was correlated with the personality of the girl and her virginity.

At the same time, "beauty" in the wedding songs of the Don Cossacks, as in the common Russian tradition, was associated with the braid:

> My beloved chases after me all the time,
> After my girl's beauty,
> After my light-brown braid
>
> (Polevaya zapis Kubrakovoy V.S. 1992…).

The girl's braid in these lyrics was also mentioned as her personal property and the object of the groom's desire (in the lyrics of another song, the "girl's beauty" was also declared to be the reason for the "guy's yearning") (Listopadov, 1947: 27).

Some qualities of the combined image of beauty and the braid can be established using plant names. For example, in the Don tradition, the following popular names of plants are known: *girl's beauty* and *girl's braid*. The ornamental plant called the garden cosmos (*Cosmos bupinnatus*), which is distinguished by beautiful flowers and a long period of blossoming ("it blossoms nicely and does not stop, like a girl; it has variegated flowers"), was called "girl's beauty" in the Don region. "Girl's braid" was the name of a wild weed plant called the creeping woodruff (*Asperula prostrata*) with long stems (Slovar…, 1975: 125).

We should mention that these two plants, which were associated with braid-beauty, had different features. The first plant is decorative, beautiful, and blossoms for a long time; the second one is wild and weedy. Both plants are similar in that they are not expected to give fruit; they are grown for decorating the garden/dwelling and are needed only during the flowering period, while weeds should be

removed altogether. Thus, at least one more quality of "beauty" (short duration) can be established using the plant names.

Correlation of a girl's braid with weedy wild-growing grass provides an opportunity for further conceptualization by referring to the concept of "freedom", which characterizes a girl's condition before marriage. In the Don wedding songs, the girl unites the braid, beauty, and freedom into a single complex:

> Vasilyevna was weeping for her braid:
> – My dear freedom, my freedom as a girl,
> My dear braid, my light-brown braid!
> I had freedom, I had freedom at my dear father's,
> I had a braid, I had beauty at my dear mother's
> (Listopadov, 1947: 31).

In the song performed at girls' bridal showers, "unbraiding" of the ribbon and undoing the braid was described as simultaneous decrease of both freedom ("freedom is being abated") and beauty ("beauty is being erased") (Ibid.: 30). The song again emphasizes the short duration of a "girl's freedom":

> I had my dear freedom not forever, –
> At one hour the freedom of a girl passed away
> (Ibid.: 31).

In the song "No more walking around, no more strolling around for me", which was also performed at girls' bridal showers, the bride-maiden leaves her freedom to the care of her girlfriends ("I entrust my girl's freedom to you, my girlfriends"), but they only have to "welcome" it, after which the freedom will go into an open field and disappear in the dark forest (Ibid.: 30).

Let us note that the concept of "freedom" in the Russian popular tradition appears in link (dichotomy) with the concept of "lot": a girl's lot – a married woman's lot. Precisely the acquisition of her own lot by the girl and further inclusion of that lot into the total lot of her new group of relatives was the culmination of the wedding ritual ("*karavai* bread", "gifts" in the groom's house). All the previous rituals were aimed at symbolic destruction of the "free" (wild) state of the girl and her "cultivation". At the same time, the girls underwent gradual separation from the family clan collective and collective of peers with which the braid ribbon was probably associated.

Zorin believed that the ribbon which fastened (locked) the braid (freedom) of the girl was the main sign of her belonging to her social and age group. In order to transfer the girl to the biosocial group of women, it was necessary to remove the ribbon and undo the braid. Zorin also observed that neither the braid nor the ribbon passed into the possession of the "buyer"; the "purchase" only eliminated the ribbon and gave the right to undo the braid (Zorin, 2004: 117). However, we suggest paying attention to the fact that the ribbon and braid in the "bride purchasing" ritual turn out to be connected with different people: the braid with the groom, while the ribbon either with girls who were the friends of the bride, or with the bride's sister (that is, a relative on the female side). In addition, as scholars have observed, the ribbon (most often red) in Russian popular tradition was correlated with the girl's menses and her "beauty" (see, e.g., (Madlevskaya, 2005: 163)). Consequently, it had to stay with one of the girls (but not with the groom).

The destiny of the braid both in the ritual and in the lyrics of the Don wedding songs evolved in a different way. For example, in the Cossack village of Gundorovskaya in the Don region, before the wedding feast, the battle for the braid between the bride and groom began. The bride held the braid with both hands, and the groom with the help of bridesmaids tried to get it. This scene was blocked from the eyes of the public by a large shawl, which was held by the best man and his assistants, which clearly reveals the hidden essence of what was happening. Immediately before that, they would sing a song about how the "light brown braid" was asking the "watchmen" to help it hide under a stone mountain, while the groom threatened to find it and trample it with his horse:

> The light brown braid was standing at the Liturgy,
> It was praying to God;
> It bowed down to the watchmen:
> "My watchmen, the tsar's watchmen!
> Watch me, watchmen
> While I, the braid, hide.
> I, the braid, will hide
> Under the stone mountain,
> From under the stone mountain –
> Underneath the edge of the crescent moon,
> From under the edge of the crescent moon –
> Underneath the wings of a falcon".
> Alyosha says the words:
> "I'll trample [you] on horse
> From under the stone mountain,
> I will ask [you] of God by my prayers
> From under the edge of the crescent moon,
> I will kill the splendid falcon with an arrow"
> (Popov, 1876).

The destruction of the braid during the ritual (its unbraiding, fragmentation) is related to the motive of destruction (dispersing) of "beauty" in other wedding songs. The beauty "departs" to the open field and forest (that is, becomes dispersed in nature), and the braid is destroyed by the groom. In both cases, the girl's freedom is destroyed, and from our point of view this was an act needed before obtaining the lot.

As concerns the symbol of maidenhood of a wreath of flowers and branches, no special actions with it (the alternative name *svyatki*) have been found in the descriptions of wedding rituals of the Don Cossacks,

although its descriptions were present: "We put on a wreath: a gauze veil, flowers, and ribbons… These ribbons – now you cannot get them, such ribbons. Now they are all nylon and capron ribbons, but back then there were all sorts of ribbons. Both paper flowers and ribbons – red, yellow, green, long ones…" (Polevaya zapis Shapkinoy R.V. 1997…).

Bernshtam observed that the wreath was not identified with either the braid or girl's "beauty" in the Russian and Ukrainian-Belarusian wedding (1982: 51). However, a Don wedding song speaks of a girl who wears her beauty on her wreath:

I wore beauty with me, –
On my silk belt,
On my flower wreath
(Listopadov, 1947: 109).

Thus, "beauty" is understood as freedom, virginity, and beauty. In the Don folklore evidence, "beauty" appears as a kind of generalized quality of a girl preparing for marriage. As for the braid, ribbon, and wreath, they can be primarily interpreted as symbols of various manifestations (signs) of "beauty", and only secondarily as a girl's personal signs. During the wedding ritual, the girl first lost her freedom, and then her virginity and beauty. The objects that symbolized these qualities were either destroyed or passed over to other participants in the wedding together with them.

"Beauty" – "garden"?

Scholars often call a specially prepared and decorated plant (burdock, pine branch, birch branch, etc.) or "garden" one of the symbols of girl's "beauty" in the Russian wedding ritual. While analyzing evidence of the Central Russian wedding, Zorin noticed coincidence of time and place of the functioning of the braid ribbon and tree-garden. On the basis of this observation, he concluded that both symbols of "beauty" were used at the wedding at the same time, performed similar functions, yet did not substitute one other. In his opinion, only in the 19th century did the decorated branch start to be perceived as a symbol of the bride-maiden (personifying "beauty"). Zorin pointed out that originally it was a symbol of the group of girls of marriageable age, which included the bride, and referred to the fact that it was the girls that decorated the branch (or burdock), tied their ribbons on it, and then sold it (2004: 118). Yet, Zorin did not analyze the folklore texts containing the description of the "garden". Meanwhile, in the lyrics of wedding songs (including the songs of the Don Cossacks), the girl calls the "garden" not only her own ("my garden"), but also her "father's and mother's". It is not the "garden" that appears in the texts mentioning the bride's girlfriends, but "green gardens", in the plural. These observations alone make it difficult to unconditionally accept Zorin's interpretation.

Other interpretations of the "garden" have also been suggested. For instance, according to Bernshtam, the "garden" of folklore texts is the place of birth and death of the girl's soul. In the wedding ceremony, the object-related embodiment of the folklore "garden" from Bernshtam's point of view was the table (*posad*) (1982: 58–63). Tolstaya suggested that the variety of flowers and fruits in the "garden" could have symbolized the multiplicity of possible incarnations of the girl's soul (she turns into a tree, flower, bird, etc.) (2010: 158–159). Baiburin also correlated the little tree (or branch) with the "beauty" of the bride, believing that preparation of such a tree for the ritual symbolized the beginning of the process of separating "beauty" from the bride (1993: 68).

Before accepting or rejecting these suggestions, we should turn to the descriptions of the "garden" appearing in the wedding songs of the Don Cossacks. Again, we should emphasize the abundance of different plants in the "garden": there grow sweet-smelling cornflowers, curly carnations, fragrant mint, green (field) cherry, guelder rose berries and raspberries, ripe grapes, sweet cherries, pine tree, etc. The garden as a concentration of a multitude of plants in the same place could be the symbol of the multiplicity of possible incarnations of the girl's soul (according to Tolstaya). It is possible, however, that this multiplicity also reflected various qualities of the bride-maiden: the red color of guelder rose berries and raspberries was a symbol of her blood, the prickliness of the fir tree was a symbol of innocence and readiness for the "love battle", etc. In addition, the presence of various species of trees, flowers, and herbs, as well as birds in the "garden", may also serve as an argument in favor of defining it as a symbol of the collective (family clan, female) lot. This is also indicated by the fact that after the bride leaves her family, the "garden" remains with her mother:

I feel so bad for you, dear mother, –
You are giving your daughter away;
All my flowers are left to you:
Sweet-smelling cornflowers,
Yellow curly carnations,
Fresh and fragrant mint
(Listopadov, 1947: 32).

In the lyrics of the songs, the girl asks her mother to water the "garden" with "scalding tears" after she leaves home. The ban imposed by the mother is also telling: the daughter cannot return to the "garden" before seven (in one version three) years have passed:

My dear mother told me not to
Come for seven years.
On the first year

I lived all right.
On the second year
I started to yearn.
And on the third year
I will fly as a bird.
I will fly to the green garden
I will heave a deep sigh…

(Polevaya zapis Porvina V. 1992…).

In another version of this song, the daughter comes to her mother in the fourth year and sees that "little paths" in her garden have become overgrown with grass. In these and other texts, the mother acts as the keeper of the girl's "garden". It is no accident that in the wedding ceremony, it was the mother of the bride who was punished if the daughter turned out to be "dishonest". But then we should not speak about the "garden" as a place of reincarnation of the soul (T.A. Bernshtam) or collective lot-freedom of the group of girls (N.V. Zorin). It is quite possible that the "garden" symbolized the female family (clan) lot, from which a part (lot) of the bride-daughter (small tree or branch) was separated:

The boyars were riding, the Moscow nobles.
They began to think, to ponder
They began to chop down the pear tree…

(Listopadov, 1947: 27).

In the Don wedding songs, girl's pre-marriage state is described as the shedding of blossoms; her figure is presented as a broken branch:

O garden, my garden,
Young garden.
Why are you blooming early and shedding

The last time I walked around the garden,
I broke the top off my beloved apple tree.
Grow, my dear apple tree forever without the top,
Live, dear mother, forever without me

(Polevaya zapis Ryblovoy M.A. 2001…).

In another wedding song, the bride's entry into a pre-marriage state is described as breaking the "golden top" off a pine tree (Popov, 1876). In the song of the Nekrasov Cossacks, the girl says that her "dear fir tree" was cut down "with three axes", and oars and a boat were made out of it, on which she was taken away (Tumilevich, 2012b: 157). The broken top of a blooming tree or a cut tree are the symbols of damage and loss (decrease of the total lot), which reflect the state before the girl obtains her new status.

It is interesting that before the time of its damage, the girl's garden appears in the wedding songs not only as blooming, but also as a gold or silver garden (the golden top of the fir tree, golden cones, etc.). Girls of marriageable age possess the same qualities: they wear silver and gold rings, which replace copper rings. However, immediately before the wedding, the rings lose their gilding and color:

Beautiful Annushka,
Beautiful Mikhailovna
Was sitting in her chamber
With a despondent heart,
Putting down her hands
Dropping her finger-rings.
– My brother Philyushka,
My dear brother!
Pick up the finger-rings
Put them on your fingers
So they won't lie around,
So the gold won't be soiled,
So the silver won't wear off
So Alekseyushka will not get them

(Popov, 1876).

Notably, the bride gives the ribbon (in the ritual) or "little flower" (in the song) to her younger sister, and gold and silver rings to her brother, that is leaves both in the family clan. In another song, the girl on the eve of her wedding gives golden keys to her father with the words: "These are, dear father, golden keys/ I am no longer a key keeper for you, dear father" (Ibid.). The keys in this transitional situation are associated with the motive of "closure", that is termination of not only the previous condition of the girl (maidenhood), but also of her previous family relationships. However, it is important for us here that on the eve of the transition, the bride-maiden remains not only without keys, but also without gold, and also compares herself to a dried/broken branch. All these images symbolize her dying.

After examining the image of the "garden" in wedding songs, which was most often associated with the time before the wedding night, we should turn to the ritual of the second day of the wedding (after the wedding night), in which the object-related symbol of the "garden" also appears. This could be a branch of the following trees: the guelder rose, willow, or cherry (among the Lower Don Cossacks), pine or fir (among the Upper Don Cossacks). For example, in the bride's house in the villages along the Khopyor and Buzuluk Rivers, on the second day of the wedding, a pine or fir tree branch, which was called the "garden" (in some villages, it was called the "henhouse" (*kurnik*)), was decorated with ribbons and sweets usually with the help of the bride's mother and other relatives. Then, the "garden" was brought from the bride's house to the groom's house. Already on the way there, the groom's relatives would attempt to break the branch apart; relatives on the bride's side would try to prevent them from doing it. Informants mentioned that "smart guests" would allow the branch to be brought to the groom's house intact. And only there, the relatives on groom's side would break the "garden" into parts and divide it among themselves: "On the second day, people would decorate a pine tree. They

would walk with the garden. They would decorate the pine tree with bottles, sweets, cookies, pretzels – this is how they would decorate it. A pine – a large branch, or a fir tree. They would carry it to the gate. The bride's parents and relatives decorated it. When the newly married couple came in the morning to invite for the 'next day party', this was called 'the garden will be carried away'. And treats would be put on a platter, tasty things. Then they would carry them, and the bride's relatives would approach with this garden. While the groom's relatives would grab, reach for, and tear at these treats. While those guarded it, so the newly married couple could get them first. And often the groom's relatives would tear everything up, break everything, and scatter everything, and not allow the newly married to get it. Sometimes they would just joke, and that was all. And sometimes a person who was drunk would break it off, and that was all. And when they would bring it in, they would put it on the table – and the newly married couple would take things. And then everybody would start taking until it was empty, ending the whole thing" (Polevaya zapis Sorokinoy E.G. 1997…).

Indications that the bride's relatives (usually the mother) made the "garden", and that representatives of the bridegroom's relatives, as well as the young couple, tried to "destroy it" (tear it into pieces, divide among themselves) are important in this description and in other testimonies.

We should also point to the fact that in the ritual prior to the wedding night there occurred a gradual symbolic destruction of the bride (deprivation of freedom, virginity, and beauty), diminishing of her life forces (drying of the "garden", shedding of gilding, etc.). Conversely, a ritual "gathering" occurred after the wedding night – revival, and new flowering was reproduced not only in a new capacity, but also in a different "composition". For instance, in those settlements where it was not customary to decorate a tree, a *karavai* round loaf was decorated with branches reminiscent of pine branches. They were inserted into the middle of the loaf and were tied with a red ribbon. When the offering of gifts began, each gift-giver was given a piece of this loaf and a branch. There is a description of the round loaf (it was baked in the villages in the Lower Don region), similar to the folklore image of the "garden": "It looks like a round loaf of bread with the top decorated with gilding; long thin sticks are stuck into it, which are wrapped around like a spiral with narrow jagged strips of dough; the ends of the sticks are decorated with figures of birds, the sun, the moon, etc." (Avramov, 1875). Those present at the wedding (on the second day) were given rolls called "cones"; sometimes their tops were "gilded". In the late 20th century, during the expeditions to the Cossack settlements in the Middle Don regions, we observed simplified versions of wedding round loaves: with branches, but without figures of celestial bodies and birds. Wooden sticks with wound "jagged" ("needle-like") strips of dough served as twigs. Sometimes candies were tied to the top of the sticks (replacing the "birds").

In the Cossack villages of the Lower Don region, on the second day of the wedding (after the wedding night), the best man (a representative of the bridegroom's family clan) would cut a round loaf with golden top into pieces and give them to the guests during a song, which also mentioned silver and gold objects:

> The best man is cutting the round loaf;
> He has a golden knife;
> Golden stalks
> On a silver plate
>
> (Ibid.).

Giving the guests pieces of the round loaf and receiving reciprocal gifts were the symbols of the inclusion of bride's life force into the total lot of the new collective of relatives. Thus, the "garden" in the form of a little tree symbolizing the lot (life force of the bride) ceased to exist as an independent image, and on the second day of the wedding was embodied in the image of a new "garden"—round loaf, renewed, with a gilded top. Cutting of the loaf and distribution of cones symbolized redistribution of the total lot, but now all relatives, both from the bride's and groom's sides, participated in it. Gold returned to the bride: one of the wedding songs speaks about a blacksmith and young smiths, who are forging and smelting a new (wedding) ring for the girl Annushka (Popov, 1876). (Hence, blacksmiths appear in the group of mummers on the second day of the wedding, who "forge" the new bride and groom). In the later tradition, the main metal symbols of the new status will be golden church crowns (at the time of the church wedding) and wedding rings.

Objects associated with images of birds (female swan, duck, or hen) should also be considered as bridal symbols. Ornithomorphic wedding symbolism is not analyzed in this article owing to the limits of space, but we cannot ignore object-related symbols that capture certain personal qualities or states of the bride-maiden; for example, her marital status: whether she is an orphan, has one parent, or both parents: "If both parents of the bride were alive, her hair would be braided all the way down, under the veil. If only the father or mother was alive, her hair would be braided halfway. If the bride was orphan, a ponytail was made" (Polevaya zapis Ryblovoy M.A. 1984…).

