

Paleo-economy of North Kazakhstan during the Bronze Age based on the materials of the Shagalaly settlement

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Abstract

The purpose of this study is to provide theoretical description of certain habitable problems in the population of Northern Kazakhstan in the Bronze Age. The theoretical conclusions regarding the economy are based on archaeological sources, at the entrance to the Shagalaly II excavation settlement. The author provides a preliminary reconstruction of the life-supporting systems of the ancient population, which rendered the territory of the Shagalaly river valley habitable. The question of a chronology of the building of Shagalaly II settlement horizons remains; for each chronological period, the author proposes the concept of ‘mobile communities’, which, in turn, is divided into categories. A significant part of the work was the diversification of the economy, a change that was oriented to the ecological situation of the region.

KEYWORDS: ecological situation, geographical area, economic diversification, the mobile community

Introduction

Paleo-economic research is focused on the socio-economic survey of the prehistorical aspects of attempting to understand the ancient economy. The applied part of the paleo-economic research is in the initial period, excluding data on the functioning of the economic systems of ancient societies and concentrating on the establishment of occupations and detailed elements of production (Gololobov 1996). Owing to the introduction of exact and natural science methods, researchers have expanded the knowledge base in the exploration of primitive societies and generalised the insights offered on the basic archaeological sources. The adoption of the ‘principle of the historicism system’ has had a great influence on paleo-economic studies (Bobrov & Sokolov 200: 3–9).

The socio-economic direction continues to develop in archaeology (Paliou & Bevan 2016; Outram et al. 2012); it is divided into three areas: interdisciplinary, system-ecological, and system-paleo-ecological (Gololobov 1998). Of particular interest is the related research in Kazakhstan, focused primarily on the study of agriculture and animal

husbandry in ancient societies. For the first time, the issues of ancient technology, metallurgy, pottery production, the evolution of farming forms, the beginning of the analysis of osteological material from ancient settlements, the exploration of ancient irrigation systems has been addressed. For example, in Eastern Kazakhstan, the ancient gold mines in the Stepnyak district were investigated. Near the mines, 11 settlements of the Bronze Age were discovered, from which were collected a large quantity of bronze objects. The author of the excavations, Chernikov, related the development of gold and tin in the steppes of Kokshetau (north Kazakhstan) to the Bronze Age and early Iron Age (Chernikov 1948). Information was available in the form of faunal residues obtained in the source of archaeological excavations, iconographic evidence of hunting on rock art sites, food residues on vessels, grains and seeds, resulting paleo-botanical analyses (Anthony et al. 2005). All this indicates the presence of the complex livelihood of the local population (Chang et al. 2003).

Owing to the materials of the settlements of the Bronze Age in Central Kazakhstan, scientists have uncovered some issues concerning the pastoral economy. It is noted that in the Bronze Age, there was a definite pattern in livestock-breeding: primarily horse and to a lesser extent sheep and cow. The main meat animals were horses and sheep, and the horse had already been trained for riding. Cattle remained the main milk animals. Agriculture had an important role: stone hoes, bronze and copper sickles (Atasus & Begazy-Dandybai stages), the remains of plant foods made from millet, wheat or barley, which had been preserved on the walls of ceramic vessels found in the monuments of the Bronze Age, were found. The wild camel was domesticated in the middle of the Bronze Age (Ahinzhanov, Makarova & Nurumov 1992).

Researchers have concluded that in all steppe regions of Kazakhstan after the domestication of the main animal species, cattle breeding began to develop intensively, it became the leading branch of the economy. The resulting accumulation of surplus products spurred the development and expansion of trade, and the increase in the livestock population required the development of new spaces and movement that occurred gradually in transition to the nomadic economy.

Some studies have shown that these animals were selected by the ancient people and were adjusted to the climatic conditions of the studied region. Osteological material identified in the course of archaeological excavations on the monuments of Central Kazakhstan enabled archaeologists to consider the origin and typology of the horse as well as the morphological characteristics of sheep breeding in local ancient tribes. Kazakh scientists concluded that ‘... from the beginning of the bronze age on the territory of Central Kazakhstan there was an old tradition of artificial breeding from the ordinary masses of steppe horses to riding horses [of] better quality’ (Margulan et al. 1966: 435). In northern Kazakhstan, these processes are recorded in the Neolithic era, i.e. they were continuous. The paleo-economic model of botany culture was characterised by the researchers as the underlying cause of the life support systems (Seibert 2009). Using paleo-zoological analysis the species composition of bone remains from settlements was determined.

Specialists from Bristol and Exeter Universities together with Kazakh scientists conducted a study of the food of the population of Kent. The settlement of Kent is located

in central Kazakhstan and dates from the Bronze Age (Bartholomew 2003). The paleo-economic study showed that Kazakhstan was one of the oldest regions to have the formation and development cattle breeding in Eurasia, including in the Eneolithic and Bronze ages. The content of ruminant milk remains was established in the vessels (Outram & Kasparov 2007).

