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Wooden Paddles from Trans-Urals and from Eastern and Western European Peat-Bog Sites

The study describes the morphology of prehistoric wooden paddles from the Trans-Urals and from Stone Age peat-bog sites in Eastern and Western Europe. Their general technological features are evaluated, the archaeological context is analyzed, and some proposals concerning chronology are made. Considerable regional variation notwithstanding, the general evolution of blades is from wide spatular to narrow elongate. Apparently, the optimal paddle shape, whereby it could be used for both rowing and pushing off, had been elaborated by the Early Chalcolithic. The Eastern Baltic paddles differ from their Trans-Uralian counterparts by leaf-shaped blades with narrow tips. Although it has been believed traditionally that people in both regions mostly traversed shallow waterlogged lakes, certain petroglyphs point to a different use of Eastern Baltic paddles. The handles of certain Eastern European and Trans-Uralian paddles are shaped like heads of waterfowl; these rare specimens may have been destined for ritual purposes. The Trans-Uralian sample of Chalcolithic and Early Bronze Age paddles may be the largest worldwide. Its distinctive features are standard proportions; and composite handles, occasionally decorated with ornithomorphic representations. Certain small paddles with short handles may have served for nonutilitarian purposes, possibly related to ritual, play, household, or manufacture.

Keywords: Peat-bog sites, Trans-Urals, Eastern Baltic, paddles, Chalcolithic.

Introduction

Wooden paddles have been found almost at all Trans-Uralian peat-bog sites. Their analysis is presented in a number of general studies (Eding, 1940; Rauschenbach, 1956: 6, 9, 23, 30, 33, fig. 1, 15; 9, 18; Chairkina, 2005: 116, 119, 159, 215, 216, fig. 23, 44, 45), and a special study summarizing information on 76 items of this category (Pogorelov, 1998). A new approach to this topic has been initiated by introduction of the information about paddles from Section VI of the Gorbunovo peat-bog,

discovered in recent years (Chairkina, 2010; Chairkina, Pavlova, Vilisov, 2014), and the earlier unattributed items stored in the State Historical Museum (Kashina, Chairkina, 2015). This information substantially expands the existing body of data, and supplements and corrects certain ideas about this sort of organic material from the Uralian peat-bog sites.

The proposed article summarizes information about 160 items, both intact paddles and their fragments, found at the sites of Razboinichy Ostrov, Karasye Ozero IA and IIB; settlements of Shuvakish I, IA, VIC,

VIIID, and XIE, Elnichnoye IA; the Section VI and Section Dalny of the Gorbunovo peat-bog; the placers of Stary, Novy, Yazevsky and 2nd Kuryinsky; the site of 2nd Yazevka; and the settlement of Shigir A of the Shigir peat-bog. Judging by the stratigraphic context, accompanying goods, treatment type and shape, almost all the paddles, both simple and composite, were made in the Chalcolithic (4000–2500 BC) and the Early Bronze Age (2570–1970 BC). Unfortunately, the majority of the artifacts are fragmented, so these items are difficult to classify correctly.

Sources and technical and morphological characteristics of items

At the settlements of Shuvakish I and IA, two intact specimens, five handles, three blades, and three blades with partial handles of single-piece paddles; one intact handle, and two handles of composite paddles have been discovered. One intact single-piece paddle is short, only 97 cm long. A wide (12 cm) elliptical blade with a transverse axis in the middle makes up almost a half (44 cm) of the total length of the item (Fig. 1, 1). Another

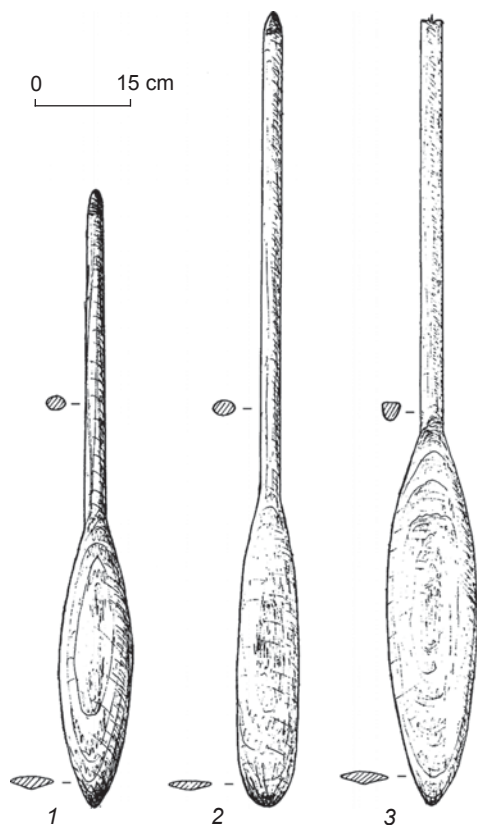


Fig. 1. Single-piece wooden paddles from the settlement of Shuvakish I. Collection of the Scientific Production Center.

intact single-piece paddle of medium length (127 cm) has a narrow (9.5 cm) blade 51 cm long. It is oval, with a transverse axis slightly displaced from the center to the blade's tip (Fig. 1, 2). Both paddles have blades with subtriangular cross-sections, while the cross-sections of the handles are oval (2 × 3 cm). The tips of the handles are fashioned by cutting, then rounding. One more single-piece paddle is almost intact. The tip of its handle is broken off. The length of the remaining part is 125 cm. The blade is wide (14 cm), 61 cm long, elliptical, with a transverse axis in the middle. The handle has an oval cross-section (Fig. 1, 3).