Particular attention during the wedding ceremony was given to checking and announcing how the wedding night ended. If the bride did not preserve her virginity before the wedding, it was symbolically broadcasted to everyone present in different ways and using different objects: a spoon with a hole was placed on the table at the bride's place; they beat a pot with a hole against the floor, or "kicked a rusty bucket with a hole around the yard",

etc., that is, used objects possessing so-called pronimal symbolism. Berries and twigs of the guelder rose tree, as well as honey, which is a well-known symbol of lot (cf. collective drinking of mead by the Cossacks at *bratchina* feasts), were the symbols of the "rightly" spent wedding night. In some Don villages, bunches of guelder rose tree branches, along with honeycombs, were put on a dish and placed on the table where the round loaf had been before (Polyakov, 1875).

Discussion

1. Object-related symbols that scholars usually attribute to a girl's personal signs indicating her attainment of marriageable age, or to the symbols of her soul (braid, ribbon, and wreath), in our opinion, can be interpreted as material embodiment of the main characteristics of the generalized concept of "beauty": freedom and virginity. During the wedding ritual, the girl lost these qualities, and the objects that symbolized them were either destroyed or were passed over to other people. The latter feature of the ritual was associated with the bride leaving the group of girls of marriageable age, who were in a kind of spiritual relationship with her. The bride passed a red braid ribbon (associated with the motive of blood) to her girlfriends in many versions of the Russian wedding ritual. In the Don tradition, passing of the ribbon to the younger sister of the bride is more frequently observed. One gets the impression that the girl's "beauty" correlated not only (and not so much) with the "spiritual substance of the girl's 'self'", but with her bodily aspect. In contemporary language, this aspect can be designated as psychosexuality, which (according to popular beliefs) was in need of being limited and placed into the cultural framework.

2. The concept of "lot" is clearly manifested in the wedding ritual along with the concept of "freedom". As applied to the bride, it was embodied in the image of the "garden" and its part (tree, branch). During the entire long wedding ritual not only the girl became separated from the group of her girlfriends, but also her family ties were gradually broken, and she was deprived of her lot in the family (symbolic death), followed by new birth associated with allocation of a new lot—the lot of a married woman in a new family. The object-related bridal symbols recorded and marked the changes that were taking place with her: flowering garden – broken branch, dried-up tree – new garden with gilded top, gold objects.

The conclusion of Zorin that the correlation of the "garden" with the "beauty" of the bride in the ritual was relatively recent, can be extended to the correlation of the "garden" with the group of girls-bridesmaids. It can be assumed that initially the "garden" was associated with the bride's family clan (and its common lot), and the decorated tree (or branch) was a symbol of the girl's separation from the clan-family and allocation of her own (individual) lot. In any case, in the Don wedding (both in the lyrics of the songs and in the rituals), the "garden" was always associated with the mother of the bride—the keeper and distributor of the common lot of the family clan.

3. The classification suggested by Zorin can be supplemented with the bridal symbols, which reflected some of the bride's personal qualities and states. This is primarily her relationship with her deceased relatives (orphan; has one living parent). It was no accident that precisely the girl's hair (as one of the containers of life force) marked her connection with deceased relatives, which in turn was meant to determine their "shared" participation in the ritual. Since in the Russian popular wedding the theme of presence of "dead relatives" and ancestors (for example, in the form of mummers) is distinctively pronounced, the use of object-related symbols marking some connection of the bride with them seems quite logical in the context of the family clan's lot, which has to be redistributed with the participation of both the living and the dead relatives.

As for the objects indicating the state of virginity of the bride before the wedding night, they practically did not differ in the Don Cossack wedding and in the Russian tradition.

Conclusions

Analysis of the evidence associated with wedding rituals of the Don Cossacks has shown that bridal symbols reflected the changes that not only affected a bride-maiden as a person, but also her position among her own relatives and among the relatives of her future husband. All these changes were associated with the freedom, soul, and virginity of the bride, as well as her lot—a part of the life force and benefits, which were given to the bride from the family/clan lot during the ritual and were newly included into the general lot of the new family. And if the symbols of the collective image of "beauty", such as the braid, ribbon, and wreath, were correlated with the personality of the bride-maiden, the "garden" and branch corresponded to the family (clan) lot, the changes of which occurred along with the bride's transfer from one group of relatives to the other. The main guardian and distributor of the family lot in the group of the bride's relatives was her mother. This role of the mother once again emphasized the initiatory nature of the wedding ritual in relation to the bride-maiden.

Thus, the search for the meanings of the object-oriented bridal symbols, using the evidence of the Don Cossack wedding, has made it possible to reveal the deeper layers of this ritual associated with inter-family relations in the context of the concept of "lot", crucial for the Russian popular tradition.

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Celebration of Nowruz in Bukhara and Samarkand in Ritual Practice and Social Discourses (the Second Half of the 19th to Early 20th Centuries)

Celebration of Nowruz across a vast territory from the Ottoman Empire to Xinjiang had both common features and differences. This study focuses on distinctions between the festive traditions of two major cities of the Zerafshan Valley (Bukhara and Samarkand) in the late 1800s and early 1900s, when, after Russia's annexation of the region, the Nowruz ritual practices were transformed and subjected to critical discourses among theologians and enlighteners. On the basis of unpublished archival sources, memoirs, and studies of Imperial Russian history, I analyze two types of Nowruz: official and folk. In the Emirate of Bukhara, a broad official celebration of Nowruz was started by Emir Muzaffar, who sought to strengthen the image of the Manghit dynasty during the crisis of political legitimacy. This gave rise to disputes among Islamic intellectuals about the need for a large-scale and prolonged celebration of Nowruz, which they felt went beyond the borders of Islamic tradition. In Samarkand, closer contacts between the settled Tajiks and Uzbeks, on the one hand, and the semi-nomadic Turkic-speaking population, on the other, enhanced the synthesis of agricultural and pastoral elements in the ritual practice of Nowruz. The festival was legitimized by prayers at mosques, and visits to the mazars of Muslim saints and to sacred streams. In Samarkand, following its annexation by the Russian Empire, there was no official celebration of Nowruz, and the scale of popular celebration decreased.

Keywords: *Islam, Zerafshan Valley, ritual practice, discourses, legitimation.*

Introduction

Celebration of Nowruz is one of the ancient traditions of the peoples of Central Asia and the Middle East. In ancient times, this festival was linked with the ideas of nature's death and return to life, mixed up with other cultural components depending on the region and period. The complicated connotation of this holiday was reflected in combinations of various beliefs and ritual practices.

The purpose of this study was to collect information concerning the celebration of Nowruz in Bukhara and Samarkand, two major cities in the Zerafshan Valley (situated in the middle portion of Central Asia) from the second part of the 19th century to the early 20th. This period shows transformation, upon annexation of this region by the Russian Empire, in the Nowruz celebration; the relevant ritual ceremonies; and the existing discourses among theologians and enlighteners. The Nowruz phenomenon is of considerable interest, because despite the dominance of Islam, it preserved certain non-Islamic features throughout many centuries. The political establishment celebrated Nowruz officially for the purpose of propagating the positive image of the ruling dynasty.

Formerly, two types of Nowruz celebration existed: the first was celebrated in mid-summer; the second

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was confined to the day of the vernal equinox. The official Nowruz celebration did not always coincide with the folk festival. Legends bound the advent of this festival with the names of the mythical Iranian kings—Kayumars and Jamshid (Braginsky, 1977: 116). The formal Nowruz celebrations were practiced in the Sasanian Empire and in Samarkand, the capital of Sogd, in the 7th to 8th centuries (Grenet, 2006).

Official celebrations of Nowruz in Bukhara were described in the works by the renowned enlightener of the 19th century Ahmad Donish (1827–1897) (Traktat…, 1967: 90–92) and an outstanding Tajik writer S. Ayni (1878–1954) (1960: 831–832). J. Locke, a British citizen, also published his impressions of this festival (1906).

The first analytical works on Nowruz celebration in the Zerafshan Valley were published in the late 19th to early 20th centuries. Researchers of the period of the Russian Empire mostly defined Nowruz as a non-Islamic festival with certain Aryan features. The authors, who described the customs of Samarkand citizens, were state officials and scholars with a good knowledge of this region (G. Arendarenko, A. Grebenkin, A. Khoroshkhin, N. Veselovsky, and V. Vyatkin).

Soviet orientalists and ethnologists also wrote about Nowruz and spring festivals (Snesarev, 1969: 205–215; Braginsky, 1977; Ustaev, 1985; Sukhareva, 1986; Lobacheva, 1986; and others). They made their important contribution to the studies of the festive rituals by analyzing various social, religious, and domestic festivals and their role in the cultural life of the people. Valuable information on the organization of the official celebration of Nowruz during the reign of Emir Muzaffar and Emir Abdulahad can be found in the works of the Ethnographic Expedition to Bukhara headed by M.S. Andreev in 1940; members of this expedition included researchers of the University of Central Asia and museums—M.S. Yusupov, N.V. Rusinova, O.D. Chekhovich, and L.I. Rempel (Andreev, Chekhovich, 1972: 9–10). Some records were published, and others are deposited as the personal archive of Chekhovich in the Central State Archive of the Republic of Uzbekistan and other archives of Uzbekistan and Tajikistan. It should be noted that the data were recorded from many interviewees; their descriptions of the festival details vary. The present study is mostly based on the materials collected by Chekhovich.

In the Soviet period, Nowruz was studied as a set of folk rituals of non-Islamic origin, while the impact of Islam on the ritual practice of this festival was disregarded. Some researchers considered this festival non-religious, secular (Braginsky, 1977: 118); others acknowledged its close relations with Islam (Rempel, 1981: 63). In the post-Soviet period, Nowruz was regarded as not only the ancient Iranian festival of the vernal equinox, but also as a specific feature of Central Asian Islam (Rakhimov, 2012: 151). The most well-known papers on the Nowruz history were republished, together with new works on this topic, in the collection of papers "The Magic of Nowruz" (Magiya Navruza, 2007).

In our view, Nowruz is a combination of ideas of the Central Asian Muslim population with various cultural backgrounds. There have still been no special studies on official celebration of Nowruz in various Central Asian khanates, on its distinctions from folk ritual, or on the existing discussions on this topic.

In the Emirate of Bukhara, in the 19th century, the calendar festival of Nowruz included a complex of events, reflecting distinct beliefs of both the sedentary agricultural and the nomadic pastoralist populations. It is noteworthy that during particular periods, this festival served as an instrument for popularizing the positive image of the ruling dynasty.

We can seek understanding of the non-Islamic Nowruz festival through analysis of rituals and their transformation in the Islamic tradition and in the context of the political and social situation in the Emirate of Bukhara. There are several definitions of a ritual. According to V. Turner, "it is a stereotyped succession of actions including gestures, words, and objects, which are executed in the specially prepared place and are aimed at affecting supernatural forces…" (1983: 32). He identifies seasonal rituals dedicated to the moments of change in the natural cycle or to the beginning of sowing and harvesting; divination; "ceremonies performed by political authorities to ensure the health and fertility of the people and the cereals in their country"; rituals accompanying offerings to ancestral spirits, etc. (Ibid.). The rituals served as instruments of integration of various social groups. The integrating effect of festivals depended on the interrelations between groups, which might have varied during the celebrations. When the rituals are repeated throughout many years, they become integral parts of the tradition (Etzioni, 2004: 7, 16). The tradition is conceptualized as variations of the long-term discourses, but not as a set of invariable doctrines or repetition of former beliefs and practices (Haj, 2009: 4, 6).

Fests and generally accepted rituals related to Nowruz

In Central Asia, Nowruz was traditionally a festival of spring, new year, and the start of agricultural work.

Little information is available concerning the Nowruz celebration in ancient times. Notably, prior to the penetration of Islam in this region, the ideological content of Nowruz was connected with the local varieties of Zoroastrianism. Under the conditions of polytheism, various cults, worship of fire, and praying in temples became wide-spread. Sacrifices were conducted, sporting games took place, and fairs were held in towns (An-Narshakhi, 2011: 222, 226). With the introduction of Islam, the situation changed. Some renowned Muslim theologians argued against spectacular celebrations of Nowruz. According to Abu Hamid Muhammad al-Ghazali (1058–1111), "…the New Year and *sada** should disappear, and nobody should pronounce their names…" (2018: 296). However, celebration of Nowruz survived and was even adopted by the semi-nomadic part of the Turkic population of Central Asia. The centuries-long discussion among the theologians of Central Asia about the possibility of Nowruz celebration by the Muslims ended with the legalization of this festival; it was celebrated along with other Islamic holidays—Eid al-Fitr (*Id al-fitr* – festival of the end of fasting) and Eid al-Adha (*Id al-adha* – festival of the sacrifice) (Veselovsky, 1888: 141). With the adoption of Islam, Nowruz acquired certain Muslim features (Lobacheva, 1995: 25).

In the medieval period, various traditions of Nowruz celebration existed. However, in the ritual practice of the population of Central Asia and Iran, many similar features in celebration of this spring holiday can be observed: cooking special ritual meals—*gudzha* and *sumalyak*, which were meant to ensure a rich harvest in the current year and the well-being of women participants of this ritual (Snesarev, 1969: 211, 215); sprinkling each other with water (Braginsky, 1977: 118); coloring chicken eggs; and worship of ancestors, which rituals were also noted among the Uyghurs of East Turkestan (Dorzhieva, 2016: 62–79).

Nowruz was the highest point in the cycle of month-long spring holidays (Sukhareva, 1986: 34). One of these was the red flower festival (tulip or poppy, *sayli guli surkh*, *kizil gul sayli*), which was celebrated in many regions of the Central Asian interfluve area (Ibid.: 34–38), and by the Uyghurs of East Turkestan. *Sayls* (folk festivities) were carried out in April to early May, when poppies and tulips blossomed. Before and during Nowruz, festivals of other flowers, for instance snowdrops (*boichechak*), were celebrated.

In general, the ritual practice of Nowruz celebration is common over the vast territory of central and eastern parts of the Islamic realm. On the other hand, celebration of this holiday had certain distinctive features in oases of Central Asia, specifically in the towns of the Zerafshan Valley.

*The ancient Zoroastrian festival of fire.

Official celebration of Nowruz in Bukhara, and the discourses of intellectuals

Researchers noted that monarchs and clergy tried to introduce certain religious and monarchic features into Nowruz celebration (Braginsky, 1977: 120). In Bukhara, during the reign of Emir Nasrulla (1827–1860), the ruler had the right to prolong Nowruz celebrations. According to P.I. Demezon, the festival usually lasted for six days. Once, the Emir extended the folk festivities to 15 days and did his best to participate in the gaieties more than usual (Zapiski…, 1983: 70).

In the second half of the 19th to early 20th centuries, Nowruz in Bukhara was celebrated in both official and folk ways. S. Ayni, a philosopher and writer from Bukhara, wrote that folk festivities started long before this spring holiday, and (in contrast to those arranged by the Emirate authority) were carried out every Friday from February 22 till March 22 at the Fayzabad sanctuary, to the northeast of Bukhara. The festivities were accompanied by various sports competitions (races, wrestling) between residents of various villages (Ayni, 1960: 235–246). Ayni noted that Eid al-Adha and Ramadan were celebrated for 1 day each, while Nowruz lasted for several weeks. Though this festival was linked with wheat and barley sprouting, and with the start of other crop-sowing, the clergy gave much significance to its religious connotation (Ibid.: 826–827).

Nowruz gained its official form during the reign of Emir Muzaffar (1860–1885), after defeat in the war with the Russian Empire in 1868. According to the informants of Ayni, Muzaffar, having lost his public image, arranged popular festivities during the celebration, "in order to avert people's eyes from his improper deeds". Wrestlers and spectators were invited from the Bukhara regions of Qarshi, Shakhrisabz, Khatyrchi, Kermine, and Nur-Ata. The festivals were held in the suburban Emir garden of Shirbadan (Shirbudun) and lasted up to two months, sometimes up to 70 days (Ibid.). The religious holidays of Ramadan and Eid al-Adha were arranged by the Bukhara clergy, but the official celebration of Nowruz was carried out by the Emirate authority, which used this opportunity in their political, ideological, social, and economic interests. Ayni explained how the Emir managed to assign so much importance and popularity to this non-Islamic festival, given the existence of an influential and conservative clerical class of *ulama* in Bukhara, which class included theologians, lawyers,

teachers from madrasas, and experts in Sharia—qazis and muftis (Sukhareva, 1966: 297): upon signing the peace treaty with the Russian Empire, Muzaffar managed to override the clergy and made them the "instruments of his power" (Ayni, 1975: 294).

Rempel noted that during the arrangement of Nowruz "religious and commercial events", military officers (*udaychi* and *sarkarda*) looked after the *chadyrs* (stalls) belonging to officers, bais, merchants, and artisans. The festivities were accompanied by performances by strolling players, wrestlers, etc. *Sayl* lasted up to 40 days (Rempel, 1981: 63–64). The ethnic background of the invited merchants and artisans varied (Tajiks, Uzbeks, Iranians, Afghans, and others).

During the reign of Emir Abdulahad (1885–1910), in Shirbadan, two enclosed areas for the festival were made. One of these was named "forty tanob" (10 ha). The area included Juma mosque, walking areas, various constructions for performances; the rest of the place was occupied by merchants. The other enclosed area was named "seventy tanob" (18 ha); it was the place for the festive tents of military commanders and principal merchants (Ayni, 1960: 827–829). The festive ceremonies included rituals performed by *ishans*, the leaders of the Sufi communities. The master of the festivities was the supreme judge or *rais* of Bukhara (Ibid.), which fact supports the idea of the state and religious legitimization of Nowruz.

According to Chekhovich, "every year, on the 18th of March, festivities were arranged in the Shirbadan garden of the Emir of Bukhara. The plan for the disposition of guests was made. The sheds were constructed according to the social background of the guests. The best places were assigned to Uzbek military commanders, while merchants got a smaller number of seats. The highest rank was given to the military commander *tupchi bashi* or *amir lashkar*; he was provided with the largest shed. Smaller tents were given to Sarbaz military commanders, commanders of the troops *el-nuker*, and traders" (Central State Archive of the Republic of Uzbekistan (CSA RUz). R-2678, Inv. 1, Item 448, fol. 14). The stalls were decorated with *adras* and *shokhi* fabrics, various carpets, blankets, and cushions. 300 lanterns were installed for night-time illumination (Ibid). Up to 70 small traders attended the festival; each trade was represented by 4 to 10 persons. During the reign of Emir Muzaffar, *sayls*, including Nowruz, lasted for 70–80 days, when the state officers were awarded with gifts from the Emir. The *sayl* was attended by guests and merchants from various regions of the Emirate of Bukhara, Afghanistan, Fergana, Samarkand, Khwarazm, Kashgar, and Mashhad. Stalls were allowed to be established in the garden of Shirbadan only by the selected merchants from Samarkand, Kabul, Urgench, Mashhad, and Peshawar (Ibid.). In order to emphasize his own eminence, the Emir arranged the festivities in his garden, where one of the Emir's palaces was later constructed. There were no sanctuaries in the garden; hence, the only ritual was the joint prayer in the mosque, which was followed by sporting events, amusements, and awarding gifts to the winners and associates.