In this work, based on archaeological sources obtained in the course of excavations on the territory of the Shagalaly II settlement, the author considers the ancient economy, given the landscape, as well as the spatial and climatic conditions. A good basis for paleo-ecology is studying individual structures, dwellings, outbuildings, etc. (Rowley-Conwy 1994). The convenient location of the houses and outbuildings that allows the identification of the concentration of artefacts (Bonora & Sakenov 2014). Essential information is contained in the inner part of the residential buildings. Trodden floors of the dwelling contain the preserved remains of animals as well as remains of twigs, moss, and hay (Göransson 2002).

Scientific analyses of the remains enable solving a number of problems associated with the way ancient people adapted their houses in given landscapes and areas. At a distance of 1.5 kilometres to the south of the settlement, there was a whole field of graves; the space was divided between the settlement and the burial ground of small volcanic elevations. The burial ground consists of hundreds of burial mounds. These mounds were certainly associated with the settlement. They were round with diameters of 9 to 12 metres mixed with the ground and surrounded by a stone fence, which was built with large granite slabs. The living space of houses in the early period of the rectangular and in the later period round shapes were constructed within a linear layout of parallel streets. It is thought that such a settlement plan is typical for mobile pastoral societies. Mounds were also constructed along the river in parallel lines. The burial mounds are associated with an ancient infrastructure and grazing system (Holst 1998). The formation of lines of barrows can be understood if considered from the position that includes the theory of the structure and diachronic interaction of settlements (Johansen Laursen & Holst 2004).

Much of archaeology unreasonably attempts to determine a criterion to distinguish between settlements and burial grounds as well as different ways of interpretation. In the views of the authors of the present paper, both types of monuments are inscribed in the overall natural landscape and are reflections of each other. Only on the monuments of the Bronze Age in Kazakhstan can a symbolic code between two types of monuments be traced. These relationships are well explored in the work of the British archaeologist Richard Bradley, who found, ‘... unreasonable difference between home landscapes, with their evidence of food production and what they call ritual landscapes with their more specialised sites. In fact, both were built from the same elements’ (Bradley 2012).

Architectural features of residential structures and structures’ individual mounds show that the people who left these monuments had been engaged in moving cattle. Elements such as a lack of outbuildings for livestock attest to the fact that there was no evidence for the preparation of fodder for cattle in winter. For this period, the characteristic marks of annual repair of houses indicated the temporary absence of the residents of the settlement. The architectural features of residential buildings and the construction of individual

burial mounds attest to the fact that the people who left these monuments were engaged in mobile cattle breeding. Thus, in one burial mound, there was a collective family burial vault. In the preceding era, i.e. Alakul period (17-16 centuries BC), the architecture of sepulchral structures was different: one big stone wall could be placed to around several tens of burials, the so-called family-patriarchal tomb, which is more typical of a settled population. As can be seen (Figure 1), the funerary complexes depict the daily life of ancient communities. The authors of the present paper assert that the population lands of the Shagalaly settlement were engaged in moving cattle.

