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The Bronze Bipartite Buckles in the Materials of the Burial Site Prospikhino Shivera-IV in the Lower Angara River

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At the Burial Site Prospikhino Shivera-IV in the Lower Angara River, which was used in 11-14 centuries 26 bronze bipartite buckles were found. There are three main types among them: buckles with openwork circular, rhombic and solid round body. They have numerous analogies in the materials found between the rivers Ob, Irtysh and Angara. The round buckles with a solid body were found in the graves of all chronological groups of the burial, whereas the other types are typical for complexes of the 11-12 centuries. The buckles were cast according to a lost wax method, in one-piece clay forms. For three of the buckles X-ray fluorescence alloy analysis was conducted, which showed that they all were cast of lead-tin bronze. The quality of these pieces of jewelry in this category is relatively low; they have underfilled spaces, alloy overflows and metal deformation of the original shape.

Keywords: Lower Angara region, middle ages, medieval times, bipartite buckles, chronology, alloy composition, manufacturing technology.

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Research area: history.

Introduction

The systematic studies of the medieval monuments of the Lower Angara region in recent years have collected an array of new data that has only recently been introduced in the scientific publications. A prominent place among these materials belongs to the results of a study of the Burial Site Prospikhino Shivera-IV, which is located in the Lower Angara River, 1.5 km upstream from the mouth of the River Koda. 88 medieval burials were found at the monument; all of them had been performed by cremation ceremony on the side (Mandryka, Senotrusova, 2010; Mandryka, Senotrusova, Biriuleva 2011). This paper discusses bronze bipartite buckles (26 items), constituting a representative series of jewelry and parts among the clothing and accessories found at the necropolis. This allows to conduct morphological analysis of the buckles, highlight their types, consider the problems of these techniques for making the jewelry, as well as to determine the time of their use and to clarify the issues of internal chronology of the necropolis Prospikhino Shivera-IV.

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Bipartite buckles are mentioned in a number of general works on medieval archeology of individual regions (Basandayka, 1947; Belikov, 1996; Pletneva, 1997; Savinov, Novikov, Rosliakov, 2008). By far the most complete summary of bipartite buckles, found in Siberia and adjacent territories was given by F. Kh. Arslanova. She collected materials on the Ob-Irtysh interfluve, described their typology, defined time of existence of the individual types. The author considered bipartite buckles as exclusively female ornaments, performing not only utilitarian, but also certain sacred functions (Arslanova, 2013).

The data on the bipartite buckles found on the territory of the Lower Angara region has not yet been fully introduced in the scientific publications, although they constitute a large array of similar products in Siberia. In the basin of the lower reaches of the Angara similar buckles are known in a number of monuments (the burial site Prospikhino Shivera-IV, Sergushkin-3, the complex Ust-Cova et al.), materials of which are not yet published, which does not allow to use them in historical research. This article can be a basis for a more in-depth study of medieval decorations of Siberian peoples.

Description of the Materials

Found in the burial Prospikhino Shivera-IV bipartite buckles have different degree of preservation. Some items are safe and untouched, while others were deformed in a funeral pyre. In some burials there was found only one half of a buckle, in others they were found in a set, but were fastened or unfastened. 22 items of buckles were subjected to typology. Four items had been melted and strongly deformed and can not be attributed to one or another type.

All the buckles are bronze, made in the technique of casting. Defining of types was carried out in accordance with its shape and cross-section of the shield with the features of its design.

Type 1. Buckles with round trapezoidal flap (two pairs and one half) (Fig. 1 – 1, 2, 6). They are delicate. Scalloped edge flap, used in the decoration of the motif of "flaming pearl." Dimensions of the whole buckle were 6,5 × 2,3 × 0,3 cm and 6,6 × 2,3 × 0,3 cm.

Openwork buckles with a round base are widely known in Western Siberia. In the Kuznetsk Basin they were found in the tomb mound number 1 number 3 of the Kurgan group Konevo. The burial dates from the second half of the 12th century. (Ilyushin, 2012, p. 59). In Omsk area near the Ob river a delicate buckle similar to those from Angarsk, was found in the tomb number 2 of the mound number 5 of Elovskaya burial I. The burial dates back to 11-12 centuries. (Matiushchenko, Startseva, 1970, Table. VI-7). That type of buckles was known in Tomsk area near the Ob river as well. A buckle close to this type, was recorded in the tomb number 2 of a burial ground at the mouth of the Big Kirghiz river. The authors attribute this to the burial of 11-13 centuries. (Vasiliev, Pletneva, 1993, p. 10). A half of such buckles was found in the tomb number 2 of the mound number 1 of Basandaysky burial site (Basandaika, 1947, Table. 50, № 55). This burial is dated by L.M. Pletneva to 13-14 centuries. (1997, p. 112). The same delicate buckles were found in Minusinsk Basin. One half of a similar buckle out of the area is stored in the State Hermitage Museum (Korol, Kon'kova, 2009, p. 144). F.Kh. Arslanova attributes the creation of such buckles to 11-12 centuries. (2013 p. 96, Fig. 4 – 1-2).