After the official events, there was a three-day *sayli mazor*—visiting by women of the Bukhara mazars of the Islamic saints Ismail Samani and Chashma-Ayub; and visiting by men of the cemetery of Khoja Ismat (Rempel, 1981: 63–64). Notably, further spring holidays of the Bukhara people took place at the sanctuary of Baha-ud-Din Naqshband Bukhari (1318–1389), the religious leader of the Naqshbandi order, and the other most popular mazars of Bukhara.

When the Russian Empire set a protectorate over the Emirate of Bukhara, on the 21st of March, the Governor-General of Turkestan sent a delegation to Bukhara to congratulate Emir with Nowruz (Abdirashidov, 2011: 138, 146). Apparently, the members of this delegation attended the official celebration ceremonies in the Shirbadan garden. Ayni noted that in the early 20th century, Russian circus artists performed at the festival (1960: 829–833). These artists were invited by Emir Abdulahad, who on the one hand, possibly wanted to present diverse performances to the guests and on the other hand, copied the Turkestan authorities in inviting circus artists from the European part of Russia. Accordingly, non-Islamic people were allowed to participate in the festivities of the Muslim population in Bukhara, and this innovation was well received by the local people.

The Nowruz celebration in Bukhara was described by the British subject J. Locke, who attended the official events in the Emir's palace in March 1904. As an honored guest, he had an opportunity to watch the performances from the Emir's box. He even took several photographs of musicians, wrestlers, and spectators during the holiday. Locke watched 5000 guests perform joint *namaz* before the beginning of the festival (1906).

Data on the dynamics of the Nowruz celebration in the second half of the 19th century to early 20th century are inadequate. There is only information on the changes in duration and location of the celebrations. According to Ayni, during the reign of Abdulahad, the duration of Nowruz celebration was reduced to a month and a half. The festivities started in the Shirbadan garden, continued in the suburban palace of Sitorai Mokhi-Khosa and in the town of Kermine, where the Emir stayed for the greater part of his time (Ayni, 1960:

826–828). During the reign of Emir Alim-Khan (1910–1920), the Nowruz celebration became even shorter, and took place in the Sitorai Mokhi-Khosa garden in Bukhara (CSA RUz. R-2678, Inv. 1, Item 448, fol. 20).

Some intellectuals in Burkaha, including the philosopher Ahmad Donish, were critical of broad and lavish celebrations of Nowruz. Donish wrote that "the celebration of the new year was among the new customs, which became widely spread during the reign of this Emir (Muzaffar – **A.M.**)" (Traktat…, 1967: 90–91). Donish acknowledged islamization of this festival. He wrote that it is "surprising that sheikhs of the town, together with murids, were also invited to attend the festival. Getting together in a circle, they recited Masnavi Mawlawi. At some other place, dhikr was performed, and still elsewhere the Quran was recited…" (Ibid.). However, Donish criticized the organization of this festival: he argued that it was "…a bazaar of debauchery and gambling…" (Ibid.: 91–92). He noted that "during the reign of Emir Muzaffar, general decline and disorder became apparent in Islam. Sharia was derogated by the regime…" (Ibid.: 94–95). Donish's viewpoints concerning the necessity of limiting the squandering were shared by the Bukhara reformers in the early 20th century (Samoylovich, 1922: 98). Criticism by influential Islamic intellectuals of the lavish celebrations was probably among the reasons to cut down the scale and duration of the official Nowruz celebration in Bukhara during the reigns of Emir Muzaffar's successors.

Following the weighty opinion of S. Ayni, we believe that in Muzaffar's period, there were two types of Nowruz celebration in Bukhara: official and folk. For official ceremonies, the authorities invited guests from other cities and countries; folk celebrations were mainly attended by the residents of Bukhara oasis. The festivities were perceived by the common people as a family holiday and worship of their ancestors, along with the Islamic religious rituals (Rempel, 1981: 63).

Emirs of Bukhara exploited Nowruz official celebrations to achieve certain political, ideological, social, and economic tasks. Centralized organization of the festival, on the one hand, was aimed at consolidation of political and economic elites in Bukhara, which were dissociated because of the defeat of the Emirate in the war with the Russian Empire. On the other hand, the authorities demonstrated to common people an image of power that followed ancient traditions, consecrated by the Muslim clergy. Under conditions of economic crisis, broadening the scale of the Nowruz celebration, with markets being established and local and foreign traders invited, might have produced a positive effect on the economy of Bukhara.

Celebration of Nowruz in Samarkand

Samarkand, situated in the Middle Zerafshan Valley, was a Muslim city, known for its Islamic shrines and mosques. The city had its own original features and local identity, which has not been well studied by researchers. Since long ago, this polyethnic city was populated by Tajiks, Uzbeks, Iranians, Jews, Turkmens, Tatars, and others. While the surroundings of the capital city of Bukhara were mostly populated by the sedentary agricultural people, Samarkand was surrounded by the settlements of semi-nomadic or settled Turkic pastoralists.

One of the elements of the Samarkand urban culture was the equestrian sport *kupkari* (*ulak, kok-boru*), typical of the pastoralist population. The game was normally carried out in March and October, on the occasion of weddings, circumcision of juveniles (Arendarenko, 1877), and during Nowruz celebrations. The game likely became a part of the Samarkand urban culture in the late medieval period, when the semi-nomadic population groups settled in the Samarkand oasis (Malikov, 2018: 120–122). Moreover, during Nowruz celebrations, wrestling competitions were carried out in the region of Khoja Ahror, the best wrestlers being Volga Tatars and Uzbeks (Grebenkin, 1872: 39).

The sacred places in Samarkand, where Nowruz was celebrated, in the 19th century were located around the Registan square, cult complex Shah-i-Zinda, and the ancient ruins of Afrasiyab. In the Namazgah mosque, situated in the southeastern outskirts of Samarkand, joint *namaz* was performed; and in the adjoining large garden with ponds, the subsequent folk festivities (*sayl*) took place (Rossiya…, 1913: 677). On the day of Nowruz, the citizens visited the irrigation ditch Obi-Mashhad, near Shah-i-Zinda. Some researchers believe that the image of Shah-i-Zinda, a saint from Samarkand, was related to Nowruz and to the cult of Siyavash (a hero from the sacred book of Zoroastrianism "Avesta" and the Persian epic poem "Shahnameh") (Rempel, 1972: 45). Thus, there is a fusion of the Islamic idea of sacrifice for the sake of religion and non-Islamic ideas of the cults of various saints, including Siyavash.

According to A. Khoroshikhin, in the first decade following annexation of Samarkand by the Russian Empire, large-scale participation in the celebration of Nowruz was greatly reduced. The main events (*sayl* with bathing) took place at Obi-Mashhad spring, outside Shah-i-Zinda (Khoroshikhin, 1876: 207). V. Vyatkin interpreted Nowruz as the Muslim New Year, but with a number of rituals and customs in common for all Aryan people, which he opposed to the Islamic traditions (1897). According to him, the general schedule of

the New Year celebrations surviving in Samarkand till the end of the 19th century included the following events: 1) setting fire and walking with torches at the irrigation ditch Obi-Rakhmat; 2) bathing in the ditch; 3) prophecies; 4) drinking of enchanted water; 5) *kazan tuldy**; 6) eating of meat, predominantly poultry; 7) mutual gifts of colored boiled eggs; 8) climbing the hills; 9) paying visits; 10) festivities outside the city, races with goat, wrestling, and other events (Ibid.).

Special torches *atash baidak* (*mashal*) were prepared for Nowruz in Samarkand. These were lit, and Samarkand citizens gathered together in groups of particular districts and suburban villages, and proceeded to the channel Obi-Rakhmat, where men bathed in order to wash out their sins (Ibid.). The name of the channel had sacral significance. The parallels can be found in southern Uzbekistan among the Derbent people, who believed that before Nowruz there were four days when the water became blessed—"*obi rakhmat*" (March 14–17). In rainy days, people collected rain water and bathed in it (Ustaev, 1985: 99–100). Widespread occurrence of this custom is supported by the recorded legend about the holy water "*obi rakhmat*" in the Shafirkan District of the Bukhara Region (Field materials of the author. Shafirkan Tuman, Bukhara Region, Republic of Uzbekistan, 2001).

Before Nowruz, in Samarkand, prophecies s*al-nama* (Pers. 'yearly charter'), made by astrologers *munajim* for a fee, were distributed among nobilities, wealthy people, and acquaintances (Vyatkin, 1897). There were "Sal-name" charters in Turkic. One such charter has survived to the present; it was copied in Bukhara in the early 19th century. The charter narrated the years of the twelve-year "animal" cycle and the relevant signs, forecasting the features of the coming year, depending on what day of week Nowruz happened to be (Shcherbak, 1974: 171–179). Immediately before the holiday, sheets of paper containing the written ayahs from the Quran with good wishes, and colored boiled eggs were on sale. Every family cooked food in full cauldrons (*kazan tuldy*) to ensure a good harvest in the coming year. Festivities were usually carried out on elevated places, with the aim of getting a high position and growing rich (Vyatkin, 1897). The festival *sayli guli surh*, following Nowruz, took place at Chupan-aty mazar (Sukhareva, 1986: 33).

In the early 20th century, Samarkand reformists took Nowruz celebrations ambiguously. For example, an article in the *Oyina* Journal recommended shortening the 40-days-long festival of Nowruz to three days (Abdirashidov, 2011: 217). However, the reformists admitted that this holiday was a part of the religion practiced by the Muslim population of this region (Siddikiy Azhziy, 2005: 142-b).

Upon annexation of the region by the Russian Empire, two major parts were formed in Samarkand: Muslim and European. Residents of each part had their peculiarities and their own perceptions of the city's identity. Russian authorities tried to regulate celebration of Nowruz and other Muslim holidays in Samarkand according to Russian legislation. On the 29th of March 1908, lieutenant-colonel Martinson, an acting head of the Samarkand uyezd, issued a decree on the fee for the plots for the erection of swings, merry-go-rounds, and show-booths during the local festival *sayl**, which was carried out at Afrasiyab (ancient ruins of Samarkand), and during the Easter celebration in the Russian part of the city. The decree was confirmed by the military governor of the region on the 29th of April in the same year (CSA RUz. F. I-18, Inv. 1, D. 8854, fol. 2). This document shows that during the Russian administration, at least by the early 20th century, several sacred places were formed in the city, depending on the religious-confessional identity of the citizens. European citizens celebrated their festivals in the European part of the city, while the Muslim population used Afrasiyab, sacred mazars, and mosques for their holidays.

Conclusions

The old holiday of Nowruz was traditionally celebrated by the Muslim community of Central Asia, despite the predominance of the Islamic ideology. In the Emirate of Bukhara, the broad official celebration of this holiday began during the reign of Emir Muzaffar, who sought to support the image of the Uzbek dynasty of Manghit during the crisis of political legitimacy resulting from defeat in the war with the Russian Empire, and to consolidate the commercial, military, and political elites of the country. In the early 20th century, Emir Abdulahad of Bukhara initiated the participation of the non-Muslim Russian circus artists in the festival.

The celebration of Nowruz combined the non-Islamic beliefs and the Islamic interpretation of the festival, which was legitimized by prayers at mosques and visits to mazars of the Muslim saints. Old discussions among *ulama* about the necessity of celebrating Nowruz acquired other forms in the 19th century: certain

*Literary 'cauldron is full' (Turkic) – the custom of cooking food in the full cauldrons.

*In some documents of the Russian authorities in Samarkand, instead of the word "Nowruz", the folk term *sayl* was used.

principles and the large scale of celebrations were criticized. This criticism obviously had contributed to the decrease of celebration during the rule of subsequent emirs. Folk celebration of Nowruz differed from the official one in that it included the rituals of ancestor worship, with the visits of saint mazars.

In Samarkand, with its polyethnic population, closer contacts between the settled Tajiks and Uzbeks, on the one hand, and the semi-nomadic Turks, on the other, enhanced the synthesis of agricultural and pastoral elements in the ritual practice of Nowruz. Establishment of the distinct Muslim and European parts of the city affected the principle of holiday organization. Upon annexation of Samarkand by the Russian Empire, the scale of Nowruz celebration decreased.

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Architectural and Archaeological Studies in the Tobolsk Kremlin During the 1950s (Based on Photographic Documents at the Tobolsk Museum-Reserve)

In the 1950s, large-scale excavations were carried out under the Tobolsk Kremlin restoration project in order to examine its monuments of stone architecture. Published accounts of the findings are scarce. Valuable sources of information are the photographic archives of the Tobolsk Historical and Architectural Museum-Reserve. Materials include photographs of excavations and photocopies of drafts and plans. Owing to these and certain other sources, it has become possible to say exactly where and how the excavations were conducted, which monuments were detected, and how the findings were used during the restoration of the kremlin. Several dozen test pits made possible to evaluate the condition of the foundations, their layout, and depth. The most important result of the work carried out under F.G. Dubrovin's guidance, is the study of late 17th century fortifications. Owing to numerous reconstructions, they have survived to this day in a rather fragmented state. Large areas of the northern, southern, and eastern fortifications were revealed, including remains of walls and towers. Their foundations were cleared; their exact location and general layout were assessed.

Keywords: *Tobolsk, kremlin, 17th century, F.G. Dubrovin, walls, towers, supporting arches.*

Introduction

Numerous publications on the architectural heritage of the Tobolsk Kremlin repeatedly mention the excavations conducted on its premises in the 1950s. For example, in his book, V.I. Kochedamov wrote: "Serious and systematic work on archaeological research and restoration of the Kremlin objects began in 1956 and has been carried out until now by an experienced engineer, F.G. Dubrovin" (1963: 144). Unfortunately, the described materials do not give the readers a clear idea of the scale and results of these works, and their complete reports have not yet been found. One may only hope that they exist and will someday become available for analysis. However, the collections of the Tobolsk Historical and Architectural Museum-Reserve have preserved numerous photographic documents, which can partially fill in the gaps. In our opinion, the one with greatest value is Dubrovin's sketchbook (Item No. TM-15849) on the restoration of the Tobolsk Kremlin. It contains a section entitled "Photographic records of research at the monument in nature by test pits, trenches, and excavations". These and some other sources make it possible to establish where and how archaeological research was carried out, which features were unearthed, and how the results of the archaeological work were used during the restoration.

This article intends to present the photographic evidence, which can be used for describing archaeological research conducted by Dubrovin in the 1950s in the Tobolsk Kremlin. The sources employed can be tentatively divided into three groups. The first group is published data, primarily appearing in the studies of

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V.I. Kochedamov (1963), S.N. Balandin (1981), V.V. Kirillov (1984), and L.P. Barabanova (1986). The second group can be considered the main one: it includes photographs and photocopies of drawings of features of the Tobolsk Kremlin in the 1950s–1960s, made by Dubrovin, and kept in the collection of the Museum-Reserve (Item No. TM-15849, NV-2211, NV-4282). The total amount of these materials comprises several hundred photographs, many of them showing restoration activities, including the state of certain features before and after the works. As a rule, photographs in the collections are grouped according to territorial characteristics, and thus give the viewer an idea of works done in specific areas of the Kremlin. At the same time, photographs were taken from different angles at different times. We can say that "archaeological" sources in this case can be reliably confirmed by the "architectural" sources. The restoration was carried out with the direct participation of the Tobolsk Museum-Reserve. This fact also testifies to the originality of the photographic evidence stored in its collections. It is worth mentioning that this publication features only a portion of those images, which make it possible to specifically discuss the architectural and archaeological research of the Tobolsk Kremlin. The data obtained during archaeological research and the observations of the 2000s play an auxiliary role in the study of this topic. These data have been partially published (Adamov, 2000, 2001; Balyunov, 2006, 2007; Danilov, 2007; Adamov, Balyunov, Danilov, 2008; Balyunov, Danilov, 2017; Zagvazdin, 2018). The named groups of sources complement and verify each other well.

Chief outcomes of the excavations

The history of the Tobolsk Kremlin began in 1587, when a unit of servicemen led by the Chief Clerk, Danila Chulkov, erected a wooden fort on the Troitsky promontory near the confluence of the Tobol and Irtysh Rivers. A few years later, Tobolsk achieved the status of administrative center of Siberia. Accordingly, the existing fort acquired the right to be called the Kremlin. The founding of the Diocese of Siberia and Tobolsk in the 1620s secured the high status of the town, and triggered a new phase of building and construction. Since that time, the fortress was divided into two parts—one belonging to the Governor and the other belonging to the Bishop. In the late 17th century, in the Bishop's portion, the first stone building in Siberia (St. Sophia-Dormition Cathedral) and defensive structures, walls, and towers were built. In the early 18th century, the Prikazniye Palaty (Departmental Palace), Gostiny Dvor (Trading Arcades), and Rentereya (Treasury) were built under the auspices of S.U. Remezov. Subsequently, the developed architectural ensemble constantly underwent change. For instance, walls and towers were rebuilt many times, and by the early 20th century, a significant portion of them had been completely destroyed.

In the second half of the 20th century, the question about restoring the monuments of stone architecture in Tobolsk was brought up. In 1952, experts from the Central Scientific and Restoration Workshops of the Ministry of Culture of the USSR conducted a preliminary survey of the architectural objects in the Tobolsk Kremlin. Later, the architect E.P. Shchukina developed a project for their restoration. For several years (1953–1956), small-scale works on the primary conservation of collapsing buildings and their architectural measurements, etc. were carried out (Kochedamov, 1963: 144). As was mentioned above, the real transformation of the Tobolsk Kremlin began in 1956, when the supervision of its restoration was taken over by a Moscow architect, F.G. Dubrovin, who was engaged in this project for about 15 years, until his death. His activities anticipated the decision of the Government of the RSFSR to institute the State Historical and Architectural Museum-Reserve based on the Tobolsk Museum of Local History and architectural monuments of the town in 1961. The core of the Museum is the ensemble of the Tobolsk Kremlin (Fig. 1).

