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# **Ancient pottery of the late bronze period in western Siberia and Kazakhstan**

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## **Abstract**

The article discusses the characteristics of ancient ceramics of the Late Bronze period in the territory of Western Siberia and Kazakhstan. The research methodology includes both traditional for archeology methods of studying sources, and methods borrowed from the arsenal of natural and exact sciences. As a result, the comparative characteristics of Western Siberia and Kazakhstan in the late Bronze period clearly show cultural and historical differences in the formation of these communities. In conclusion, fragments of ceramics with the inclusion of small pieces of ore and slag were found.

**Keywords:** Ceramics, Late Bronze, Culture, Archeology.

# Cerámica antigua de la Cerámica antigua al final de la Edad de Bronce en Siberia Occidental y Kazajstán

## Resumen

El artículo analiza las características de las cerámicas antiguas del Bronce Tardío en el territorio de Siberia Occidental y Kazajstán. La metodología de investigación incluye métodos tradicionales de arqueología para el estudio de las fuentes y métodos tomados del arsenal de las ciencias naturales y exactas. Como resultado, las características comparativas de Siberia Occidental y Kazajstán en el período del Bronce tardío muestran claramente diferencias culturales e históricas en la formación de estas comunidades. En conclusión, se encontraron fragmentos de cerámica con la inclusión de pequeños trozos de mineral y escoria.

**Palabras clave:** Cerámica, Bronce Final, Cultura, Arqueología.

## 1. INTRODUCTION

The historical processes that took place during the final stage of the Bronze Age were of a landmark nature. It was at that time on the vast spaces of the steppe Eurasia, that a common culture of roller ceramics, having a different basis, took shape. In the study of the antiquities of the Ural-Kazakhstan steppes in the 20<sup>th</sup> century, important results were achieved: tremendous material was accumulated, many cultural entities were discovered, and a

methodology was developed for the study of archaeological monuments of the pre-alphabet era. (Tkachev, 2003).

For the Late Bronze Age of Trans-Urals and Western Siberia, one can speak of the existence of a Zamaraevskaya -Irmen historical-chronological stratum in the forest-steppe belt and in the south of the taiga zone, within which two main cultures stand out — the Mezhovskaya (Zamaraevskaya) in the Trans-Urals and the Irmen in the Ob-Irtysh. These cultures are quite close genetically since both are based on the Andronovo substrate. The main difference between the Mezhovskaya (Zamaraevskaya) and Irmen cultures is that the first is a direct continuation of the Andronovo type (in this case, Cherkaskul) cultural tradition, while the addition of the Irmen culture was the result of the impact on the Ob-Irtysh population of the Karasuk cultural tradition.

The history of the study of monuments of the Bronze Age plays an important role in the process of identifying the ethnocultural history of the population. For a long time in Kazakhstani steppes, researchers isolated one culture - the Andronovo culture. As scientific material accumulated, the Andronovo culture underwent a number of changes made by researchers. That accordingly led to a disagreement of versions in relation to the Andronovo culture. Currently, most researchers, culturally, recognize the independence of the BegazyDandybaevsky and Sargarino-Alexis complexes (Chemyakina, 2001).

In order for the reconstruction of ancient ceramic production to be as complete as possible, it is important to trace the entire technological chain (Derevyanko, 1989). At the same time, ceramic products: dishes, crucibles, spinner, weights for nets, small plastics, etc., manufactured for various purposes, should have a certain set of physical properties that correspond to their purpose. The problems of ancient ceramic production are quite acute in the modern archaeological literature. In particular, increased interest in all sorts of technological reconstructions. The specific sphere in the study of ancient ceramics is made up of technical and technological aspects and characteristics. Currently, many researchers have identified two areas in the study of pottery:

1) Visual diagnostic, based on the use of a binocular microscope, physical modeling techniques and experimental reference diagnostics; this direction is viewed in the works of (Bobrinskiy, 1991; Stankevich, 1950).

2) Instrumental analysis using the methods of the natural sciences. This direction is viewed in the works of the Krug-Application of petrographic methods for the study of silicates (technical materials) in archeology (Krug, 1963), Application of petrography in archeology. Saiko - From the experience of applying the microscopic method of research to the study of medieval Central Asian ceramics (Saiko, 1960; Zhuschihovskaya, 1990).

## **2. MATERIALS AND METHODS**

The research methodology includes both traditional for archeology methods of studying sources, and methods borrowed from the arsenal of natural and exact sciences. The analysis of the sources, if possible, was carried out comprehensively. In the analysis of ceramics and inventory used comparative typological and statistical methods.