Thus, buckles of this type appear in Siberia before the end of the 11 century and continue to be used until the 13-14 centuries. In all likelihood in the territory of the Lower Angara region, they appear not earlier than the beginning of the 12 century.

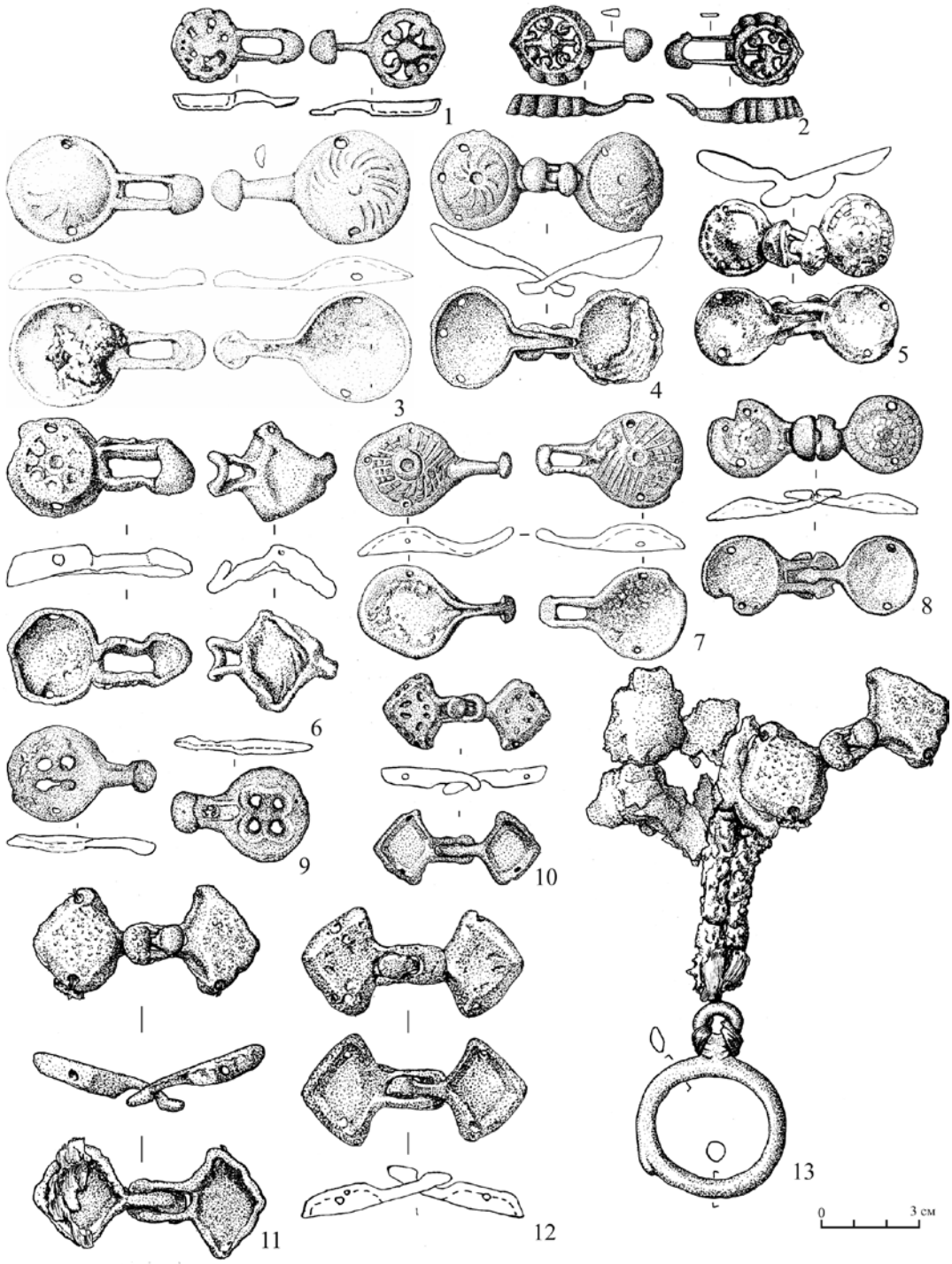

Fig. 1. Bronze bipartite buckles from the burial site Prospikhino Shivera-IV. 1 – burial №85; 2 – burial №90; 3 – burial №10; 4 – burial №17; 5 – burial №80; 6 – burial №21; 7 – burial №34; 8 – burial №59; 9 – burial №81; 10, 13 – burial №49; 11 – burial №16; 12 – burial №50. 1, 2, 6 – type 1; 3–5, 7–9 – type 2; 10–13 – type. 3

