

Early State of the Bronze Age: Arkaim — Kargaly Case Study¹

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Abstract

The purpose of this article is interpretation of the system of archaeological monuments of the Southern Ural (Kargaly, Arkaim, Sintashta) as one of the important Bronze Age mining centers of ancient Eurasia. The authors examine Arkaim as an element of a complex system of socio-economic interactions in the Kargaly mining area. The main parts of this complex system were: 1) the copper ore production, 2) food production for miners of copper ore, 3) transport (trade) of copper ore. The Arkaim and the "Land of cities" in general is interpreted as the center of cattle breeding. Meat used to feed the Kargaly miners bone, and that is more important, was used as a material for tunneling tool. Skins were used for clothing people who mined copper ore in Kargaly, fat was used for the lighting of tunnels. A series of unique monuments in the Southern Urals, including monuments of culture Sintashta, Arkaim, Kargaly are considered as evidence for the existence of a single copper mining and ranching complex from the Bronze age (III-II thousand BC). Social relations and the system of social power in this ancient metallurgical center can be reconstructed with the help of the theory. Kargaly was not only production center of metal in the Bronze Age, but one of the forms of early state systems of social control over the large groups of people who were engaged in different but interrelated economic activities.

Keywords: Arkaim, Andronov culture, early state, statehood.

¹ This research was supported by the Russian Science Foundation via grant № 14-18-02785.

Arkaim, a unique archaeological monument of Sintashta culture of Eurasia of the Bronze Age (III-II thousand BC) in 1987 was found. Sintashta culture received its name from the fortified settlement excavated on the river Sintashta in the Southern Ural it is a variant of the Andronov culture of the Bronze Age of Southern Siberia. Up to now there are 20 fortified settlements (Bersuata, Koysaka, Ustie, etc.) were excavated in the Southern Ural together with Sintashta and Arkaim. The creators of the Sintashta-Arkaim culture were engaged in pastoral cattle breeding, farming, hunting, and mining and smelting copper ore. They were genetically related to the Neolithic population of Central and Eastern Europe and the corded ware culture (Anisimov, 2015).

The peculiar features of Sintashta culture are the following: 1) fortified settlement (fortification walls of adobe blocks reached up to 5.5 m in thickness and 3.5 m in height); 2) the presence of large settlements (their size ranged from 2 to 3.4 hectares); 3) the location of residential buildings around a central square; 4) the specificity of the materials for the construction of dwellings (rectangular and trapezoidal in plan, ranging in size from 110 to 180 m², with fire places, wells, cellars, metallurgical furnaces for copper smelting), namely: earthen blocks and logs; 5) sharp edge ceramic vessels of cup like shape, the ornaments (wavy lines, holes, geometric figurines) which was made comb-like and flat stamps; 6) the burial mounds and underground tombs (burial in a pit-tombs 3.5 m depth), and the burial field surrounded by a moat, like the settlements; 7) to grave goods included metal tools and attributes of metallurgical production: slag, stone hammers, anvils, ceramic instruments for metallurgical production, as well as weapons, chariots, jewelry.

Interpretation of the Arkaim as a cult centre (Zdanovich, 1997) or one of the oldest cities of Eurasia on the border of forest and steppe zones (Zdanovich, Batanina, 2007) satisfies not everyone who studied the monument and tried to link its function with the climate, landscape and also with the system of economic and social life of its inhabitants. For example, a researcher from Yekaterinburg (Russia) N. P. Anisimov put a number of obvious questions which do not answer the proposed interpretations by archaeologists:

- Why in the course of excavations on any of the fortified settlements were extracted very small numbers of artifacts?
- Where were stored ore reserves necessary for the production of a bronze?
- Why are there no fragments of molds and all that is an inevitable attribute of the foundry industry?
- Why is the excessive number of wells (up to 7 objects) in one housing segment, when the modern village missing two wells at different or in one neighborhood of the Central part of the settlement?
- Why there is no residential wells in the volumes of the so-called settlement, which archaeologists have dated to the same time and which was surrounded by a “fortified settlement”?
- Why the herd as most important element of life of the steppe was kept outside of the protected area, were condemned to the wolf attack or stealing neighbors?
- Why for 20 years the archaeologists can't figure out the algorithm of

construction of "fortified settlements" in the landscape environment? If the determinism of ritual behavior is declared why the stable position of the burial in relation to the settlement either side of the world are not yet detected?

— How can be explained the planning solution's variety of Sintashta culture constrictions which obviously surpasses modern urban architectural composition?