The composite paddle consists of a blade with a partial handle, and a handle. Its length in a working state is 135 cm. A wide elliptical blade (12–13 cm) with a transverse axis located in the middle has a length of 55 cm. The profile of the blade is slightly curved, its cross-section is subtriangular, with a stiffening-rib. The handle has an oval cross-section (4 × 3 cm), the tip is fashioned by cutting, then rounding. The parts of the item were fastened by bringing the skewed edges into coincidence and wrapping the composite handle with an organic material (?) (Fig. 2, 3).

At the Shuvakish I settlement, a fragment of paddle has been found, represented by a portion of a wide blade (60 × 15 cm), probably of elliptical or oval shape, with a broken-off oval handle. One plane of the blade is covered with a black-painted pattern located 20 cm from the handle in the form of two filled isosceles triangles facing each other with their corners and resembling the outline of a butterfly, with three radiating rows of points (seven points in each) (Fig. 2, 2).

Six intact paddles and fragments of 10–12 single-piece ones (Fig. 3) have been found at the Razboinichy Ostrov site. The finds are dominated by items 112–118 cm long, each with an elliptical blade making up about half the paddle. The blades are 12–13 cm wide and 0.8–1.8 cm thick, their cross-sections are subrhomboid or oval. The tips of handles with oval cross-sections (2.0 to 3.5 × 1.5 to 2.3 cm) are bent and trimmed by a system of cuts. A paddle with a wide (up to 13 cm) and short (up to 30 cm) blade making up slightly more than a quarter of its length has been discovered at the site. This artifact differs from the others in the shape of its blade: this is oval, with a sharpened edge, to which the maximum width is displaced (Fig. 3, 3). A wooden spade (?), probably made of a paddle with a broken-off blade, may have been used as a pole. The working portion has an oval shape in plan and in section. Its length is 7.0 cm and its width is 1.4–1.8 cm. The handle is oval in section (2.5 to 3.0 × 1.2 to 2.4 cm) (Fig. 3, 6).

One fragment of an oval handle was found at each of the Shuvakish VIC and VIIID, Yelnichnoye IA, Karasye Ozero IA and IIB settlements; and a similar handle and a narrow blade of suboval shape, 50–60 cm long,

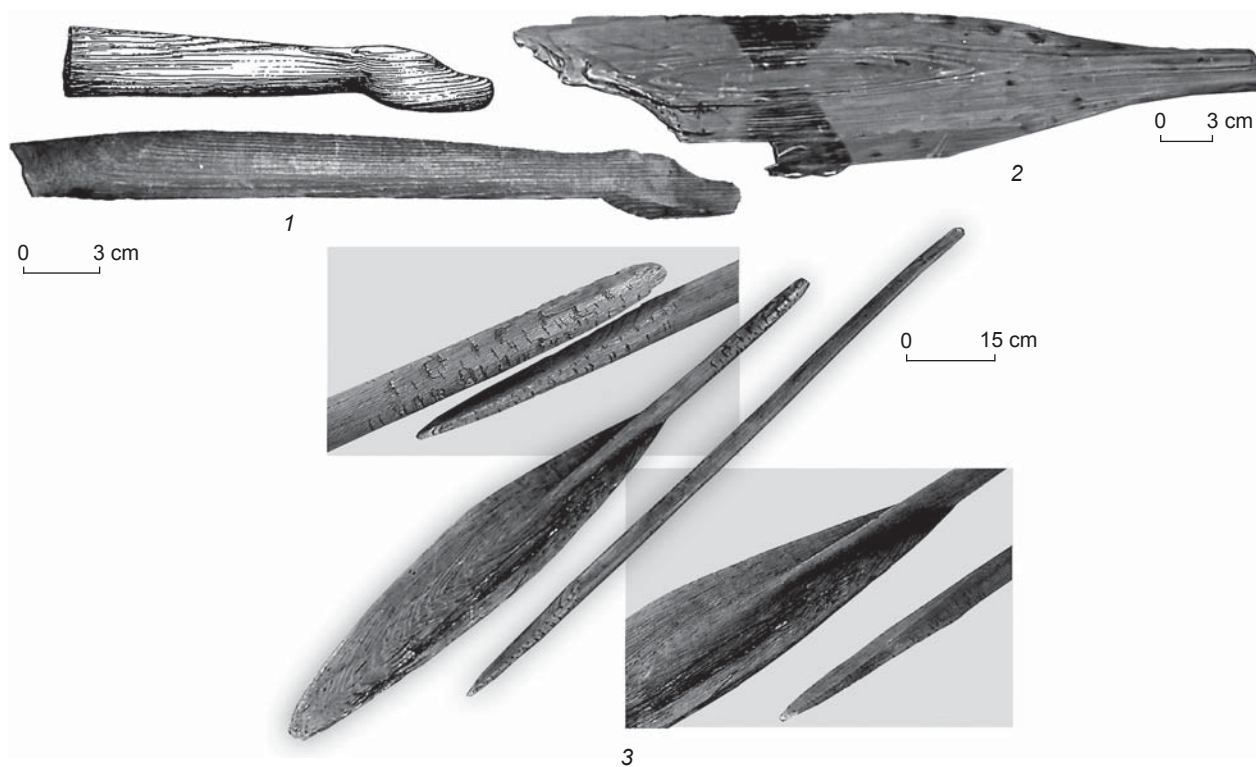


Fig. 2. Fragments of paddles (1, 2), a composite paddle (3).