Type 2. The solid round buckles with the arcuate section plate (16 items). They differ in design of the surface plate (Fig. 1 – 3-5, 7-9). Most of the items have fixed slotted radially spaced lines (13 items), two buckles at the center of the shield have fairly large, round holes, another buckle is without ornament. Dimensions of the buckles are different from 3,3 × 2,2 × 0,4 cm to 5,5 × 3,0 × 0,3 cm. The buckles were mounted using two, three or holes located on the edges of the flap.

On the Angara similar buckles were found in graves number 14 and number 21 of the burial site Sergushkin-3 and the burial site number 3 Otiko-1 (Herman, Herman, 2011, p. 219; Boguchanskaya ..., 2014, p. 48, 51). In Tomsk area near the Ob River same buckles were found in Basandaysky burial site. The grave number 3 of the mound number 25, where bones of a 6-7 year old girl were found, the fastened buckle was lying on top of a bag (Basandaika, 1947, p. 39). This burial is dated 12-14 centuries. (Pletneva, 1997, p. 113). A similar buckle was found in the burial number 3 of the mound №1 of Basandayka. There had been buried an adult male, the buckle was located near the right shoulder of the deceased (Basandaika, 1947, p. 35). The burial dates back to 13-14 centuries. (Pletneva, 1997, p. 112). The buckle of a round shape, with two holes on the body, but smaller than the previous ones, was found in the territory of the Novosibirsk area near the Ob River in the burial number 7 of the mound number 1 at the burial site Sanatorny-2. The burial dates back to 11-13 centuries. (Savinov, Novikov, Rosliakov, 2008, p. 154).

Thus, the appearance of this type of buckles on the Angara can also be attributed to the end of the 11 century. Here, apparently, they were used until 14 century.

Type 3. Buckles with a rhombic body of trapezoidal type (four pairs). One buckle without ornament, plate decorated on three small indentations (Fig. 1 – 10-13). These buckles were mounted using two holes located at the corners of the flap at the widest part. The dimensions of the buckle were 4,7 × 3,0 × 0,4 cm to 5,0 × 2,4 × 0,3 cm.

In the grave number 16 of the burial site Prospikhino Shivera-IV such a buckle was found "sewn" to a fragment of leather. Below this buckle there was a preserved leather cord folded in half. At the end of the loop was placed a bronze ring-shaped pendant. Each line was strung with iron beads decorated with transverse incisions (Fig. 1 – 13, Fig. 2). Apparently, this piece of leather could be part of the outer clothing or bags, or some kind of sack.

A similar buckle was found on another monument near the Angara – in the burial site Sergushkin-3 (Herman, Herman, 2011, p. 219). Rhombic buckles were also observed in the early stage of material culture of the Yenisei Kyrgyz (mid-10-11 centuries) of the Middle Chulym River. There they were found in the mound number 21 of Kalmaksky burial site (Belikova, 1996, Fig. 83-11, 31, 32). It should be noted that one buckle was located adjacent to the waist set of items and possibly was used for the belt (Bielikova, 1996, p. 92). Buckles of the rhombic shape were also observed in the taiga Irtysh, in the grave number 2 of the mound number 12 at the burial site Kypi-3 (Konikov, 1993, Fig. 29-14, 15). The mound dates back to 11-12 centuries. (Konikov 1993, p. 153). According to F. Kh. Arslanova by indentations on the body of diamond-shaped buckles were depicted highly stylized anthropomorphic images (Arslanova, 2013, p. 97).

Considering the analogy presented, buckles of this type may occur in the lower reaches of the Angara River not earlier than the beginning of 11 century.

It is necessary to highlight some of the issues related to the technology of manufacturing buckles. To characterize the composition of the alloy used we conducted x-ray fluorescence

Fig. 2. Photo of buckles and metal ornaments on a fragment of skin, when excavating the burial № 16

analysis (XFA) by approved methods (Tishkin, Khavrin, 2006; Gorbunova, Tishkin, Khavrin, 2006) for three buckles. The work was carried out at the Department of Archaeology, Ethnography and museology of Altai State University under the direction of Doctor Historical Sciences A.A. Tishkin using an X-ray fluorescence spectrometer ALHPA SERIESTM™ (model Alpha-2000, US production).