The restoration work conducted in the mid-20th century was preceded by serious research. The principle information on the restoration can be obtained from the photographic evidence contained in the collections of the Tobolsk Historical and Architectural Museum-Reserve. The "Plan of the Tobolsk Kremlin with Indications of Research, Conservation, and Restoration Work on Architectural Monuments and Planning Work on the Territory of the Kremlin as of November 1, 1961" by Dubrovin (Fig. 2) is of particular importance to our discussion. The Plan shows that all work was carried out exclusively in the eastern part of the Troitsky promontory (the so-called Sofia courtyard or Bishop's courtyard). This is easy to explain: architectural monuments in the western part (the Governor's courtyard) did not require serious restoration. In addition, the Tobolsk prison, which was built there in the mid-19th century, continued to be used for its intended purpose a century later. This circumstance largely pre-determined the fact that the excavations in the 1950s were carried out along the perimeter of the Sofia courtyard and on the territory adjacent to it.

The drawing shows the location of test pits. Over thirty of them were made (apparently, not all of the pits were marked, which makes it difficult to accurately calculate the total number); they have end-to-end numbering, which does not reveal any sequence related to the locations of the work. Probably, the decision about where the pits were placed was not made according to a previously adopted plan, but as and when necessary. Obviously, these excavations were carried out primarily for examining the condition of the foundations, their structure, and construction depth of those buildings, which were

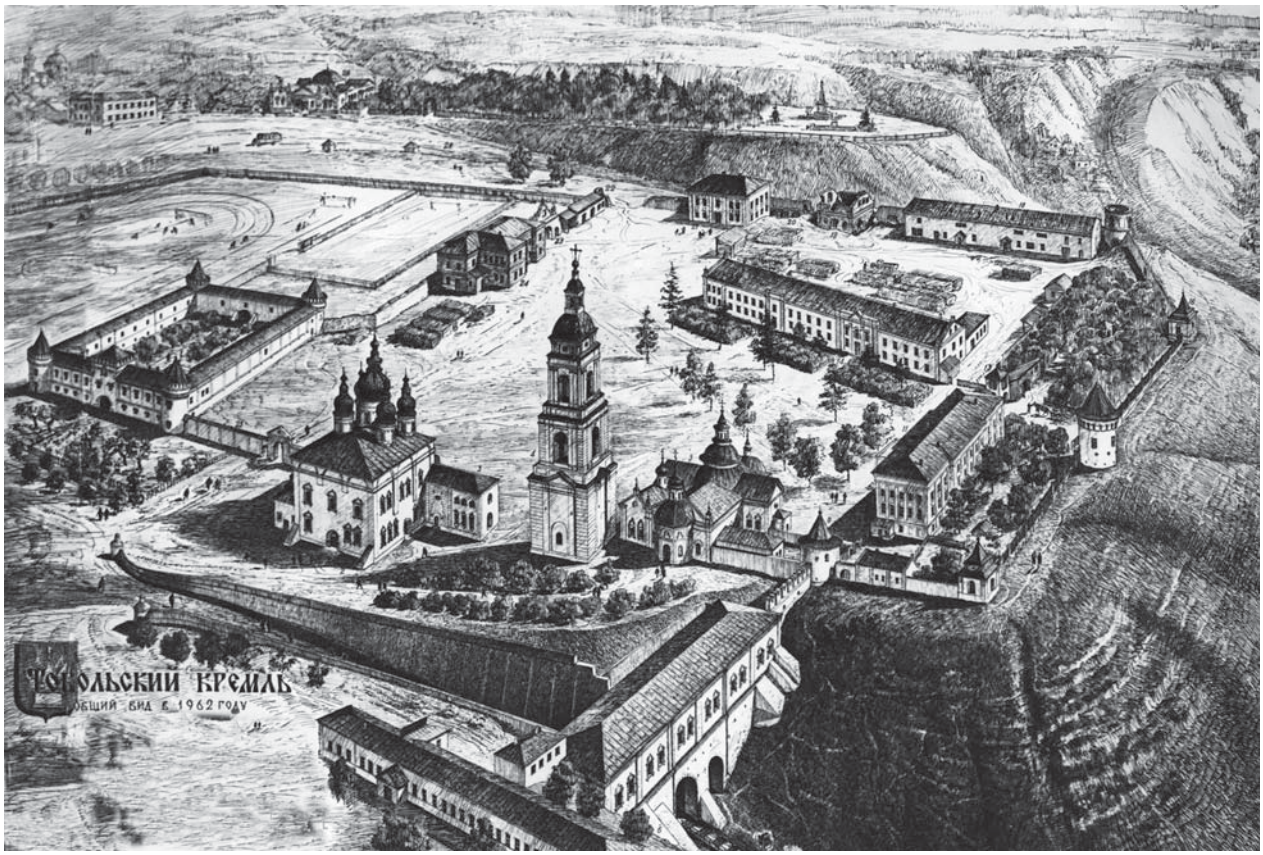

Fig. 1. General view of the Tobolsk Kremlin from the southeast. 1962. Drawing from the sketchbook of F.G. Dubrovin (TM-15849 / 51).

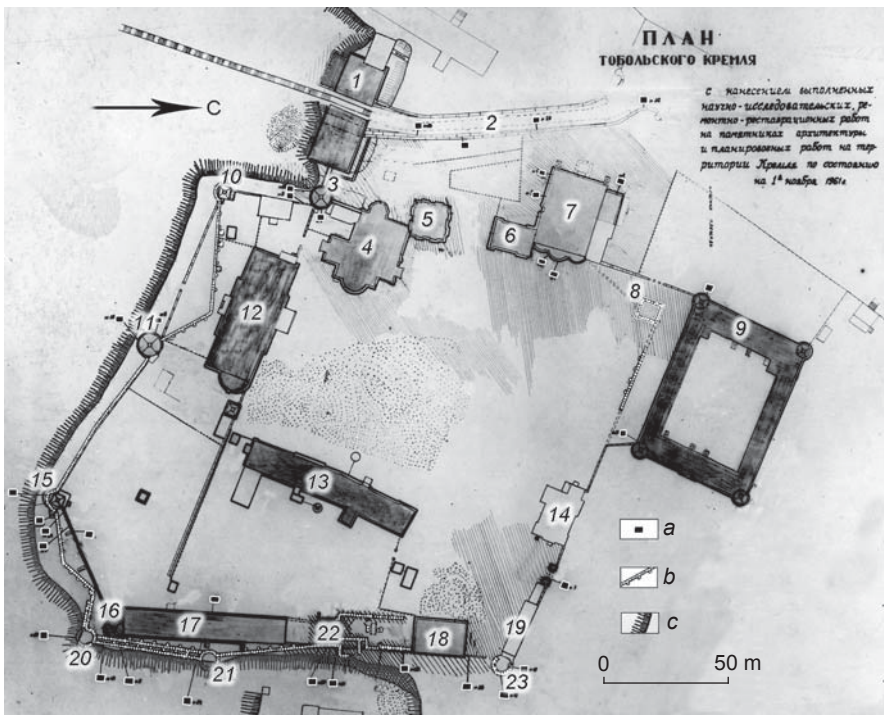

Fig. 2. Ground plan of the Tobolsk Kremlin of November 1, 1961 (TM-15849 / 15), supplemented by the conventional symbols.
1 – Rentereya; *2* – Pryamsky Driveway; *3* – Pavlinskaya Tower; *4* – Protection Cathedral; *5* – bell tower; *6* – sacristy; *7* – St. Sophia-Dormition Cathedral; *8* – foundation of the northwestern square tower; *9* – Gostiny Dvor; *10* – southwestern pavilion; *11* – southern round tower; *12* – Bishop's House; *13* – Consistory; *14* – Bishop's Guesthouse; *15* – southeastern pavilion; *16* – southeastern corner tower; *17* – Bishop's stables; *18* – Monks' dormitory (Church Readers School); *19* – building for baking prosphoras; *20* – foundation of the southeastern Krasnaya Tower; *21* – foundation of the eastern round tower; *22* – eastern square tower with extensions; *23* – northeastern Orlovskaya Tower.
a – excavation pits; *b* – identified objects; *c* – boundary of the ravine.

awaiting restoration. For example, the building of the Gostiny Dvor, St. Sophia Cathedral, the Bishop's stables, and the supporting walls of the Pryamsky Driveway were investigated in this manner. One can get some idea of these works from the photographs showing the exposed sections of stonework in the apses of St. Sophia Cathedral (Fig. 3). One exception included some test pits made along the eastern part of the fortress wall, where tremendous work was carried out to identify the lost objects.

A peculiarity of the restoration work carried out by Dubrovin was that he did not try to restore only one building or a group of scattered buildings. His main task was to create a single architectural complex, where each component would harmoniously complement the others. Therefore, the architect allowed for the construction of newly built replicas as close as possible to the appearance of old originals. This required additional research. The situation with the defense walls, without the restoration of which the Tobolsk Kremlin could hardly look like a Kremlin, was particularly alarming. For this reason, as early as 1957, an impressive study of the contours of the former fortress walls was performed (Kochedamov, 1963: 144). The work in these areas, which can be called archaeological by the standards of that time, were carried out with the partial removal of soil in order to find and unearth the foundations and, accordingly, establish their location and general layout. It should be clarified that until recently, archaeological sites of the 17th century were often perceived as an unimportant part of the cultural and historical heritage; professional archaeologists rarely showed interest in them, and architectural works were carried out without properly organized excavations.

Today, the northern boundary of the Sofia courtyard is formed by a fence (mid-18th century), including the Holy Gates, the Episcopal Guesthouse (early 20th century), and the southern wall of the Gostiny Dvor (early 18th century). In this area, in the northwestern corner of the Sofia courtyard, the remains of a square tower of the late 17th century and the adjacent foundation of the fortress wall were found (see Fig. 2, *8*) (Kirillov, 1984: 83). This feature was known from the written and cartographic sources. The northern side of the tower was along the same line as the defensive wall, which is confirmed by ground plans of the Troitsky promontory of the 18th century. This is somewhat surprising. According to traditional planning, a tower should have protruded beyond the line of walls, so the defenders of the fortress could execute flanking fire. According to the drawing by Dubrovin, the northern defense wall had small protrusions on the inside—obviously, the supports of the wall arches, above which a shooting gallery was once located. This may indicate that during the construction of the northern

Fig. 3. Unearthed foundations of the apse of St. Sophia-Dormition Cathedral. View from the east (TM-15849 / 35).

part of defensive structures, they were given a guarding and combat function. Similar arcades are known from the other parts of the defense walls, where they survived until the mid-20th century.

In 2000, A.A. Adamov (2001: 7–10) investigated the ruins of the northwestern square tower. The remains of its foundation lay immediately below the sod layer. It is possible that the upper layers of building debris were removed in the mid-20th century (Balyunov, Danilov, 2017: 9, ill. 1). As far as one can judge, Dubrovin treated the object of architectural heritage and its cultural layer with sufficient care, which cannot be said about construction and beautification work conducted on this territory in subsequent periods. Unfortunately, Dubrovin did not perform the conservation of the objects discovered in that area and, according to the preserved records, their restoration was also not planned.

The area where the western part of the defensive structures was once located was fairly densely built up in the 18th century (sacristy, Protection Cathedral, bell tower, etc.), which somewhat narrowed Dubrovin's field for activities. The only structure of the late 17th century in that area was the Pavlinskaya Tower (see Fig. 2, *3*), which, as was believed, was preserved in the shortened form (however, it must be said that Dubrovin considered the possibility of restoring the once dismantled upper level of the machicolation). The earthwork was carried out at some distance from that building. The section of the defensive wall between the Pavlinskaya Tower and the Rentereya building is not indicated on the ground plan as an identified object. The photographs taken before the restoration reveal the ruins of this wall (Fig. 4, *2*). Their unearthing made it possible to obtain interesting data. The Rentereya is located in the gorge of the Pryamsky Driveway, and in daylight the surface sharply inclines in the direction from the tower towards the building. When this area was cleared of the later layers, it turned out that the fortress wall there had two levels of blind arcades, in fact representing two rows of supporting arches placed one upon the other (Fig. 4, *1*) (Kirillov, 1984: 90–91). By the time of the research, the upper row had practically not survived; it was restored thanks to the work carried out by Dubrovin (Fig. 4, *3*, *4*) (Barabanova, 1986: 105). The unearthed supporting arches of the lower level obviously served as models for restoring some of the remaining sections of the fortress walls, while in that area they were later conserved by a layer of new brickwork.

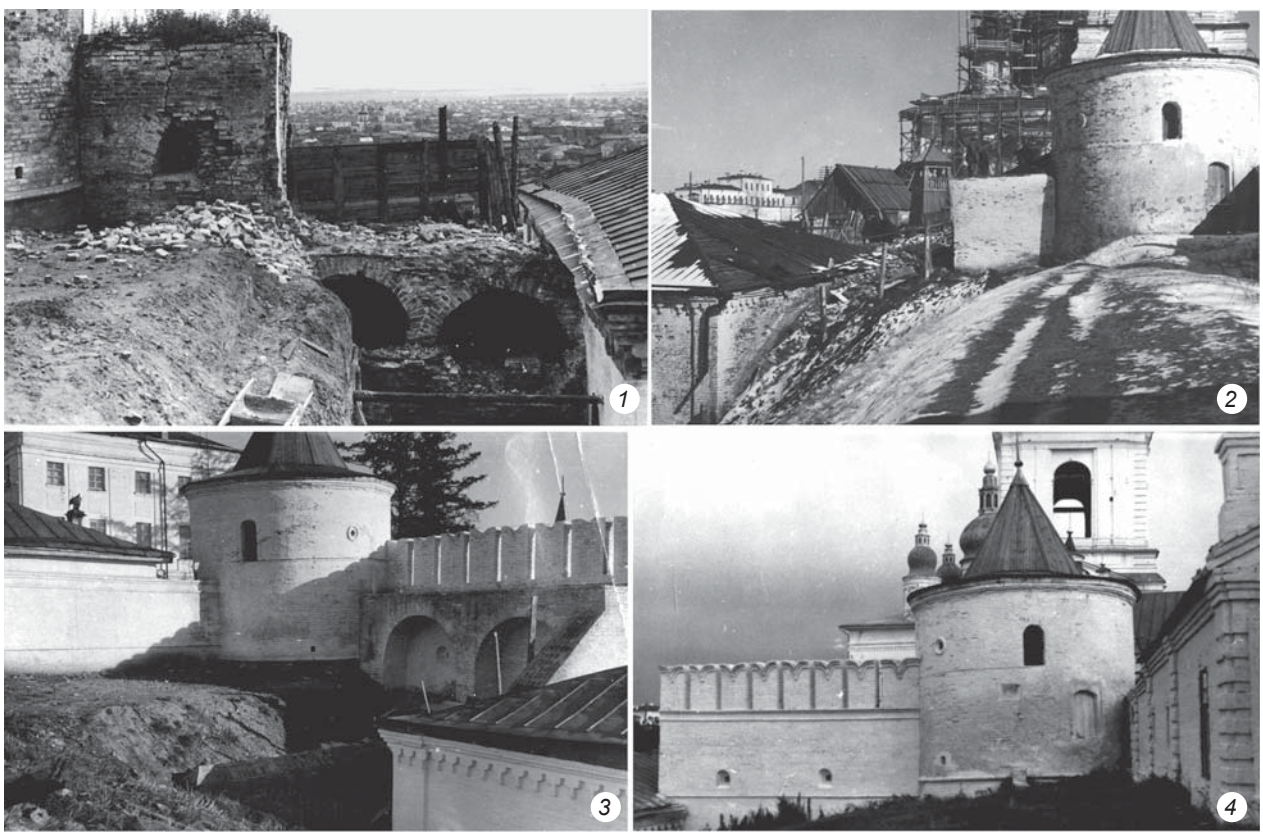

Fig. 4. Wall between Pavlinskaya Tower and Rentereya (TM-15849 / 60; TM-15849 / 76).
1 – view of the open lower level of the wall-supporting arches from the north; *2*, *4* – view from the south before (*2*) and after (*4*) the restoration; *3* – view from the northwest after the restoration.

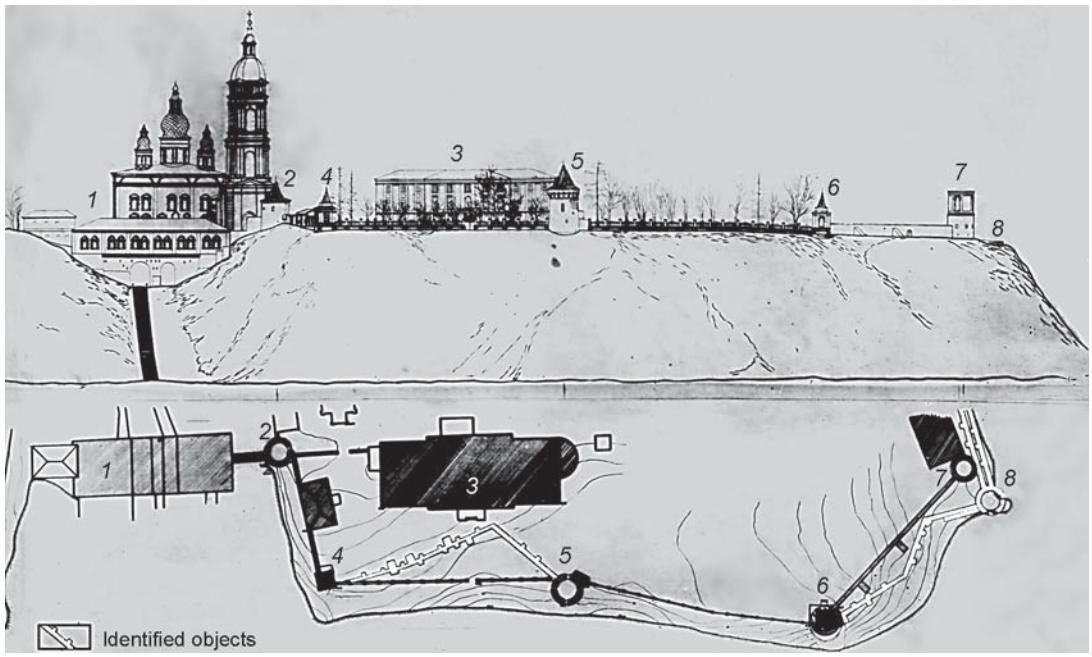

Fig. 5. Southern part of the military defenses in the Tobolsk Kremlin: general view and ground plan (TM-15849 / 58).
1 – Rentereya; *2* – Pavlinskaya Tower; *3* – Bishop's House; *4* – southwestern pavilion; *5* – southern round tower; *6* – southeastern pavilion; *7* – southeastern corner tower; *8* – foundation of the southern Krasnaya Tower.

