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### **Development of cattle breeding in Kazakhstan in the Bronze Age**

Becoming an independent state and development of new national identity in Kazakhstan caused an increase of interest for the past, the necessity to learn about historical processes that took place on a huge territory of our country. Present article gives an account of the origin of cattle breeding and the influence of climatic changes on the development of Andronian household and also on the identification of regional peculiarities in the household extension. As well it describes the meaning of the contribution of the Bronze Age achievements in the sense of formation of a new mode of life among the Andronian population — nomad cattle breeding. Having appeared originally as one of the major parts of mixed economy, later cattle breeding served as driving force for the number of the most important phenomena in the history of society.

*Keywords:* the Bronze Age, cattle breeding, farming, Begazy-dandybay population, culture, past.

The problems of the origin and development of forms of cattle breeding and, in particular, horse breeding in the steppes of Eurasia are far from their final solution. However, the materials suggest the ways of solving these problems, based on the data of the source study and theoretical basis. The historiography of issues of domestication of horses and roles in the economic structures of societies is quite extensive.

The researcher of the history of primitive society and ethnographers try to solve these problems through the systematization of ethnographic observations and logical constructions of various literary data from a vast region of the planet. These works are valuable from the standpoint of the history of socialization process of animal domestication. In this respect, first of all, the investigations of V.A. Shnirelman are of interest. In the book «The Origin of Livestock» and other works, he analyzes almost all the main foreign and domestic literature on cultural and historical problems of domestication of animals [1].

The archeologists also deal with problems of domestication of animals. The very specific nature of archaeological science presupposes an integrated approach to the solution of these questions. The systematization and interpretation of osteological materials in the biological, archaeological and historical contexts allows us to find conditional contradictions.

The complex economy that was formed on the territory of Kazakhstan in the Bronze Age included a number of industries that serve the needs of Andronian tribes. Despite the fact that these sectors organically fit into the economical structure of the local ancient population and constituted a single indivisible whole, the significance of each of them in the life of the people of the Bronze Age was not the same. The degree of significance, importance of each of the branches of the Andronian economy determines the structure of this chapter, which, as it were, is divided into two blocks. The industries directly providing population with food products are considered, and therefore are the most important in the structure of the economy. First and foremost, this is cattle breeding, which is the main occupation of the Andronian people, then farming, which plays a secondary role, and closes the first block of appropriating forms of farming - hunting, fishing and gathering.

A cattle breeding appears in Kazakhstan in the III century BC in the Botay culture of horse breeders, but at the turn of the III-II century BC as a result of the environmental, ethnic and social factors, the Botay economic and cultural type collapses, the ethnos disintegrates, and the productive forces are degraded. People move from lakes to river valleys and reorient their economy to appropriating forms — hunting and fishing. It is believed that the population remains a small number of livestock.

Analysis of paleosol and paleobotanical data, topography of settlements, and species composition of animals showed that the early Bronze Age was characterized by increased moisture content, lake basins were flooded in the steppes and semi-deserts. The process of swamp formation began in the pine forests of Pritobolye and Kokchetau highland. The boundaries of the landscapes were shifted to the south by 1–2 sub-zones. All this gives grounds for reconstructing forest-steppe conditions throughout Northern Kazakhstan, including the northern edge of the Kazakh hilly area. The abundance of water and a good juicy herbage created good conditions for the development of domestic animals, especially cattle.

In the early Bronze Age — at the beginning of the II century BC the Pit-Comb cultural area, leaving the base in the taiga regions of the Pritobolye, went far to the south in the Ishim-Irtysh forest-steppe. Such settlements as Sergeevka, Vishnevka I, Roshinskoe, Balandino and the downstream Ishim Kokui II, Odino, Loginovo VI, Likhachevskoye, Kai-Karagai, Malyshevskoye and a number of others similar to pottery with Kazakhstan are dated from this time. «Thus, the range of the closest similarity, obviously of an ethno-cultural order, is outlined» [2]. Perhaps part of the Botay population entered this new ethno-cultural education. But, nevertheless, the population of the early Bronze Age formed a completely different composition of the herd. Osteological materials show that this composition included large and small cattle, a horse, and the bones of a camel were also found in the settlement of Balandino. The remains of the dog were noted in all the Kazakh settlements. In general, the pre-andronian period of cattle breeding is characterized by the presence of a small number of remainders of small and large cattle with a significant predominance of horse remains.