A bipartite round buckle (type 2) from the burial number 23 is made of tin-lead bronze. In the alloy were found: copper (74,83-77,28 %), tin (17,76-19,62 %), lead (4,60-5,17 %), iron (0.36-0.38 %). An openwork buckle (type 1) from the grave number 90 (Fig. 1-2) was made of bronze, with inclusions of copper (54,50-55,35 %), lead (29,81-31,30 %), tin (12,19-13,16 %). The presence of high concentrations of lead and tin was found for buckles (type 3) from the grave number 50 (Fig. 1-12). In the alloy the following elements were found: copper (61,31-65,63 %), lead (21,36-23,03 %), tin (11,75-14,02 %). In addition, there were detected small additions of iron, lead, nickel and magnesium.

Discussion

At the end of the first half of the 2nd millennium AD bipartite buckles of various types were widespread in Siberia and adjacent regions of Kazakhstan. They are known in the Tomsk and the Upper Ob, Irtysh, the findings of fasteners in the lower reaches of the Angara River basin are at the north-eastern point of distribution.

Among the buckles found in the burial site Prospikhino Shivera-IV bipartite buckles can be divided into three main types. Apparently, the typological variety can be associated with the development of shapes of these products

over time. Gradually openwork buckles were replaced by round and / or rhombic products with a solid body and simple décor. It should be emphasized that the earliest buckle close in shape to the silhouette of a flying bird in the Angara was found in the archeological site of Ust-Kova (Bobrov, Herman, Leontiev, 2011). Similar articles appear in the Ob-Irtysh interfluve at the end of the 1st millennium AD (Arslanova, 2013, p. 94-95).

Based on materials from the Angara burials performed according to the rites of cremation it is impossible to determine how these buckles were worn. Involvement of data on the location of buckles in the funerary complexes made by inhumation rite, also gives contradictory results. The buckles could be placed on the belt (Belikova, 1996, p. 92), on the bag (Basandaika, 1947, p. 39), buried near the shoulder (Ibid, p. 35), could be used as a decoration for plaits (Arslanova, 2013, p. 98). Based on the above material, we can talk about that, bipartite buckles are versatile products that could be used for fastening clothing items, belts and handbags.

It is necessary to pay more attention to the issues of technology of manufacturing of the buckles.

X-ray fluorescence analysis of three fasteners found in the burial site Prospikhino Shivera-IV, showed that they all were made of tin-lead bronze. Ratio of tin is from 12 to 20 % of the alloy. The presence of this metal in the alloy gives the product a gray silver color. Such a concentration of tin improves the fluidity of bronze, but makes the product fragile (Zaitseva, Saracheva, 2011, p. 163). In the alloy composition from which the buckles were cast, a significant amount of lead from 5 to 31 % was found. It is known that lead improves yielding ability of tin-bronze, but also creates gas porosity and at high concentrations makes further heat treatment of products impossible to (Zaitseva Saracheva, 2011, p. 120). High levels of lead in the samples can be explained by the uneven distribution of its alloy (Lakhtin, 2013, p. 258), and accumulation of this element on the surface of articles during the corrosion process. When an x-ray fluorescence analysis (XFA) is conducted a very small area of the surface of the object is being investigated. This can lead to serious errors in determining the concentration of lead in the alloy (Eniosova, Mitoian, 2014, p. 145).

The lack of data on the composition of the alloy of jewelry found in adjacent territories, complicates the interpretation of the results. Among the decorations, found in the burial Prospikhino Shivera-IV, of the lead-tin bronzes were cast elements belt sets, three-part and four-flap stripes, suspensions. Casting bronze ornaments from similar materials were known in medieval Pskov, Perm Ural region, Vyatichians lands, Minusinsk basin and other territories (Koroleva, 2014, p. 154; Podosenova, 2014, p. 171; Zaitseva, Saracheva, 2011, p. 160; Korol, Kon'kova, 2009, p. 141). Widespread lead-tin bronze casting was due to the high performance of this alloy (Zaitseva, Saracheva, 2011, p. 120). Obviously, in the Angara area the bipartite buckles were objects of import, but to date, the existing source base makes it impossible to determine the place of their manufacture.

