History and culture of the early Türkic period: A review of archaeological monuments in the Russian Altai from the 4th–6th century AD


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Search for the early Tûrs-Ashina: Review of the 4th-6th centuries AD archaeological sites of Altai

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Search for the early Türks-Ashina: Review of the 4th-6th centuries AD archaeological sites of Altai

**Abstract.** The paper deals with the issue of archaeological evidence for relocation of ‘500 Ashina families’ to Altai in AD 460. This event played an important role in the history of Inner Asia. After moving to Altai, the Ashina group teamed up with the local population and took the name ‘Türk’. Here, in the ore-rich region, they engaged in iron production and, as a result, achieved significant economic and military power, which allowed them gaining ample lands and creating a vast empire. Formation of the Türk khaganate marked the beginning of a new historic era, during which the domination in the Asian steppes passed to the nomads of Turkic-speaking states. Archaeological sites show that the burial practices of the pre-Türkic and early Türkic time continued the earlier traditions – together with the deceased person, their horse was laid into the grave. However, in the 5th century, new forms of ritual structures – square stone enclosures – came to the Altai. The new tradition of ritual square enclosures co-existed in the Altai with the traditional ring ritual enclosures until the 7th century. After the 7th century, two types of ritual archaeological sites remain – human burials with a horse under the stone mound (continued old traditions) and memorial square stone enclosures (new tradition). This situation presents the archaeological evidence of mixing of the local people with Ashina group. The immigrants brought the tradition of memorial square structures, and, in turn, took the ancient tradition of Altai human burial with a horse.

The beginning of the early Middle Ages in Inner Asia was marked with the creation and development of the First Türk Khaganate. This nomadic empire played a major role in the
history of the Eurasian Steppe World and the greater part of the Eurasian continent; however, many of the issues related to the history of Turks remain unsolved.

One of the most complex and intractable issues is the question about early history of the Turks (until the 5th century AD) and the nature of their relations with other communities. The historical fate of the Turks after the middle of the 8th century, when, as a result of the domestic political crisis, they lost their power in the Eurasian steppes, is not clear.

The solution of the existing issues is complicated by lack of written sources for the early periods of the history of Turks. The main sources are reports of the Chinese and Western chroniclers, as well as the runic texts created by Turks.

The paucity of written sources on the history of Turks has to a certain extent been replenished by involvement of the archaeological materials. However, in some cases, the archaeological materials do not correspond with, and sometimes contradict information from written sources.

The main question of the early medieval archeology of Inner Asia is the ethnicity of the human burials with horse, found in different parts of the region. This issue has been raised by Soviet archaeologists in the second half of the 20th century, and at the same time various options for its interpretation were offered. The majority of researchers believe that these funerary sites belong to Turk-Ashina population; some think that they are associated to Tiele people (confederation of early medieval Turkic speaking peoples located in west part of Inner Asia); others suggest that in different regions these burials could relate to different ethnic groups.

In AD 460, ‘500 Ashina families’ migrated to Altai, thus the thoroughly-studied archaeological sites of Altai are important sources to assess the issue of the origin of the early medieval funeral rite with horse. In the Altai, the settlers merged with the local population and began to call themselves ‘Turks’. In our opinion, the resettlement of the ‘500 families’ in
a small mountainous region must have had a significant impact on the ethnic and political situation in the region, and, as a result, the emergence of new forms of archaeological sites and the change of the funeral rite must be observed.

It should be noted that Altai is a favorable region in terms of the safety of the population from sudden military attacks, as well as for farming and iron production. The Altai Mountains are situated at the junction of the borders of four modern states – Russia, Mongolia, China and Kazakhstan, the greatest part of the Mountains being on the territory of the Altai Republic (Russian Federation). This region is geographically located in the north-eastern edge of the Eurasian steppe belt. It serves as a natural border between the two vast historical and geographical provinces – arid highland steppes of Mongolia and the more moist West Siberian Plain.

This mountainous region has a difficult terrain which allows inhibiting the movement of the enemy, and expanding steppe areas of river valleys and intermountain basins which present convenient sites for farming. The northern part of the region is characterized by taiga landscapes, river valleys and intermountain basins with steppe vegetation; alpine meadows appear in the south with an increase in elevation above sea level, while further southwards the areas are mostly semidesert landscapes.

Due to favorable natural conditions, the Altai was occupied by prehistoric man since 0.8 billion years ago,\(^9\) and concentrated a large number of archaeological sites of different eras. The most common are the early Medieval sites – funerary monuments, memorial complexes, runic inscriptions on rocks and steles, rock paintings, iron-smelting furnace, etc. (Fig. 1). Due to the natural defense potential of the region, the Türks were protected from the constant raids of their steppe neighbors. The abundant natural resources allowed the population to actively pursue an important iron production.
OVERVIEW OF THE HISTORICAL GEOGRAPHY AND EVENTS IN INNER ASIA IN THE 4TH–6TH CENTURIES

In the 2nd and 3rd centuries AD, violent historical events took place in Inner Asia. In 220, the Han Empire disintegrated to three warring states, as a result of which the guard of its northern border weakened and many migrants from the steppes began penetrating the territory of North China. Subsequently, since the beginning of the 4th century, a number of independent states have been created in this area, formed by natives of the Steppe (this period of Chinese history is known as period of the Sixteen Barbarian Kingdoms).  

