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# BOTAI HORSE-BREEDERS VS YAMNAYA MIGRANTS: WHO WON?

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***Abstract***
**Aim.** The article is a brief review of the main historiographic tendencies and is devoted to the period of globalization in the Eurasian steppes – the period of formation and domination of the elite clans of the Eneolithic and Early Bronze Age.
**Methodology.** Based on the data of population genetics, radiocarbon dating and graphic sources, the author substantiates the model of population interaction in the Kazakh Steppe and Turkestan.
**Results.** On the basis of the well-known innovations of horse equipment, carts, and other means of transport and success in domestication of horses and horse-riding, the main vectors of communications of the population and general trends in the development of the ethnocultural situation in this period are considered.
**Research implications.** The noted factors and features of a complex model of communication and interaction of ancient societies in the steppe Eurasia, which at different stages of the historical process constantly demonstrate the inevitable hegemony or expansion of small, but progressive clans, that obtain advanced innovations and are subordinate to ethnic identity.

***Keywords:*** Migrations, Visual communications, Horse breeding, Yamnaya culture, Botay culture, Central Asian Rock Art

# БОТАЙСКИЕ КОНЕВОДЫ ПРОТИВ ЯМНЫХ ПЕРЕСЕЛЕНЦЕВ: КТО ПОБЕДИЛ?

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***Аннотация***
**Цель.** Статья представляет собой краткий обзор основных историографических тенденций и посвящена периоду начала глобализации в Евразийских степях – периоду формирования и доминирования элитных кланов в эпоху энеолита и раннего бронзового века.
**Процедура и методы.** Автор, опираясь на данные популяционной генетики, радиоуглеродные датировки и материалы изобразительных памятников, предлагает модель взаимодействия населения в Казахской степи и Туркестане.
**Результаты.** На основании известных инноваций в конском снаряжении и упряжи, в колёсном и ином наземном транспорте, успехов в приручении лошадей и верховой езде в статье рассмотрены основные векторы коммуникации населения и общие тенденции в развитии этнокультурной ситуации данного периода.
**Теоретическая и/или практическая значимость.** Отмечены основные факторы и особенности комплексной модели коммуникации и взаимодействия древних обществ степей Евразии, ко-

торые на разных этапах исторического развития демонстрируют неизбежную гегемонию или экспансию небольших, но весьма прогрессивных для своего времени кланов, обладающих передовыми инновациями и подчиненных этническому самосознанию.

***Ключевые слова:*** миграции, визуальные коммуникации, доместикация лошади, ямная культурно-историческая общность (область), ботайская культура, наскальное искусство Центральной Азии

## Introduction

The role of migration in the history of human civilization has always been very important. It is enough to recall how migrants globally changed the life of entire continents in North or South America, in Australia, how they are changing the foundations today in Europe, in the former post-Soviet space or during the Soviet era, when the «virgin epic» radically changed the Kazakh steppe. Obviously, similar historical phenomena took place in antiquity.

With regard to the ancient communities of the steppe livestock breeders of Eurasia, there is a specificity: in contrast to the classical scheme of exchanges and migrations, when a settled, farming-oriented society builds a geographically fixed map of its communications with other communities, then mobile, livestock-oriented communities form a mobile map such external, constantly changing communications, which is much more difficult to fix (fig. 1).

In the pre-literate period, any steppe archaeological culture (hereinafter – AC, author's note), in relation to mobile livestock breeders, is a rather arbitrary concept, an attribute of the professional vocabulary of archaeologists and reflects the originality of mass artifacts of material culture: ceramics and its ornamentation, handicrafts, weapons, hunting, funeral rites, characteristic of a certain territory (ecological niche).

In other words, any AC identified in the steppe regions, due to its natural limitations and the paucity of other types of information sources, captures only an insignificant part of the artifacts and data that have survived to this day in ancient graves and very rare settlements. As soon as we enter a new stage in the process of cognition – we are trying to reach the level of reconstruction of historical, social processes based on archaeological materials, or in this case – the reconstruction of the earliest channels of communication, the features of the processes of ethno- and cultural genesis, we inevitably encounter these natural limitations [25, pp. 17–18].

In the process of forming external communication channels, the object of the communication channel itself is of exceptional importance – that for which and on the basis of which this channel is created. As a rule, these are innovative items, technologies (traditions), objects that are created (born) on a monopoly basis either by society itself, or may be absent in the practical life of society or cannot be produced due to insufficiently developed knowledge, skills and lack of appropriate technologies and the necessary raw materials (fig. 2–4). In order to obtain such important goods and knowledge, already at the dawn of their existence, ancient communities builts exchange channels that were very significant in their length, even by modern standards.