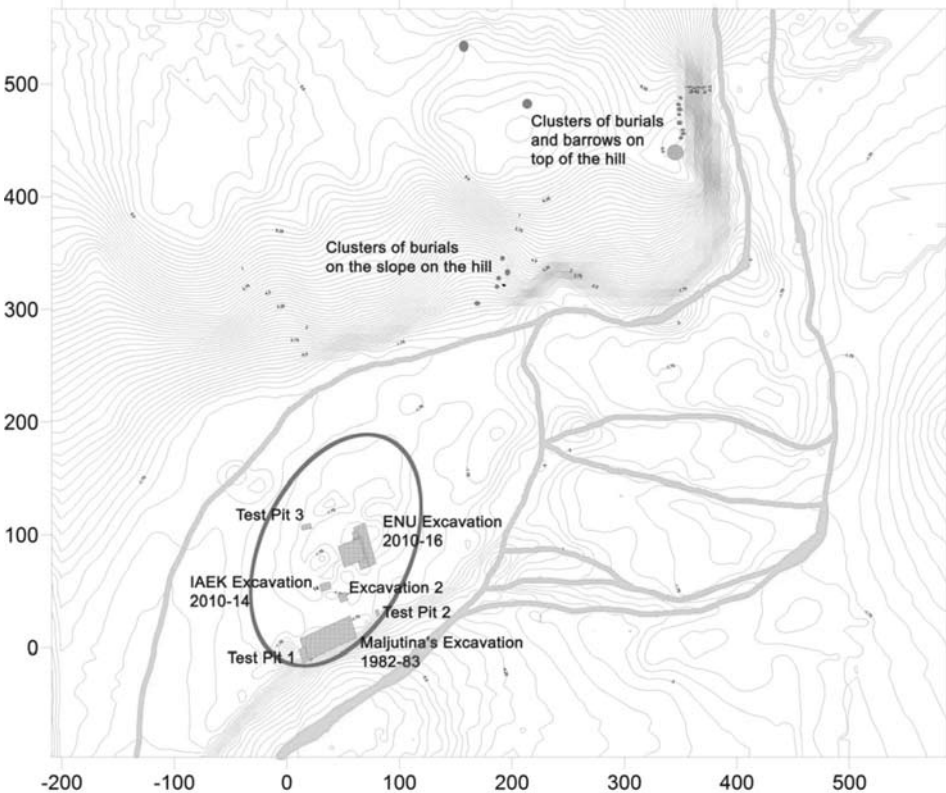


Figure 1: Topographic plan of the Shagalaly River valley

Most likely beginning in the Bronze Age, the process of nomadisation peaked in the early Iron Age (Arikan 2014; Finkelstein 1992). Parallel to this, domestic crafts developed, for example, pottery on the territory of the settlement (Sakenov 2015). Around the main pastoral economy, other crafts that met the needs of the pastoralists began to develop. The model of actions in the settlement also revealed the features of the social and economic structure of the community hinting at the existence of limited networks of

joint use and economic independence of households (Alberti 2017).

The Bronze Age Shagalaly II settlement (Figure 2) is situated 33 kilometres to the south-west of the Kokshetau town by the River Shagalaly (Chaglinka, previously) 1.85 km to the north of the Kenoktel village.

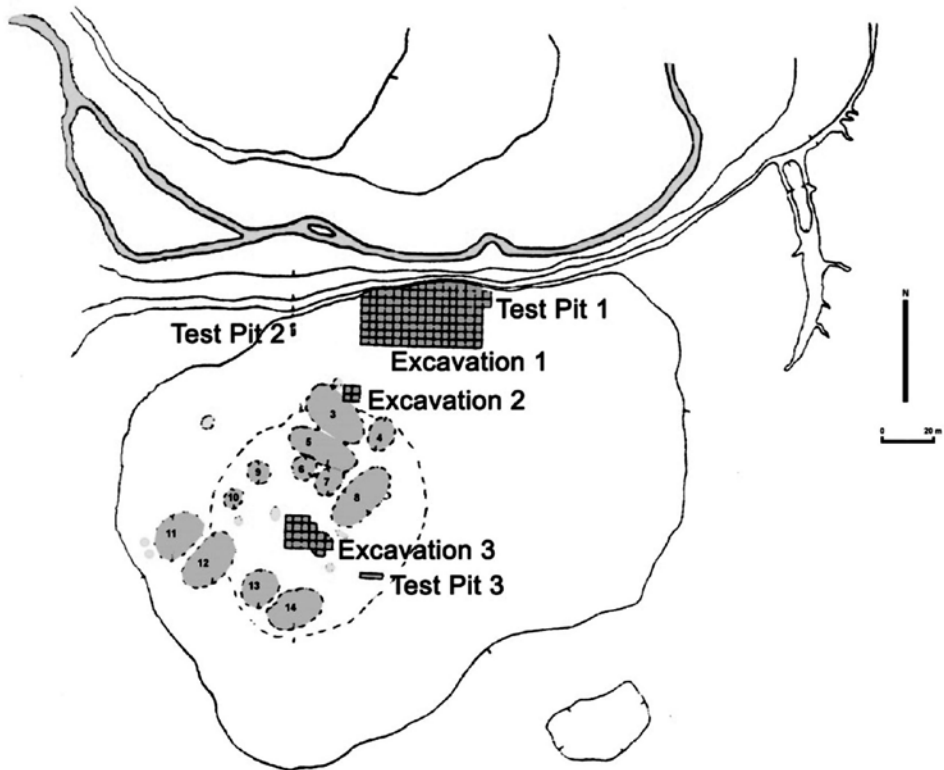


Figure 2: Topographical plan of the settlement of Shagalaly II

During the (field) seasons, sufficient supplies of archaeological sources were accumulating (Sakenov 2011). The materials of Shagalaly settlement allow us to discover significant problems of pristine archaeology in Kazakhstan. Currently, Shagalaly maintains a settlement where excavation is in process. This theme is based on the collected archaeological information. In the settlement, four dwellings and inter-dwelling space, a temporary habitation intended for shepherds, and one pottery workshop were explored (Figure 3).