The state of Tuoba-Wei (Northern Wei) gradually began to play a leading role among the ‘barbarian’ states and united the entire North China in the first half of the 5th century. At the head of this state were the Xianbei natives of the steppe. This state became an important cultural center of the region, and it also had a powerful military force, having inherited the Xianbei tradition. The basis of military power of Tuoba-Wei was the steppe cavalry.

At the Steppes to the North of the Great Chinese Wall, after the disintegration of the Xianbei state, a ‘vacuum’ of the central government, which had previously brought together steppe peoples, was formed. At the beginning of the 6th century, this vacuum was filled by the Rouran or Jou-Jan people, which united the vast steppes of Mongolia under their power (Fig. 2). Virtually, the entire history of the Rouran Khaganate comprised of wars with the Tuoba Wei (Northern Wei) state of Northern China. Rourans raided lands of Wei across the Great Wall, and the Wei emperor responded with punitive expeditions.

A large and complex ethnopolitical group of Tiele, consisting of Turkic-speaking population, was another important participant in the 5th century events. The Chinese called them Gaogyuy (‘High carts’) or Gaoche. The sources point out that, in spite of the cultural and, perhaps, ethnic affinity, the Tiele did not have a centralized power. They were in a subordinate position in Rouran Khaganate but, in alliance with the Northern Wei, they
constantly raided against Rourans. Admittedly, they also made attacks over the Wall on the territories of North China. Finally, in the second half of the 5th century, the Tiele, under the leadership of Afuchzhilo, established an independent state in the western part of the Steppe, the eastern boundary of which was the Altai Mountains. However, this independence was not durable – the Tiele were defeated by the Hephthalites advancing from the south-west, and during the first half of the 6th century they made several unsuccessful attempts to liberate from the Rourans.

In the 6th century, another important party entered the political arena of Inner Asia – the Türks, headed by representatives of the Ashina noble family. Ashina initially had been linked with one of the Xiongnu ‘barbarian’ states of North China. They fled to Turfan oasis in Xinjiang as a result of wars between the states. Then, after the defeat in the war with Rourans in the 460, ‘500 Ashina families’ moved to the Altai. In the Altai ‘500 Ashina families’ united several local groups together, and the new association received the name ‘Türk’. The Altai Türks engaged in smelting of iron, and they paid tribute to Rourans. They began to play a significant role in the Inner Asian politics in the second quarter of the 5th century.

In 534 the Wei state separated in two parts – the Western and Eastern. In 545 the Western Wei sent the ambassadors to the Türks to persuade them to join the alliance against Rourans and the Eastern Wei. The Türks accepted this embassy as an international recognition of their state. Immediately after the exchange of embassies with the Western Wei, Türks subordinated 50 thousand Tiele families. In 551 united forces of the Türks and Tiele smashed Rourans, and the Türk Empire became the new hegemon in the Eurasian Steppe. As a result of the subjugation of the Rouran Khaganate and subsequent gains, the Türks established an empire exceeding in size all previous greatest states known before (Fig. 2).
Chinese sources (Book of Zhou, Book of Sui and The history of the northern dynasties) contain two genealogical legends concerning the origin of the Türks. Both legends have attracted the attention of researchers in the late 19th century. It was then when orientalist Nikolai Aristov attempted to give a historical assessment to the legends and interpret them.

So, the first legend says that the ancestor of the Türks came from ‘land ownership So’, located to the north of the Xiongnu country. One descendant of this ancestor – Ichzhinishydu – was born of a she-wolf and had several sons. One of them turned into a swan, the other founded the Kyrgyz State on the Yenisei River, the third one founded a ‘kingdom on the banks of the river Chusi’. The elder son, Nadulu-shad, having settled in the Basychusishi mountains, headed the local related tribes. Bumyn, a direct descendant of Nadulu-shad, became the founder of the Türk khaganate.

The second legend also connects the origin of the Türks with the wolf. According to this legend, the Türks descend from a she-wolf and a boy escaped from enemy raids. Tribe of the boy, which was completely destroyed, had been located ‘on the right bank of the West Sea’. She-wolf gave the survived boy ten sons, one of whom was named Ashina and became the ancestor of the future dynasty of Türkic rulers.

After having explored these legends and elicited their historical foundations, Sergei Klyashtorny suggested that the legends related to two different periods in the history of ‘the Ashina tribe’ – Gansu-Gaochang period and the Altaian period (meaning the time after the settlement of the Türks in Altai in 460). Both legends read that the name ‘Türk’ was adopted by the Ashina group after they settled in Altai. As the written and archaeological sources show, the foundations of the Türkic ethnic group were formed on the territory of Altai. Here the Türks became a powerful force which defeated the dominant state in central Asia, the Rouran Khaganate, in 552. After that time, the Türks became one of the most powerful empires in the vast expanse that represented Eurasia in the early Middle Ages.
In general terms, ethnic and political history of Inner Asia looks relatively clear. In the case of the Altai, during the 4th–6th centuries, the region was part of the territory where the group of the Tiele/Gaogyuy settled. In the second half of the 5th century, a new group of people emerged in the Altai – the ‘Ashina's 500 families’ known as Türk. However, the situation does not appear as straightforward when studying the archaeological sites of the region.