This article is devoted to one of these migrations, which took place at the beginning and throughout 3rd mill. BCE. In the history of mankind, this was one of the first such long and large transcontinental migrations of Yamnaya (Pit's) breeders and other, probably genetically related clans (production groups) – that is, families of close relatives, Chemurchek, Catacomb appearance from the western limits of the steppe Eurasia to the east of the continent, which today is fixed by modern methods of archaeology, linguistics and population genetics.

## Materials and methods

The model of the constant confrontation between the nomadic world of the barbarians and the first Chinese and other settled

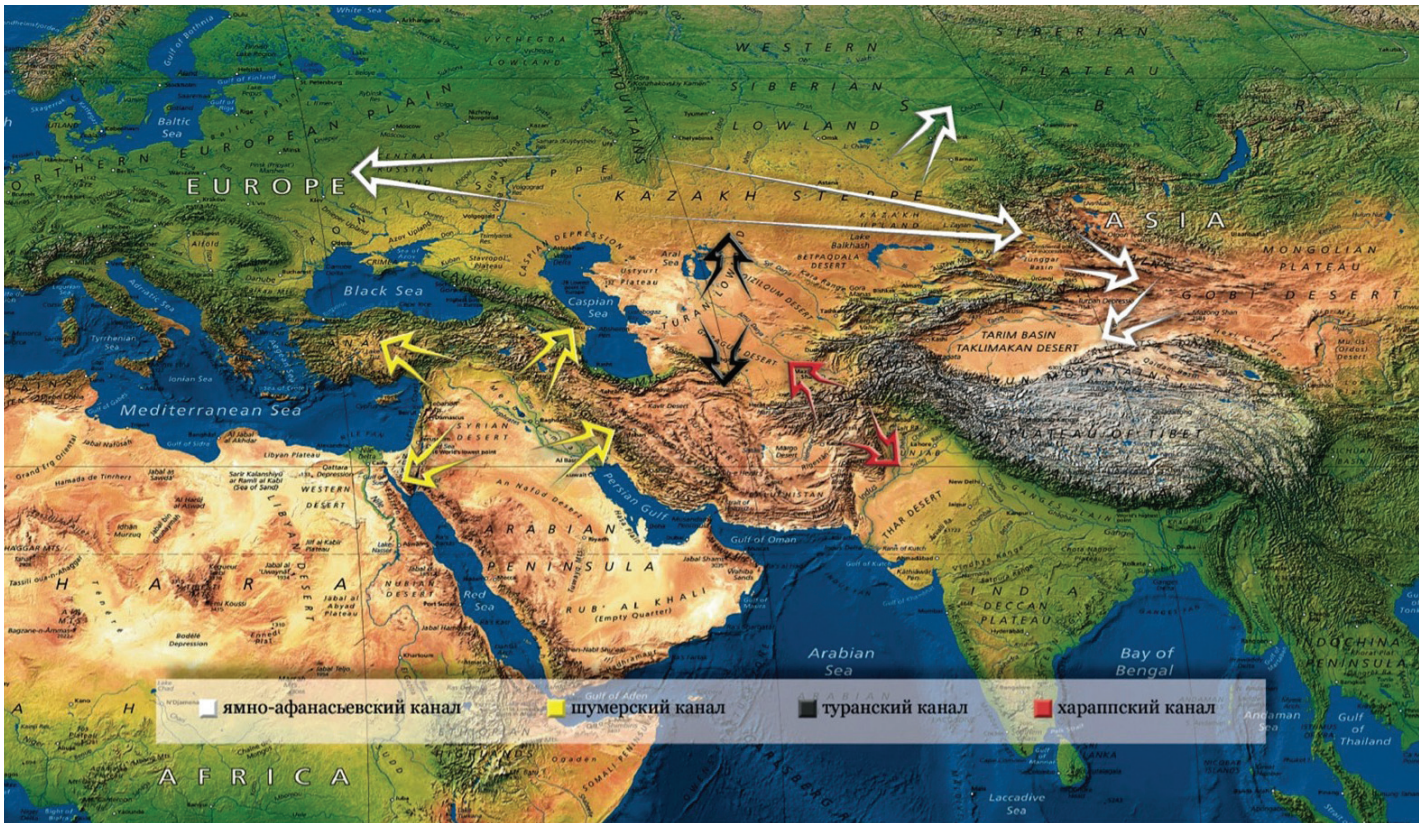


**Fig. 1 / Рис. 1.** Map of the main channels of communication on the Eurasian continent in the 3rd and the first half of the 2nd millennium BCE: transcontinental Yamnaya (Pit's)-Afanasievo migration (shown on the map in white) and large regional migrations: Sumerian – shown in yellow; Turanian – shown in black; Harappan – shown in red / Карта основных каналов коммуникации на Евразийском континенте в III и в первой половине II тыс. до н. э.: трансконтинентальная ямно-афанасьевская миграция (показана на карте белым цветом) и крупные региональные миграции: шумерская – показана желтым; туранская – показана чёрным; хараппская – показана красным

*The source:* compiled by V. A. Novozhenov

**Fig. 2 / Рис. 2.** Northern part of the Kazakh steppe. Petroglyphs of Akbidaik. A surface with embossed images of bull, horses, steppe antelopes, mountain sheeps. The technique of small-point embossing, carved contours and polishing of the rock's patina. The second half of the 3rd – the beginning of the 2nd millennium BCE / Северная часть Казахской степи. Петроглифы Акбидаик. Плоскость с выбитыми изображениями лошадей, быка, степных антилоп, горных баранов. Техника мелкоточечной выбивки, резные контуры и прошлифовка патины. Вторая половина III – начало II тыс. до н. э.

*The source:* photo by the author

States for a long time remained in historiography the only one explanatory concept of the interaction of peoples in Turkestan and Central Asia as a whole, interpreting such interaction exclusively from the standpoint of military expansion and robberies. In recent years, new materials and studies have led to a significant revision of this approach [27].

First of all, this is due to the gene revolution – the success of population genetics, which managed to decipher the human genome and, accordingly, the ability to trace the origin of individual haplogroups by DNA analysis, including the territorial one. In combination with traditional methods for studying ethno-cultural processes: anthropological, written (if any), archaeological, paleolinguistic, etc., a new powerful tool appears for studying individual human populations, their origin, as well as the dynamics of ethno-cultural processes that took place over a significant period of time and territories.