1 – Shigir collection of the Sverdlovsk Regional Local Lore Museum, col. No. S/m 8973; 2, 3 – settlement of Shuvakish I, collection of the Scientific Production Center.

were found at the site of Shuvakish XIE. Fragments of two blades and two handles with oval cross-sections, with one handle's tip being slightly wavyly bent and, possibly, representing a stylized image of a waterfowl's head, have been discovered at the Shigir A settlement.

At the Stary and Novy placers of the Shigir peat-bog, fragments of 15 paddles have been found occasionally, including: barely identifiable fragments of six paddles and one handle; a narrow medium-length suboval blade with nearly parallel sides; blades and handles of six single-piece and one composite paddles; a long and wide blade of one single-piece paddle of elliptical shape, with an oval handle; wide lancet blades of two other single-piece paddles, with shoulders at the junction to an

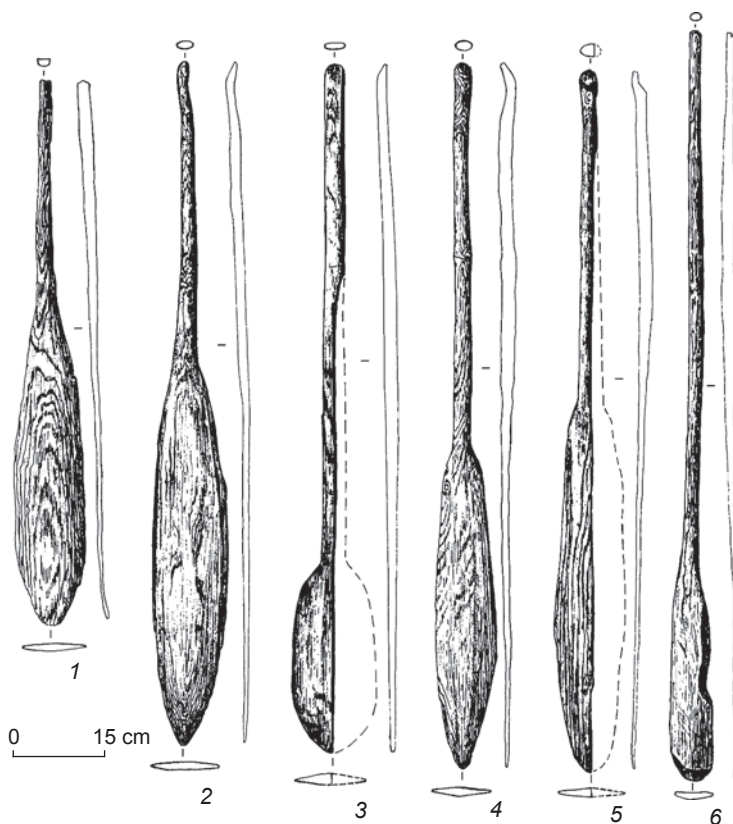


Fig. 3. Single-piece wooden paddles from the Razboinichy Ostrov site. Collection of the Institute of History and Archaeology, Ural Branch, RAS, col. inv. 57.

oval handle. The collection represents two small paddle-like items with short blades and subrectangular and oval handles. One of them has a round bulb at the side—probably a stylized image of an animal's head. Another item, $36.5 \times 4.5 \times 1.0$ cm in size, of suboval shape with nearly parallel sides, is decorated with wavy lines (“striated pattern”) made by impressions. A rounded-section handle is broken off; the preserved part is $36.0 \times 1.6 \times 1.2$ cm. The small size of the item and the presence of ornament possibly point to a special function for this artifact. A composite paddle is represented by a long and wide elliptical blade with a transverse axis in the middle and an oval handle.

At the Yazevsky placer of the Shigir peat-bog, fragments of a composite paddle, an intact specimen, and a blade with a partial handle from a single-piece paddle have been found. The intact single-piece paddle has a narrow medium-length suboval blade with nearly parallel sides, and a short oval handle with a rounded tip. The single-piece paddle, represented by a fragment 91.5 cm long, has a suboval blade 37×8 cm in size, and an oval handle. A narrow long suboval blade with nearly parallel sides and a portion of an oval handle are preserved from the composite paddle. At the 2nd Yazevsky site of the Shigir peat-bog, blade-fragments and blades with parts of their handles have been found that preclude reconstructing the general shapes and sizes of items. In the section of the 2nd Kuryinsky placer, at a depth of 4 m, an intact single-piece paddle with a narrow medium-length suboval blade with nearly parallel sides has been discovered, perhaps along with the Big Shigir Idol. The handle of the item has a medium length, a subtriangular cross-section and a rounded tip.

The Shigir collection comprises a paddle handle ending with a stylized sculptural representation of a head of an animal, probably a bear, made schematically, without small details. The length of the remaining portion of the oval handle is 31.9 cm. The figurine has a size of 6.1×2.3 to 2.7 cm (see Fig. 2, 1).

In Section VI of the Gorbunovo peat-bog, 95 paddles, both intact and fragmented, have been discovered, and are currently stored in the State Historical Museum (SHM) (Kashina, Chairkina, 2015), the Nizhniy Tagil Museum-Reserve, and the Institute of History and Archaeology, Ural Branch, Russian Academy of Sciences. A review by S.N. Pogorelov (1998) provides tabular information about 24 items from this site (from excavations made by D.N. Eding in 1926–1928 and 1936, and by V.F. Starkov in 1979–1981), and about three items found at the Dalny Section (the latter are stored in the Nizhniy Tagil Museum-Reserve).