— Why the territory of the fortified settlement has a North-South direction with a wide diffusion of eastern borders and narrows in western borders?

— What are the tangible evidences of Arkaim's belonging to the group of sacred centers? And for what reason similar ring structures of Sintashta and Sarym-Sakly archaeological sites are not examined as sacred centers? (Anisimov, 2015: 67-129).

Trying to find answers to these questions, N. P. Anisimov speculated about the existence of the economic relationship of the Arkaim with Kargaly copper ore deposit, as well as expressed the hypothesis that Arkaim is a vast cattle-breeding farm (Anisimov, 2015: 74). In other words, the Arkaim is neither a fortress nor a sacred center. It is a cattle-breeding farm, which has the warm stall, well water, facilities for cattlemen, special yards for milking and husbandry, drainage ditches and openings in the wall for the manure in the surrounding moat.

To confirm the interpretation of the Arkaim as a stationary shelter for livestock, alternative "fortified settlement" and the sacred center, we restrict the list of artifacts belonging to the architectural context of the topic: wells (in need it for livestock numbers), kiln, pillar pits (on the pillars kept the ceiling), earthworks, housing pits, burial grounds and hydrological features of trans-Ural penepain. We can state that archaeological sites in Sarym-Sakly, Olgino, and Isiney complex can be the functional analogues of the Arkaim.

The farmyard construction was functionally perfect because animals stood close to each other. Such position allowed animals to enjoy the warmth of each other in the harsh winter cold. Indigenous people build barns of similar design in these regions today. The barns are round and small in size. Its internal space is divided into sectors. A modern cattle-breeding farm in Uzbekistan like its Arkaim prototype has a circular layout and is provided with a corridor for cattle corral inside. The residence of the corral owner is usually built nearby. Cattle grown on these farms could be used to feed people who worked on Kargaly copper mines and to ensure their tunneling tool from the bones, as well as leather was used for clothing. Fat was used for lamps. In other words, Arkaim and Kargaly can be considered as a complex system of socio-economic interactions, as evidence of the existence of the copper ore mining, cattle-breeding, and smelting-trading complex of the Bronze Age. The elements of this system in the economic plan were: 1) mining, 2) production of food for the miners of copper ore, 3) transportation (trade) of ore mined and copper smelting. Kargaly agglomeration geographically situated on the periphery of the carcass spread and Yamnaya-Poltavchenko cultures. Kargaly agglomeration formed its own circle of trade contacts (up to 1 million km²). This ancient Eurasia agglomeration theoretically could be a raw materials appendage the North-Eastern edge Circum-Pont world. Also the Kargaly agglomeration can be one of the largest geopolitical centers of influence in the North of Eurasia.

The Copper Way was one of the most ancient trade routes linking East and West of Eurasia. Later its analogues were Lapis Lazuli (IV-III millennium BC), Jade Way (II-I millennium BC), and then, Silk Way (II century BC) Porcelain Way (I century BC) and Tea Way (XVIII-XIX centuries). By the Copper Way copper ore and copper and bronze artifacts could be delivered through the Caucasian bridge of contacts to the Black Sea region and to the Balkans-Carpathian region. It is known that back East from the West the technical innovations and technologies, luxury items which also facilitated the exchange of symbolic ideas penetrated along the ancient trade routes (Okladnikova, 2015).

It seems to us that the unique center of the Andronov culture, submitted to metallurgical and cattle-breeding complex of Kargaly – Arkaim, wasn't the only one in Southern Eurasia in the Bronze Age. The evidences of that are the numerous other monuments of Yamnaya culture, Catacomb culture, Abashev culture that are related to Andronov culture in Southern Siberia.

Obviously, Kargaly three-part structure with coverage areas up to 300 km² and numerous large settlements of miners and metallurgists (1-2 thousand or more inhabitants each) could not effectively function for a long time with no centralized control. The question of how this trans-local control system worked remains open. However, experiences in the field of political anthropology allow us to determine Kargaly – Arkaim system as early state.

The early state is a special form of political organization of the agricultural and manufacturing society. In an early state, the power possessed properties such as the supremacy, the sovereignty, some autonomy, the ability to force the population to fulfill its demands, to redeploy resources, was not built on the principles of kinship (Johnson, Earle, 2000; Bondarenko, 2012; Grinin, 2012). For example, one of the variants of this kind of power was the union (community) of traders that have appeared around one of the oldest cities of Asia Minor – city of Kanisha in the II millennium BC (present-day Eastern Turkey).