This tool is also relevant for studying such complex phenomena as migration and territorial settlement of individual ethnic groups and the languages they spoke. However, this tool is far from perfect. Just as it was once said in relation to the radiocarbon

**Fig. 3 / Рис. 3.** The southern part of the Kazakh steppe. Betpakdala. Baikonur river valley. Petroglyphs of Baikonur, group "N". Four horses. Small dot's embossing. The turn of the 3rd – 2nd millennium BCE / Южная часть Казахской степи. Бетпакдала. Долина реки Байконур. Петроглифы Байконур, группа «Н». Четыре лошади. Мелкоточечная выбивка. Рубеж III–II тыс. до н. э.

*The source:* photo by the author

**Fig. 4 / Рис. 4**. Eastern part of the Kazakh steppe. Kazakh Altai. The Moldazhar (Shimaily) Petroglyphes. Sardongal Hill. A multi-figured composition with wild animals and an archer hunting on a two horse-drawn chariot. The technique of small-point embossing and polishing of the patina. First quarter of the 2nd millennium BCE / Восточная оконечность Казахской степи. Казахский Алтай. Урочище Молдажар (Шимайлы). Сопка Сардонгал. Многофигурная композиция с участием диких животных и охоты лучника на пароконной колеснице. Техника мелкоточечной выбивки и прошлифовка патины. Первая четверть II тыс. до н. э.

*The source:* photo courtesy by A. Ye. Rogozhinsky, the discoverer of this pictorial monument, from his personal archive

revolution of dating in archaeology, these new method of population genetics must be applied on a significant series of samples, with the necessary degree of verification and caution, which inevitably requires significant resources and unprecedented cooperation of researchers. Only in combination with traditional methods does it become possible to reconstruct specific historical processes and migrations as part of this.

## Discussion

Genetic data on the origin of domestic animals: horses, goats, dogs, camels, bulls, and other species also make it possible to verify the overall picture of the most ancient population migrations in steppe Eurasia [10], which allows us to consider the development of animal husbandry and the stages of distribution of individual species of domestic animals throughout the continent.

To clarify the chronological position of historical, migration and communication processes during this period, synchronization of datings in geographical regions that are significantly remote from each other on the basis of large series of calibrated radiocarbon dates makes it possible. At the same time, pictorial monuments act as markers of population migrations due to their geographical position fixed on the rock art sites of Central Asia (fig. 2–4), in contrast to the movement of things, which spread mainly as a result of robbery, exchanges or trade.