The buckles were products of different quality, which was associated with the qualification of founders in various production centers. All buckles were made in accordance with one single technology – cast using a wax model. This is indicated by the absence of the casting seams, as well as rather complicated shapes of the objects themselves. Duplication of products was due to the use of the cast die-matrix (Konkova, Korol, 2009, p. 139). Probably when modeling shields of round and rhombic buckles wax casting "on-splash" was used, after

which wriggle wax "noses" were attached to the shield. This is indicated by simulating the seams, which are fixed to the inside of the product. After manufacturing the product model casting was done in the one-piece clay form. It should be noted that the quality of the castings was low, all products have flaws.

Apparently, all the delicate bipartite buckles were made with one sample, found at the burial site Prospikhino Shivera-IV. The buckle from the grave number 90 (Fig. 1 – 2) has a higher quality, but also has a small underfilled space in the rim on the inside of the product. The second buckle was casting of a lower quality: due to the evident flaw on one of its halves decor in the form of "flaming pearl" almost unreadable (Fig. 1 – 1). Another more "rude" work is the product from the grave number burial 21 (Fig. 1 – 6). Openwork of the buckle was lost, it had no rim decorated, decoration repeats the plot of "flaming pearl" but it was cast in the negative. Apparently, for the manufacture of the mold a master made a stamp in the clay with a ready openwork buckle. The original standard for casting these buckles was an object that came, perhaps from Western Siberia and Northern Kazakhstan. A similar two-part buckle with a circular openwork shield was found in one of the burials at Kurgan Konevo (Iliushin, 2012, photo 28).

Most buckles with a round body close to the level of production, almost all have small defects, which, first of all, can be seen in the difference of shield decoration. A pronged buckle from grave number 34 (Fig. 1 – 7) should be noted, which is characterized by low quality. It is asymmetric, and lines deposited on its surface depth are careless and do not constitute any clear pattern. In addition, one half of the buckle is not convex in cross section, and the half-round, probably in the manufacture of wax model did not merge on time, and the item became very heavy.

In general bipartite buckles from the burial Prospikhino Shivera-IV can be attributed to the third and fourth level of quality (Korol, Kon'kova, 2012, p. 127), which provides a massive demand for bronze ware among ordinary people. One can only assume that some of them coming from the craft centers (e.g., delicate buckles), while others were cast "artisanal", somewhere in the taiga of Siberia, in imitation of existing models. To date, no direct evidence of bronze casting business in the territory of the Angara region for the development of medieval era has been observed.

In the opinion of F.Kh. Arslanova, bipartite buckles were exclusively female ornaments (2013, p. 93). However, in Basandaysky burial mounds a buckle was found in the burial of an adult male (Basandaika, 1947, p. 35). At the burial site Prospikhino Shivera-IV buckles were found in single and collective burials (Senotrusova, Mandryka, Poshekhonova, 2014, p. 106-107). In three collective tombs buckles occur among the wreckage of burnt bones of children and women, in another one – among the fossil remains of a child and a woman. Among single burials with buckles one was child, one more was that of a woman, in other cases the gender of the deceased was not determined.

Conclusion

Bipartite bronze buckles were widespread in Siberia in the Middle Ages. They constitute a representative group among the ornaments used by the population of the Lower Angara region. The buckles were versatile products that could be used for fastening belts, handbags, clothing items. Openwork buckles and buckles with a rhombic body were common in the lower reaches of the Angara River in 11-12 centuries, and products with a solid round body were typical for the 11-14 centuries. All analyzed bipartite buckles were made of lead-tin bronze, and the casting quality was poor.

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Бронзовые двусоставные застежки в материалах могильника Проспихинская Шивера-IV на Нижней Ангаре

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В Нижнем Приангарье на могильнике Проспихинская Шивера-IV, функционировавшем в XI–XIV вв., было найдено 26 экз. двусоставных бронзовых застежек. Среди них выделяется три основных типа: застежки с ажурным круглым, ромбическим и сплошным круглым туловом. Они имеют многочисленные аналогии в материалах Обь-Иртышского междуречья и Приангарья. Круглые застежки со сплошным туловом найдены в могилах всех хронологических групп могильника, тогда как другие типы характерны для комплексов XI – XII вв. Застежки отливались по утрачиваемым восковым моделям, в неразъемных глиняных формах. Для трех застежек был проведен рентгенофлюоресцентный анализ сплава, который показал, что все они отлиты из свинцово-оловянной бронзы. Качество изготовления украшений этой категории невысокое, на них фиксируются недоливы, заливы металла, деформация исходной формы.

Ключевые слова: Нижнее Приангарье, средние века, двусоставные застежки, хронология, состав сплава, техника изготовления.

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