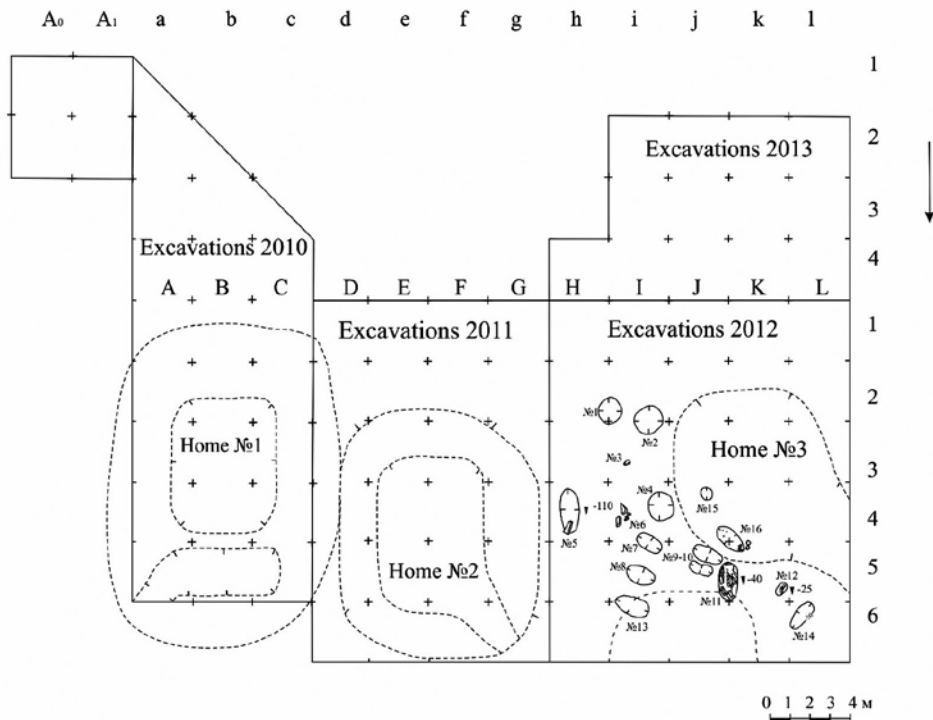


Figure 3: Plan for the excavation of the housing of the settlement of Chagalala II

Furthermore, considerable quantities of ceramics, common furniture, and osteological materials were collected. The archaeological materials interpret this work. Moreover, research is attached to the geographical and ecological situation of the region. The author's exploratory method explains some of the life-supporting systems during the Bronze Age in North Kazakhstan.

Description of the archaeological objects

Dwelling No. 1

The dwelling was set on the surface as foundation trench with a size of 7.20×5.60 m. The foundation trench had an oval form and was north-south oriented. During the process of excavation in the depth of 40 cm, the dwelling's contours were observed in the form of a numus spot. In the north-east corner, there was an entrance with the width of 1.60 m and the length of 2.20 m. From this scale, there was a heavy layer of ash along the perimeter. A considerable quantity of ceramic fragments and other household items have been found in the ashy filling. As excavation progressed, it became clear that this single-chamber dwelling had an angle entrance. The dwelling's bottom cleared at a depth of 0.80-1.0 m. In the centre of the dwelling were two rows of pillar hollows parallel to each other. Along

the walls of the foundation trench, every 1.2-1.5 m, were fixed pits in the form of carcass construction. Some of the charred wooden plaques were positioned along the walls of the dwelling. Another direction of the wood was from the walls radially to the centre. Along the walls, horizontally lying logs remained, enabling demarcation of the borders of the tambour entrance. The presence of the door was evidenced by the two pillar pits preserved before the entrance, with 1 m between them.

Dwelling No. 2

The dwelling was settled on the surface as a foundation trench and was aligned north-south (length 7.5 m, width 5.4 m). Along the excavation on the surface, there was a shaft with the width of 2.1 m and an entrance in the north-west (3 m × 2.1 m). During the excavation at the depth 0.3 m, the dark rectangular housing spot was fixed. After cleaning at a level of 0.9 m, a pillar frame construction was revealed and was quite well 'canned' with charred wooden plaques lying along the walls. In the central part of the dwelling, an oval ash spot had been cleared; probably it was a hotbed of open form evidenced by the calcined earth around it (thickness of the layer: 0.3 m). Next to the hotbed, a stone chime measuring 0.2 × 0.3 m with a treated surface was found. The hearth was closer to the eastern wall and was inscribed in an inner squat structure composed of four vertically buried pillars. The function of this structure was to hold the dwelling's roof and, at the same time, it was a chimney. When the ash was cleared in the outbreak, fragments of ceramics and a vessel in the form of a goblet were found. The stratigraphy of this dwelling was slightly different from the previous one: two construction horizons were traced. In the first case, this dwelling is a semi-dugout with a tambour entrance, a carcass-columned type with the living area of 40m². The artefacts were found along the wall from the outside in the solitary layer. The upper stratigraphic layer showed that at a later date the dwelling was cleaned and repaired, evidenced by the remains of additional pits in the corners. In the inner part of the cultural layer, fragments of ceramics dating to later than in the first layer were found.