THE 4TH–6TH CENTURIES ARCHAEOLOGICAL SITES OF ALTAI

The research in geneticists and physical anthropology has shown that the complicated Altai Mountains system allowed a level of isolation which resulted in the safekeeping of key populations within it. In this regard, Altai is thought of as a kind of anthropological ‘refugium’. Nonetheless, this did not prevent groups in the region from being significantly influenced by the historical and cultural processes taking place in neighboring regions. Cultural development in the region was, naturally, most powerfully influenced by processes occurring in the Eurasian steppe belt or the Great Steppe. This territories stretching from Eastern Europe to the steppes of Manchuria were in a sense a gateway for migration flows in ancient and medieval times.

From the Chalcolithic period, the society with a complex economy based on transhumance developed in the Altai. The chronology of the emergence of agriculture in Altai has been an unresolved issue, however, in the 3rd millennium BC Altai was inhabited by pastoralists who left monuments, referred to as Afanasyevo Culture sites. As the genetic and anthropological research shows, this population arrived from Eastern Europe. European anthropological type of these people clearly distinguished them from other preceding and
subsequent populations of Altai. Perhaps these were the immigrants who brought agriculture to Altai.

Later, from the end of the 3rd millennium BC, population anthropologically and genetically closer to the Neolithic inhabitants of the region lived in the Altai. The well-known monuments of the Karakol Culture are attributed to this time. Examples of paintings on slabs of stone burial boxes have been perfectly preserved. Other periods of the Bronze Age in Altai have been studied very little.

One of the most well-studied periods of Altai in the archaeological respect is the Early Iron Age. In the 9th-8th centuries BC, human burial with a horse first appear in Altai. The tradition of placing the horse to human grave along with the owner remained in the region until 1930s. The Early Iron Age is the time of development of the famous Pazyryk Culture (6th-3rd centuries BC). Pazyryk frozen tombs received international acknowledge thanks to the exceptional preservation of a variety of subjects from organic materials, embalmed mummies of humans and bodies of horses.

As a result of the conquests of Xiongnu in Central Asia, the system of the Scythian type cultures spread throughout the zone of the Eurasian steppes from Eastern Europe to Manchuria was destroyed. From the 2nd century BC Bulan-Koba type burials appear. In this period, Altai population does not build grand burial structures any more. The accumulation of the mass archaeological data for this period was only launched in the 1980s. The tradition of erecting of the Bulan-Koba type monuments preserved up to the early Middle Ages, i.e. before the Türkic time.

The first archaeological excavations of Türkic monuments were carried out by Carl Friedrich von Ledebour in 1824, but a historical assessment was given to the materials much later. In 1865 Fridrich Vilgelm Radlov excavated several Türkic burials in Katanda (Southern Altai). Among the materials found, there was a vessel with the Türkic runic inscription.
important event for the study of the archaeological sites of the Türkic period was the excavation of the Kudyrge cemetery located in Chulyshman River Valley in Eastern Altai, carried out in 1924-1925 by S.I. Rudenko and A.A. Glukhov. During those years, 21 barrows and six enclosures were excavated. The materials from this cemetery became the basis for the study of history and culture of Altai population in the first and the beginning of the second millennium AD. Some objects from the cemetery date back to the Mongol Empire period (13th – 14th centuries), and others – to the 6th–7th centuries.

The second major complex of materials was obtained during the expedition by Sergey Kiselev in 1935 near the modern villages Tuekta and Kurai in Central and Southern Altai. Numerous materials, including silver vessels and belt ornaments with runic inscriptions, were found. The inscriptions were read by the author of the excavations, and archaeological materials were interpreted as Türkic and attributed to the period of the Türk khaganates. These materials were used Sergey Kiselev for reconstructing the schemes of social development of South Siberia as part of the formational Marxist approach to history that prevailed in the Soviet period. Later, Türkic period sites were investigated in the entire territory of Altai.

In the context of the search of the actual Türkic monuments, we are interested in Altai objects dating prior to the relocation of the Ashina group to the area and to the 1st centuries of domination of the Türks. The historical dating of these monuments attributes them to the 4th – 7th centuries AD. By the materials known to the present time, we can denote several types of the monuments of this period: two groups of early ‘pre-Türkic’ monuments and later three groups of ‘Early Türkic’ objects. Having identified common and unique features of these monuments, we will try to determine which of them can be associated with the Türks, and to understand the nature of the interaction between relocated Ashina group and the local population.
The first group of objects – Bulan-Koby type – are the inhumations within small oval or round mounds. The objects of Bulan-Koby type have been studied in the Chendek, Verh-Uimon, Yaloman-II, Stepushka-1, Stepushka-2 and other sites. The cemetery usually comprises of several dozen graves (Fig. 3). Approximately a quarter of the analysed tombs contain burial of a riding horse (Fig. 4a, b). The cemeteries also include the burials of men with horse in shaft and chamber pits. Bulan-Koby type burials existed in the Altai from the end of the first millennium BC to the middle of the first millennium AD. The radiocarbon analysis revealed that upper chronological border of the Bulan-Koby tombs belongs to the beginning of the 6th century (Fig. 12).

