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PALEOANTHROPOLOGICAL ANALYSIS OF OSTEOLOGICAL MATERIAL FROM THE MYNTOBE BURIAL GROUND¹

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The article deals with the paleoanthropological analysis of the skeletons unearthed from the Myntobe necropolis and dated to the II – IV centuries AD. Myntobe necropolis is located 2 km south of Gani Muratbayev village in the Keles district of Turkestan province. The burial ground consists of more than 600 randomly located mounds of various sizes. All mounds have a dirt embankment. Archaeological excavations were carried out at the burial ground in 2017 and 2022, as a result of which burials in the catacombs and naus were unearthed. An analysis of the burial tradition and recovered material allows researchers to speak about the belonging of these burials to the Kangli tribes. Since the burials date back to the Kangli period, the theoretical part reveals the issues of the location and political structure of the tribes and, most importantly, the determination of the paleopathology of the Myntobints by conducting a macroscopic analysis of the discovered skeletons. The results of the analysis allowed for drawing preliminary conclusions about lifestyle, social life, and nutritional status. When writing the theoretical part of the article, electronic textbooks and resources from the book fund of the National Library of Kazakhstan and the library of the International Kazakh-Turkish University named after Kozh Ahmet Yasawi were used. In total, 9 skeletons were selected for paleoanthropological and paleopathological analysis, from mounds No. 3, No. 6, and No. 7. Paleoanthropological reasoning in the main section is written on the basis of materials in Turkish and English from the collections of Turkish libraries. The skeletons found were analyzed macroscopically and many diseases were identified, such as osteoarthritis (joint deformity), osteopathy, ankylosing spondylitis, heel spurs, thickening of the cranial bone, and deformity of the mandibular joint. Preliminary conclusions about the paleopathology of the discovered skeletons are made.

Keywords: archaeology, paleoanthropology, Keles, burial ground, burial traditions, Kangli period, Myntobe.

Introduction

Myntobe necropolis is located 2 km south of Gani Muratbayev village in Keles district, on the high terrace at the confluence of Keles and Syrdarya rivers. Necropolis has not been extensively explored until now. Several excavations have been carried out in the necropolis in question before. But archaeologists have not found any burials here. Therefore, until 2017, it was not even determined to which culture the cemetery belonged. In 2017, excavations were carried out in kurgan number 3 by Khoja Akhmet Yassawi International Kazakh-Turkish University Archaeology Research Institute, and as a result, a catacomb grave in which five individuals were buried

was identified. The excavated skeletons were preserved in the Archaeology Research Institute Laboratory of Khoja Akhmet Yassawi International Kazakh-Turkish University in Turkestan. The aforementioned institute employee, Muzaffer Gursoy, prepared a project on “Research of burial mounds in the lower reaches of the Keles River in the framework of Archaeology and Interdisciplinary Sciences” in 2022 and presented it to the Ministry of Science and Higher Education of the Republic of Kazakhstan, and this project was supported by the ministry. In the same year, several kurgans were explored in the Myntobe necropolis. In particular, a total of three individuals were identified

¹ The article was prepared on the basis of the scientific project “Research of burial mounds in the lower reaches of the Keles River in the framework of Archaeology and Interdisciplinary Sciences” funded by the Ministry of Science and Higher Education of the Republic of Kazakhstan, individual registration number (AP13068455).

with in situ and scattered skeletons in kurgan number 6. It is understood that this kurgan was robbed in ancient times and that the skeletons were dispersed by the robbers. Excavations were then carried out in kurgan number 7, and only one individual was found 5 meters below the top of the pile. It has been observed that this individual has been very poorly preserved, depending on the ratio of soil structure and moisture. Since the researches in this necropolis are more recent, the paleoanthropological status of the society here has remained unclear until today. However, the paleoanthropological examination of the skeletons, together with this article, will provide information about the lives of the inhabitants of Myntobe. In a way, this article forms the first basis of the paleoanthropological data of the region under investigation.

Since this research is for paleoanthropological evaluation, first of all, the people living in the Kangli culture were identified. Variations and paleopathological conditions observed on the skeletons have been determined. While variations enable the detection of genetic closeness between people, pathological conditions provide information about the natural environment of the person and the lifestyle and social status of the society. Therefore, to better reveal the cause of the diseases detected in individuals, it is useful to briefly touch on the Kangli subject and their lifestyle, considering the natural structure of the Keles river and also that the Myntobe necropolis belongs to the Kangs. In the article, information about the geographical features of the Keles region will be given, and the Kangli subject (name, inhabited regions, lifestyle) will be examined. Again, in this article, information about the kurgans excavated in 2017 and 2020, burial structures, burial customs, burial gifts, and determination of paleoanthropological data on the

skeletons unearthed in kurgans 3, 6, and 7 and based on this, it is aimed to make an estimation on the lifestyle and socio-economic status of the individuals in Myntobe.