The Nizhniy Tagil Museum-Reserve's collection comprises one handle with a stylized image of an animal's head at the tip of a composite paddle, and 12 intact (or almost intact) single-piece paddles. Three of

them have wide (10–16 cm) medium-length or long (50–75 cm) elliptical blades and long or medium-length handles. The handle tip of one paddle is flattened, slightly widened and bent in the form of a stylized image of a waterfowl's head; two others are fashioned by cutting, then rounding. Three paddle-fragments having oval handles without tips are assigned to the same type of items with wide blades. Four paddles have wide, oval blades, mostly of medium-length, with suboval or triangular cross-sections. The handles of these items are short or of medium length. The tips of two handles are fashioned by cutting, then rounding, and the tip of another handle is flattened, slightly widened, and bent in the form of a stylized image of a waterfowl's head. The blades of two intact paddles and of one fragment are narrow (up to 10 cm), oval, and subtriangular in cross-section; one of them is long and the two others are of medium length. The handle tips of intact items are fashioned by cutting, then rounding. Two paddles (an intact item and a paddle with a broken-off handle) have suboval blades; in cross-section, one is subtriangular and the other is oval. The handle tip of the intact specimen is fashioned by cutting, then rounding. The tips of short handles of two small paddle-like items are worked in the same manner. The paddle fragments are represented mainly by short oval handles. Five of them have flattened, slightly widened, and bent tips. Two handles are fashioned in the form of waterfowl (?) heads, and one handle, in the form of an animal's head (a bear?).

The SHM collections comprise five intact paddles and 53 fragments, including four from composite items (Kashina, Chairkina, 2015). Four fully preserved single-piece paddles are 128, 129, 136, and 154 cm long respectively. Their blades have oval and elliptical shapes and average size (9.9 to 11.5×50.0 to 54.0 cm). The handle tips, 76–100 cm long, are fashioned by cutting, then rounding.

We managed to analyze the shapes of the blades of 15 specimens: (Fig. 4, 5): wide- or narrow-oval are most common, while elliptical and lancet (?) are rare. A number of items have a stiffening-rib located in the lower third of the blade and rarely reaching its middle portion. The cross-sections are rhombic or elongate-oval, or sometimes trapezoidal. Blades are most frequently of medium-length (slightly more than 50 cm), one having a length of 72 cm, and two of them only 32 and 35 cm. The width varies from 7.6 to 13.0 cm, the thickness is 0.9–1.7 cm, most often close to 1.0 cm.

Handles are generally oval or, more rarely, subsquare or circular in cross-section. Sizes of the cross-section are rather standard, predominantly 2.2×2.8 cm; however, there are cross-sections 3.4 cm and 2.1 cm long. The handle with a 2.1×1.7 cm cross-section is so “elegant” that an idea arises that it must have been a fragment of a

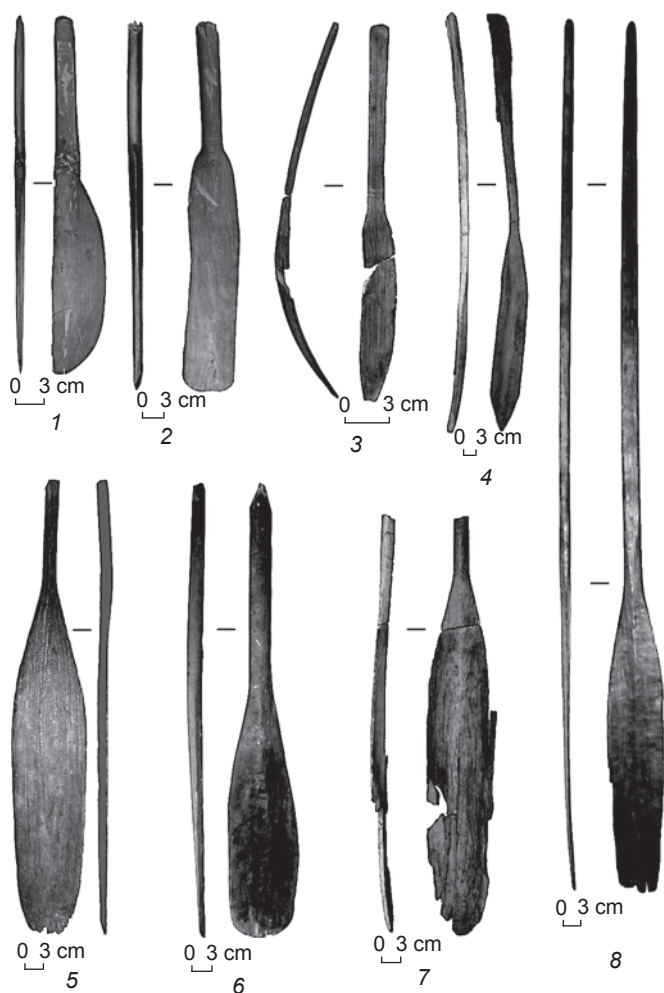


Fig. 4. Wooden artifacts from Section VI of the Gorbunovo peat-bog, SHM collection, col. inv. A380, A383, A385, A387, A530. 1, 2, 6 – short-handle “paddles”; 3 – a paddle “model”; 4 – a paddle blank; 5, 7, 8 – paddles.

child’s or woman’s (?) paddle. The shaping of handles’ ends is various. Among serial shapes (Fig. 6), sharpened, bent and bent-and-widened, flattened, and round-face varieties can be distinguished. Some of them can be assigned to conditionally stylized ornithomorphic and zoomorphic images (?). Three handles undoubtedly have sculptured tops: one of them is fashioned in the form of a duck’s head, and two others in the form of a mammal’s (?) head. (Fig. 7).