Dwelling No. 3

The dwelling on the surface was found as a hollow and was situated 10 m on the west of the second dwelling, practically in the same row. The housing hollow of the oval shape is oriented from the north to the south with the size 8.5 × 8 m. In the north-western part was a long passage in the form of a small depression. When clearing was at the depth 0.3 m, the outlines of the dwelling were visible as well as the outbuildings. The bottom of the dwelling had been cleared to the level of 0.8 m. The dwelling had a rectangular form of 6 × 4.5 m; it was a single-chamber building with a total area of 27 m². Along the south and east, walls were well-preserved charred columns. In some places, transverse columns that were directed to the wall structures and to the central part of the dwelling could be observed. On the trampled floor, all the contours of the dwelling and a long passage were cleaned. The passage had a common wall with a living room (western wall). The total length of the entrance was fixed due to the parallel pit remains. At the entrance were fixed two columns' pits, different from others in their diameter; in some parts, they were forti-

fied with stones. In the central part of the dwelling, there was a small depression in the floor with traces of soot surrounded by several stones. This is most likely an open source, as evidenced by ceramic fragments, osteological materials and stones with traces of soot. Archaeological materials in a small amount descended from the cultural layer inside the dwelling, but mostly they were found outside of it, in the inter-dwelling space. On the south side, the remains of an economic structure that does not belong to Dwelling No. 3 are well traced, but belong to another dwelling. Outside house No. 3, in the southeast corner, two wells were discovered.

Well No. 1 had a diameter of 115 cm and a depth of 190 cm. It was full of sand mixed with a yellow-brown loam. In the filling, there were many ceramic fragments and bones. At the bottom were found fragments of the flat stone slabs. Well No. 2 had a diameter of 1.40 m and depth of 2.10 m. The stratigraphy was different: the first layer is humified with a thickness of 0.35 m, followed by an ash-coloured layer; then, these layers alternated, and a gravelly layer was closer to the bottom. In the filling, there was a large quantity of ceramic fragments, bones, and cattle horns.

Dwelling No. 4

This dwelling was situated 15 metres to the south of Dwelling No. 3. It was fixed on the surface in the form of an oval hollow and not of great depth. The research was carried out via the method of continuous dissection. A 15 × 12 m-wide excavation covered the entire depression. During the process of excavation, at the depth 0.20 m, a round spot was fixed as a humus layer. On the south-eastern side, there was an entrance in the form of a dark strip, which led to another depression. During the cleaning of the dwelling, many fragments of 'roller' ceramics were found. In some parts, by the borders of the walls, stone slabs were found. Previously, these stones were considered to be supports. In the central part, at a depth of 0.40 m, a cluster of round-shaped stones with a diameter of about a metre was found. One difference from previous dwellings was an absence of charred logs and pits. The entrance to the dwelling was discovered due to the trampled floor; it was on the east side and turned L-shaped northward, towards the river. Regardless of the architectural features of all the houses, the entrances were directed towards the river. In the field season of 2016 on the territory of the Shagalaly II metallurgist settlement, archaeological research continued. The object of the research was a cavity measuring 16 × 7 m. The oval hollow with a depth of 0.3 m was found near surrounding swells with widths of 1.5-2.0 m.

Dwelling No. 5

This was defined as a temporary dwelling for shepherds; it was between parallel streets. The dimension of the excavation was 9 × 18 m and had a completely covered hollow and swells surrounding it. After removing the turf of the earth at the level of 0.20 m, a cluster of the stone slabs was recorded in the central part. After cleaning at the level of 0.40 m, a rectangular spot was observed as a humus layer. The rectangular spot was oriented from the south-west to north-east, with a length of 12 m and width of 8 m. In the central part of the building at a depth of 0.40-0.55 m, a cluster of stone slabs was discovered; they had

different sizes: the biggest flat plate was 0.50×0.75 m. Next to the north wall, two ash stains with traces of soot were fixed. Circular ash spots of diameters of 1.5 m were arranged in a row. The edges of the ash stains were fixed to some square-shaped stones. Out of the buildings, on the mechanical side, a layer of ash which was mixed with charred wood was discovered. In the central part of the opposite wall, clusters of stone slabs of different sizes and along the wall of the charred parallel and perpendicular logs were also found. Usually, ceramic materials in large quantity come from the ash layer, in a small number from the internal part of the building. It should be noted that except the ceramic fragments in the object, nothing else was discovered. The location of the ceramics should also be considered. Mainly, they are found in the ash pan, and it is difficult to confidently correlate them with the studied object. For interpretation, the given object must be approached from three positions. According to the purpose of this study, the life support system of the ancient population in the valley of the Shagalaly River was examined.

To reveal the problems of the life support, it was first necessary to investigate the dwelling. Defining the object under investigation as a dwelling was very difficult. Firstly, the object was located in the space between the parallel streets along which the home was investigated. The building stood out from the general architectural ensemble and was not located in a row with the dwellings described above. Secondly, the remains of the construction did not allow reconstructing the whole building because in the central part columnar pits and remnants of the transverse structures were not detected, and the maximum depth was only 1.5 m. Thirdly, in the inner part, traces of hearths were not found except for two ash stains along the northern wall, but it was difficult to interpret them as the hearth of an open type. Fourthly, there were a small number of the artefacts that may not be associated with the building, which was interpreted as a temporary dwelling for shepherds which differed from the stationary housing. The emergence of this type of dwelling in the Shagalaly II settlement in the late Bronze Age is evidence of the processes of change management.