In accordance with these purposes, the geographical features of the Keles region, the origin of the name Kangli, the regions he lived in, and the way of life were discussed. The kurgans, burial structures, and burial customs investigated in the Myntobe necropolis were examined in an integrated way with the collected information. Then, a paleoanthropological analysis of the skeletons was made. In the conclusion part, the scientific results obtained are presented.

Material – Method

Topics such as Kangli and geographical features are covered within the written materials. Sources were obtained from the National Library in Kazakhstan, the Central Library of Khoja Akhmet Yassawi International Kazakh-Turkish University, and many electronic databases. Afterward, the written materials obtained were read with great care and the necessary information was classified and written down in a systematic way.

A total of nine skeletons were evaluated for paleoanthropological studies. The skeletons from the excavation were cleaned. Then, macroscopic observations were made and diseases and variations in the bones were determined. The diseased bones were shot with a Canon brand camera. In the conclusion part, the diseases observed on the skeletons were interpreted in relation to the lifestyle of the Kang people and the geographical possibilities of the region.

Gender estimations were made by macroscopic analysis using the resources of WEA (Wea, 1980), J.E Buikstra and D.H. Ubelaker (Buikstra, Ubelaker, 1994), and T.D. White and P.A. Folkens (White, Folkens, 2005). C.O. Lovejoy

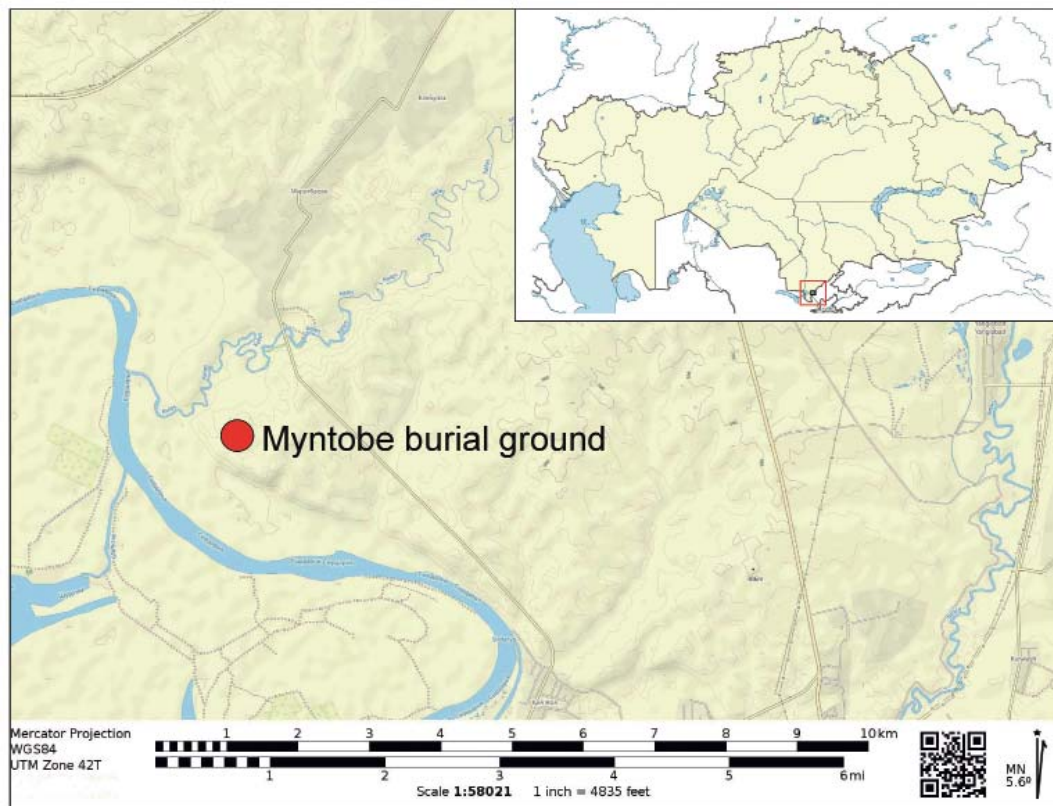


Fig. 1. Map location of Myntobe necropolis.

Рис. 1. Карта локализации некрополя Мынтобе.