Figurative monuments, primarily petroglyphs on rocks, make it possible to verify the essence and nature of communications and migrations, their probable ethno-cultural affiliation, which, in turn, determines the presence of certain population groups in a particular geographical region in a certain period of time, in cases when it is possible to date these rock carvings and the archaeological sites left by these groups, and the geographical distribution of similar signs of the same pictorial series (code) or specific pictorial traditions may indicate the territorial movements of a particular clans or communities with its own identity [24–25; 27].

The specifics of migrations [24] consists in the natural development of vast new territories of the continent, primarily as pastures for domestic animals. The reproduction of the livestock of which, in turn, is the key to the development and prosperity of these societies. Such a natural and harmonious model of the territorial settlement of communities in the steppe, often not at all similar to migration, but rather similar to classical nomadism, most fully corresponds to the archaeological data accumulated today. There is no reason to consider this process as a military and aggressive expansion and seizure of foreign territories with all the horrors of forced assimilation and genocide [20–21].

## Results

Thus, according to the latest data of population genetics, the Bronze Age in the history of human civilization seems to be the Era in which globalization first occurred on the Eurasian continent and the existing gene pool of the population of this continent was formed. The most advanced innovations invented in Mesopotamia quickly spread over vast territories, communication channels were established through which these new inventions spread to the most remote regions of the Eurasian continent [24, pp. 170–184, 308–315; 25, pp. 34–39, 109–120].

Population genetics data make it possible to trace the contributions of individual groups to the overall ethno-cultural situation and identify the migrations of some individual societies, carriers of these innovations [1; 7; 17], or trace the migration of pathogenic viruses (for example, hepatitis B or bubonic plague) and their carriers since ancient times.

On the basis of archaeological, visual and linguistic data, such a migration of the steppe population to the east of the continent, now confirmed by the conclusions of population geneticists, was assumed by many researchers [28, p. 215], was defined by its ethnic character as Proto-Tocharian [25, pp. 206–250] and took place no later than the first quarter of 3rd mill. BCE [22, pp. 128–133].

Despite the existing similarity, all Kazakhstan and Altai sites differ significantly from the Chemurchek kurgans of Mongolia and Xinjiang (Alkabek group of sites – 19th–18th centuries BCE), which, however, is typical of any long-term migration. In this regard, it is possible to speak only about their belonging to a single circle of sites, which also includes some Okunevo, Elunino and related West Siberian, Altai (Karakol), South Siberian and West Mongolian complexes. Almost simultaneously (26th–22nd centuries BCE) in the east of Europe, the cultures of the Catacomb community experienced the middle and late periods of their existence – the Ingul, Late Donetsk, Middle Don, Volga-Don, East and West Manych and Poltavka cultures [22, pp. 133–134].

The next stage in the history of the population of Northen Eurasia in the early Bronze Age is associated with the Elunino and Chemurchek sites. Almost simultaneously with the Elunino complexes in Eastern Kazakhstan, there were sites attributed to the Chemurchek cultural phenomenon and which are associated with the alleged migration of Prototocharians to East Turkestan [14]. The starting point of this migration is determined in the south of France; the final one is in East Turkestan [15, pp. 50–55].

In the first half of 3rd mill. BCE in the Kazakh steppe, its northern and eastern limits, monuments of Botai, Surtanda, Yamnaya-Afanasievo, Elunino, Chemurchek, and also some other cultural types were recorded. The anthropological appearance of the population during this period is exclusively Caucasoid, which is superimposed by various substrates of western steppe origin [13, pp. 437–445].

According to most researchers, at the turn of 3rd–2nd mill. BCE, in the very first centuries of 2nd mill. BCE, Andronovo sites appeared in North Eurasia and possibly later – in Semirechye/Zhetysu, in Xinjiang, in Uzbekistan and Tajikistan, in Western Siberia and in the Minusinsk Basin [8; 12; 20]. At the same time, the Okunevo culture appeared on the Middle Yenisei, and the late stage of the Odinovo culture began in the Baraba forest-steppe area.

In parallel with the cultural formations listed above, the Tashkovo culture existed on the territory of the Tobol region (border of 3rd–2nd mill. BCE), and in Central and Northern Kazakhstan – the Nurtai and Petrovka cultures. These formations are on the whole synchronous with the Sintashta and late post-Catacomb formations of Eastern Europe: Lola and Babinskaya cultures, the Krivolukskaya cultural group, and the Pokrovsky-type monuments of Srubnaya community [8; 22, pp. 135].