Western Siberia: Monuments of Mezhovsky (Zamaraevsky) type. At one time, K.V. Salnikov singled out three stages of Cherkaskul culture — Cherkaskul, Mezhovskaya, and Berezovskaya. Later, V.S. Stokolos noted the similarity of the ceramics of Cherkaskul culture with Zamaraevsky dishes. For Berezovsky ceramics, according to Salnikov, rollers and collars on the neck are also peculiar, and they become more pronounced. The hanger is even more convex than on the Mezhovsky-interstitial vessels. The ornament is comparatively poor and, as Salnikov notes, evolves towards further simplification and depletion (Kosarev, 1981).

Settlements with Mezhovsky dishes are widely known in Nizhny Pritobol'e (Koptiyaki I, II, Luzhki, Mezhovskoye, Berezovskoye, Palkino, VI section of Gorbunovsky peat bog, Mys settlement, etc.). The ceramics found on these monuments in general fit into the system of characteristics given by Salnikov for dishes of the Mezhovsky and Berezovsky types of the Southern Urals. Among the distinguishing features should be called the usual for ceramics of the northern regions of triangular scallops, shaded with oblique ribbons of

drawn or stamped crosses in the upper part of the vessels of dies in the form of ticks, etc.

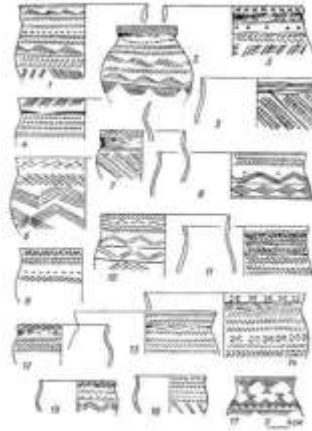


Figure 1: Late Bronze Age. Area of Sverdlovsk. Ceramics of Mezhovsky type.

The settlement of the end of the Bronze Age in the forest-steppe Priishimye - Kuchum-Gora and Chupino can be attributed to the Mezhovsky-area range with some reservations. The dishes of these points are close to Mezhovsky culture, both in individual elements of the ornament (specificity of rows of oblique notches, lattice belts, the presence of an arc-like comb stamp, etc.) and in form (strongly bent neck, swollen body, etc.).

Among Irmen settlements, there are also small pitcher-shaped vessels with a narrow neck and a strongly swollen body, which in the future may be divided into a special group. Several similar pitchers

were found at the Yelovsky settlement and at the settlement of Irmen One. Of the Irmen burials, it is known only one such vessel. All pitchers are ornamented on the upper part of the body by elongated triangular scallops, sometimes alternating with other type scallops. Apparently, these vessels had some special purpose. The second group, which we conditionally called ritual, is relatively rare in settlements, but it clearly predominates in burials. It is represented by small vessels with very neat ornamentation.

Immediately make a reservation that the definition of ritual we do not identify with the term burial. Most likely, this is a special festive tableware, used during religious ceremonies - at ritual festivals, at sacrifices, at funerals, etc. One cannot exclude the fact that the difference between dishes from the burials and from the settlements is explained more simply: large kitchen pots for cooking, and small individual vessels used as bowls and personal property of the deceased.

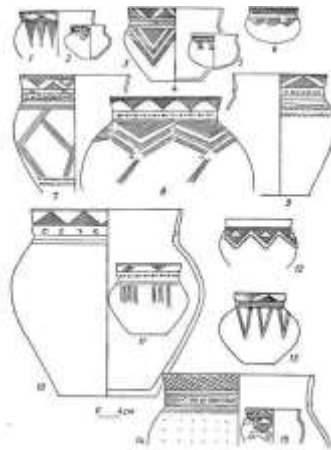


Figure 2: Late Bronze Age. Tomsk Priob'ye. Pottery of Irmen culture.



The second group of ceramics in form and ornament is closer to Karasuk than the vessels of settlements. The vessels have a squat pot shape. There are round bottom specimens. In many cases, the neck or its upper half did not have an ornament. On the neck, when it was ornamented, there was a row of triangles. Shaded ribbons, rows of notches, a chain of non-shaded rhombuses, etc. Pearls are almost never found in the lower part of the neck. In the Irmen burial of the Yelovsky burial ground, it is known only one vessel with pearls. On the border of the neck and body, there was one or several carved lines. The upper half of the body was decorated with triangular festoons, zigzag ribbons, rows of rhombuses.