The population who left monuments of the Bulan-Koby type was mainly formed at the turn of our era. The anthropological study of the remains showed that a major component of the population was the local Altai people, who lived here in the Scythian time (the descendants of the Pazyryk Culture). Also, the influx of new people who resettled into Altai under the pressure of Xiongnu has been recorded.25 The local component of population represents an anthropological stratum preserved in the Altai for thousands of years since the Neolithic-Chalcolithic.26 The long preservation of ancient anthropological type was determined by the isolated geography of the region.

Immediately after the identification of the monuments of this period, some researchers suggested, based on Chinese sources, that they belong to Tiele.27 This idea was supported by other researchers, despite the inconsistencies in the archaeologically documented elements of the funeral rite and descriptions in the Chinese annals. The latter report that Tiele ‘...placed the deceased into the pit, put the corpse in the middle of the grave with a drawn bow in their hand, with a sword at the waist, a spear in the arm pit as if they were alive; but did not fill the grave’.28 Apparently, this description is somewhat exaggerated by the Chinese chronicler. It should be noted that different groups of Tiele could have different funeral rites.
The second group of objects includes the burials of Kok-Pash type – the inhumation in wooden coffin under the rectangular mounds (Fig. 4 – c, d). These objects have been found in several sites in the south-east of the Altai – in the Kok-Pash, Kurayka, Ak-Kol-1 and Kaldzhin-6 cemeteries. The cemeteries sometimes include up to 100 barrows. These burials do not contain horses. The radiocarbon dating of the objects attributes them to the end of the 3rd – beginning of the 3th century (Fig. 12). The question about the origin of the Kok-Pash type objects yet remains unresolved. The anthropological study of human remains revealed that the population has a pronounced Asian anthropological type, characteristic to the population of Mongolia and referred to as ‘the Central Asian race’. The population who left monuments of the Kok-Pash type was the first wave of settlers, who brought the Central Asian anthropological component to the Altai; this component became characteristic for the region in the Middle Ages and subsequent periods.

The grave goods from the Bulan-Koby and Kok-Pash tombs do not have fundamental differences. These include weapons (remains of bows, bone and iron arrowheads of various forms, armor plates, knives and swords), women's jewelry, horse riding equipment (parts of bridle, saddle with a wooden base, buckles; Fig. 5).

The other groups of barrows, according to typological and radiocarbon dating, belong to the later period, to at least the middle of the 5th century. The third group is funerary monuments of Kudyrge type, with the Kudyrge cemetery being the most representative and famous site of this period. The cemetery contains burials of men with horses, which in many ways are similar to the Bulan-Koby type objects. There are three variants of barrow structures: 1) human burials with horse where their heads are directed to same side; 2) human burial with a horse where their heads are pointing to different directions; 3) human burials without a horse (mostly women).
Despite these objects generally resemble the Bulan-Koby type ones, the placement of a man and a horse heading different directions is a new feature of the burial rite. The main difference between the groups is the inventory (Fig. 6; 8.1; 8.2). Perhaps the most important new type of grave goods in Kudyrge type burials was emergence of iron stirrups, previously unknown in the Bulan-Koby type monuments. Also, there were changes in the belt sets and horse harness – previously unknown artistic bronze plates appeared. These two categories of goods present the major difference between the sites of the pre-Türkic and Türkic times. Other innovations included modified form of bow (reduced size and number of bone plate-pads), reduced number of arrowhead types, new elements of horse harness, etc.

The fourth group of objects represents round or circular enclosures and small mounds which do not contain human burials. This type of object was named Kara-Koba after the most representative site. Such objects were investigated in the Kara-Koba I, Kudyrge, Bike-III and other cemeteries. The enclosures were built of stone, with vertically bedded stones and pits next to them (Fig. 7). These enclosures are usually arranged in straight rows or arches. Burial of horses have been found in several enclosures. The inventory is typologically close to the finds from the synchronous burials and square enclosures. These objects are related with objects of the Bulan-Koby type, which date to the first half of the first millennium AD. Individual horse burials were examined at various monuments of the Hunno-Sarmatian time (2nd century BC – 5th century AD). Some of them were cenotaphs and contained objects reserved for a person. But there also were those comprising only skeletons of horses. In Hunno-Sarmatian time, cemeteries also included rounded mounds without horse remains nor any other finds. These enclosures were not erected after the 7th century.

The fifth group of monuments includes square stone enclosures which do not contain human burials. This new type of object has no connection with the Altai monuments of the preceding period. The square enclosures were made of stone slabs and filled with
stones (Fig. 9). Usually a stele and a line of standing stones (balbals) were located next to the enclosures, and in the second half of the 6th century anthropomorphic sculptures were put instead of the stelae. Postholes with the remains of wooden pillars are often found in the center of the enclosures. In this period, single enclosures, as well as groups (lines) of enclosures, were present. The latter appeared either as one joined wall of tightly joined enclosures, or they were separated by a short distance. Several earlier enclosures contained horse burials. The items recovered from the enclosures are typologically similar to the finds from the barrows. The commonly found items in the enclosures are pieces of horse harness (bridles, stirrups) and weapons (arrowheads, armor plates and helmet, hooks from quiver, knives). Other artefacts are rare.