Historical and cultural interpretation of the buildings

For a more precise definition of the excavation's buildings, it is necessary to clearly grasp the construction horizons. The cultural layer has a highly complex stratigraphy; the strata are superimposed on each other. Because of careful archaeological analysis, several cultural layers of the settlement have been determined.

For scientific interpretation of the objects found during archaeological excavations of recent years, a number of important issues were raised: an adaptation of the ancient population to the local landscape; how the ecological niche of the studied area was provided by the economic growth of the population; the main economic activities provided livelihoods for the population that was inhabiting the territory of the Shagalaly II settlement at the micro and macro levels; issues related to risk (in the agricultural and pastoral economy); communication with the local and regional groups in other regions, etc.

Effectively addressing the issues must be based on the following principles: geographical space, ecological niche and socio-economic interactions in space and time.

At this point, the following provision can be stated: the settlement was inhabited in the early Alakul time.

Adaptation of the first groups in the Alakul time was between 17th and 15th centuries BC. The dwellings were laid out according to a linear principle (the streets). Dwellings were recessed up to one metre into and had long corridor entrances. A heavy layer of ash around dwellings and hearths in the centre of the house gives evidence of all-season habitation. The walls could have been insulated with clay plaster and ash. Integrated farming allowed the ancient populations of Shagalaly II to minimise the risks. The archaeological materials and scientific tests confirmed the development (Akishev & Baipakov 1979) of hoe agriculture (Bonora & Sakenov 2014). Osteological materials indicated cattle-breeding. Species composition of animals in the early stages in the herd was dominated by cattle, followed by sheep and goats.

The full reconstruction of the livelihood of the ancient population cannot be established since there are no traces of animal housing (pens) and no evidence of agri-industry (harvesting winter fodder). In this regard, to solve these problems, this article proposes the following concepts. Based on the accumulated materials of the Shagalaly II settlement, it is necessary to introduce the concept of “mobile community” and to subdivide it into categories. The early population of the Shagalaly II settlement should be defined as mobile community category 5, for which it is necessary to comply to the following criteria: the population density in the settlement; stationary dwellings, huts intended for living in winter in the conditions of the paleoclimate in North Kazakhstan; adaptation of the ancient population to the landscape and climate; the presence of protection from cold (central hearths, an ash presence in the dwellings, long corridors); the agricultural economy in the region is primarily hoe farming; cattle with the prevalence of herds of cattle; the ceramic complex, the pots with ledges, flat-bottomed mainly designed for cooking products of the agricultural sector; collective graves near the village of patriarchal relations; the cult of the cattle (ritual manipulation).

In the early Bronze Age (17th-16th century BC) the settlements were characterised by denser buildings, for example, the settlement Vishnevka (Seibert 1973), Kulevi III (Vinogradov 1983), Novonikol'skoe I (Zdanovich 1973), Petrovka II (Zdanovich 1984). The initial development of Shagalaly II had dense rows of dwellings; such designs are characteristic of less mobile groups.

The architectural features of the dwellings, which were well hidden in the natural landscape, allowed people to dwell there in all seasons. The dwellings oriented for permanent residence are evidenced by hearths, and thick layers of ash found around the house. Agriculture, which was mainly dominated by hoe farming, contributed to the landscape. The Shagalaly River often overflowed, and the nearby areas of fertile soil were easily treated with stone hoes. Land cultivation required a considerable amount of human resources. Most likely the land was cultivated by patriarchal families. The characteristic for that period was the collective graves enclosed by stone walls. Agriculture in the researched geographical region was related to risk management. In the herd was dominating cattle, as evidenced by the osteological materials from the settlement Shagalaly II. The ceramic complex of the early horizon was destined mainly for agriculture products and livestock.

Due to the detailed archaeological research of the space between Dwellings No. 2 and No. 3, a ritual burial site of a teenager was discovered. It was found in a shallow dirt grave in a crouched position on the left side and covered with a stone slab. Grave goods consisted only of two small vessels. There was no doubt that this single burial was a ritual building sacrifice, as it was not cut in the cultural layer and was well-planned and determined together with the plans of the houses.

One can note that ritual ceremonies, sacrificial rituals associated with the construction of houses of the period under study, are well presented in the works of Kuzmina (1986). The following archaeological evidence was found next to the walls of the houses and walkways: bones of infants laid in a shallow pit and put on top of pots; vessels with a sharp ledge and zonal geometric patterns characteristic of the early Alakul time. Children's burials in the settlements (Faizullin 2012) and in inter-dwelling spaces were widely distributed in the Petrovsko-Alakul period (Sotnikov 2015). Thus, the inhabitants of the first building horizon in the Shagalaly II settlement were less mobile, and business activity was focused on agriculture, which required stationary locations.

The risks of farming on the natural landscape were alleviated by the cattle ranch. Cattle grazed around the settlements. The chosen strategy of life support allowed the ancient inhabitants of settlements to ensure stable economic growth. The completion of this period in the settlement was evidenced by fire. The settlement was completely burned; this fact was recorded in the form of well-preserved charred trees. An interesting ritual should be noted: after the fire, the first inhabitants left the settlement. However, in the entrance corridor of Dwelling No. 1, two entire vessels were intentionally placed upside down next to the bones of a sacrificial animal (skull, ribs and limbs of cattle).