The sketchbook contains a photocopy of the drawing "General view of the Kremlin from the southern side" (Fig. 5). The drawing clearly shows four towers, connected by lines of fences, which to a considerable extent represented wooden planks set between the stone supports on the stone foundation. This fence, similar to some of the towers shown in the drawing, was a late alteration from the 18th–19th centuries. This situation could not satisfy Dubrovin, who wanted to reconstruct the grand Kremlin ensemble; and therefore, the architect did excavation works for searching and exploring the original fortifications. It is known that the monumental Faceted Tower was built on the southwestern corner in the late 17th century, and existed there until about the mid-18th century (Kozlova-Afanasieva, 2008: 113). Considering the threat of collapse, it was disassembled and moved to the northeast, where it was subsequently rebuilt several times (Zavarikhin, 1987: 83). Later, a small square tower was built on the southwestern corner, which in its design resembles a decorative pavilion more than a defensive structure (Fig. 5, *4*). If ground plan of 1961 is accurate, a powerful foundation was found below this late building (see Fig. 2, *10*), although it is absent from the drawing showing the Kremlin from the south. According to one of the surviving restoration projects, Dubrovin planned to rebuild the Faceted Tower, but this plan remained only on paper.

Until the mid-1950s, the fence made of planks on stone supports stood in a straight line between the southwestern pavilion and the southern round tower. Dubrovin's research in the adjoining area revealed the remains of the original defense walls, which had a different configuration in plan view, in the form of a broken line facing north with its angle (see Fig. 5). Protrusions were discovered on the inside of the wall base, which were obviously the supports of the wall arches, although some of them should be identified as the bases of buttresses supporting the fortress walls, the more so because in the drawing, such protrusions were also indicated on the outside of the defense line. Later, the plank fence was dismantled, although Dubrovin took measures to conserve its foundation (more precisely, according to some sources, this foundation was originally that of the southern wall of the Bishop's House, the construction of which in the mid-18th century led to the destruction of the old fortress wall). It can be argued that excavations revealed the exact location of defenses in that area and established their structural features. This served as a basis for reconstruction, and a new wall was built on the old foundation of the late 17th century, which stands until this day.

Another feature of the southern curtain wall, which underwent repeated alterations, was a tower rebuilt in the late 19th century and turned into a decorative southeastern pavilion square in plan view (see Fig. 2, *15*). In the late 17th century, a round tower was in this place (Kozlova-Afanasyeva, 2008: 114). The surviving plans and photographs show that below the pavilion, Dubrovin

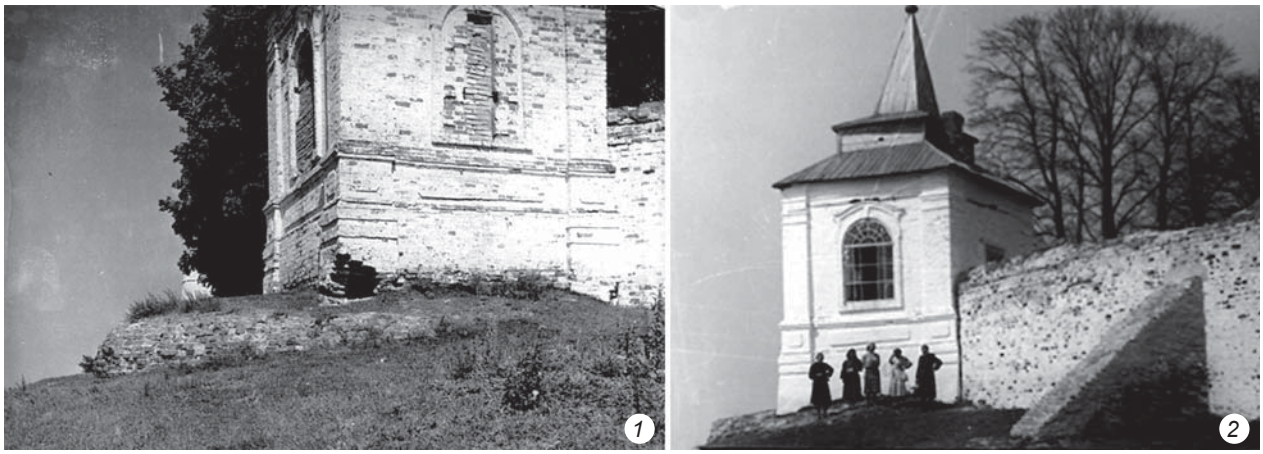

Fig. 6. Southeastern pavilion built on the foundation of the round tower (view from the southeast) before (1) and after (2) the restoration (NV-2211 / 11, NV-2211 / 39).

discovered at least two foundations one on top of the other (see Fig. 5, *6*; 6). Recent excavations confirm this quite confidently; therefore, that object was rebuilt twice (Balyunov, Danilov, 2017: 9–10, ill. 4). The lower round foundation can be examined today because it was partially conserved under new stonework. Judging by the project records, Dubrovin considered it appropriate to rebuild an impressive round tower there, especially since the excavations established its dimensions quite accurately.

As it turned out from the work, the fence in the area between the southern round tower and southeastern pavilion (see Fig. 5, *5*, *6*) stood on the foundation of the old defense wall. Therefore, a reconstruction was carried out there, and a new structure with powerful supporting arches in the lower level was built. A much more complex situation occurred in the area adjacent to the southeastern corner of the fortifications. The remains of the Krasnaya ('beautiful') old tower were studied there, at the very edge of the terrace (see Fig. 5, *8*; 7, *1*) (Kirillov, 1984: 79). It is known that the Krasnaya Tower was disassembled when the threat of its slipping into ravine appeared. It is believed that in the late 18th century, a new southeastern corner tower, which received a "lightened" pavilion form, was built in a new place inland from the edge of the terrace instead of that structure (Kozlova-Afanasieva, 2008: 114). For this reason, fortifications of the southern curtain wall were rebuilt there at least twice. The later wall with two buttresses had survived by the time of Dubrovin's work, and was located in a straight line between two southeastern towers (see Fig. 5, *6*, *8*). The foundation of the old wall was discovered by the excavations. It had a zigzag shape on the map, which looked even more sophisticated owing to numerous protrusions from both external and internal sides, which were obviously the remains of the supports of wall arches and buttresses (Kirillov, 1984: 79). Owing to its extremely dangerous proximity to the edge of the terrace, it was not possible to rebuild the old buildings. Therefore, in the 1950s–1960s, restoration work in that area was carried out on the existing later objects—a section of the wall and southeastern corner tower.

The eastern curtain wall of the original fortifications was preserved quite fragmentarily. Today, two buildings of the late 18th century (the Bishop's stables and monks' dormitory) and newly rebuilt towers (square tower and round Orlovskaya Tower) stand along this line (see Fig. 7). Opposite the Bishop's stables, on the edge of the terrace, Dubrovin discovered the foundation of another round tower, now unknown (see Fig. 7, *4*). One interesting find was the remains of defense walls between that tower and southeastern Krasnaya Tower (see Fig. 7, *1*, *4*). Two almost parallel lines of foundations were discovered there; each one had the protruding bases of the supports of wall arches on the inside (Ibid.). This fact may have several explanations. First, the fortification wall in this section was initially more structurally sophisticated than the wall in other places, and could have included the interior rooms of the lower gallery. Second, the defenses there were rebuilt at least twice. In this case, an extension to the fortress wall could have been made for creating lower rooms (for example, monastic cells), or due to the threat of collapse, the wall could have been completely dismantled and rebuilt with minor changes. Study of the available cartographic evidence shows that the latter is more likely.

Relatively large-scale work was performed north of the Bishop's stables for establishing the initial location and structural features of the eastern square tower (see Fig. 2, *22*; 8, *1*). Excavations revealed that this structure, which was built in the late 17th century, was later dismantled owing to the threat of its collapsing into ravine, and was rebuilt on a larger scale, with a shift to the southwest, while a section of the fortification wall became its facade (Kirillov, 1984: 82). The square tower underwent significant alteration in the last quarter of the 18th century, when its surviving parts were combined with

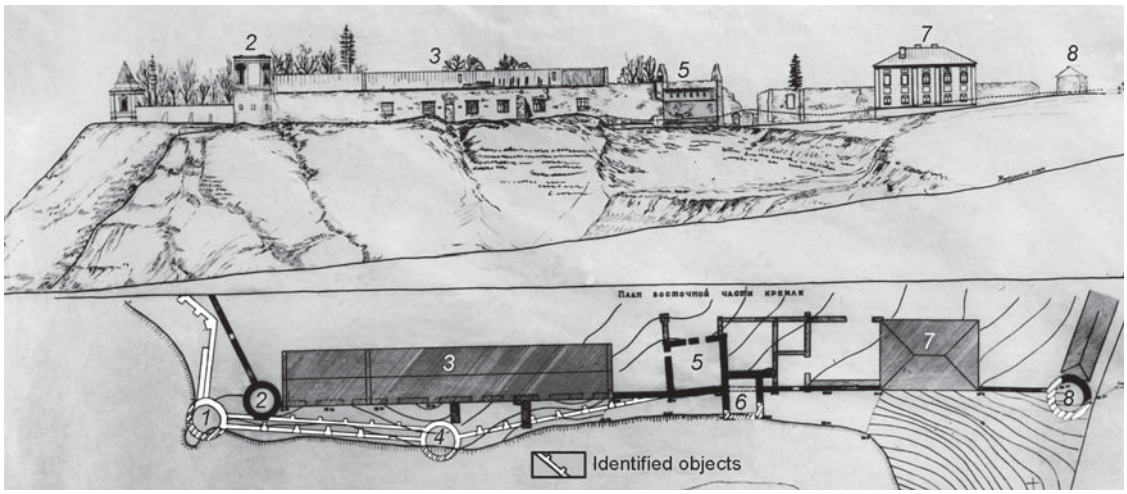

Fig. 7. Eastern part of the military defenses in the Tobolsk Kremlin: general view and ground plan (1958) (TM-15849 / 55).

1 – foundation of the southeastern Krasnaya Tower; *2* – southeastern corner tower; *3* – Bishop's stables; *4* – foundation of the eastern round tower; *5* – eastern square tower of the 18th century; *6* – eastern square tower of the late 17th century; *7* – Monks' dormitory; *8* – ruins of the northeastern Orlovskaya Tower.

Fig. 8. Eastern square tower.

1 – general view from the northeast, 1952 (TM-15849 / 2); *2* – excavation of the foundation (view from the northeast), 1959 (TM-15849 / 3); *3* – unearthed foundation (view from the southeast?), 1958 (TM-15849 / 3).

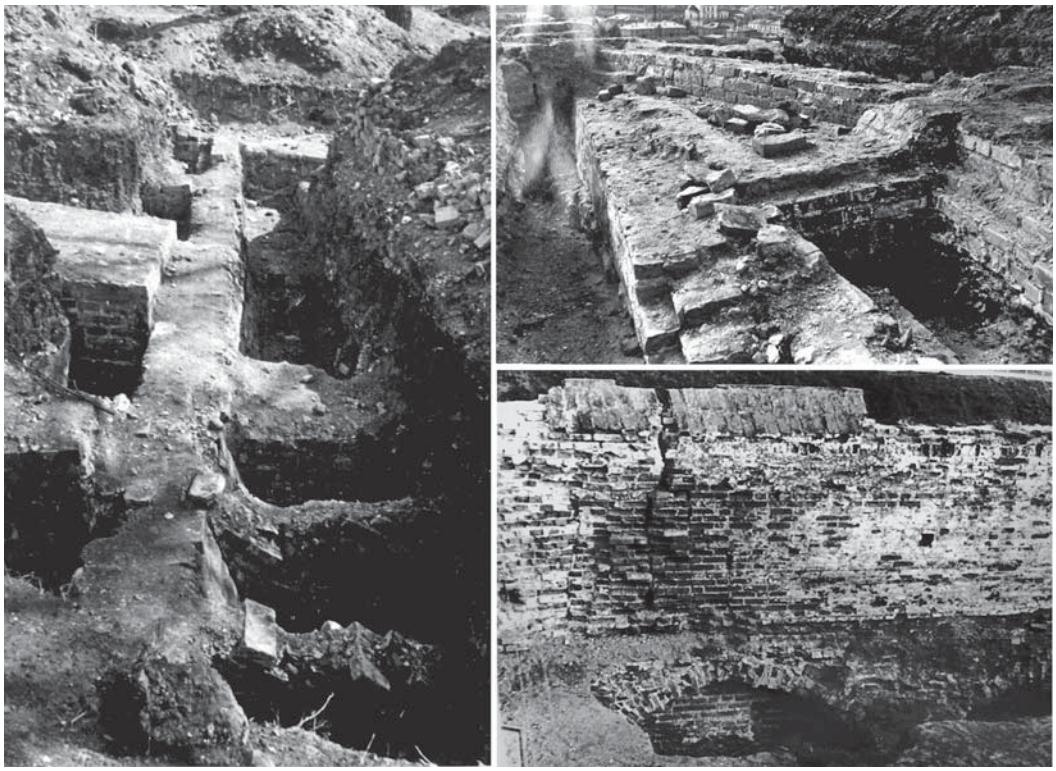

Fig. 9. Unearthed foundations of the fortress walls (TM-15849 / 44; NV-4282 / 13).

the building of the Bishop's stables (Kozlova-Afanasieva, 2008: 114). In this area, Dubrovin discovered the only section of the defense wall with the surviving battlements of the upper machicolation (see Fig. 7, *5*). Kochedamov gave such a description: "By now, only its small section built into the square tower of the eastern wall has survived. This wall was approximately 1.8 m wide at the lower part and was approximately 9 m high (with battlements). At present, the level of the ground near the wall has risen, but during the excavations, three powerful arches supporting it were found at the depth of 3.5 m. However, this is a special case, as the main wall was more modest in size" (1963: 34) (Fig. 9). Notably, precisely this find served as a model for restoring the upper battlements of the fortress wall around the Sofia courtyard, where they were absent (Barabanova, 1986: 103).

A powerful buttress was located on the outside of the wall. Studying it helped to establish the initial layout of the square tower of the late 17th century (see Fig. 8, *2*). Excavations unearthed a brick band located at the level of the lower machicolation at the base of this structure (Ibid.: 104) (see Fig. 8, *3*). Further work revealed that the buttress belonged to the southern wall of the original tower. Thus, the location of its foundations was established fairly accurately. It was not possible to restore this object in its original form, since "the walls of the tower were fastened by steel binds, which saved them from the incipient intense destruction" (Kochedamov, 1986: 144). A later square tower, with a fragment of the defense wall built into it, was recreated under the supervision of Dubrovin. At the same time, the ruins of the round Orlovskaya Tower were studied (see Fig. 7, *8*) in the northeast corner of the Sofia courtyard, and the tower was subsequently rebuilt.

Conclusions

Summarizing all of the above, it can be concluded that the most important outcome of the work carried out under Dubrovin's supervision was the study of military defenses. As Kochedamov observed, "the excavation established their former position and structures, which made it possible to make an accurate reconstruction of the walls and towers of the Kremlin in the part of St. Sophia's courtyard" (1963: 144). Notably, these are the only stone fortifications in Siberia, built in the late 17th century. They survived in fragmented form. Obtaining detailed information about their structures, remodeling, and locations today can only be done with the help of archaeological sources, which in our case are represented by the photographs from the excavations by Dubrovin in the 1950s. This heritage reflects a part of the processes that were taking place in the Soviet Union in the first post-war decades. Extensive restoration work began in 1950s–1960s at the monuments of the Pskov, Rostov, Nizhny Novgorod, Astrakhan, Tula, Ryazan

Kremlin, etc. Like in Tobolsk, much of this work was carried out according to Central Scientific and Restoration Workshops projects.

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Trepanations in Sauromato-Sarmatian Crania from the Lower Volga

We describe artificial openings in crania of the Early Iron Age nomads of the Lower Volga region, owned by the Moscow State University's Research Institute and Museum of Anthropology. Such openings were found in two male specimens of the Sauromato-Sarmatian age from Bykovo (burial 4, kurgan 13) and Baranovka (burial 2, kurgan 21). Using macroscopic and X-ray examination, we attempt to identify the surgical techniques and the reasons behind the operations. The cranial vault of the Bykovo individual was trepanned by scraping and cutting, for medical purposes. The man survived the surgery, as evidenced by healing. In the case of Baranovka, the operation was performed post-mortem or peri-mortem by drilling and cutting, possibly for ritual purposes. Collating these cases with others relating to the Early Iron Age nomadic (Sauromato-Sarmatian) culture of the Lower Volga region and adjacent territories and with written and archaeological sources suggests that the closest parallels come from Central Asia, and Southern and Western Siberia, where the custom of post-mortem ritual trepanations was very common. The surgical techniques practiced in the Lower Volga region were likely due to the penetration of Greek and Roman medical traditions in the mid-first millennium BC.

Keywords: *Sauromatians, Sarmatians, nomads, Early Iron Age, Lower Volga region, trepanation.*

Introduction

The cranial samples from the Sauromato-Sarmatian period kurgan cemeteries from Volgograd and Astrakhan regions curated at the Research Institute and Museum of Anthropology of the Moscow State University (MSU) were studied. Two skulls, from the Bykovo and Baranovka cemeteries, displayed openings of the cranial vault that appeared as a result of intentional manipulations with the skulls. This study sets out to describe comprehensively the lesions and to determine the possible reasons and techniques of performing these manipulations.

Material and methods

The first skull (Inv. No. KA–451) belonged to the individual from burial 4, kurgan 13 at Bykovo (Volgograd

Region). The kurgan was excavated in 1955 by the Volgograd expedition of the Institute for the History of Material Culture (USSR Academy of Sciences), led by K.F. Smirnov. The second skull (Inv. No. KO–286/12) belonged to the individual from burial 2 (skeleton 1), kurgan 21 at Baranovka site, located in the Chernoyarsky District, Astrakhan Region. This site was excavated in 1972 by the Volga Archaeological Expedition of the Faculty of History of the MSU, led by G.A. Fedorov-Davydov.

Owing to the incomplete preservation of the skeletons, the sexes and ages of the individuals were determined from cranial features, following standard protocols (Alekseev, Debets, 1964; Balabanova, 1998; Brothwell, 1981; Meindl, Lovejoy, 1985). Differential diagnostics of pathological conditions was carried out employing both macroscopic descriptive and radiological (X-ray) techniques. The X-ray examination was carried out at the MSU Research Institute and Museum of Anthropology, using a microfocus X-ray device PRDU-02, under the following protocol: tube anode voltage 50 kV; tube anode current 120 μA; exposition time 3 sec; magnification ×2. Forensic protocols were used to determine the type of the vault wounds observed and the circumstances (peri- or post-mortem) in which they were caused, alongside with the methods used in traumatology of mechanical skeleton lesions (Smolyaninov, 1959; Pigolkin et al., 2002). A detailed description of the lesions was carried out following the recommendations of M.B. Mednikova (1997; 2001).