It is hard to tell whether a composite handle was made intentionally or only because of breakage. The method of creating oblique cuts could have been used to perform repairs as well. For example, the collection comprises a very short handle with a top and a cut made at an acute angle, i.e. the piece was obviously repaired after breakage (see Fig. 6, 4). On a cut of a composite handle of one item, cross-hatching is observed, which was presumably applied for better engagement of the

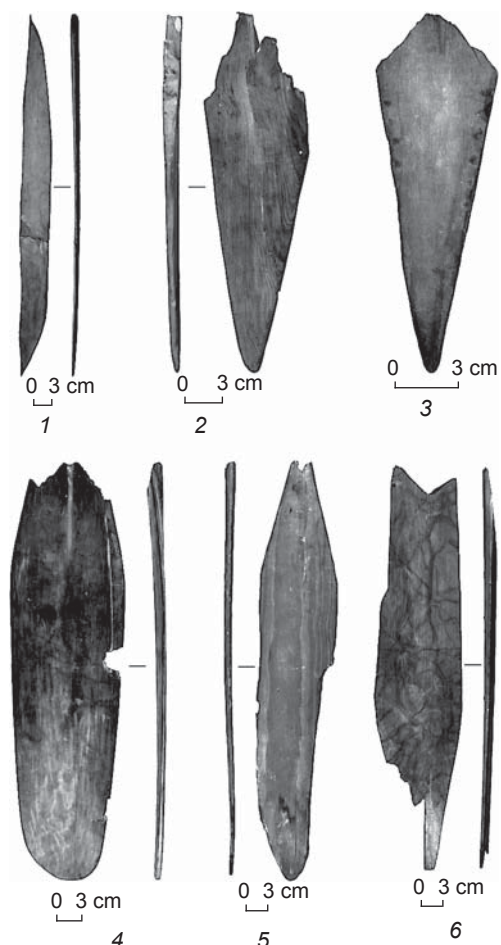


Fig. 5. Fragments of paddle blades. 1, 2, 4–6 – Section VI of the Gorbunovo peat-bog, SHM collection, col. inv. A383, A387; 3 – settlement of Modlona.

connected surfaces (see Fig. 6, 7). The presence of two counter-oblique cuts on another piece, which were probably not intended for fastening a composite handle, allows it to be considered as a short paddle (see Fig. 4, 6). One handle has three projections on the cut-opposite side that were obviously intended for convenient binding with its counterpart (see Fig. 6, 5).

Manufacturing technique and use of paddles

All items are apparently made of pine (Pogorelov, 1998: 231). The technique of paddle manufacture can be reconstructed in general terms owing to a unique find, a single-piece paddle blank (see Fig. 4, 4) from the SHM collection, which was left at the stage of cutting the profile of the piece out of a pine half-timber and

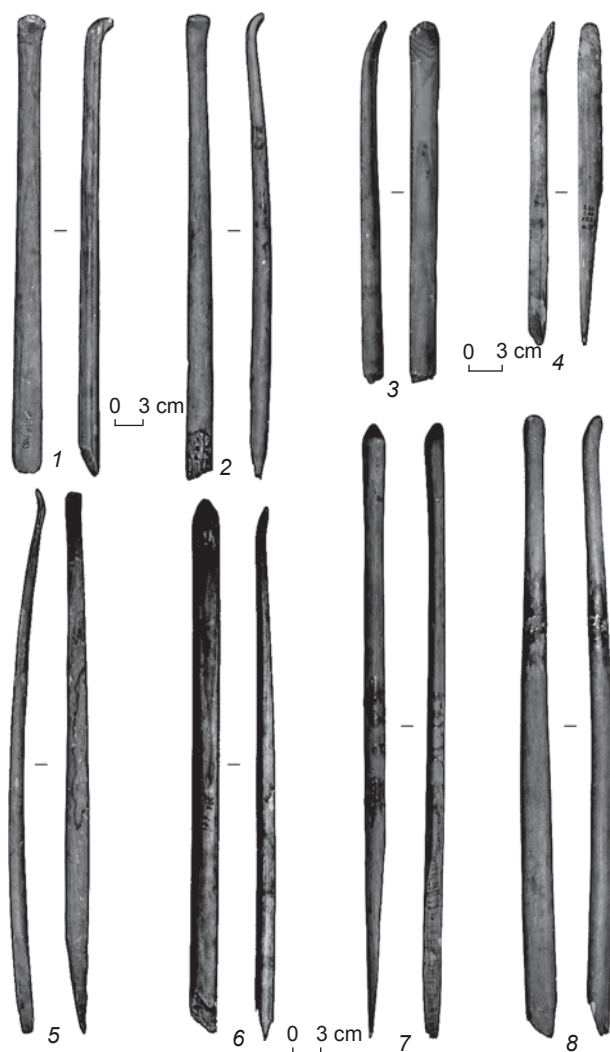
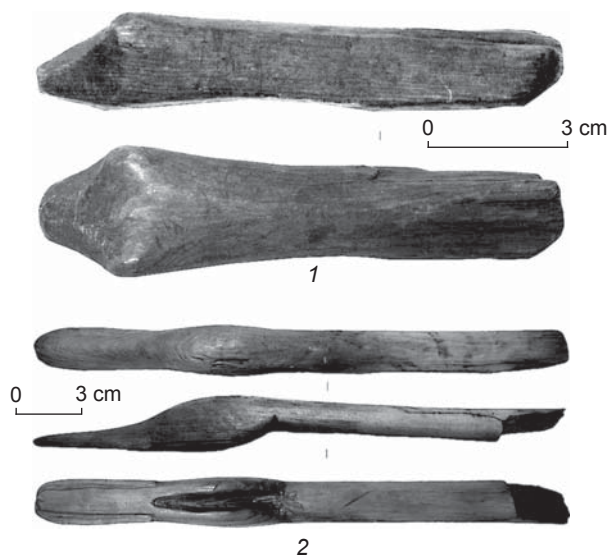