The second construction had a rectangular ground and the column-frame design of a home. Furthermore, a number of farm buildings were in the inter-dwelling space tightly adjacent to the dwellings. This period can be attributed to Dwelling No. 3 and materials found in the inter-dwelling space. This period tends to be called the Nurinsko-Fedorov stage (15th-13th century BC); it coincided with climate change (Carbonell 2010). In the northern region, the summer climate became drier and the winters colder.

The population that began to explore the territory of the Shagalaly settlement in the Nurinsko-Fedorov period must be classified as a category 4 mobile community. For this category, it is necessary to develop the following criteria: low-density settlements; dwellings were column-frame ground type; adaptation of the ancient population to the landscape and climate; the presence of farm buildings around the dwellings (household pits for food storage, wells for water supply); distant-pasture cattle-breeding economy; the predominance of small ruminants and horses; individual burial mounds; external trade relations; using bones of horses in various ritual actions (the cult of the horse).

Climate change was reflected in the materials of the Shagalaly II settlement. The Shagalaly River in early Alakul time was deep and flowed in two streams through the village (Bonora & Sakenov 2014). In the xerothermic period water, receded from the banks. The inhabitants of the Shagalaly II settlement began to build houses of rectangular shape along the bank, closer to the water. These dwellings were well researched by Malyutina (1987). The adaptation of people is much different compared to the previous period. Dwellings were

not adapted to all-season living. Archaeological studies indicated a small number of ash pits in the centre of the home; there were traces of fires, but they were not associated with heating. The analysis of the architectural characteristics of the ground structures showed that the walls were not insulated. The farming was oriented to the changed natural and climatic conditions. The main type of farming was cattle-breeding. Adaptation to the ecology was reflected in the selection of the species composition of livestock. In the composition, small cattle and horses began prevailing. The main products were meat, milk, skins, etc. The strategy of farming changed; the cattlemen could live in the settlement until the onset of winter, after which they were heading south together with the herd.

With the materials of the Shagalaly II settlement, it is possible to understand the historical processes that took place in the Bronze Age. At first, when the integrated economy (agriculture, animal husbandry, metallurgy, etc.) of the Alakul people was at the peak of its development, pastoral Nurino-Fedorov tribes inhabited peripheral zones. However, the breeders were better suited to the process of changing climatic conditions and the landscape. With cattle products, they could not ensure stable economic growth. They were mobile this as is evidenced by the numerous archaeological monuments in the cultural layer, which can be traced to their pottery. Owing to this mobility, they penetrated deeper into the Alakul environment in the southern Urals, the northern reaches of West Siberia, master new pastures of the Tien-Shan and the Pamirs.

On the territory of the Shagalaly II settlement, as mentioned above, the presence of farm buildings was confirmed. Inside these structures, there were a number of pits, in which the products of agriculture were stored. In such natural and climatic conditions, tribes of the so-called nurinals (Nurinsk archaeological culture) did not engage in agriculture.

The strategy of managing economic risks associated with cattle breeding was chosen differently. Diversification of the economy was through exchanging and trading. The main monetary unit for nurinals was cattle, and cattle-breeding products were exchange subjects. This explains the large amount of easel pottery found in the cultural layer of the Shagalaly settlement. Cattle required more space, which is why people were likely moving cattle and thus created a routine North-South network direction. All these routes were confined to the banks of rivers. There is a possibility that, at first, they could act as intermediaries between the Alakul tribes and other tribes.

Considering paleo-economic issues, social changes in society cannot be neglected. Groups of herdsmen were engaged in animal husbandry. If stationary agricultural farms and human resources were managed by the patron, the head of a large family, charismatic men who could lead people. This was clearly shown by individual burial mounds. Even the word *shepherd*, in Indo-European and subsequently in various languages, came to mean the Lord, the King and even God (Kuzmina 1986).

The seasonal movement of the Nurin-Fedorov tribes was reflected in the materials of the dwellings; the Shagalaly dwellings were repeatedly repaired with additional props and corner posts. Until the autumn, they were on the northern borders with the herds; by this time the youngsters had become stronger and the cattle “worked up” fat. Participation in trade and economic relations with the agriculturists and artisans gave the pastoralists alternative sources of income, i.e. the diversification of livelihood’s sources and minimising

risks. At the same time, economic integration could also increase the risk for pastoralists who depended on the fluctuations of prices on the market, which is potentially disastrous in combination with natural risks. As mentioned, the herd was also focused on overcoming large distances as well as cold resistance. A faithful companion of a shepherd was his horse. Zalkin (1972), studying Andronovo settlements and the graves of horses, found that the horses were grazing in the vast steppes and high mountains and that there were three different breeds.