A new wave of settlers was reflected in the recent data of paleogenetics on the Sintashta genotype, confirming the genetic relationship of the Sintashta population with clans from the western regions of the Eurasian steppe, which can be explained both by their migration from the western regions and by the genetic common relationship with their earlier Yamnaya relatives of the first wave of migration. And who settled here several generations before the Sintashta time and successfully developed in new territories on their own, mixing with the aboriginal population. Population genetics does not confirm the relationship of the Sintashta with any population groups in Anatolia or other regions of Asia, which definitely indicates their steppe, West Eurasian origin [1; 7] and does not support the hypothesis of their migration from Anatolia [11].

Monuments of the Sintashta-Petrovka type (in our understanding, early Andronovo, corresponding to the initial stage of the formation of the Andronovo cultural and historical community) contain a convincing series of evidence that the population was familiar with the horse-drawn chariot (fig. 4) [3, pp. 215–228; 6; 18; 19, pp. 40–65].

The total interval of Sintashta – Petrovka dates obtained to 2010–1770 (68,2%) or 2200–1650 (95,4%) BCE, can be synchronized with the Old Babylonian Kingdom no later than the reign of Hammurabi (1848–1806 according to the long chronology). The appearance of the Mitanni chariot complex

can be dated to the 17th century BCE and is associated with the conquests of the Indo-European population groups that migrated to Mesopotamia from the north. The beginning of the Second Intermediate Period in the Egyptian radiocarbon chronology is dated to 1746–1645 (68,2%) or 1871–1616 (95,4%) BCE. Completion can be dated between 1596–1582 (68%) BCE or 1601–1573 BCE [5, pp. 274–285].

In the very south of Central Asia, in Margiana and Bactria, complex ethnocultural processes also took place associated with the communications of the population of the steppes, Harappa and the Middle East [21]. The outpost of these communications became: Sarazm [12, pp. 204–228], and especially Gonur-depe [26]. For the materials of the last monument, there is a solid series of 59 radiocarbon calibrated dates that determine the time of existence of the Margian capital within the 25$^{th}$–15$^{th}$ centuries BCE. Its most intensive use was at the turn of 2000 BCE, and by 1500 BCE life on the monument ceased [30, pp. 166–179].

## Discussion

In general, in the period of time considered above, Western migrants brought a number of progressive innovations to the life of local, autochthonous communities (fig. 2–4). Thus, a feature of the livestock economy of the population of Central Asia in general and the Kazakh steppe itself, in contrast to the previous, Botai time, is not only the active use of horses, but also cattle, sheep, goats and even dogs of Middle Eastern breeds. Groups of pastoralists migrating from the west (clans, production groups such as a large patriarchal family) include the local autochthonous population in the orbit of their influence. At the same time, animal husbandry was successfully combined with agriculture in those places where it was possible, as evidenced by the found seeds of cultivated plants and isotope analysis [23, pp. 23–34].

Subsequently, with the advent of a new related western component, new waves of transcontinental migrations and the global movement of metal and tin [4], complexes of the Elunino, Petrovka and other cultural types are formed, oriented to local deposits of tin, the main additive for artistic bronze foundry. A new stage begins in Central Asia – Andronovo, during which (the Middle Bronze Age) here, on the basis of innovations in the use of the wheel brought from the West, a light and fast two-horse chariot was apparently invented, the progressive design of which most optimally corresponded to the use of a pair of horses as a draft strength and maximum realization of the advantages of the anatomy of these animals in teams in comparison with previously used camels, bulls or donkeys.

A similar chronology of the Seima-Turbino, Sintashta and Abashevo complexes is generally accepted. However, the burials of the Sopka II site, containing metal of the Seima-Turbino type, date back to the last quarter of the 3$^{rd}$ – the border of 3$^{rd}$–2$^{nd}$ mill. BCE and clearly indicate the asynchrony of these cultural phenomena. We consider the producers of highly artistic Seima-Turbino items to be the production groups of blacksmith artisans, incorporated in various communities throughout the Eurasian steppe in the Early Bronze Age, and who were the keepers of the secrets of the complex bronze casting technology for casting advanced types of weapons in molds with a blind sleeve. At the same time, the natural geographical movement of the Seima-Turbino artifacts should not be surprising due to the already highly developed communications of the population during this period.

From the point of view of the development of artistic, visual communications, these datings are of exceptional importance, since they determine the possible center of the origin of this bronze casting tradition and determine the dating of images in a similar style on the rocks. It is in the Seima-Turbino bronze casting tradition of artistic casting that a feature of many horse sculptures is an accentuated mane, in some cases hanging over the head in the form of a bangs.