The complex consisting of enclosures–statue–balbals is considered as memorial complex in the Soviet and modern Russian archaeological literature. Based on Chinese and Türkic sources, it is assumed, that the sculpture depicts a deceased man, a line of balbals – opponents he killed in battle, and enclosure is a symbolic memorial temple or dwelling. These definitions have been made based on the reading of the Türkic runic texts on the steles in the funeral constructions of highest Türkic nobility – khagans and military leaders – and on the basis of the description of the Türkic tombs and funeral rites in the Chinese sources. ‘The drawn image of the deceased’ was made on stone sculptures, or stelae, and placed next to stone enclosures – symbolic ‘room.’ The epitaph panegyric inscriptions and images of battle and hunting scenes carved on the rocks and steles are the description of the battles in which the deceased Türk participated (Fig. 10). The inscriptions and petroglyphs praised the deeds of the deceased warrior. The rows of the vertical stones – balbals – was laid near the enclosures. The holes from the posts which carried heads of sacrificed animals (as Chinese sources tells) can be seen as pits with the remains of wood in the center of the enclosures. The
square shape enclosures with sculptures and balbals existed until the end of the first millennium AD.

Written sources report that, after the resettlement in the Altai, Türks were smelting iron for Rourans. A significant number of iron-melting furnaces have been studied in the region. In the south-east of the Altai, in the Chuya and Kurai intermountain basins, the highest accumulation of bloomery furnaces has been recorded (Fig. 1). The researchers determine this area as the Mountain Metallurgical Area. During the excavation of some bloomery furnaces, the early medieval artefacts (iron bits and stirrups) have been found. Many mines are also known in this area. Unfortunately, despite the topicality of the subject, iron and steel industry of Altai has not been the object of special investigations in recent decades. The chronology of the monuments, as well as specific features of the iron production in different periods still remain unclear. But for now we can already affirm that the mining and smelting district in the South Altai have been related to the economic activity of the Türks. Iron was the most important resource, owning of which allowed yesterday’s smelters to become Lords of the steppes.

DISCUSSION

In the archaeological literature, the human burial with a horse and the memorial enclosures with sculptures are referred to as typical Türkic monuments. However, in the written Chinese sources, Türkic burial rite is described as cremation. According to these descriptions, Türks burned the deceased with their horse and placed the ashes into a pit. Next to the tomb, a building was constructed, containing the ‘painting image of the deceased’ and the description of their battles. Next to the building a row of stones was laid in the number of warriors he killed. Horses and sheep were sacrificed, their heads were hung on poles.
square enclosures carry features similar to this description. However, traces of cremation have not yet been found in the early Türkic sites in Altai. This may be explained by the fact that, firstly, in the Chinese sources describes the funeral rites for noble Türks; secondly, by the 7th century AD, the Türks had already changed their rite to inhumation. Khagan Heli was one of the last to be burned in 634 according to ‘the nomadic tradition’. Most likely, inhumation was the common practice for the majority of Türks before it became used by the high nobility. However, since the Chinese sources contain information only about the tombs of noble Türks, the sites containing the burials of ordinary Türks may not fit the description of the chronicles.

The burial of a noble Türk (possibly even one of the Türkic rulers) accomplished according to the cremation rite, was investigated in Mongolia in 2011 by the Mongolian-Kazakh expedition. The funerary complex of Mayhan-Uul is a crypt with an underground corridor (dromos) equipped with light wells leading to it (Fig. 11). The mound surrounded by a moat and a wall was created above the crypt. The walls of dromos were decorated with beautiful frescoes. Within the barrow, a variety clay figures of people and horses were discovered; probably originally they formed the diorama showing the funeral procession. Also, numerous gold items were found in the barrow, such as jewelry, items of equestrian equipment, coins, vessel, crown, etc.

Similar complexes have been studied earlier. One of them is the Shoron Dov kurgan in Central Mongolia, investigated by Russian-Mongolian expedition in 2009. The Shoron Dov was built according to the same architectural style as Mayhan-Uul, but smaller in dimensions. During the examination of the barrow, stone plates with Chinese inscriptions were found, which indicated that burial had belonged to the Türk named Yaoyue from the Altai Mountains, who served the Chinese emperor. He was the governor of Central Mongolia and died in 677. For some reason, human remains were not found in this barrow.
The studied funerary complexes of the Türkic nobles indicate that they were held according the Chinese funeral canon. The ordinary barrows made according the Chinese funeral canon have not been found in the territory of the Türk khaganates. At the same time, it is necessary to note that from the perspective of archaeologist Vladimir Kubarev, the numerous Türkic enclosures with statues discovered on the regions associated with the Turks are miniature replicas of magnificent memorial complexes of Türkic khagans and military leaders. Since traces of cremation have not been found within the enclosures and next to them, these complexes represent rather memorial structures than burial sites. Obviously, the memorial enclosures were usually built separately from the burials.