Analysis of bone materials from the settlement of Sergeevka showed that the basis of its life support was a horse. Moreover, the reconstruction of the age composition of slaughtered animals showed that it was: young (up to 1.5 years) — 7 %; semi-mature (1.5–3.5 years) — 16 %; mature (5–15) — 31 %; old (more than 15 years) — 8 %. A large number of young and semi-mature individuals (in the amount of 61 %) indicate the predominant use of the horse as a source of meat. It is rather characteristic that «according to the size of bones, the horse from the settlement of Sergeevka is unique and it is impossible to bring it closer to the horse of Botay or the settlements of late Bronze» [3]. According to the primary use in the horse's food, the way of life and economy of the population of Sergeevka was closer to the Botay type, but unlike it there were already large and small cattle.

Studies of the North Kazakhstan archaeological expedition headed by V.F. Seibert, a farming enterprise in the territory of Kazakhstan, first appears in the era of the Eneolithic tribes of the Botay culture. Undoubtedly the dominant form of farming was horse breeding. The Botay economic-cultural type that emerged in favorable climatic conditions and based on horse breeding, with the onset of an ecological crisis, was declining and dying.

It was the latest discoveries of the last 20 years in the Dnieper, Volga, Ural, Kazakhstan (Vasiliev, Danilenko, Seibert, Logvin, Matiushin, Telegin), in the steppe zone of Eurasia, that allow substantively, based on a huge factual base, taking into account the natural ecological situation and paleoclimatic dynamics, to propose specific models for the emergence and development of cattle breeding, in the system of diversified farming of appropriating and producing types.

In the Bronze Age, a fundamentally different — multisectoral type of farming was formed on the territory of Kazakhstan, the basis of which was homestead pastoral herding, agriculture and metallurgy. The need for the formation of this type of economy was determined by two factors: 1) the diversity of the climatic and landscape conditions of Kazakhstan; 2) the variability of the natural and climatic conditions over time, and as a consequence of the above-mentioned reasons, this type should have met the criterion of adaptive lability. As M.F. Kossarev noted, the significance of the multisectoral type of economy does not consist in the fact that various basic branches were represented in it, but that this type allowed the population of the Bronze Age to survive in changing conditions (natural and climatic and social), increasing or decreasing the share of one or another branch, depending on various kinds of circumstances, in sphere of maintenance of the ability to live. In the light of this, it is interesting to see what changes took place in the cattle breeding and agriculture of the Andronian people throughout the entire Bronze Age of Kazakhstan.

The Bronze Age is a period of the final approval of producing economy — livestock and agriculture. In a complex, this gives a higher level of economic, social and cultural development of the Bronze Age population.

The economy of the population of the Central Kazakhstan in the late Bronze Age was characterized by the researchers of this era M.P. Gryaznov and A.Kh. Margulan as seminomadic. With this form of cattle breeding pastures are divided into winter and summer, or in winter cattle is in confinement in the village, and in summer it is driven off to the summer pasture [4]. K.A. Akishev considered the late Bronze Age to be «the initial stage of the spread of nomadism on the territory of Kazakhstan» [5]. It should be noted that such conclusions were made on the basis of an analysis of small osteological collections that often occurred from stratigraphically complex settlements.

In the last decade, the source study of the paleoeconomy of the Bronze Age has been significantly increased, which allows us again addressing the problem of the reconstruction of the type of cattle breeding.

Osteological material is the most representative one because of its massiveness. Table 1 shows the results of the determination of bone residues from eight settlements that reflect the percentage of bones by the species of domestic animals.

When reconstructing the actual composition of the herd, it must be taken into account that the bone material obtained is somewhat smaller than the actual number of animal bones that went to people's needs. Some part of the bones was burned, taken away by dogs, used to make tools and various handicrafts. A certain amount of meat was eaten outside the village, for example, on the way, at funeral feasts. Moreover, when reconstructing the actual composition of the herd, the dilemma invariably confronts the researcher: whether to use in the calculations the total number of bone residues or the minimum number of individuals, which is determined by the largest number of the same-named bones of the given species. T.M. Potemkina used in the calculations the average indicator, i.e. the arithmetic mean between the percentage of the species by the number of bones and the percentage by the minimum number of individuals. The most representative collection of bones comes from the settlement of Kent.

Begazy-Dandybayev population bred four kinds of domestic animals: cattle, small cattle, horse and dog. A.Kh. Margulan reports about finds of camel bones in the 2<sup>nd</sup> and 5<sup>th</sup> mausoleums of the Begazy burial ground. But in a single-layered settlements the camel bones were not met. The bones of this animal from the Atasu settlement do not have a specific stratigraphic reference. In the settlement of Kent, the bones of only one species of camel were found. Obviously, this species of domestic animals did not play a significant role in the economy of the Bronze Age.

The ratio of the number of animals in the herd in the settlements was not adequate. In the settlements of Buguly II, Shortandy-Bulak, Karkaraly II, Kent, Domalaktas, Dongal small cattle prevailed. In the settlements of Sargary and Kopa I the sheep is inferior respectively to the cow and horse.