Fig. 6. Fragments of paddle handles. Section VI of the Gorbunovo peat-bog, SHM collection, col. inv. A380, A383, A385, A387.



starting the blade's trimming. The total length of the blank is 167 cm, that of the handle is 91 cm, the blade size is 13 × 76 cm. The proportions correspond to those of the known intact (finished) paddles. The handle has a well-pronounced rectangular cross-section. A sharp tip of the blade is cut out, and a series of facets created by fine trimming from the edges to the center can be seen on one side of the blade. Traces of such actions, strongly smoothed by polishing, are barely perceptible on several finished items (see Fig. 4, 8). On other items, they are possibly represented in the form of rhythmical series of cut marks/cross-hatching (see Fig. 4, 2; 5, 5). It cannot be excluded that these may be traces of minor damage incidental to their use.

A series of subsquare hollows (see Fig. 4, 8), the purpose and origin of which are unclear, is observed on the reverse side of blade of one paddle from the SHM collection. Another specimen shows shallow notches on the handle. There are also three fragments of handles (two fragments of the middle portion, and one with a top) that have such common features as the presence of intentional circle-wise notches and a break at one end (see Fig. 6, 3). Possibly these are the remains of deliberately chopped handles of paddles.

The presence of a small blade with a short cut-off handle (see Fig. 4, 2) suggests that broken and worn paddles were not discarded but, possibly, kept for another purpose. The collections from the Gorbunovo peat-bog comprise several items, the so-called "spatulas", that vaguely resemble such a paddle.

Noteworthy is the careful treatment of the paddles. The entire surfaces of items are grounded and polished; sometimes, no manufacturing traces of shaping are present on a blade. Apart from possible evidence of handle-repairs, a careful attitude to paddles is evidenced by the fact that even when blade edges were chipped, paddles apparently continued to be used, because in many cases the surface of a chipped spot looks worn and smoothed.

Thus, about 150 fragments and fully preserved single-piece paddles, plus a considerably smaller number (11–12 spec.) of composite paddles, made during the Chalcolithic and Early Bronze Age, have been found at the Uralian peat-bog sites. The prevailing are items 120–130 cm long with oval blades 50–60 cm long and rounded handle edges (Shuvakish I settlement, Yazevsky placer of the Shigir peat-bog, and Section VI of the Gorbunovo peat-bog). Less frequent are handles fashioned in the form of a realistic or stylized image of a waterfowl's head (Shuvakish I and Shigir A settlements,

Fig. 7. Fragments of paddle handles with zoomorphic (1) and ornithomorphic (2) tops. Section VI of the Gorbunovo peat-bog, SHM collection, col. inv. A387.

Section VI of the Gorbunovo peat-bog, Razboinichy Ostrov); tops in the form of animal's head are rare (Shuvakish I settlement, Stary and Novy placers of the Shigir peat-bog, Section VI of the Gorbunovo peat-bog). Samples of paddles from various peat-bog sites of the Trans-Urals have obvious morphological similarities (Pogorelov, 1998: 228–240; Chairkina, 2005: 116, 119, 159, 215, 216, fig. 23, 44, 45).

Wooden paddles from Eastern and Western Europe

Comparing the collection of Uralian paddles with the samples from the peat-bog sites of the Mesolithic and Chalcolithic Ages of other regions (the Komi Republic, the Arkhangelsk, Pskov and Moscow Regions, Latvia, Lithuania, Denmark, Germany, Great Britain) suggests the existence of various convergent shapes and traditions in the manufacture of these items. The paddle blade from the Okaemovo V site (the Moscow Region, Mesolithic) is narrow, 8 cm wide. Its broken-off tip was, probably, sharpened. “Shoulders” project along the blade's edges. The length (32 cm) and cross-section (2.0 × 2.5 cm) point to a very small size for the item. This was probably a child's paddle (Okorokov, 1994, 186–187). In general, a sample of artifacts belonging to this category (7 spec.) from the Mesolithic layers of the Zamostye 2 settlement is very similar to the Trans-Uralian series in its sizes and shapes; however, two items (Zamostye 2..., 2013: 29–30, fig. 9, 10) are distinguished by very wide leaf-shaped blades, which resembles paddles from Denmark. A blade having a unique pentagonal shape with parallel edges and a sharpened tip has been found in the Mesolithic layers of the Vis I site (the Komi Republic). Its length is about 50 cm, and a stiffening-rib occupies approximately two-thirds of the length (Burov, 1990). Fragments of a paddle blade and a handled spade (presumably, a paddle) were discovered in the Mesolithic layer of the Nizhneye Veretye settlement (the Arkhangelsk Region) (Oshibkina, 2006: 140; Burov, 2011: 6, fig. 2, 5). Their shape is hard to characterize.