Clearly, the tradition of the square memorial enclosures came to the Altai from outside. The funerary and ritual structures of the Altai population in the early Iron Age are generally characterized by a circular layout. The funerary constructions of the Kok-Pash type were rectangular, however, the link between earlier Kok-Pash objects and the Türkic enclosures has not been traced yet. In general, anthropologists have recorded the proximity of the populations who left the monuments of the Kok-Pash and Kudyrge type. Probably, these two groups of people came from close ethnic and cultural environment. The individual elements of the Türkic memorial complexes are similar to earlier Altai materials. Thus, the rows of vertically installed stones – balbals – are found in the mounds of Pazyryk culture dated to the 5th – 3rd centuries BC. In the Scythian time, balbals were much larger in size than in the Türkic period and represented rows of stelae, often taller than human size. In addition, a row of balbals at Pazyryk barrows was arranged eastwards, same as in Türkic square enclosures. However, at the end of the Hunno-Sarmatian time the balbal rows were not installed, only some objects in the Bulan-Koby sites included single vertical stones.

Another element of the Türkic funeral rite, well known in Inner Asia, including Altai, was the epitaph. Stele with texts were installed at the memorial complexed dedicated to
Türkic rulers and military leaders. The texts were written in runic script and contained a fairly detailed biography of the deceased man, his deeds and merits to the Türkic state. After the death of ordinary Türks, short sayings, sometimes containing only the name, were carved on rocks or stelae. These inscriptions contain the words on behalf of the deceased, saying that he regrets to leave the Khagan, wife, children, and friends. Several of these runic inscriptions have been found near the scenes of hunting. Probably, the inscriptions and the drawings were dedicated to the same person. Numerous Türkic engraving on stone plates also glorify hunting and military exploits of the dead warriors (Fig. 10).

It appears that at a certain time in the early stage of the Altai period of Türkic history, the traditions of square and circular enclosures coexisted as alien and local component. So, in several early Türkic square enclosures burials of riding horses were found. This demonstrates that the Türkic tradition of constructing the square memorial enclosures came from outside and incorporated new local ritual elements, which subsequently did not stay in the memorial ceremony. The individual burials of horses in rounded mounds and enclosures have been found in the Bulan-Koby type sites of the 2nd century BC – 5th century AD. Another evidence of the interaction between these two traditions was the appearance of enclosures of the ‘mixed’ amorphous forms – with several corners, and one rounded side. Next to the ring enclosures, vertically installed stone stelae were placed, which could functionally imitate the stone sculptures of the Türkic square enclosures. The burial of the human with riding horse could be regarded as the continuation of local Altaian traditions in the Türkic period. For the first time, this feature of a funeral ceremony was recorded in Altai for the beginning of the early Scythian time (8th century BC). Since then, this tradition continued in almost all historical periods until the 20th century. Of course, some features of these burials changed. In the early Scythian period (9th – 8th centuries BC), the horse was placed into the barrow next to stone cist, containing the deceased person. In the Pazyryk period (6th–3rd centuries BC),
horses were placed in the northern part of the grave, outside the wooden chamber with the human. In the Hunno-Sarmatian period (2nd century BC – 5th century AD), in the burials of Bulan-Koby type, the horse was placed on the stone or wooden box, containing a man; in the later time the horse was laid next to the man, the head of horse and the head of man were directed to the same side. In the early Türkic period (6th–7th centuries), the location of a human and a horse in the Kudyrge type barrows was similar to those of Bulan-Koby type. However, a new variation also appeared, when human and horse were placed with their heads in opposite directions. In the Türkic time, the man and horse in the grave became separated from each other by a wall made or wooden poles or stone slabs. As it already has been noted, it is commonly assumed that the Türks stopped practicing cremation in the 7th century AD. Obviously, the cremation was replaced by the human-horse inhumation, as these sites mark the spread of Türkic influence over vast areas.

However, the cremation was likely practiced only for the representatives of Türkic nobility. The noble Türkic funerary complexes, such as Mayhan-Uul and Shoron Dov mounds in Mongolia, have more in common with the royal barrows in China, Korea and Japan, than with traditional funeral complexes of the steppe regions. The elite burials were built following the Chinese funerary architecture, which was highly appreciated by the Türks. As mentioned, these complexes were quite accurately conforming the ‘official canon of North China’, despite the presence of some local features.39 The ordinary Türkic tombs could, in turn, be originally organized as inhumations. The description of the Türkic funeral rites in the Chinese annals has a compilatory nature, and could include the information for various periods.40 At present, no monuments fully corresponding the description of the Türkic and Tiele funeral rites from the Chinese sources have yet been discovered.

CONCLUSIONS
The combination of varying in their origin funeral and burial traditions suggests that, in the beginning of the Medieval period, complicated ethno-political processes occurred in the region. A minimum of three ethnic groups participated in the process: the population who left the monuments of Bulan-Koby type; the population of South-Eastern Altai, who came from Mongolia not earlier than in the second half of the 3rd century AD and left the sites of Kok-Pash type; the Ashina group who migrated to the Altai in 460 and brought the tradition of square enclosures. The last two groups were similar anthropologically, and as such the ‘Ashina's 500 families’ migrated to the Altai in the second half of the 5th century arrived into 'similar anthropological environment', at least in the south-east of the region. The ‘Ashina's 500 families’ united several local groups, and the new association took the name ‘Türk’.

In Altai, the settlers received from their overlord, Rourans, access to the ore resources and became actively engaged in iron production. Accumulation of bloomery furnaces in the south east of Altai suggests that the production was rather large. Having the opportunity to produce iron, the Turks did not limit it to only pay the tribute to the Rourans, but also served their own needs. Their military successes in the Asian steppes, in the first years of the war against Rourans, show that at the time Turkic army had the best weapons in the Steppe. This was largely due to their possession of iron resources.