The cult of the horse was present in the funeral-burial rites of nurinals. For example, on the territory of Shagalaly II to the south of Dwelling No. 1, an accumulation of the stones with a diameter of 3 m and a height of 0.5 m was studied. Under the stones was discovered the skull of a horse and a large part of Nura ceramic. Skulls of horses were found in shallow pits, in the space between Dwellings No. 2 and No. 3.

To summarise: due to mobility, the proper selection of risk management, and the diversification of the economy, Nura-Fedorov tribes expanded the territory and ensured a stable food supply. This is a temporary dwelling of nomadic pastoralist-herders. In the late Bronze Age (13th-11th century BC) on the territory of the settlements, terrestrial seasonal dwellings of rectangular and round shapes appeared. They were likely portable, as the pit depths were only 0.2–0.3 m in the cultural layer. In these layers, pottery characteristic of the late Bronze Age in its purest form was found. In the central part of the stonework was a hearth, evidenced by the traces of soot on the stones. Moreover, the functional construction of temporary dwellings of the shepherds had a rectangular shape with slight temporary (seasonal) building where shepherds could rest, and take meals in the spring and summer. The interior was rather primitive, in the centre were placed a few flat stone slabs carrying out the functions of a table and chairs. The third building settlement showed complex changes. This population was defined as mobile community category 3. The main activity remained cattle breeding, but the form of economic diversification was changing. Among shepherds, there were groups headed by a charismatic personality who had the function of control over the finding of ore and distributing it in the markets.

The market price of the metal and of horses in settled agricultural oases and urban centres determined the aggressive nature of these groups isolated from the society of shepherds. Moreover, how else can the appearance of unusual burials on the territory of the Shagalaly II settlement be explained? On the territory around the houses, graves were found; burial rites were not typical, but completely different. For burial, existing tombs were used, in which in the pre-eminent stages people were buried. The other tribes came, used ready-made stone funeral chambers or cleared grave pits, simply shifting the skeleton of the early buried to the side. In some burial pits, half the skeleton was found, while in other pits several skulls, etc. were found.

Conclusions

Dozens of settlements of the Bronze Age were recorded on the territory of Northern Kazakhstan, of which Shagalaly II is a large and explored settlement. This research has provided the opportunity to understand changes in the economic activities of the ancient residents.

Their economic activities were primarily related to changes in climatic conditions and adaptation to the landscape. In the course of the study, the authors of this paper have attempted to develop criteria for each period and the process of these or other changes based on an archaeological source. Studies have shown that in the first half of the 2nd millennium BC, ancient people could have lived in stationary dwellings, adapting their homes to the cold seasons. Of course, this required large amounts of human and natural resources.

For centuries, ancient inhabitants developed the economy; there were processes of optimisation and rationalisation of the use of natural resources. A study of the evolution of housing construction shows that in harsh climatic conditions stationary living was not justified: the mobility of society proved to be more effective. For a long time, mobile cattle breeding remained the main business and other economy types developed for a more stable economy. By the middle of the 2nd millennium BC, mobile cattle breeders had expanded their habitat, mastering all new lands. Mobile cattle breeders created a large network of settlements, mainly confined to the shores of steppe rivers and to ore deposits. Owing to their mobility, they entered into close trade and economic relations with ancient agricultural centres. According to the materials of the Shagalaly II settlement, it is certain that cultural innovations were rapidly spread through these networks created by mobile cattlemen.

In the economy, the main commodities were livestock and metal. The niche, in this case, is the steppe zone of Kazakhstan, which was occupied by mobile cattlemen. At the same time, they played a communicative role linking numerous tribes of the Bronze Age in Eurasia. In conclusion, it can be stated that the archaeological materials of the Shagalaly settlement allow the researchers to make a large chronological slice. Individual architectural features of homes and buildings, clothing material, burial complexes provide an opportunity to reconstruct the economy, to determine the changing of life support systems for ancient population, and to identify causes and trends of certain changes.

Only because of well-documented archaeological materials on the example of the Shagalaly II settlement can we confidently reconstruct the historical picture of the world in the valley of the Shagalaly River.

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Povzetek

Namen študije je podajanje teoretskega opisa sistemov za zagotavljanje bivanja v populaciji severnega Kazahstana v bronasti dobi. Teoretski zaključki temeljijo na arheoloških virih ob vhodu nahajališča naselbine Shagalaly II. Avtor podaja preliminarno rekonstrukcijo sistemov za zagotavljanje bivanja v starodavni populaciji, zaradi katerih je področje doline reke Shagalaly postalo primerno za bivanje. Vprašanje kronologije gradnje horizontov naselbine Shagalaly II ostaja nerazrešeno, avtor pa za vsako kronološko obdobje predlaga koncept "mobilnih skupnosti", ki so razdeljene v različne kategorije. Pomemben del raziskave je bilo tudi pručevanje diverzifikacije ekonomije, torej sprememb, ki so vplivale na ekološko stanje regije.

KLJUČNE BESEDE: ekološko stanje, geografsko področje, ekonomska diverzifikacija, mobilna skupnost

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