The role of the horse during this period has already been discussed in detail in a recent review [29, pp. 198–215]. The situation with the Seima-Turbino art objects (fig. 2–3) can be explained using the latest data on the genetics of ancient horse species [10; 16]. Thus, the Botai horses turned out to be the ancestors of the Przewalski's horse and are genetically different from other breeds of the *equus cabalus* species, which in later periods of history were actively used by man in his economic activities.

Such a dead-end branch in the process of domestication and evolution: the Przewalski wild horse, apparently, was partially domesticated in the Botai and actively used in economic activities, including harnessing to a chariot, and in later periods, as a result of breed selection, import of horses from other regions in Sintashta time, probably leading its pedigree from tarpans, it lost in the competitive struggle of species and again became wild, remaining until recently in large numbers in the area of its origin habitat in its original, wild form as a special Asian breed of mustangs, like the modern breed of a short Mongolian horse, leading a semi-wild existence and, as necessary, re-tamed for economic needs.

It is likely that the Botai horse was not completely domesticated in the modern sense of this process, and did not reach the level when the horse is no longer afraid to be outside the herd, overcomes its inherent persistent herd instinct and is independently and individually used for riding and wheeled transport. As a result of this process, as unnecessary, it returned to original state of a wild horse.

This assumption allows us to explain the invention of snaffle-type headbands used by the population of the Sintashta, Petrovka, Alakul and other cultures to control draft animals and containing cheek-pieces with spikes as the main working tool, the effect of which was very painful for the horse, both separately and in combination with goads found in synchronous archaeological sites.

The evolution of the horse bridle during this period demonstrates their transformation from painful, snaffle-type bits to more free and gentle types for horses, which can be associated both with the types of horses used in the harness and with the need to compensate for shortcomings in their training. It is noteworthy that according to the finds of this type of cheek-pieces with spikes and goads in graves and in settlements in the steppes of Eurasia, it is possible to determine the time of their existence exclusively within the first half of the 2nd millennium BCE (fig. 4). Later, this type of cheek-pieces transforms into ordinary horse-head harness distributors or rod cheek-pieces without any spikes that are painful for the horse [6].

Figurative monuments and the mythology of that time reflected in them help to clarify the features of this process. In this regard, the idea of the Indo-Europeans about the horse as an animal alien, aggressive and even hostile to them, which must be subjugated and which is clearly preserved in their mythology, is interesting [2; 27].

This plot is recorded among different peoples of Eurasia in several versions, but its essence boils down to how a God molds figures of a Man and a Woman from clay, and a horse or two horses, often winged, break these figures. Then the Creator creates a dog or two dogs that drive away these attacking semi-wild horses and protect the first people. The horse is punished – it is deprived of wings and freedom, from now on it must serve a person and be beaten.

The very desire of the horse to prevent the creation of man is caused by the fear that people will harness it and deprive it of freedom, because before the creation of man, horses inhabited the earth and they were free as the wind. The efforts of vicious horses to trample Adam's body made of clay were in vain thanks to the dog, which has since guarded the man as his closest friend. And on the human body there was a mark on the stomach – a navel, a mark from a hoof strike.

The distribution of this plot is recorded everywhere on the Eurasian continent with different interpretations of characters in the regions, but with a single plot. It is assumed

that this myth spread to the territory of India in the period from the beginning of the 2nd to the middle of the 1st millennium BCE and is associated with the penetration of the Indo-Europeans into the peninsula in 1900–1200 BCE, which suggests its formation in the Eurasian steppes in 3rd mill. BCE. The lower limit of its appearance is determined by the time of the domestication of the horse, the upper limit by the penetration of the plot into South Asia in 2000 BCE [2].

The role of the horse in this myth corresponds to the idea of the complexity of the process of taming it and using it in harness. Obviously, at the initial stages of the domestication of the horse, the communities of the Indo-European root could not participate in it, since it began earlier than their first attempts to develop the steppe spaces of Eurasia at the beginning of the 3rd millennium BCE. In teams at that time in the Eurasian steppe and in Ciscaucasia, only bulls were used.

Horses of a wild species – the Przhewalski's horse or tarpan for clans in Eastern Europe at that time were meat animals, an important object of hunting. They naturally tried to tame it (we are talking about the yet unidentified species of ancestors of the true horse – equus cabalus, probably tarpan) and breed at that time exclusively for food. Probably, on the Dnieper (Dereivka, Repin Khutor) the tarpan and its descendants were tamed, and on Botai at that time they experimented with the Przhewalski horse instead of the tarpan.