Obviously, further to the political unification, the ethno-cultural mix of the populations occurred, and burials of horses, typical to local ritual practices, appeared in the early Türkic enclosures. During the certain period, along with the square enclosures, the ring enclosures – ritual structures of the local population – continued to be built. Gradually, under the influence of the general population of the association created by Turks, the non-indigenous people adopted the ancient Altaian tradition of the human burial with a horse. Later, they began to organize memorial complexes such as the ‘classic’ square enclosures with statues and the
rows of balbals, without burials of horses. The square enclosures and Türkic tombs with horse
have been investigated not only in the Altai, but on the entire territory of the Türk khaganates
in Mongolia, Tuva, Khakassia, Kazakhstan, and the Tien-Shan. However, the enclosures and
tombs related to the earlier period, are only known in the territory of the Altai. The presence
of Altaian elements in the Türkic memorial ceremony and the fact that the Türks began to
carry out the burial ritual according to the local tradition shows that the Altai population of
the first half of the first millennium AD became the initial foundation of the Türkic
association.

BIBLIOGRAPHY
Allentoft, M E, Sikora, M, Sjögren, K-G, Rasmussen, S, Rasmussen, M, Stenderup, J,
Damgaard, P B, Schroeder, H, Ahlström, T, Vinner, L, Malaspina, A-S, Margaryan, A,
Higham, T, Chivall, D, Lynnerup, N, Harvig, L, Baron, J, Della Casa, P, Dąbrowski, P,
Gronkiewicz, S, Grupe, G, Hajdu, T, Jarysz, R, Khartanovich, V, Khokhlov, A, Kiss, V,
M, Mkrtchyan, R, Moiseyev, V, Paja, L, Pálfi, G, Pokutta, D, Pospieszny, Ł, Price, T D, Saag,
L, Sablin, M, Shishlina, N, Smrčka, V, Soenov, V I, Szeverényi, V, Tóth, G, Trifanova, S V,
Varul, L, Vicze, M, Yepiskoposyan, L, Zhitenev, V, Orlando, L, Sicheritz-Pontén, T, Brunak,
S, Nielsen, R, Kristiansen, K & Willerslev, E, 2015, Population genomics of Bronze Age

Asadov, F M 1993, Арабские источники о тюрках в раннее средневековье,
Azerbaijan, Baku: Elm. [Arab sources about the Türks in the early Middle Ages].
Bichurin, Н.Я. 1950, Собрание сведений о народах, обитавших в Средней Азии в древние времена, Iss. I, Россия, Москва–Ленинград: Наука. [Collection of information about peoples that lived in Central Asia in ancient times].

Bobrov, В.В., Васютин, А.С. и Васютин, С.А. 2003, Восточный Алтай в эпоху Великого переселения народов (III-VII века), Россия, Новосибирск: ИАЕ СБРАС. [Eastern Altai in the era of the Great Migration (3rd-7th centuries)].

Cheremisin, Д.В. 2004, Результаты новейших исследований петроглифов древнетюркской эпохи на юго-востоке Российского Алтая, Археология, этнография и антропология Евразии 1(17), 39–50. [The results of the newest research petroglyphs of ancient Türkic epoch in the south-east of the Russian Altai, Archaeology, Ethnology and Anthropology of Eurasia 1 (17)].

Chikisheva, Т.А. 2012, Динамика антропологической дифференциации населения юга Западной Сибири в эпохи неолита – раннего железа. Россия, Новосибирск: ИАЕ СБРАС. [Dynamics anthropological differentiation of the population of the south of Western Siberia in the Neolithic – Early Iron Age].

Derevyanko, A P 2012, Recent discoveries in the Altai: issues on the evolution of Homo erectus. The Hallam Movius Memorial Lecture delivered at Harvard University, Russia, Novosibirsk: IAE SBRAS.

Gavrilova, A A 1965, Могильник Кудыргэ как источник по истории алтайских племен, Russia, Moscow: Nauka. [Kudyrge cemetery as a source on the history of Altai tribes].


Gumilev, L N 1967, Древние тюрки, Russia, Moscow: Nauka. [Ancient Türks].


Kiselev, S V 1951, Древняя история Южной Сибири, Russia, Moscow: Nauka. [Ancient history of Southern Siberia].

Klyashtorny, S G 1964, Древнетюркские рунические памятники как источник по истории Средней Азии, Russia, Moscow: Nauka. [Old turkic runic monuments as a source on the history of Middle Asia]


Azii T. 2, Russia, Novosibirsk: IAE SBRAS, 78–82. [Türkic runic epitaphs of the Chuya steppe (South-Eastern Altai), in Alkin, S (ed): History and culture of East Asia. Vol. 2].

Klyashtorny, S G and D G Savinov 2005, Степные империи Евразии, Russia, St. Petersburg: Philological Faculty of St. Petersburg State University. [Steppe empires of Eurasia].

Kubarev, G V 2005, Культура древних тюрков Алтая (по материалам погребальных памятников), Russia, Novosibirsk: IAE SBRAS. [The culture of the ancient Turks of Altai (based on funerary monuments)].