Fragments of paddle handles, two blade tips, and an edge fragment have been found at Modlona (the Vologda Region), a settlement attributed to the Late Neolithic and the Early Metal Age (SHM collection, col. inv. A400/2295, 2296, 2298, 2321, 2323, 2327) (see Fig. 5, 3). These handles are very similar to the items discovered at Section VI of the Gorbunovo peat-bog in their size and type of cross-section. One of them shows traces of intended chopping up, like some Gorbunovo handles, and a counter blaze at the tip, very similar to that of the paddle from the excavations by A.Y. Bryusov at Section VI (see Fig. 4, 6). The tips of the blades from Modlona are sharpened. Probably, the blade was elongate (?) and rather

narrow. One fragment shows a pattern in the form of triangles applied with gray-brown paint along one edge of the blade. Thus, an exceptional resemblance between the shapes of paddles from the Modlona settlement and the Gorbunovo peat-bog in a number of indicators can be recorded.

A wooden item 27.0 × 10.5 × 1.0 to 2.0 cm in size from Arkhangelsk (Kuznechikha River), found along with Chalcolithic pottery during well-sinking, may represent a blade-fragment of paddle made of spruce. On one side of the item, there is a unique ornamental composition of rhomboids made by red paint (Smirnov, 1940). A probable fragment of a paddle's blade (33 cm long) with two drilled holes has been discovered at Repishche, a stratified site containing layers from the terminal Mesolithic to Chalcolithic in the Novgorod Region (excavations by M.P. Zimina; SHM collection, col. inv. A2205/62). The blade's shape is unclear.

Five fragments (Kolosova, Mazurkevich, 1998) and one intact paddle have been found at the settlements of Usvyaty IV, Dubokray V and Naumovo (Pskov Region). The intact paddle (Usvyaty IV) is dated to the late 4th–early 3rd millennium BC according to the calibrated values of absolute dates (Bronzovyi vek..., 2013: 349). It is made of maple and has a length of 162 cm. The elongate leaf-shaped blade with a sharpened tip finds analogs among the paddles from the Sārinate site (Latvia). The handle has an flattened-oval cross-section (3 cm long). Its slotted top with a sculpture representation of two identical waterfowls' heads with long beaks (stork or sandpiper)* is unique.

Numerous paddles from Sārinate (the cultural range of Comb-Pitted and Porous ceramics of the Neolithic and the Early Metal Age) have elongate leaf-shaped blades (Vankina, 1970: 92, 93, pl. I, IX, X), which are generally longer than the Trans-Uralian blades (65–89 cm long, the shortest one is 56 cm). A stiffening-rib is located in the lower third. Cross-sectional diameters of the handles vary from 1.5 to 3.0 cm. 36 items made of ash-wood and maple, and two blanks, have been found at the site; three paddles were stuck into the soil nearby, with their blades down. Judging by the series of broken off rods discovered in the immediate vicinity of the blades, the tips of the paddle handles were fashioned in different ways, which matches the above Trans-Uralian materials. Referring to the ethnographic materials, including the Latvian ones, L.V. Vankina reasonably suggests that during rowing only one paddle was used, and that elongate shape of blade with a nearly pointed tip was perfectly suitable for boat movement through the water of a dead lake.

*This determination was made by I.V. Fadeev, Leading Researcher of the State Darwin Museum, for which the authors express their gratitude.

Paddles from the Šventoji settlements in Lithuania (settlement 1, layers A, B; settlement 2, layer B; settlement 3; settlement 4, layer B) form a sample consisting of several dozen items. They are made of ash-wood, except for one that is made of pine. The layers of the settlements are dated to the beginning of the 4th to the second quarter of the 3rd millennium BC (according to the calibrated values of absolute dates) and associated with the Narva culture, the ceramic assemblages of which, at its late stage, include the ceramics of the Globular Amphora and Funnelbeaker cultures (Rimantiene, 2005: 518–521). Two blade-shapes can be distinguished: an elongate leaf-shaped blade, like that of Särnate paddles; and elongate oval, like that of Trans-Uralian items. It is hard to tell whether this is due to chronological differences, because excavations were carried out 40 years ago, and the archaeological context of some finds is not clear. Also, a number of wooden items, which can be assigned to handles with oval or circular cross-sections, have been found at the Šventoji settlements; they also include items with various tops (Ibid.: Fig. 127; 194, 14), in particular, pseudo-sculpture ones (Ibid.: Fig. 113, 10; 173). Besides, handles with surface notches and, apparently, deliberately chopped handles have been discovered, as well as a paddle blade with a smoothed handle-stump (Ibid.: Fig. 194; 127, 1). Thus, shapes and ways of using Lithuanian and Trans-Uralian paddles show quite a lot of similarities.

Among the Western European materials, noteworthy is a sample of paddles from the settlements of Tybrind Vig, Flinderhage, and Horsens Fjord (Denmark), which comprises materials pertaining to the late stage of the Ertebølle culture (the 5th millennium BC, according to the calibrated values of absolute dates). The blade-shape of these items is extremely unusual, close to

heart-shaped or pentagonal. The handle, judging by the remaining specimens, is very long. The traces of blade-painting with brown dye in the carved recesses allow us to reconstruct a complicated symmetric pattern that, according to researchers, reflects totemic-clan concepts and points to kin relationships between the inhabitants of these settlements (Andersen, 1987; Malm, 1995). Let us remember that blades with painting traces have also been found in the Trans-Urals, Arkhangelsk and Vologda regions (Chairkina, 2005: 119, fig. 23, 1; Smirnov, 1940). In Denmark, paddles were also discovered at the Ulkestrup Lyng, and Olby Lyng sites containing the Maglemosian culture materials of the earlier time (Lanting, 2000). They differ from the Tybrind Vig sample in terms of morphology. One of them has a wide-oval blade without a stiffening-rib, and another paddle has a narrow leaf-shaped blade like that of Särnate items. There are reports of two paddles attributed to the Mesolithic Maglemosian culture in Holmegaard (Ibid.).