Often triangular scallops were emphasized with a zigzag tape. Very characteristic festoons shaded in a chess manner. Generally trellised hatching of geometric shapes. Frequent cases of asymmetry of the geometric belt in the upper part of the body attract attention: festoons on one vessel are represented by several different geometric figures. This, apparently, speaks of the complex semantic meaning of the patterns on the vessels with which the dead were supplied. Some vessels of the second group have elements in their ornament that are comparable with patterns on inter-ceramics: rows of small cuts, zigzag stripes, festoons made with shaded ribbons, inclined ribbons, etc.



Figure 3:

Sargara ceramics

- Surface treated with glossing;
- The ornament was made with stamps, among which there is a comb with various shapes of teeth, as well as tubular, angular, streaky, and horseshoe-shaped and others. There are mastoid sticks on the body, both single and grouped. Tucks and body grooves could be used;



Figure 4: Dandybay ceramics.

Stamp prints cover the entire body of a solid or are arranged in a stripe in its middle part, or also form various images - cross-shaped figures, shaded parallel ribbons, a checkerboard, zigzags, herringbone, trellis rhombuses, triangle temples, including connected tops, so that between them are formed diamonds. The most frequent are large triangles festoons. Some of the geometric compositions on a small group of vessels are obviously connected with Andronovo

reminiscences;



Figure 5: Dandybay ceramics.

- A straight or slightly concave neck is often not ornamented;
- Between the neck and the body or sometimes on the neck it there is often a thin roller or groove (grooves);
- The body has a spherical shape;
- The main types of vessels are cup-shaped (with a small round or flat bottom) and pot-shaped (with a wide bottom or a dedicated

tray). In rare cases, there are cuplike, vase-shaped (with a short neck), pitcher-shaped (with a high narrow neck).

Close (but not identical) vessels really exist in Karasuk, Irmen, Yelovsky and other complexes, however such features as various figure stamps and ornaments and their decoration with imprints of the entire surface of the body are characteristic only of Dandybay ceramics.

### **3. RESULTS AND DISCUSSION**

One of the problems in the study of metallurgical monuments is that the monuments of mining and metallurgy of antiquity in the territory of Kazakhstan at the moment were substantially destroyed held in the XVIII-XIX centuries. Mining and crumbling so far (Dubyagina, 2017). The morphological analysis revealed three main groups and two minor groups. The first, most significant group of ceramics is Sargara-type crockery. This group is represented by potshaped and bank-shaped flat-bottomed vessels. The vessels are ornamented on the shoulder and the upper third of the body. The second group - dishes Begazy type. This group is represented in the main pots with a flat bottom or on a pallet; fragments of cups are encountered singly. The vessels are ornamented on the neck, shoulder and upper third of the body. The third group is of the Dongal type, it has many similarities with the ceramics of the first group. The fourth

group is imported ceramics. Dishes are represented by a few fragments, decorated with a complex ornament of carved lines and festoons. The fifth group - ceramics is represented by two fragments, presumably, bowls. Both vessels are not ornamented. One vessel is covered with a red engobe, the other is black and is thoroughly covered with iron.

When studying fragments, 4 recipes of the molding mass were recorded:

- 1) Artificial nutrient medium (ANM) and organic matter;
- 2) ANM + organic + chamotte;
- 3) ANM + organic + gruss;
- 4) ANM + organic + ore-slag;

In one fragment, there are crushed bones, sizes - from 1 to 1.5 mm, milky-beige, resemble chamotte appearances, but much looser. Tubular structures resembling longitudinal wood fibers. Chamotte is one of the most common impurities, sizes from 0.5 to 1 mm, the used chamotte is similar to the base. In some samples, the fireclay did not penetrate and, therefore, they are found in rather large sizes from 1 to 1.5 mm, they have an acute-angled shape, therefore they differ sharply from other impurities. Gruss geneissoid granite includes acute-angled crystals of quartz, feldspar sizes from 1 to 1.5 mm. The design of the hollow body, judging by the lateral fragments, was carried out with a bandage and a band anchorage.

The approximate diameter of the bundle is 2.5 - 3 cm, the tape is 4.5-5 cm, the diameter was determined approximately since the sizes of the fragments do not allow specifying the data. When processing the

surface was used soft leather, smoothed stone polished, dentate stamp and a tuft of grass. Most of the traces of surface treatment are lost, as the vessels were used for a long time in everyday life. The potter's fingers served as an ornament for applying the ornament in one fragment. The ornament is a nail impression, which was applied with a thumb (Malutina, 1994). Let us turn to a comparative analysis of the late Bronze period ceramics of the two regions, namely, Western Siberia and Kazakhstan.