The ratio of cattle and horses is not so unambiguous. The cow dominates in the settlements of Buguly II, Karkaraly II, Sargary, Domalaktas, Kent, Dongal. In Shortandy-Bulak and Kopa I horse's share is higher.

For the Begazy-Dandybayev population, the ability of animals to obtain food in winter conditions was very important. When completing a herd, preference was given to horses and sheep that could get food from under the snow and move when roaming for long distances. In all settlements the percentage of horses and sheep prevails. Unfortunately, it is difficult to trace the tendency in changing the composition of the herd during the middle and late periods of the Bronze Age of the Central Kazakhstan. Data on osteology of Alakul and Fedorov settlements in Saryarka are absent. T.M. Potemkina revealed a tendency towards a decrease in the share of cattle in the period of developed and late Bronze Age in the forest-steppe region of the Urals, the Southern Urals and the Northern Kazakhstan. It is likely that a similar phenomenon occurred in the steppes of the Kazakh hummocky terrain. The increase in the number of herds was primarily due to animals that did not require significant forages for winter.

Cattle, small cattle, horses were bred not only to get meat, hides and skins. The cattlemen of this time, no doubt, were familiar with milk and dairy products. K.V. Salnikov supposed Andronians of Trans-Urals to have dairy farming. This assumption was confirmed by the analysis of stable isotopes for lipid residues in ceramics of Kent settlement. The analysis was conducted at the University of Bristol, England. It was found that the vessels from Kent contained residues of food cooked from milk and meat of ruminants. Milk processing products were also known, because dairy food played a great role for cattlemen. Sheep milking was practiced; it is confirmed by ethnographic evidence. One of the important incentives for breeding small cattle was the production of sheepskin for sewing winter clothes and wool for making fabrics. Their slaughter had

a seasonal character, i.e. the overwhelming majority was cut in the beginning and at the end of summer, in June and September. The age of the animals was at this time from 11 to 17 months.

Cows in the settlement of Kent were kept for meat, milk and as draught animals. Cattle were slaughtered in winter, at the age of about 2 years.

Kent's horses possessed a rather slender constitution and slightly larger sizes than horses of earlier eras. Unfortunately, we do not have data on the seasonality of the slaughter of horses, but the majority of them died at the age of 3–5 years. Horses were used for transport purposes and partly for meat.

Cattle were bred to produce meat and dairy products, hides, skins, etc. Probably, the inhabitants of different ecological niches could have different forms of cattle farming - pastoral, semi-nomadic, nomadic or other.

By the definition of G.Ye. Markov, «the economic basis of nomadic cattle breeding (nomadism) is formed by extensive pastoral cattle breeding, in which breeding animals is the main occupation of the population, which provides for the main part of livelihood». It is important for us that there are no fundamental differences between the nomadic and semi-nomadic cattle breeding; the same socio-economic relations develop on their basis, and the semi-nomadic economy represents only one of the subtypes of nomadism.

The role of cattle in the herd increases in semi-settled cattlemen, and conversely, with the transition to nomadism, the proportion of horses, small cattle and camels increases. It would seem that a large percentage of cattle in the herd of ancient residents of Saryarka should demonstrate a high enough degree of settledness. It seems that when assessing the ratio of livestock species by archaeological materials, it is necessary to take into account the difference in time and place of slaughter of different species. The Kazakh had the autumn-winter slaughter of cattle [sogum] on the way to winter nomadic places, and for winter, mainly meat of cattle and horses was procured. Sheep were cut throughout the year as needed. It is likely that this rational rule was also observed by the ancient cattlemen, which explained the high proportion of bones of cattle in the settlements.

The composition of the herd with the predominance of horses and small cattle, characteristic of the nomads of the Eurasian steppes, was already formed in the late Bronze Age. The tendency to increase the number of animals capable of obtaining food from under the snow was stimulated by the general growth of the herds. This process, in its turn, led to the development of a system of alternation of pastures as they depleted, which contributed to the accumulation of the necessary experience in running a nomadic economy.

One of the factors of the transition from sedentary, cattle-breeding farming to nomadism was the climatic conditions. The opinion of a number of researchers on the decisive role of climate humidification, which led to the formation of the nomadic type of economy, is valid only in relation to the final rupture of the population with sedentary traditions on the eve of the early Iron Age. The increase in the size of the herds in arid climate conditions required the most frequent change of pastures and migrations. «The reduction of the forage base was to promote the mobility of cattle breeding».