In Germany, paddles have been discovered at Duwensee-2 (this specimen closely resembles wide-oval items from Ulkestrup), Gettorf, and Friesack IV sites. The ages of these sites indicate that their materials are generally synchronous with the Maglemosian culture (Ibid.). A blade-fragment of birch paddle from the Star Carr settlement (Great Britain) (Ibid.) pertains to the same time. Judging by the drawing, the blade-shape might be identified as elongate.

The petroglyphs of Lake Onega (Peri Nos III) and Lake Kanozero (Kamenny 4) comprise images of mythological anthropomorphic characters, each holding a paddle with a leaf-shaped blade in one hand, very similar to wooden artifacts from Usvyaty IV and Särnate (Fig. 8). The petroglyphs are dated to the Neolithic

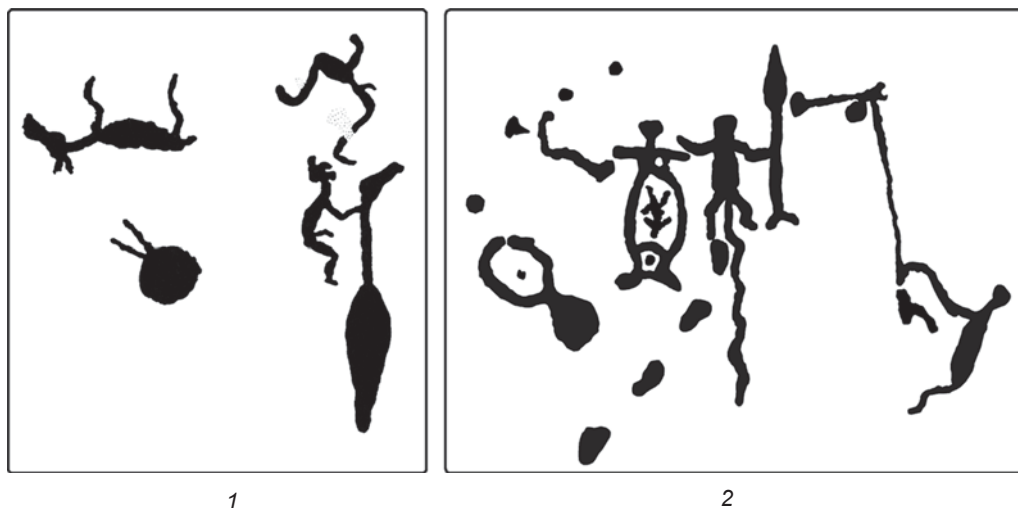


Fig. 8. Characters with paddles on petroglyphs of the Neolithic and Early Metal Age.
1 – Peri Nos III (Lake Onega, Karelia); 2 – Kamenny 4 (Lake Kanozero, Kola Peninsula).

and the Early Metal Age (Zhulnikov, 2009: 17, fig. 6; Kolpakov, Zhumkin, 2012: 151, 350).

Conclusions

Summing up the review of the Stone Age paddles in Western Europe, we note their considerable regional variation, along with the apparent preservation of the general evolution of blades from wide spatular to narrow elongate. There is an opinion that paddles appeared before dugout boats, and could have been used, for example, for rafting (McGrail, 1987; Berzins, 2000). They had the double function of rowing and pushing off. Possibly, owing to the narrow shape of a dugout, as compared, for example, to a raft, it was more convenient to use a narrow-blade paddle that could be easier to place in a boat. The damage to blade tips observed in many cases in the Gorbunovo and Särnate materials point to the fact that paddles were used to push off the bottom.

However, the Trans-Uralian paddles of the Chalcolithic and the Early Bronze Age differ in blade-shape from their Neolithic and Chalcolithic Eastern Baltic counterparts (with leaf-shaped blades and narrow tips)—although, supposedly, people in both regions mostly traversed shallow waterlogged lakes. The petroglyphic materials suggest that paddles with elongate leaf-shaped blades, similar to the Eastern Baltic ones, could have been used for movement across different-type water bodies.

The existence of special ritual paddles, at least in Eastern Europe and the Trans-Urals, is evidenced by several rare finds with handle-tops in the form of a waterfowl's head. Recall that, apart from Section VI of the Gorbunovo peat-bog, such an item has been found in the Pskov Region. Paddles represented on the petroglyphs of Northern European Russia have handles with tops in the form of a waterfowl's head (and two heads (?)) and are in the hands of characters endowed with supernatural features, probably a specific “cultural hero”.

It can be assumed that the optimal dimensional parameters of individually used paddles had been elaborated by the beginning of the Early Metal Age. Modern canoe-paddles are very similar in their sizes and forms to the Trans-Uralian archaeological ones (Paddles..., (s.a.)).

The Trans-Uralian sample of Chalcolithic and Early Bronze Age paddles may be the largest in the world. In our opinion, its originality consists primarily in a substantial uniformity of the items, in their standard proportions, and fashioned handles. A distinctive feature of this sample can be considered the presence of composite handles.

Certain small paddles with short handles may have served for nonutilitarian purposes, possibly related to ritual, play, household, or manufacture.

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