Fig. 1. Location of the kurgan cemeteries where the cases of trepanation in Sauromato-Sarmatian crania were recorded.

Location and characteristic of the archaeological assemblages

The Bykovo cemetery is located near the village of the same name, in the Bykovsky District, Volgograd Region, at the left bank of Volga (Fig. 1). In kurgan 13 made in the Timber Grave period, a joint burial ground of the Sauromatian age (6th to 4th centuries BC) was detected (Smirnov, 1960: 206). There was a skeleton of a young adult male buried in an extended position, on his right side, headed westwards.

The Baranovka kurgan cemetery is situated at the southern periphery of the same-name village in the Chernoyarsky District, Astrakhan Region (Fig. 1). In the southeastern sector of kurgan 21, a joint burial ground 2 was detected, which was made in a double undercut (Dvornichenko, Fedorov-Davydov, 1989: 48). The deceased (skeleton 1) was placed along the western wall of the grave, at a depth of 158 cm, in a small deepening. The skull was found lying on the right temporal bone. The deceased was placed on a mat, in an extended supine position, headed towards south-south-west. A globe-shaped polished gray clay molded vessel with a broken-off handle was found near the feet of the skeleton. A short (45 cm) sword with a ring pommel and straight crossguard was situated near the right femur; and a tip of a socketed two-barbed spear (33 cm), a whetstone (9.5 cm), a fragmented iron firesteel, and a firestone were along the left femur. Near the right tibia, sheep bones and a fragment of an iron knife were found. Judging by a "military" bronze fibula found near skeleton 2, the burial can be dated to the first half of the 1st century AD (Kropotov, 2010: 59–62).

Description of the finds

Skull from Bykovo. Fragments of the frontal, parietal, occipital bones and mandible were available for the study. The remains belonged to a male 30–35 years of age. A penetrating wound was detected in the central part of the right parietal bone, just above the squamosal suture, near the lower temporal line. Only the frontal and sagittal margins of the bone were present, while the occipital and squamosal margins were lost post-mortem. Owing to the absence of the squamosal margin, the lower part of the opening was not present as well.

The wound is of sub-rectangular shape, with a rounded left upper margin. The inlet on the external surface of the bone is 38.5 mm in the sagittal plane, and 32.5 mm in the transverse plane; the outlet at the inner bone surface is 22 × 18 mm (Fig. 2, *a*, *b*). The external

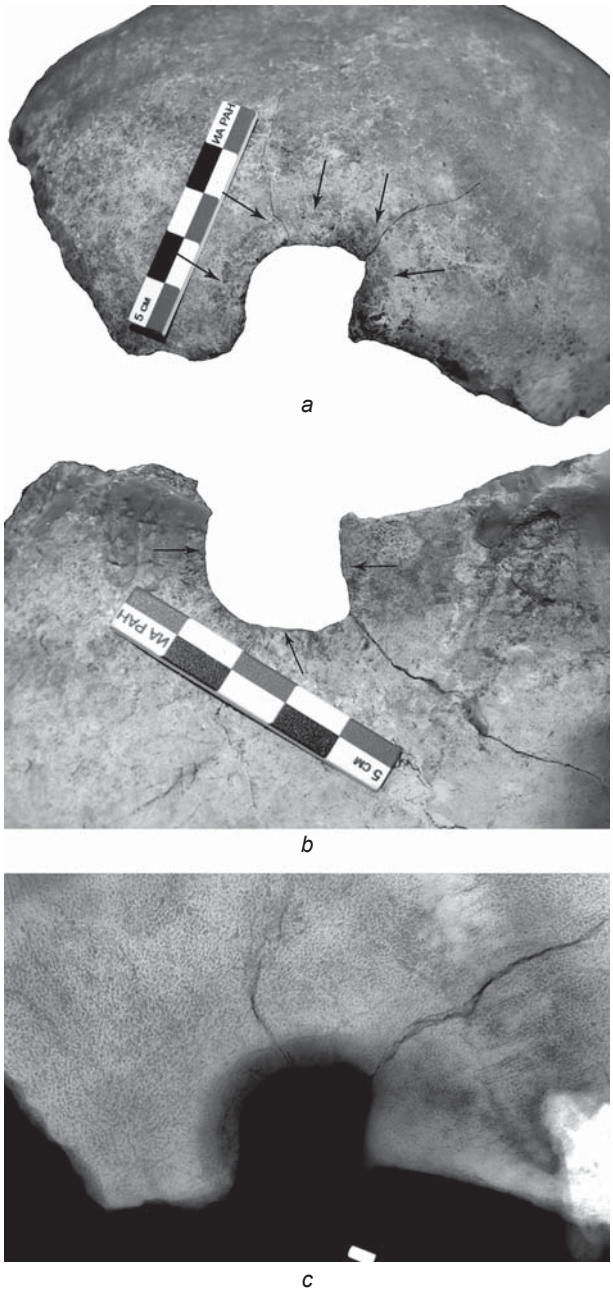

Fig. 2. Right parietal bone of a 30–35 year-old male from burial 4, kurgan 13 at Bykovo.
a – trepanation opening; *b* – trepanation area, view from the inside; *c* – X-ray image of the trepanation area.

margins and walls of the lesion are smooth, straight, and slightly rounded. The diploe of the parietal bone is not traceable. The walls of the wound, up to 7 mm wide, are covered by newly formed periosteum, and inclined inside the cranial cavity. No manifestation of an inflammation was detected at the inner surface of the bone. The margins are straight, and well-formed. The wall of the frontal margin of the lesion is almost vertical, while the walls of the sagittal and occipital margins are oblique. Judging by its present appearance, the opening was initially of a rhomboid shape, with rounded angles, and its long axis was oriented along the sagittal suture. Two fissures, pointing towards the sagittal suture, are found on the upper margin of the lesion, while one more fissure begins from the upper right angle towards the frontal bone. These fissures are most likely of post-mortem origin.

The surgery was carried out pre-mortem, and the signs of healing on the walls and margins of the wound suggest that the individual survived the operation for a long time. The trepanation was likely carried out by a right-handed person, who was removing bone tissue by combining different surgical techniques: scraping and cutting by a sharp tool in a top-down direction. As a result, the sagittal and occipital margins of the lesion display a more shallow and rounded shape.

Skull from Baranovka. The skull belonged to a male of 25–35 years of age. The facial skeleton and most of the cranial base of the specimen are missing. A penetrating wound of irregular sub-trapezoid form was detected in the temporal squama. The long axis of the lesion was oriented sagittally, the base of the "trapezium" was located closer to the parietal margin, its apex to the sphenoidal margin of the bone (Fig. 3, *a*). The length of the opening is 29.5 mm; the maximum width is 22 mm. The thickness of the bone at the margins of the lesion is 3 mm. Both the external and internal margins of the wound are sharp.

The upper margin of the perforation is arch-shaped, and its walls are inclined internally. The walls display manifestations of the drilling of eight holes of various diameters, separated by bone septa up to 2 mm thick (Fig. 3, *b*). The first hole is located 17 mm from the upper margin of the squama, and 24 mm from the parietal margin of the temporal bone. It is semicircular, penetrating, with walls inclined inside the cranial cavity. Its external diameter is 4 mm, internal 2 mm. The second hole is 1.5 mm from the first one. Its external diameter is 2 mm, internal 1.5 mm. The third opening is situated 2 mm from the previous one. It is damaged, and only its right wall is present. The probable diameter of this hole was about 2.5 mm. The fourth hole, 2 mm from the third one, is of a similar appearance and a diameter likely about 3 mm. The fifth opening is a semicircular hole, 4 mm in diameter. From the sixth hole, only a fragment of the wall, 2 × 2 mm in size, remained. The seventh perforation is located 6 mm from the previous one; its diameter is 4 mm. The eighth hole is penetrating, 3 mm in diameter. It lies 10 mm from the root of the zygomatic process, very close to the seventh opening, and partially overlaps with its left wall. One more blind hole was detected, 4 mm from the first hole. It is situated 14 mm from the upper margin of the temporal squama, and at the same distance from the sphenoidal margin of the bone.

The bottom of the pit is of rounded shape, it is 1.5 mm deep and 3.5 mm in diameter.

No manifestation of inflammatory process or newly formed bone tissue was observed on either external or internal surfaces of the temporal bone. Probably, after drilling a number of perforations in the distal part of the temporal bone, the bone walls between the holes were sawn or cut. Afterwards, a part of the bone was raised and broken. The method of trepanation can be classified as drilling and cutting (Mednikova, 2001: 31). The surgery was carried out post-mortem, possibly for ritual purposes.

Results of the X-ray examination

A circular penetrating wound and two linear fractures radiating from it were visible in X-ray images of the skull from burial 4, kurgan 13 at Bykovo. The pattern of bone-cracking and absence of periosteal reaction along the whole length of the fractures point towards a post-mortem, likely taphonomic, nature of the lesions. The presence of denser undifferentiated bone tissue around the opening and a sclerotic rim at the bone-forming margin of the temporal bone suggest that the process of healing of the wound was long and successful (see Fig. 2, *c*).

In X-ray images of the skull from burial 2, kurgan 21 at Baranovka, a penetrating wound in the squama of the right temporal bone is observed. The walls of the lesion are irregular and consist of small rounded notches 3–4 mm in diameter. Several depressions (incomplete perforations) are seen in the outer table of the bone, along the margins of the main defect, and one more through hole 4 mm from it. No manifestations of periosteal reaction, bone-remodeling, or sclerotic rim formation are detectable on the images, which suggests that the trepanation was carried out shortly before the death of the individual, or post-mortem (see Fig. 3, *d*).

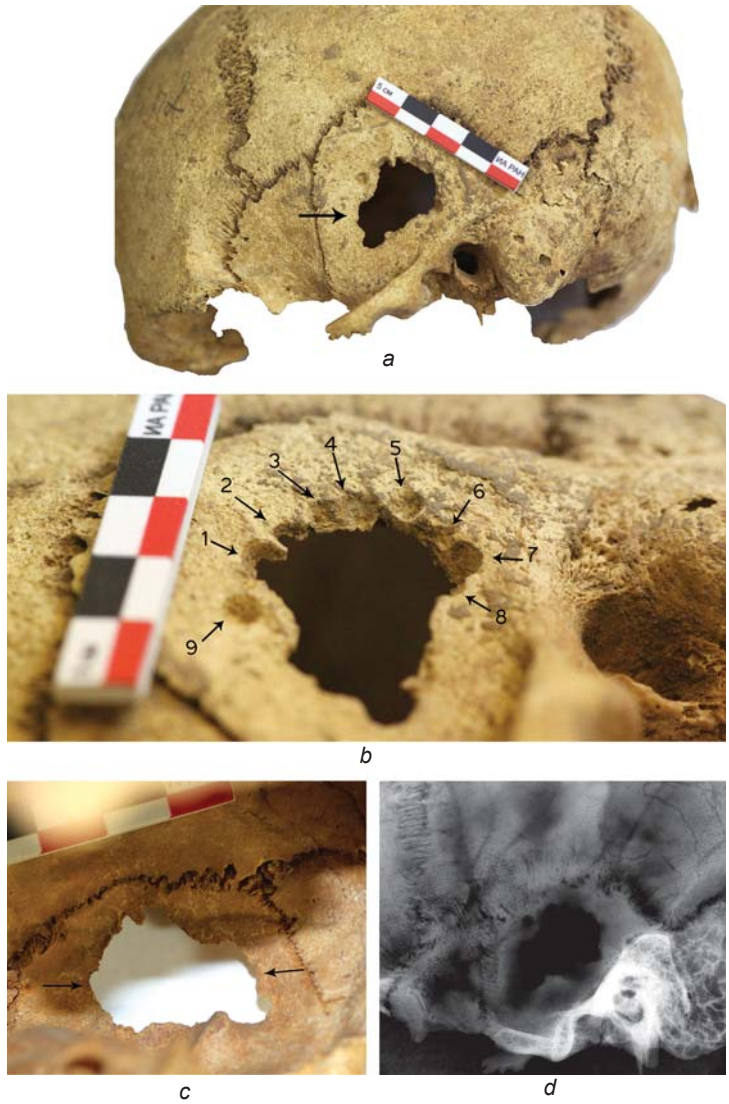

Fig. 3. Male skull with trepanation from burial 2, kurgan 21 at Baranovka. *a* – trepanation in the left temporal bone (frontal view); *b* – trepanation opening with multiple perforations; *c* – trepanation area, view from the inside; *d* – X-ray image of the trepanation area.

Discussion

Only a few cases of cranial surgery are known for samples of the Sarmatian period from the Lower Volga. The first of these cases was described by D.G. Rokhlin, who published an X-ray image of a skull from the former Don Region (present Volgograd and Rostov regions, and the Republic of Kalmykia) and suggested a therapeutic purpose for the surgery (1965: 174, 195).

Later, forensic expert V.V. Sidorov studied a calvarium of a male dated to the Late Sarmatian period (3rd to 4th centuries AD) from kurgan 4 of the cemetery near the Glazunovskaya village, Kumylzhensky District, Volgograd Region, excavated by L.V. Gurenko in 1996. Sidorov detected a trepanation perforation of oval shape and 7 × 6 mm in size in the rear part of the right parietal bone, 32 mm from the sagittal suture and 23 mm from the right lambdoid suture (Gurenko, 1996).

A case of trepanation from the Peregruznoye I cemetery was studied by E.V. Pererva. The burial is dated to the 1st AD. A perforation and a lesion from an incomplete trepanation were detected in a female skull. The surgery was carried out post-mortem, using

a drilling technique, possibly for ritual or symbolic purposes (Pererva, 2012: 131).

Three drilling trepanations were described by V.I. Mamontov and co-authors in a skull of a female 35–45 years of age from the Verbovsky I cemetery, which has been dated to the 1st to early 2nd centuries AD. The first opening was located in the left parietal bone, the second in the sagittal suture, and the third in the lambdoid suture (Mamontov, Obramenko, Pererva, 2018). The absence of signs of healing suggests that the trepanation was carried out peri- and/or post-mortem. The abundance of rich grave goods on the one hand, and the large number and localization of the defects on the other hand, point towards a ritual and symbolic purposes for the surgery (Ibid.: 100).

Some information regarding trepanations made by Sarmatians can be found in the studies by P.S. Rykov and S.V. Kiselev (Rykov, 1926: 105; Kiselev, 1951: 403). In a review devoted to surgical operations of the Sarmatians by D.A. Kirichenko (2016: 114), several cases are described for the Early Iron Age specimens from Hungary and Romania.

To date, only two ante-mortem therapeutic trepanations have been detected in the cranial samples of the Sauromato-Sarmatian cultures from the Lower Volga region: the one described by D.G. Rokhlin, and the second presented in this study. Similar operations made using the scraping technique and survived by the patients are known from the literature on the Early Iron Age samples from Southern Siberia and Western Kazakhstan. A case of trepanation in a female skull from the Aimyrlyg cemetery (Chaa-Kholskiy kozhuun of the Tyva Republic) was described by A. Murphy as carried out for healing purposes (2003). The perforation was made in the left part of the frontal bone. Three cases of ante-mortem trepanation were studied by T.A. Chikisheva and co-authors in specimens of the Pazyryk culture of the 4th to 3rd centuries BC, from ordinary burials of the Bike III, Kazyl-Dzhar IV and V cemeteries, in the Altai Mountains. According to their results, the surgeries were carried out by different persons, using the scraping technique, in two stages (Chikisheva et al., 2014; Krivoshapkin et al., 2014). An ante-mortem trepanation was described by E.P. Kitov and A.Z. Beisenov in the occipital part of the skull of a female of 35–45 years old from kurgan 25 of the Birlik cemetery (Bayanaulsky District, Pavlodar Region, the Republic of Kazakhstan). The burial represents the Tasmola archaeological culture of the 7th to 5th centuries BC (Kitov, Beisenov, 2015).

All the trepanations listed above were carried out for medical purposes using the scraping technique. The patients survived the surgeries, which is evidenced by manifestations of successful healing and bone-forming processes around the wounds. According to many researchers (Ortner, Putschar, 1981; Erdal Y.S., Erdal O.D., 2011), scraping is the safest technique of therapeutic trepanation. The traditions of surgery performance by the Altai Mountains nomads were thoroughly studied by A.L. Krivoshapkin and co-authors (2014: 67). They suggested that this method of trepanation provided the highest survival rate in ancient times.

Today, little is known about the medical culture and practice of the Sauromatians, Sarmatians, and Scythians. The historian of medicine can only rely on three sources of information: written evidence from ancient authors, archaeological finds, and osteological collections from burial sites of the Eurasian steppe. The information provided by ancient authors regarding the level of medical knowledge of Early Iron Age nomads is very sketchy. For instance, Herodotus wrote about hemp baths and the use of grinds from plants as primitive soap by the Scythians (The Histories: IV, 75). Pliny the Elder mentioned the "Scythian root", which was used by the Sarmatians for curing many diseases, and snake poisons also used for healing (Natural History: XXV, 82, 83; XXIX: 69, 70). Unfortunately, this is all that the ancient historians said about this subject. Among archaeological finds, a vase from the Kul-Oba kurgan in the Crimea, dated to the 4th century BC, is noteworthy. Drawings on the vase depict a jaw repositioning or a tooth extraction on an injured warrior, and a leg dressing of a wounded Scythian (Belova, Gulyaeva, Chernysheva, 2016: 205).

There is some anthropological evidence for a high level of medical knowledge in the Early Iron Age nomads of the Eurasian steppe. In skeletal samples of the Sarmatians and other nomads, cases of healed injuries of the skull and skeleton or successful limb-amputations are quite numerous (Pererva, Berezina, 2015; Pererva, Klepikov, 2018; Murphy, 2003). But the question of where the Scythians, Sauromatians, and Sarmatians obtained this knowledge, and the skills that made them capable of performing difficult surgeries, remains open.

To resolve this question, one needs to turn to the written sources again. Some ancient authors mentioned Scythian Asclepiads in their texts. For instance, the famous satirist Lucian of Samosata (2nd century AD) wrote about two Scythian physicians, Anacharsis and Toxaris. The latter died in Athens, and was even acknowledged as a hero and a descendant of Aesculapius (Latyshev, 1948). Herodotus and Plutarch, according to M.B. Mirsky, mentioned "professional" doctors among the Scythians, who were at the same time sorcerers and priests. The researcher supports the opinion of N.S. Dumka (1956: 58) that Scythia had its own medical schools. This notion is supported by the presence of Asclepeions in some Greco-Scythian settlements (Mirsky, 2005: 12). The Athenians considered Scythian doctors experts in their field. According to L.F. Zmeev, medical

knowledge in Scythians and other nomadic peoples of their times was the prerogative of a semi-special class of healers (volkhvs, junior priests), while the knowledge itself was coming from the Persians, Arabs, Greeks, and Egyptians (1896: 101).