The seminomadic form of cattle breeding shall be considered to be the most probable for the late Bronze period of Kazakhstan. The proposed model of the gradual formation of the economy of semi-nomadic cattlemen within the economic and cultural type of nomads of the Eurasian steppes is adequate to archaeological and ethnographic sources. But extending it to the whole range of the Begazy-Dandybaev culture would be premature. A high degree of adaptation to specific environmental conditions and possible differences in types of households of discrete population groups should be assumed.

Before the beginning of the II century BC only a horse was bred on the territory of Kazakhstan. In the early I century BC the transition to nomadic and semi-nomadic economy was realized. E. Khan suggested that one of the most important prerequisites for the transition to a nomadic economy was acquaintance with milk and its products. Many specialists link special types of vessels to the dairy industry, among which there are several types: for milking and storing milk (pots or milk jugs with a high neck and two handles), for churning (high large vessels with side holes), for making cheese (open bowls, the bottom and walls of which are studded with holes). Apparently, wooden vessels were used, but because of the fragility of the material they are not fixed. Vessels with holes at the bottom were encountered in the II century BC among Andronian people, and, according to K.V. Salnikova, they were used for dairy farming. All of the above suggests that the Andronian people mastered the milking of cows (among the Aryans it was recorded in the Rigveda in the second half of the II century BC) and the production of butter, cottage cheese and cheese from it. As mentioned above, except for milk, livestock was also used as a source of meat. For its preparation for future use special household pits were arranged. Dairy products were stored in the same way. The presence of oxen testifies to the spreading of the castration technique among Andronian people and the use of their muscular

strength - harnessing them to a plow and a wagon. The bull team spread long before the chariots and carts began to harness the horses. The bull preceded the horse and as a riding animal. The use of a horse in a chariot for riding was mentioned above. Domestication of a camel in Central Kazakhstan during the Bronze Age made it one of the main transport animals in the Betpak-Dala desert.

Sheep and goats, just like horses and cattle, were used as meat. However, finds of wool remains in Andronian burial grounds and the age of slaughtered sheep indicate the breeding of woolly sheep, which is also one of the prerequisites for the emergence of nomadism, since wool provided nomads with important raw materials for domestic production and served to exchange with neighboring farmers [6].

Bones also came into play. They were used as tools and ornaments. Deadlocks from the lower jaw of large animals served as tools for processing cordovan leather. The blades were used to rake the crushed ore. From the bone, spindles and ornaments of military armor, horse dress, as well as graceful plates decorated with fine carvings were made. Unsuitable for other purposes (or extra) bones were used as fuel. Animal skin could be widely used for the manufacture of various types of clothing, footwear, horse harness and other products.

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### Қазақстанда қола дәуірінде мал шаруашылығының дамуы

Мақалада тәуелсіздік алу және Қазақстандағы жаңа мемлекеттіліктің дамуы өткенге деген қызығушылықтың артуына, мемлекетіміздің ұлан-байтақ аумағында орын алған тарихи оқиғаларды білуге деген қажеттілікке әкелді. Авторлар шаруашылықтың дамуындағы аймақтық ерекшеліктерін, климат өзгерісінің андронов шаруашылығының дамуына әсерін және мал шаруашылығының пайда болуын сипаттаған. Сондай-ақ қола дәуірі жетістіктерінің Қазақстан халқының шаруашылық өміріндегі жаңа өмір-салтын қалыптастырудағы көшпелі мал шаруашылығының үлесі бағаланған. Бастапқыда көпқұрылымды экономиканың негізгі бөліктерінің бірі ретінде пайда болған мал шаруашылығы кейіннен қоғам тарихындағы бірқатар маңызды құбылыстардың қозғаушы күшіне айналды.

*Кілт сөздер:* қола дәуірі, мал шаруашылығы, ауыл шаруашылығы, бегазы-дандыбай мәдениеті, өткен, қозғаушы күш.

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### Развитие скотоводства в Казахстане в эпоху бронзы

В статье отмечено, что обретение независимости и развитие новой государственности в Казахстане обусловили повышение интереса к прошлому, потребность узнать о том, какие исторические процессы протекали на огромной территории нашего государства. В статье описаны происхождение скотоводства и влияние на развитие хозяйства андроновцев климатических изменений, выявлены региональные особенности в развитии хозяйства. Дана оценка значения вклада достижений эпохи бронзы в формирование нового уклада в хозяйственной жизни населения Казахстана — кочевого скотоводства. Возникнув первоначально как одно из основных частей многоукладной экономики, скотоводство в дальнейшем послужило движущим стимулом целого ряда важнейших явлений в истории общества.

*Ключевые слова:* бронзовый век, скотоводство, производящее хозяйство, Бегазы-дандыбаевское население, культура, прошлое.

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