Kubarev, V D 1984, Древнетюркские изваяния Алтая, Russia, Novosibirsk: IAE SBRAS. [Ancient Türkic statues of Altai].

Kubarev, V D 2009, Памятники каракольской культуры Алтая, Russia, Novosibirsk: IAE SBRAS. [Monuments of Karakol culture of Altai].


Malov, S E 1951, *Памятники древнетюркской письменности. Тексты и исследования*, Russia, Moscow–Leningrad: Nauka. [*Monuments of Ancient Turkic Literature. Texts and Studies*].


Pozdnyakov, D V 2006, *Палеоантропология населения юга Западной Сибири эпохи средневековья (вторая половина I – первая половина II тыс. н.э.)*, Russia, Novosibirsk: IAE SBRAS. [*Paleoanthropology of the population of the south of Western Siberia of the Middle Ages (the second half 1st and the first half of the 2nd millennium AD)*].


Rudenko, S I and Glukhov A N 1927, Могильник Кудырге на Алтае, Материалы по этнографии 3(2), 37–52. [Kudyrga cemetery in Altai, Materials on the ethnography 3 (2)].

Sartkozhailu, K, Ochir, A, Erdenebold, R and Karzhaubaiuly, Z 2012, Древнетюркский мавзолей раннего средневековья (предварительный обзор), Вопросы тюркологии 2, 80-94. [Ancient Türkic mausoleum of the early Middle Ages (preliminary review), Questions Türkology 2].


Tishkin, A A 2007a, Алтай в период раннего средневековья (историко-культурная панorama и результаты археологических исследований), in Khuzin, F (ed): Средневековая археология евразийских степей, Russia, Kazan: Institute of History of Tatarstan Academy of Science, 3–8. [Altai in the early medieval period (the historical-cultural panorama and results of archaeological research), in Khuzin, F (ed): Medieval archeology of the Eurasian steppes].

Tishkin, A A 2007b, Создание периодизационных и культурно-хронологических схем: исторический опыт и современная концепция изучения древних и средневековых народов Алтая, Russia, Barnaul: Altai State University. [Creation of periodization and cultural-chronological schemes: historical experience and modern concept of the study of ancient and medieval peoples of Altai].
Tishkin, A A and Matrenin, S S 2013, Новые данные по радиоуглеродному датированию погребальных комплексов булан-кобинской культуры Алтая (по материалам раскопок курганной группы Степушка-1), Теория и практика археологических исследований 1(7), 147–153. [New data on the radiocarbon dating of the burial complexes Bulan-Koba culture of Altai (based on the excavation of the burial ground Stepushka-I), The Theory and Practice of Archaeological Research 1(7)].


Zakharov, A 1925, Antiquities of Katanda (Altai), The Journal of the Royal Anthropological Institute of Great Britain and Ireland vol. 55, 37-57

Zinyakov, N M 1988, История черной металлургии и кузнецкого ремесла древнего Алтая, Russia, Tomsk: Tomsk State University. [History of ferrous metallurgy and blacksmith craft of ancient Altai].

Abbreviations.

IAE SBRAS – Institute of Archaeology and Ethnography of the Siberian Branch of the Russian Academy of Science.

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FIG 12

Radiocarbon dates from pre- and early Türkic sites of Altai, 4th–6th centuries AD ^43^ (dates calibrated in OxCal v4.2.2).
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ENDNOTES

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4 14CHRONO Centre for Climate, the Environment, and Chronology, Queen’s University Belfast, Belfast BT7 1NN, Northern Ireland, UK. E-mail: s.svyatko@qub.ac.uk.
5 Walker 1915; Bichurin 1950; Liu Mau-Tsai 1958; Asadov 1993.
6 Ross and Thomsen 1930a; 1930b; Malov 1951; Klyashtorny 1964.
7 Klyashtorny and Savinov 2005, 218.
8 Klyashtorny and Savinov 2005, 76; Stark 2016.
9 Derevyanko 2012, 105.
10 Gumilev 1974.
12 Klyashtorny 1965.
13 Bichurin 1950, 228.
14 Bichurin 1950, 220-222.
15 Aristov 1896, 278.
16 Klyashtorny 1965.
17 Chikisheva 2012, 152, 180.
18 Allenfort et al 2015.
19 Kubarev 2009.
20 Zakharov 1925.
21 Rudenko and Glukhov 1927.
22 Gavrilova 1965.
23 Kiselev 1951.
24 Kubarev 2005.
26 Chikisheva 2011, 177.
27 Gavrilova 1965, 57.
28 Bichurin 1950, 216.
29 Pozdnyakov 2006, 19, 49.
31 Matrenin and Shelepova 2007, 85.
33 Zinyakov 1988, 31.
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35 Bichurin 1950, 256; Mogilnikov 1981, 34.
38 Kubarev 1984.
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41 Pozdnyakov 2006.
42 Tishkin 2007a.
43 Data from Kubarev and Orlova 2006 (sites of Ulandryk-1 and Kyzyl-Shin), Tishkin 2007b (sites of Yloman-II and Ust-Biyke-III), Soenov et al 2009 (site of Bike-III), Tishkin and Matrenin 2013 (site of Stepushka-1). New dates (see table 1) were obtained from the 14CHRONO Centre for Climate, the Environment, and Chronology, Queen’s University Belfast (lab ID – UBA).