In our opinion, the medical knowledge was probably adopted by the Scythians and Sarmatians from their antique neighbors. The famous Greek doctor Hippocrates lived and worked during the Scythian-Sarmatian times. He visited Scythia and described the citizens of this country, their diseases, and the legends about Sauromatians in his book entitled "On Airs, Waters, and Places" (Hippocrates, 1936: 275–306). In his other book, "On Injuries of the Head", in Chapter 9, indications for trepanation are outlined, and also the reasons for, and techniques of, cranial surgery are thoroughly described. Recommendations for monitoring the patient after the trepanation are also provided (Ibid.: 581–601). Our opinion is basically shared by T.A. Chikisheva and co-authors, who carried out a multidisciplinary study of three cases of ante-mortem trepanations in the nomads of the Altai Mountains. According to their results, the medical knowledge and tools necessary for successful head surgeries were brought to Southern Siberia by Greek military surgeons (Chikisheva et al., 2014: 139).

As for post-mortem trepanations carried out using the drilling technique, such trepanations are described in specimens from Southern Siberia, Kazakhstan, and Mongolia. A number of researchers have studied skulls with trepanations from burials of the Tashtyk culture of the 2nd century BC to the 5th century AD. For instance, S.V. Kiselev described cases of post-mortem trepanations in the occipital part of the skull in samples of that period from the Yenisei River. He interpreted these surgeries as extraction of the brain for further mummification of the body (Kiselev, 1951: 403). According to I.I. Gokhman, the frequency of skulls with trepanations in their occipital part reaches 80–90 % in some burial sites of the Tashtyk culture. Patterns of trepanations differ between sites, which points towards the existence of some specific traditions (Gokhman, 1989). A case of post-mortem trepanation was detected by S.I. Rudenko (1953: 342–360) in the 2nd Pazyryk (5th century BC) and Shibe (2nd to 1st centuries BC) kurgans.

A male skull with trepanation from a kurgan of the Karabiye cemetery, in the Karaganda Region, Kazakhstan, dated to the 5th to 3rd centuries BC, was described by P. Boev and O. Ismagulov. They detected six openings 7.0–7.5 mm in diameter in the rear part of the left temporal bone and in the left part of the occipital bone. The lesions were situated obliquely from the upper medial to the lower medial sides of the braincase (Boev, Ismagulov, 1962).

A.D. Grach detected trepanations in osteological collections of the Sagly culture (5th to 3rd centuries BC) from the Sagly-Bazhi II and Mazhalyk-Khovuzu I, II cemeteries in the Tyva Republic. This researcher suggested that the surgeries were carried out for extracting the brain before embalming the bodies (Grach, 1980: 73–74).

B. Naran and D. Tumen give the description of skull 47-4 (AT-129) from the Chandman (Ulangom) cemetery of the 7th to 3rd centuries BC in Mongolia. Seven trepanation-openings were detected in the cranial vault; some of these were drilled out. The patient likely died during the operation, or the trepanation was carried out post-mortem (Naran, Tumen, 1997: 126–127). Cranial samples of the Late Tagar period from the Samokhval, Tagarsky Ostrov, and Kazyl-Kul cemeteries in Khakassia were studied by M.B. Mednikova. In these vast samples, she detected numerous cases of post-mortem trepanation performed using various techniques (Mednikova, 1997: 138). Another study of the Early Iron Age Central Asian population was carried out by a group of researchers (Kitov, Kitova, Orabay, 2016: 369–378). They described drilled trepanations in 10 skulls, wherein the number of perforations varied from 1 to 15 per skull. All defects were found in the occipital bone or in the rear part of the parietal bones.

Two finds are of particular interest in terms of their manner and technique of trepanation: a skull of a 45–55 year-old male from the Karakemer cemetery in Central Kazakhstan (Kitov, Beisenov, 2015: 39) and a female skull from kurgan 1 of the Saka period locality of Kaspan Zhetysu in the Alma-Ata Region, in the Republic of Kazakhstan (Beisenov et al., 2018: 143). No manifestations of reparation or inflammation are observed in either case. These two specimens display a similarity to the trepanned male skull from the Middle Sarmatian cemetery of Baranovka in the following set of features: number and size of perforations; circular arrangement of lesions; method of trepanation (drilling); pattern of defects made at different angles to the bone surface; further combination of perforations in a single trepanation-inlet.

Most of the scholars describing post-mortem trepanations in Central Asian specimens share the view according to which such a surgery is a preliminary step before mummification or embalming of the body (Rudenko, 1953: 332; Grach, 1980: 73–74; Kiselev, 1951: 403; Kyzlasov, 1960: 101; Kitov, Kitova, Orabay, 2016: 377). This view has undoubtedly a right to exist, particularly taking into account the widespread embalming and mummification traditions in Central Asia during the Early Iron Age. But in the case of the specimens with post-mortem drilled trepanations from the Lower Volga, such an explanation cannot be accepted. No evidence of mummification or embalming of the deceased is found in Early Iron Age burials from this area. The origin of the tradition of the post-mortem manipulations

with the braincase among the steppe nomads of the 1st century AD in the south of the East European Plain should be probably looked for in the Early Iron Age Central Asian archaeological cultures. Their close relatedness to the Sarmatian ones is evident from archaeological data (Skripkin, 1992: 19–40; Yatsenko, 2006: 123–125). It is possible that the traditions of post-mortem ritual trepanations were brought to the Lower Volga region by migrants from the east, along with the changes in burial rites and innovations in material culture, originating from Southern Siberia and Central Asia, observed in the assemblages of the 1st-2nd and 3rd-4th centuries AD in this territory.

Yet one more observation supporting this hypothesis is the fact that all burials of the Middle Sarmatian time containing skulls with perforations can be considered elite or extraordinary. In two cases (Peregruznoye and Verbovsky cemeteries) these are female burials with rich grave goods including gold jewelry, weapons, and ritual or magic items. The burial from Baranovka is quite peculiar in terms of construction, and belongs to a Middle Sarmatian warrior, as is evident from the size of the kurgan, the depth of the grave, and the presence of a short sword and a spearhead. The results of examination of the Central Asian burials containing human remains with post-mortem trepanations are outlined below. According to S.I. Rudenko, in the Pazyryk culture, trepanations were carried out only on high-status individuals, because in the ordinary graves such evidence was not recorded (1949). Similarly, A.Z. Beisenov and E.P. Kitov indicate a high social status for the individuals showing post-mortem trepanations from the Saka burials in Central Kazakhstan. These authors suggest that such burials belong to the Tasmola elite (Beisenov, Kitov, 2014: 31).

Conclusions

This study describes the only case known to date of a successful ante-mortem surgery in cranial specimens of the Sauromatian age, as well as the post-mortem trepanations carried out using the drilling and cutting technique, detected in individuals of the Middle Sarmatian period. The most likely reason for performing the cranial surgery in the young male from Bykovo was medical treatment after a trauma. The operation was carried out successfully, and the individual lived for a long time afterwards.

The braincase of the individual from Baranovka was subjected to a complex of peri- or post-mortem ritual manipulations (drilling of nine perforations, cutting of bone bridges between the perforations, crushing of the bone plate) carried out for purposes that are now very difficult to identify. The presence of incomplete perforations, their different diameters and angles, the atypical shape of one of the holes (incomplete sphere)—all these features taken together suggest a lack of experience in the person who performed these operations. It is also possible that the surgery was carried out hastily or as training for medical skills. Noteworthy also is the atypical position of the trepanation defect: in the temporal area. The closest analogies to this case were found and described by M.B. Mednikova in samples from the Late Tagar cemetery of Kyzyl-Kul. The perforations were made using completely different methods and techniques, but similarly post-mortem and likely for ritual purposes (Mednikova, 2001: 212–217).

In the attempt to interpret the origin of the trepanations detected in the Sarmatian and Sauromatian samples from the Lower Volga, we have been looking for similar cases described in specimens from Central Asia, Southern and Western Siberia. There is little doubt that the tradition of post-mortem ritual trepanations in the Middle Sarmatian population from the Lower Volga region had eastern roots, since direct parallels to these are known from Central and Western Kazakhstan samples. Turning to the therapeutic surgeries of the Sauromato-Sarmatian period, it appears most likely that the relevant skills and knowledge came from the southwest and had antique origins. These skills probably penetrated into southeastern Siberia and Central Asia as a result of the contacts between ancient and barbarian (nomadic) worlds.

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A Case of Surgical Extraction of the Lower Third Molars in a Cranial Series from the Pucará de Tilcara Fortress (Jujuy Province, Argentina)

This study analyzes the earliest known case of surgical extraction of the lower third molars, observed in a cranial series from Pucará de Tilcara fortress (15th–16th centuries AD), northwestern Argentina, excavated in 1908–1910. Crania were transported to the Kunstkamera in 1910 under an exchange project. Traces of dental surgery were registered in the mandible of a male aged ~40. Both third molars had been extracted after the removal of soft tissues and parts of the alveoli. Teeth were extracted by scraping alveolar walls with semicircular movements. The results of scanning electron microscopy, X-ray fluorescence, and X-ray microanalysis suggest that a stone tool was used. The results of macroscopic and CT analysis suggest that the surgery was motivated by the exacerbation of chronic periodontal disease and probably by caries. The left third molar was extracted without complications 2–3 months before the individual's death. On the right side, the pathological process continued, culminating in osteomyelitis and its complications. The surgeon's skill notwithstanding, the extraction of the right third molar did not cure the patient, who died, apparently following the destructive stage of acute osteomyelitis complicated by orofacial phlegmon. Our findings suggest that the level of dental surgery practiced in the Inca Empire was ahead of the diagnostic expertise.

Keywords: *Paleopathology, computed tomography, ancient surgery, lower third molars, periodontitis, osteomyelitis.*

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Introduction

Therapeutic tooth extraction is one of the most widespread surgical operations. Today, it is carried out for numerous indications: pericornitis, periostitis, periodontitis, chronic periodontitis and its exacerbations, abnormal position of the third molars in the dental arch, tumors, etc. (Iordanishvili et al., 2016; Steed, 2014).

First cases of deliberate tooth extraction were presumably detected in specimens from Ancient Egypt (Forshaw, 2009: 482), but no data have existed so far on the prevalence of such surgeries in the pre-Hispanic population of the New World. However, it is well established that ancient civilizations of South America possessed medical knowledge fairly well developed for their times, and were capable of carrying out complex surgeries (Marino, Gonzales-Portillo, 2000; Ortiz, Torres Pino, Orellana González, 2016); despite this, the bioarchaeological studies describing the dental practices of the Inca do not provide any evidence of therapeutic extractions of molars. Concurrently, ritual ante-mortem tooth modifications were widespread (Romero, 1970; Ubelaker, 1977, 1987). Only two reliable cases of therapeutic manipulations with teeth have been described so far. Both were identified in specimens from Cusco (ancient capital of the Inca in Peru) and represent manifestations of drilling of the upper canines, likely carried out for curing carious lesions (Ortiz, Torres Pino, Orellana González, 2016).

This study describes the clear signs of a deliberate surgical extraction of the third molars detected during studying the cranial sample from the Pucará de Tilcara fortress in northwestern Argentina. This site was a fortified settlement of the Omaguaca Indians in the central part of the Quebrada de Humahuaca valley, close to the confluence of the Río Huasamayo and Río Grande rivers. The settlement emerged in the 8th century AD as an agglomeration of several smaller villages (Handbook…, 2008: 587). Eventually, it grew into a fortified site covering an area of 17.5 ha, with an average population of slightly over 1600 (Zaburlín, 2010: 197). The city reached its peak in the 11th to 14th centuries AD, when the citadel was one of the main centers of the Inca Empire in its Argentine territory (Greco, Otero, 2015). In 1536, the city was captured by Spanish conquistadors and ceased to exist.

The ruins of Pucará de Tilcara were discovered in the early 20th century by an Argentine archaeologist J.B. Ambrosetti (Zaburlín, Otero, 2014). According to modern researching, bases of stone walls of 588 residential buildings were found there. In some cases, open spaces (likely patios) were observed adjacent to the buildings (Otero, 2013: Fig. 1). Three necropolises were detected near the fortress: on the southern, eastern, and western sides. Burials were often found inside the patios as well. In such cases, the burials were located in corners, or near the walls, and separated by semicircular stone enclosures (Debenedetti, 1930: 47, 52–53). The interments were both single and communal (up to eight individuals), with the deceased buried in a supine or in a flexed position on their sides. The stone enclosures were circular or semicircular, and numerous grave goods were put into the graves: ceramic vessels of various shapes, and wooden, bone, horn or copper items.

The first excavations at the site began in 1908 and went on for three field seasons. In 1908–1910, J.B. Ambrosetti and his student S. Debenedetti excavated a small area in the northwestern part of the site. This part was inhabited in the late period of site's existence, after its conquest by the Incas (late 15th to 16th centuries) (Zaburlín, Otero, 2014: 212). In 1910, an anthropological collection including 20 artificially deformed skulls, as well as 147 archaeological artifacts from those burials, was purchased by the MAE RAS via an exchange with the Ethnographic Museum of Buenos Aires (Dmitrenko, 2016).

The paleopathological study of this collection, which revealed the case of mandibular surgery described below, started in 2018. This paper discusses the medical diagnosis that was the reason for the extraction of the lower third molars of one of inhabitants of Pucará de Tilcara. We outline the technique of performing the surgery, and its possible outcomes.

Material and methods

The lesions suggesting a surgical extraction of the lower third molars were detected in the mandible of individual No. 5148-9—a man, about 40 years of age (Fig. 1). The age-at-death was determined by the degree of exo- and endocranial suture obliteration, taking into account the possible disruption of the order and rate of obliteration due to the artificial cranial deformation (Gerszten, 1993). Dental wear and the condition of the temporomandibular joint were also taken into account. The sex of the individual was determined by the dimorphic features of the occipital bone, brow-ridge, supraorbital area, mastoid process, and mandible (Alekseev, Debets, 1964: 29–40; Standards…, 1994: 16–21).

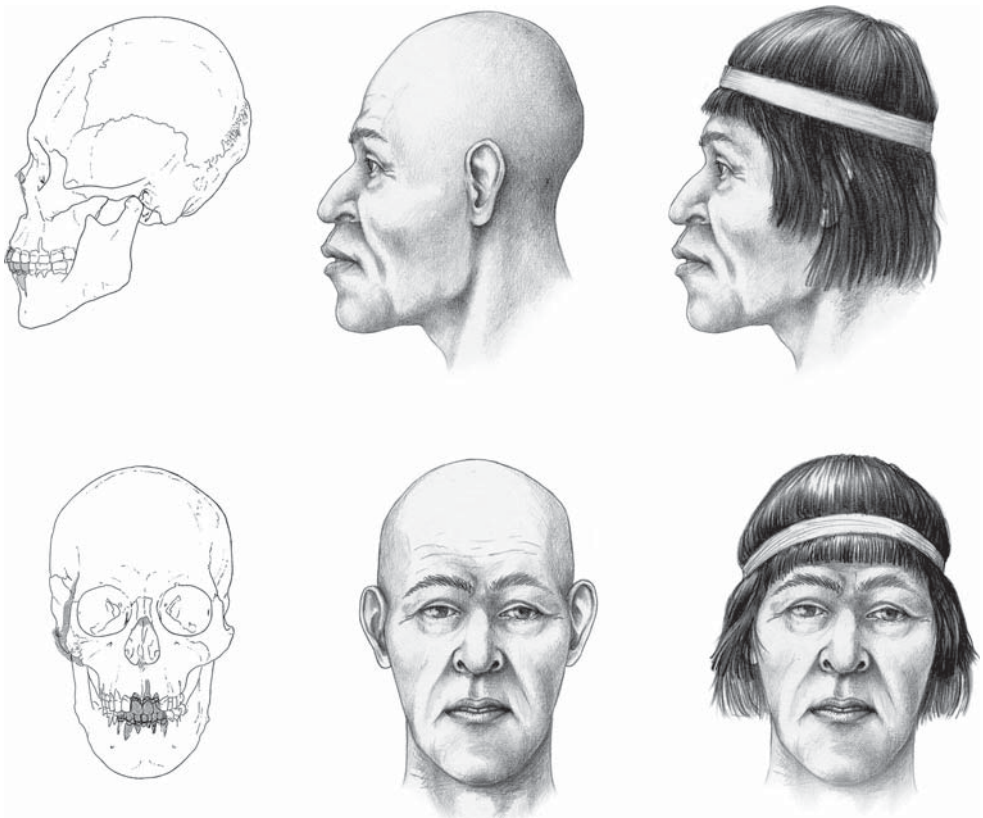

Fig. 1. Skull (missing parts are labeled in gray) and facial reconstruction of the individual.

The skull is well preserved, with only small post-mortem damage: the right zygomatic arch is absent, and the nasal bones are broken at the lower margin (Fig. 1). The mandible was originally broken into two parts, but then reconstructed. The lower incisors, canines, and first premolars, as well as both the upper central and second left upper incisors, were lost during the archaeologization process.

Cut-marks and other wounds related to the extraction of the third molars were detected in the mandible. In order to reconstruct the sequence of manipulations by the surgeon in the course of the operation, the lesions were investigated at the Experimental Traceological Laboratory of the Institute of History of Material Culture of the Russian Academy of Sciences, using a binocular microscope MBS-9 (oblique illumination, magnification up to ×98). Canon EOS Utility software was used for multifocal photofixation of the wounds, while Helicon Focus 5.2. was employed for drawing the resulting image.

A number of analyses were carried out at the Department of Scientific and Technical Examination of Works of Art of the State Hermitage Museum, in order to identify the material of the tool used for extracting the molars: optical microscopic examination of the alveolar surface, scanning electron microscopy (SEM), X-ray fluorescence analysis, and X-ray microanalysis. Leica M60 and Zeiss Stemi 508 microscopes were used for the optical microscopic examination, while the SEM study was carried out using the scanning electronic microscope Zeiss EVO-MA-25, with the following settings: U = 20 kV, WD = 30 to 401 mm, and low vacuum for non-conducting samples. μXRF-spectrometer ArtTAX (RÖNTEC, Bruker) was used for the X-ray fluorescence analysis, applying the following protocol: U = 50 kV, I = 700 μA, t_{exp} – 40 s, material of the anode of X-ray tube – molybdenum. The X-ray microanalysis was carried out with Oxford Instruments X-MaxN 80 SEM-EDX-analyzer.