Only with the invention of light chariots on a pair of horses and with the development of wheeled innovations and means of controlling a bronco horse – with cheek-pieces of the snaffle type [6], at the turn of 3rd-2nd mill. BCE, it became possible to harness the Botai horse to a chariot, and only much later – to actively use under the top in economic and military practice already other breeds of true horses, the most advanced in the process of domestication, brought from the western Eurasian steppes and crossed with the local Kazakh breed, the selection of which is based on the domestication of the species of Przhewalski's horse.

It is no coincidence that Yu. E. Berezkin identified a stable mythological idea of a pair of horses (a pair of winged horses). The fact of the discovery of a pair of horse teams that pulled a light wagon became so important, and the role of the horse so contradictory and unpredictable (not yet fully tamed) in this process, that this knowledge was presented in a wonderful form, in the form of this myth. It is also important that this process took place through beating the horse and causing it pain – a kind of verbal instruction to relatives and members of society – how to tame a horse and control it in a harness.

Another important conclusion that comes from the reconstructed myth is the motive for punishing the antagonist horse – the very fact of putting on the yoke and using it in the cart (subjugating the rebellious) – an act of submission and conversion for the benefit of the one who conquered. This act turned out to be so important that it was reflected in the mythological consciousness of the majority of the peoples inhabiting Eurasia, and became a key plot in the Indo-Iranian pictorial and mythological traditions.

In addition, in the period under review, in addition to external communications, expressed in explicit migrations of certain groups of the population, peculiar internal communications developed, expressed in the mythological and pictorial traditions mentioned above, which we conventionally called Yamnaya-Afanasievo and Andronovo [25, pp. 208, 223; 28].

## Conclusions

Thus, the waves of migration of Western livestock breeders to the east of Eurasia from the end of the 4th and during the entire 3rd – the beginning of the 2nd millennium BCE became one of the most striking, without any reservations, a turning point in the history of Central Asia and humanity as a whole (fig. 1). This time is characterized by a system of interrelated innovations – technological,

economic, social and ideological. The mineral wealth of the Ural-Kazakhstan and Altai regions naturally determined them to be one of the main centers for the extraction of ore, additives and copper smelting, including them in the widest network of cultural ties and migrations of a pan-Eurasian scale from Balkans to the China. A necessary condition for the emergence and maintenance of such communications was the development of overland means of wheeled transport.

With the appearance in the first quarter of 3rd mill. BCE Yamnaya (Pit's), Afanasievo, Chemurchek and later – Sintashta population periodically, in waves coming from the western steppes of Eurasia, global changes occur in the Kazakh steppe, which lead not only to the appearance here of progressive forms of animal husbandry, developed metallurgy and development of ore sources, but also to a change in the anthropological type of the population (its genetic composition), as well as some cult and religious ideas. It is obvious that these innovations found their expression in the new communications of local communities and naturally reflected in the fine and rock arts.

In this situation, it is not so important who won in this confrontation between the native Botai population and newcomers. It is obvious that everyone has benefited, since progress is evident in the development of key activities of both settlers and local communities: a synergy that led to progress. Moreover, this migration took place in the form of the promotion of small production groups of the population, which naturally perceived many elements of local cultures, became the local elite, but, ultimately, dissolved in them through their local wives, changing the gene pool of local communities.

The reason for these migrations may lie in global natural disasters, in a significant aridization of the climate, aggravated in the southern regions by floods and volcanic eruptions. But, it is obvious that their cause also lies within the pre-state social and public steppe structures that developed at that time and their production units – self-sufficient clans of blood relatives, who are socially at the level of chiefdoms and began the struggle for the redistribution of the previously established system of pastures and water use, for control over the traditional communications prevailing in the steppe (crossings, pastures, water sources, dominant heights, passes, roads, etc.).

Many leaders of these clans began to understand that the resources of the ecological niches in which their societies had successfully developed and bred up to that time, in the conditions of demographic growth, turned out to be completely insufficient. Naturally, they came to the conclusion that the well-being and bright future of new generations lies in the expansion of pastures and living space for their fellow tribesmen. Awareness of the extensive, or rather expansionist, way of development and procreation is an important motivating reason for these migrations and the westward movement of individual warlike and, of course, elite clans with the most advanced innovations.