Table 1: Types of pottery in Western Siberia and Kazakhstan.

Type	Western Siberia
<u>Mezhovsky type of ceramics</u>	bulging hangers, the presence of rollers on the neck,
Patterns (ornament)	Herringbone, rows of notches, lattice belts, zigzag lines
Type of pattern (ornament)	imprints of a comb, smooth stamp, drawing
<u>Berezovsky type of ceramics</u>	characteristic rollers and collars on the neck
Patterns (ornament)	poor, evolving towards further simplification and depletion, rows of zigzags and fir-trees, rhombuses,

	shaded ribbons, inclined stripes
Type of pattern (ornament)	Notches, smooth stamp and carved lines. The comb was rarely used.
<u>Irmen type of ceramics</u>	represented by pot-shaped vessels with a straight or slightly bent neck and a rather sharp transition from the neck to the shoulders; pitchers with narrow throat and strongly swollen body
Patterns (ornament)	Carved, geometric, latticed belt of triangles at the neck, geometric shapes are often represented by a chain, horizontal carved lines. In the lower part of the neck there was a row of pearls alternating with vertical notches or pits
<b>Type</b>	<b>Kazakhstan</b>
<u>Fedorovo type of ceramics</u>	represented by pots of smooth profiling and flat saucers
Patterns (ornament)	decorated with triangles with geometric patterns in the form of triangles, ribbons meanders
Type of pattern (ornament)	fine toothed comb
<u>Sargara type of</u>	tall pots with a wide neck and vary neck

<u>ceramics</u>	shaping, narrownecked tall pots and low-profile vessels of low proportions
Patterns (ornament)	The pattern of one or two elements is made by cutting, less often by a comb stamp, consists of notches, netting, fir-tree, flutes, indentations, nail tucks, pearls, rarely zigzag, shaded triangles and rhombuses. 10-40% of the dishes have a roller, on separate vessels - stitches
<u>Begazy-Dandybay type of ceramics</u>	The main types of vessels are cup-shaped, pot-shaped. In addition to pots, they made jugs, bowls, cups, vessels with spout
Patterns (ornament)	cross-shaped figures, shaded parallel ribbons, checkerboard, zigzags, herringbone, trellis rhombuses, triangle beds, including connected by vertices so that diamonds and geometry are formed between them
Type of pattern (ornament)	It was made by stamps, among which is a comb with various shapes of teeth, as well as tubular, angular, jet, horseshoe and others



The comparative characteristics of Western Siberia and Kazakhstan in the late Bronze period clearly show cultural and historical differences in the formation of these communities, it was also found that ceramics were ornamented radically differently, with the exception of some similarities, namely the geometric patterns presented by Fedorovo, Berezovsky and Begazy-Dandybaevsky types of ceramics.

#### **4. CONCLUSION**

The Late Bronze Age in Western Siberia falls on a period bounded by the lines of the II - I thousand - VIII centuries BC. On a wide territory of the forest-steppe Priob'e, the Irmen culture was spread, to the west of it, the Barhatovskaya culture, in the northern forest zone — the Suzganskaya culture, the Yelovsky culture and a number of other cultures. During the Late Bronze Age, the carriers of the Yelovsky culture partially moved upwards along the Ob to the forest-steppe zone. The further development of the productive forces was expressed in forest-steppe areas in increasing the importance of farming within the framework of an integrated pastoral and agricultural economy. In the forest areas of the Middle Ob and the Irtysh in the farm in the presence of cattle breeding with the leading value of horse breeding, hunting and fishing continued to play a large role.

Undoubtedly, the ancient history of Kazakhstan is a history of not only material, but also spiritual achievements, which rightfully occupied a high place in human civilization. Regarding the monument, Bozshakol can come to such conclusions. All analyzed fragments were under short-term exposure to the heat of the heat, as evidenced by the three-layer color of the crock, the edges are bright, and the core is black. The surfaces of all vessels had a spotty color, as well as varying degrees of calcination of the walls, which suggests their burning in a fire (Dubyagina, 2017).

In addition to found objects, fragments of ceramics with the inclusion of small pieces of ore and slag were found. Also, judging by the composition of the molding material, it can be assumed that the local population of Bozshakol was engaged in pastoral activity, this is reflected in the composition of the molding material. Organic additives in the form of manure, as well as in the form of marc, the crushed bones of animals and the use of soft leather and sheepskin on surface treatment indicate the presence of cattle in ancient society.

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