The individual's dentition was visually examined following the existing protocols (Aufderheide, Rodríguez-Martín, Langsjoen, 1998; Ortner, Putschar, 1985), in order to diagnose the pathology that was the indication for the surgery. The mandible was CT scanned using the experimental scanner MRCT-04, constructed at the St. Petersburg Electrotechnical University ("LETI"), applying the following protocol: tube voltage – 140 kV, amperage – 50 mA, no filter,

slice thickness – 0.1 mm. The images were processed with the experimental software developed at "LETI". Both multiplanar (MPR) and volume (VR) modes of reconstruction were employed.

Results and discussion

Reconstruction of the surgery. Manifestations of deliberate tooth extraction were detected at both the third molar sockets. A straight section made in order to remove a piece of bone was observed at the vestibular side of the upper margin of the left socket (Fig. 2). The shape and length of the section cannot be completely reconstructed owing to its obliteration during the regenerative process. The depth of bone removal was not more than 1.5 mm, though the alveolar wall at the lingual side was absent up to 5–7 mm from the margin. However, owing to bone remodeling it is impossible to determine if this part of the alveolar wall was cut off intentionally, or casually damaged, during the extraction. Intensive formation of new bone is observed at the margins of the socket, and the socket itself is filled with cancellous bone. This suggests that the tooth was extracted at least two or three months before the individual's death.

As manifestations of healing were absent in the socket of the right third molar, it was possible to reconstruct the surgery's procedures in detail. No signs of preliminary marking of the wound's contour were detected. The initial penetration of the tool into bone occurred near the disto-vestibular corner of the second molar. This is evident from the presence of an indentation caused by a contact with the tip of the tool, which was oriented perpendicular or slightly obliquely to the bone surface. The socket was surgically expanded in the vestibular direction, for about 4 mm in its mesial part and for 5 mm in the distal part, via removal of a part of the mandible. The macro- and microscopic analyses of the bone's surface revealed the presence of a section with sharp edges. The cut was made from the mesio-vestibular angle of the socket in the vestibular direction, then toward the ramus and afterwards in the lingual direction till the center of the distal wall of the socket (Fig. 3). After the contour was cut through, bone and soft tissue were removed or scraped out via semicircular incisions, which left short grooves on the internal surface of the vestibular wall of the socket (Fig. 4). The optimal position for making possible such a sequence of cuts is for the patient to rest on his left side with his back turned to the surgeon. When about 1 cm of bone was removed, the tooth was extracted.

Operating tools. In the period that the skulls from the MAE collection belong to, the people from the Quebrada de Humahuaca valley already adopted from the Inca the skills necessary for carrying out fairly difficult surgical operations, such as trepanations, dissection of suppurations, sections for removing snake poison from wounds, etc. (Handbook…, 1946: 55–56, 637–638). The surgical tools used by the studied population were basically similar to those found in other Inca archaeological assemblages. Metal knives ("tumi"), used for scalping in ritual or for medical purposes, were excavated at archaeological sites of that time in northwestern Argentina (Omaguaca, Calchaquí). Obsidian knives ("escapelos" or "pedernales") were employed for cutting skin and bone as well (Marino, Gonzales-Portillo, 2000: 947–948).

The size of the surgical perforation and the length of the cut marks suggest that all manipulations during the operation might have been performed by a narrow cutting tool with the blade's working edge of no longer

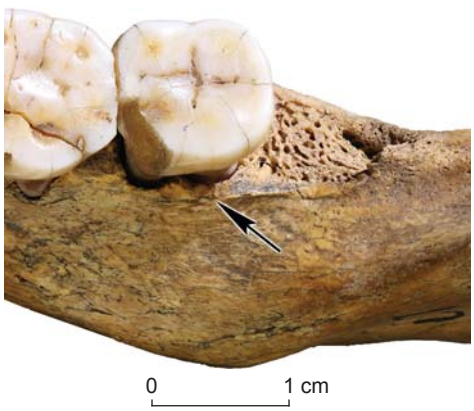

Fig. 2. External view of the alveolus of the lower left third molar, displaying surgical cut marks.

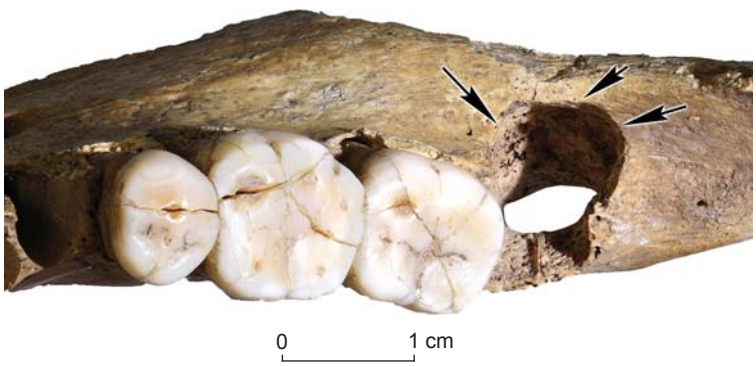

Fig. 3. Cut marks on the alveolar walls of the lower right third molar.

than 4–5 mm. In archaeological collections from Tilcara stored at MAE RAS, only two types of artifacts correspond to these characteristics: copper plates and obsidian tools (Fig. 5), similar in terms of shape and size to some instruments utilized by Inca surgeons (Ibid.: Fig. 17).

The use of the obsidian tools seems more probable, judging by the results of the optical and electron microscopy, X-ray fluorescence analysis and X-ray microanalysis, which have not detected traces of ancient metal on the surfaces available for observation. Notably, the complex shape of the mandible and the depth of the alveola have obstructed access to the area where traces of the surgical tool could be found. The area could not be reached without destruction of the specimen: the desired signal got partially interfered or/and scattered, and it might be deformed. Therefore, the apparent absence of traces of metal should be interpreted with caution. Nevertheless, the hypothesis that the surgery was carried out using a stone tool remains reasonable, taking into account the fact that traces of modern medical instruments used for the cleaning and probing of a traumatic defect are clearly discernible at the margins and internal surface of the tooth's socket. These traces are particles of nickel-clad steel, which are visible on back-scattered electron images owing to their contrasting white coloration.

Indications for the surgery. A general assessment of the individual's dentition was carried out in order to determine what pathological process was the indication for the surgery and what was the cause of his death. The upper dental arch is elongated, with a narrowing in the anterior part; the lower dental arch is U-shaped. Despite the ante-mortem loss of teeth, it was possible to reconstruct that the individual had an open bite: the upper incisors and canines were strongly protruding anteriorly and did not occlude the lower teeth. The molars and premolars of the maxilla and mandible display normal occlusal contact. The upper third molars were formed normally and erupted. The position of the lower third molar sockets and the contact facets on the distal interproximal surfaces of the crowns of adjacent molars demonstrate that the lower third molars formed normally as well, erupted in term, and were functional during the individual's life. Thus, abnormal eruption as a possible cause of the operation can be excluded.

None of the surviving teeth of the individual exhibit signs of large carious lesions or complications—pulpitis or periodontitis. But manifestations of the initial stages of caries are observed in the central fovea of the occlusal surface of the upper third molars. The lower third molars are absent, but theoretically they might have had medium or deep carious lesions. A carbohydrate-rich diet, an absence of due mouth hygiene, and anatomical peculiarities in the position of the third molars are the risk factors of caries for these teeth and their antagonists.

Most teeth of both jaws display small deposits of calculus, mainly localized in the interdental space.

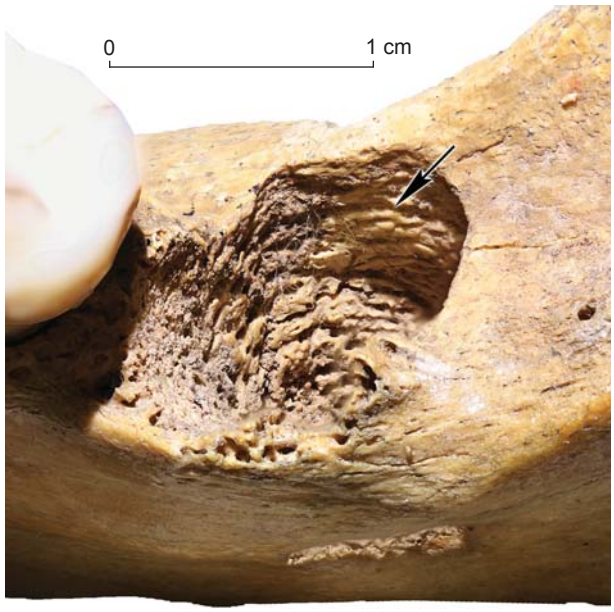

Fig. 4. Traces of scraping on the vestibular wall of the socket of the right third molar.

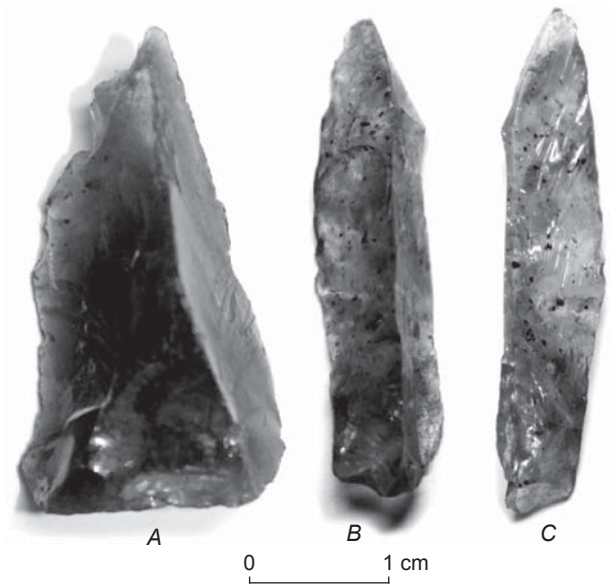

Fig. 5. Obsidian tools from the Pucará de Tilcara fortress. *A* – MAE, No. 1800-129 (16); *B* – MAE, No. 1800-129 (27); *C* – MAE, No. 1800-129 (28).

Nevertheless, the individual likely suffered from a disruption of the normal balance of microflora of the oral cavity, because the signs of chronic generalized periodontal disease (I–II degrees) are evident. The roots of all teeth protrude from their alveoli for 1.5–2.5 mm, the palatal bones are markedly porous. The alveolar septi between the upper first and second molars display manifestations of inflammation. These were also observed around the lower second molars. This observation suggests that an influence of adverse environmental conditions (hypothermia, infection, trauma, psychological stress, etc.) on the individual might have triggered a decrease of immunity and exacerbation of chronic periodontitis.

CT scanning of the mandible has shown that the socket of the left third molar was widened and inflamed in its root part. Resorption of the bottom of the alveolus is observed in the apical area, which also suggests that periodontal disease was progressing. This might have been a complication of caries, which developed into chronic pulpitis, and accompanied by a penetration of infection inside the mandible in the tooth's root area during the exacerbation. This pathological process was progressing in a background of chronic periodontal disease. Importantly, general status of body defense potential always plays an important role in pathology development, and this potential was likely decreased. In the CT scan of the mandible, traces of a fistulous canal, passing from the bottom of the socket into the body of the mandible, are visible (Fig. 6). The process could have lasted chronically for a while, but at some point it developed a complication accompanied by strong pain and soft tissue swelling. This complication was probably the reason for the surgical intervention, and the tooth was extracted before the infection spread along the mandibular canal and mandibular body. The operation was performed successfully, as no signs of inflammation that might suggest wound infection or post-operative complications are observed.

The picture observed on the right side of the mandible is not as benign. Porosity, which might be a result of inflammation, is observed on the internal surfaces of the socket of the third molar that were not scraped. The development of chronic periodontitis in the third molars began in a background of chronic generalized periodontal disease from both sides simultaneously. These pathological manifestations (pain, swelling) were more pronounced on the left side, and the left molar was extracted earlier. But on the right side, the pathology was progressing for several more months, thus leading to more severe changes. As it can be seen in the CT scan, the exacerbation of chronic periodontitis of the right third molar has led to strong inflammation. The alveolar walls do not display traces of resorption, and signs of inflammation were only detected in its apical part, in the form of cystogranuloma. This led to bone resorption of the bottom of the socket, and to the development of destructive odontogenic osteomyelitis of the mandible. This diagnosis is confirmed by the sequestra around the roots of the right lower molars, visible in the CT scan. The sequestra reach the mandibular canal (Fig. 7).

An outlet of the fistulous canal, 7.75 mm in diameter, surrounded by inflammatory lesions, is located on the internal surface of the mandibular body, near the apex of the root of the right third molar. Together with the presence of a sequestrum between the alveola and mandibular canal, this suggests that infection has spread far beyond its initial locus. It intruded the blood's circulatory system and the soft tissues of the

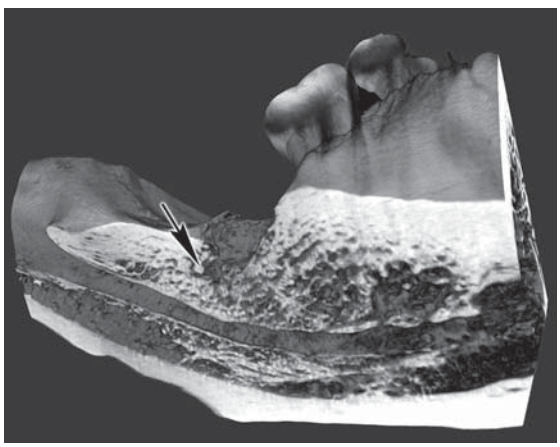

Fig. 6. Resorption of the bottom of the socket of the left third molar.

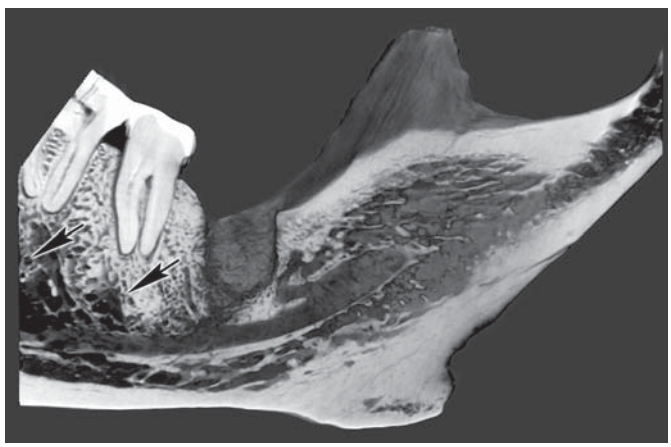

Fig. 7. Sequestra around the roots of the right lower molars.

face, which likely led to the formation of a phlegmon or an abscess. Possible clinical manifestations of the disease include high body temperature, chills, general weakness, pain, swelling and redness of the soft tissues of the right side of the face, the formation of fistulas with purulent exudate, and contracture of the masticatory muscles (difficulty opening the mouth). In order to release the patient from these symptoms, the molar was removed. But the surgery was carried out too late, which led to irreparable traumatic changes, and the operation did not have the proper therapeutic effect. As is evident from the absence of signs of healing both in the operating field and in the outlet of the fistulous canal, the clinical case was fatal.

Conclusions

Our analysis of the surgical manipulations carried out on the individual from the Pucará de Tilcara fortress has once again shown the high level of medical knowledge of surgeons in the Inca Empire. The individual died after the second operation, but the quality of the surgical interventions was high. The access to the lower third molars was difficult and partially obstructed by the mandibular ramus. Despite this, the surgeon was able to avoid such complications as fractures of the alveolar wall and mandibular body or injury to the temporomandibular joint. The risk of such trauma is high even at present (Deliverska, Petkova, 2016).

As often happens today, an exacerbation of chronic periodontal disease was the indication for a surgical intervention. The teeth were extracted in two stages, as the surgeon likely considered the need for a recovery period after the first operation, in order to make the outcome of the second operation positive. One of the two teeth was extracted successfully without complications. However, despite a highly developed (by the standards of the time) system of medical knowledge available for ancient South American doctors, their surgical skills likely outpaced the diagnostic capabilities. The cause of death of the individual was too long a period between the two operations. This delay was probably a result of underestimation of the degree of severity of the pathological process complicated by osteomyelitis, and of the absence of effective disinfecting pharmacological agents. Some authors suggest that, at least in ancient Peru, Inca healers were aware of the nature of some infectious diseases, and were widely using medicinal plants in their practices (Marino, Gonzales-Portillo, 2000). But either the effectiveness of the known antimicrobial substances was insufficient to heal complicated purulent odontogenic inflammations, or the healers from Pucará de Tilcara were unaware of such agents and could not have provided the patient timely treatment.

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ASGE – Archaeological Collection of the State Hermitage Museum

BNC SO RAN – Buryat Science Center, Siberian Branch, Russian Academy of Sciences (Ulan-Ude)

CNRS – Centre national de la recherché scientifique

COMFR – Competition of the Best Multidisciplinary Fundamental Researches

CVRK IMBT SO RAN – Center of Oriental Manuscripts and Xylographs of the Institute of Mongolian, Buddhist and Tibetan Studies, Siberian Branch, Russian Academy of Sciences

IA NAN – Institute of Archaeology National Academy of Sciences of Ukraine (Kiev)

IA RAN – Institute of Archaeology, Russian Academy of Sciences (Moscow)

IAET SO RAN – Institute of Archaeology and Ethnography, Siberian Branch, Russian Academy of Sciences (Novosibirsk)

IIFF SO AN SSSR – Institute of History, Philology, and Philosophy, Siberian Branch, USSR Academy of Sciences (Novosibirsk)

IIMK RAN – Institute for the History of Material Culture, Russian Academy of Sciences (St. Petersburg)

IMAB – International Medical Association Bulgaria

KSIA – Brief Communications of the Institute of Archaeology, Russian Academy of Sciences

KSIIMK – Brief Communications of the Institute for the History of Material Culture

MAE RAN – Peter the Great Museum of Anthropology and Ethnography (Kunstkamera), Russian Academy of Sciences (St. Petersburg)

MIA – Materials and Investigations on Archaeology in the USSR

RANKhiGS – Russian Presidential Academy of National Economy and Public Administration (RANEPA) (Moscow)

RFFI – Russian Foundation for Basic Research

SAI – Collection of Archaeological Sources

TIAMZ – Tobolsk Historical and Architectural Museum-Reserve (Tobolsk)

VOKM – Volgograd Regional Local Lore Museum (Volgograd)

VSOIRGO – East Siberian Department of the Russian Geographical Society

YuNC RAN – Southern Scientific Center, Russian Academy of Sciences (Rostov-on-Don)

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