It was a corporate-territorial analogue of an early state. This kind of the early state had the organs of power, court, treasury, and a chain of trading posts throughout the trade routes linking West Asia with the Mediterranean and Aegean seas. Its distinguishing feature was that it acted as a subject of international law. Analogues to city of Kanisha were Hatussa, Purushanda, Kussara – the ancient cities of Asia Minor (Giorgadze, 1983; Yankovskaya, 2010).

This kind of corporate-territorial management system could exist in Kargaly region. This management system has united different industries: mining, resource-providing, melting and trading of copper ore. Different types of human activity (development of ore, cattle, copper smelting and trade), which was supposed to control the early state of Kargaly, suggested that the territorial connection should dominate over the kinship ties.

Differences between the prestigious burial mounds and burial ground of the ordinary people and the presence of prestigious objects such as jewelry which were similar in type to the ornaments of Yamnaya culture and Catacomb cultures that resemble the style and form of decoration Epi-neolithic Middle East cultures as archaeological evidences had identified the emergence of social stratification and potestarian hierarchy. But the main symptom of early state society in

Kargaly were the highly specialized craft and, above all, mining and metallurgy. It is the relationship of these activities and was the basis for early statehood of Kargaly – Arkaim.

The emergence of the Kargaly early state could be the result of the third major technological revolution in the history of mankind, namely, Epi-neolithic, i.e. the revolution of metalworking. The first metal changed the life of people was copper. The Neolithic revolution in the Middle East was accompanied by urban. The main feature which separated state from the early state in the Middle East was the emergence of writing. Neither in Kargaly or in other Sintashta settlements evidence of the existence of writing was not found. The probable corporate-territorial Kargaly management of the Bronze Age can be described only as early state type.

The importance of Kargaly trade cluster can be studied from the standpoint of World-Systems theory. Exchanges between the various polities, cultures and civilizations of ancient Eurasia strengthened because of the growth of population in the Bronze Age. The network transmission of information had the most important role in the transcontinental exchanges. The increasing speed of information exchange is illustrated by the example of how quickly the world most important discoveries, such as steel, chariots, horse riding, world religions, military technology, etc. spread around the ancient Eurasia (Kradin, 2012: 177-178; Grinin, Korotayev, 2013: 42-43; McNeill, 1982).

Network of exchanges meet the needs of the population of ancient Eurasia not only in information, technology, prestige goods but also in resources (Chase-Dunn, Hall, 1997). Copper was one of these basic resources in the Bronze Age. Namely the extraction of copper ore was major cluster Kargaly statehood. The other two clusters Kargaly statehood cattle breeding and the smelting-trade supported the existence of a major cluster.

But as time went on the unique management organization of the mining industry in Bronze Age Kargaly was forgotten. Russian archaeologist E. N. Chernich and his co-authors in the book devoted to the description of Kargaly historical phenomena wrote: "Judging by the number of signs, the exploitation of Kargaly copper ore deposits lasted continuously for two millennia, essentially during all the Bronze Age long, apparently, until the second half or last quarter of the second Millennium BC... Period of the mine exploitation ended, quite abruptly, full and therefore difficult to explain the termination of the epoch of the Kargaly ancient miners and metallurgists" (Chernykh et al., 2002: 39). To modern archaeologists and paleogenetics the answer to the question where did the residents of Arkaim and other Sintashta settlements go away is clear: they haven't gone anywhere. Moreover they not only continued to live on the territory of the Ural-Kazakhstan steppes but also expanded their own habitat. They also constantly innovated technologies of smelting ore and processing metals (Petrov, 2016).

As archaeologists suggests large-scale mining of copper ore in Kargaly was not renewed until the XVIII century. Most likely because the embodiment of the three-part structure of industry (mining of copper ore, cattle breeding and trade) in the area more than hundreds of thousands of square kilometers without the centralization of power is impossible. Only the symbiosis of metallurgists and cattle breeders allowed the efficient copper ore mining in Kargaly region.

The question of the death of the Kargaly early state is not yet solved. One can only assume that the cessation of copper ore mining in Kargaly region occurred rapidly from the point of view of the standards of historical time. It happened not because the external, military or socio-political circumstances but as a result of the dramatic events of the internal causes. Perhaps the reason for the extinction of Kargaly was the break of the technological chain such as the collapse in one of the three basic components of Kargaly mining complex. Most likely, the crisis originated in the cattle breeding industry which could lead to starvation and epidemics among the miners. It is also likely that it could be the problems in the system of organization of social relations and rule (for example, dynastic power struggles).

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