Such a militant, expansionist ideology basically comes from the depths of the nomadic mode of economic activity of these communities and clans. But such an expansion, which we are witnessing at that time, was impossible without the active use of progressive innovations: revolutionary changes could ensure such a large-scale advancement, primarily in communications – in the creation of universal sign systems (various pictorial traditions and styles), which originated in the bowels of each communities and determined its social structure and hierarchy, as well as in the economy and, above all, in horse equipment, transport, new types of bronze weapons and production tools.

Traditional horse breeding in the Kazakh steppe obviously became the most advanced type of economic activity, perhaps, in all of Central Asia at that time and, undoubtedly, was of considerable interest to warlike neighbors, as a region providing massive supplies of excellent and trained horses. The earliest stages of horse domestication took place here, the local population achieved signifi-

cant success in breeding the Kazakh horse breed in its native habitat – in Saryarka (Kazkh steppe) and massively supplied trained riding (chariot) horses to all its neighbors and not only. Horses from the Kazakh Steppe were actively used by the early nomads of Altai; traditionally, for many centuries, local horses were supplied to China, as narrated by numerous Chinese written sources and osteological data [9].

Probably, long before the Great Silk Road, the Tin, and a little later, the Horse Great Roads arose, the main vector of which, rather, was directed not from China to the west, but on the contrary – from the west, from the steppe – to the east, to the territory of the Great Chinese Plain. And control over such strategically important territories undoubtedly provided geopolitical superiority to precisely those elite clans that could lead this process and were guaranteed to receive excellent horses for their military campaigns in the right quantity.

The history of communications and the development of rock art in the Kazakh steppe and Central Asia as a whole, as well as megalithic, statuary, ornamental traditions, very well corresponds to the ethnocultural situation in the north of Central Asia and coincides with significant population movements recorded by archaeological methods and written Chinese sources. Moreover, stationary pictorial monuments are markers of such movements and geographically record the presence of certain ethnic groups (clans or communities) in a particular region, since only the bearers of pictorial traditions themselves, the creators of petroglyphs, can move, not a rock.

Recorded by archaeological and paleogenetic methods in the Eneolithic–Early Bronze Age, the long migrations of the Yamnaya-Afanasevo (or Chemurchek) population to the east of the continent gave a powerful impetus to the development of local arts and were vividly reflected in local fine art monuments – in petroglyphs and stone sculptures. The advances of the Sintashta, Seima-Turbino, and possibly the late Gonur population in the Middle Bronze Age led to a new surge in fine art – a bright Andronovo pictorial and ornamental tradition arose.

Obviously, the historically formed communication channels were quite stable, fixed geographically, since they were tied to the most convenient routes of movement in the steppe and between valleys, along river valleys, to water sources, to traditional craft (repair) centers, which later became caravan cities, to passes, crossings, to food and rest points, which later took shape in caravanserais on traditional trade roads. Along them, these trade roads, traditionally significant migrations of the population took place, innovations, ideas, knowledge, and cults spread.

The success of such hegemony or expansion was directly ensured by the possession of specific progressive innovations, inventions, technologies or know-how. Therefore, the archaeological study of a particular society for the possession of such innovations and the study of their typological and technological development over time is the main sign of a possible migration or expansion.

No less important were the internal communications of the community: sign, pictorial, statuary, ornamental, megalithic, verbal, musical traditions and, finally, writing as the most universal way of communication. In pre-literate societies, the need for a universal pictorial language of communication was so urgent that it became the main marker of self-identification of related and even foreign societies. This function was also important in cases of the introduction of individual clans into a foreign cultural environment, when, in the conditions of multicultural and linguistic diversity, a universal communication tool was required that was understandable to everyone.

Internal communications, clothed in the only mythological form possible in pre-literate societies, served the purposes of education, upbringing, transfer of information and knowledge, forming the ideological basis of community, successfully ensuring hegemony and hierarchy within the clan of close relatives.

Elite and powerful clans, combined with the secret innovations they possessed, successfully used this «language» for their own purposes of hegemony and domination over less progressive and developed societies, forming a thin superstratum of the nobility in such societies, often ethnically alien to them. But it was these elite clans, the nobility and the stratum of leaders/priests/shamans, that became the main carriers of fine traditions and innovations, and social progress in general.

The factors and features noted above form a complex model of communication and interaction of the most ancient societies in the steppe Eurasia, which at different stages of the historical process constantly demonstrates the inevitable hegemony or expansion of small but progressive clans that subjugated significant groups of the less technologically advanced population, even sometimes not changing their ethnic identity.

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