(Lovejoy et. al., 1985) auricular surface morphologies, G. Olivier (Olivier, 1969) closure degrees of cranial sutures, D.R. Brothwell (Brothwell, 1981) molar tooth wear degrees, T.W. McKern and T.D. Stewart (McKern, Stewart, 1957) clavicle and symphysis pubis, epiphyseal fusions were evaluated and age determination was made. The lengths of the skeletons were calculated according to the regression formulas of K. Pearson (Pearson, 1899) and M. Sağır (Sağır, 2000). For the diagnosis of pathology and variation, R.W. Mann (Mann, Hunt, Lozanoff, 2005), A.C. Aufderheide and C. Rodriguez-Martin (Aufderheide, Rodriguez-Martin, 1998), J.E. Buikstra and D.H. Ubelaker (Buikstra, Ubelaker, 1994), T.D. White and P.A. Folkens (White, Folkens, 2005), T. Waldron (Waldron, 2009), R.W. Mann

(Mann, Hunt, Lozanoff, 2016) sources were taken as reference.

The geographical feature of the Keles region

Myntobe necropolis is located at the intersection of Keles plain with Syrdarya. This plan is the living center of Varanus reptiles. The Kazakhs call this reptile Keles and the plane in question is named after this reptile. Keles plain is located between the borders of Kazakhstan and Uzbekistan and extends to Mugaltau in the east, Ogem Mountain in the north, and Syrdarya River in the west. Keles, Kurkeles, Shyrshyk, and Angren rivers feed the plain. While there are steep and narrow valleys on the upper side of the Keles river, the rugged steppe dominates the lower part. The aforementioned river originates from the western slopes of Karzhantau and Kazigurt Mountain, and

flows into the Syrdarya river, passing through Saryagash and Keles districts in the southwest direction. This is where the Myntobe necropolis is located (Fig. 1). Both sides of the Syrdarya river, 2 km south of the necropolis, are covered with bushes. Spindle and jingle are grown here. The rough terrain on both sides of the Keles River is covered with vegetation peculiar to the steppe. This region has a continental climate. Summers are hot and winters are mild. In winter, very thin snow falls in this region and it melts quickly. The climatic conditions and the opportunities offered by the place have prepared a favorable environment for the communities in this region. The Stone Age found here (Nysanbaeva, 2002, p. 482; Margulan, 1950, p. 16-17; Nasretdinov, 1963, p. 46-56; Nasretdinov, 1964, p. 21-27), the Bronze Age (Grigorev, 1948, p. 47-67; Maksimova et. al., 1968, p. 175-176; Maksimova, 1974, p. 37), the Iron Age (Akishev, 1963, p. 16-17; Margulan, 1950; Ageeva, 1958, p. 8) and archaeological remains from the middle ages show that people have lived in this region since ancient times. Especially when we look at the history books, it is understood that the Kang people lived here between the 2nd centuries BC and the 7th centuries AD.

The Kangs

In the 2nd century BC, the Kang people appeared on the stage of history and continued their existence until the 7th century. The community in question lived in Central Asia, in the Fergana region, in the area downstream of Syrdarya, on large lands extending from the Karatau slopes to the Talas River and Keles region. According to scientists, the Kang people emerged after the "Migration of Tribes" in the second half of the 2nd century BC (Qozybaev, 1996, p. 272).

In Chinese travel books, there is information about the regions where the Kang people live and their central

cities. In this regard, scientists such as N.Ya. Bichurin (Bichurin, 1950, p. 190), A.N. Bernstham (Bernstham, 1998), S.P. Tolstov (Tolstov, 1948, p. 20-24), L.M. Levina (Levina, 1971, p. 250) have put forward their own ideas by doing research. As a matter of fact, it is noticed that there is no common approach among researchers on this subject.

According to L.M. Levina, the borders of the Kangli country include the vicinity of Karatau, the Tashkent region, the middle and downstream of the Syrdarya river, and the Kuandarya and Zhanadarya regions. L.M. Levina divided the Kangli culture into three "Kauinshy", "Otyrar – Karatau" and "Zhetyasar" based on the ceramics recovered in the middle and downstream of the Syrdarya River in Tashkent (Levina, 1971, p. 250). Myntobe necropolis is located in the "Kauinshy" cultural environment.

The Kangli originally lived on the banks of the Syrdarya River and on the slopes of Karatau. Over time, it became stronger and dominated the lands from Tashkent to Khorezm. It added Fergana and Sogdian lands to the country's borders towards the end of the 1st century BC (Mynzhan, 1994, p. 91).

S. Zholdasbaiuly clearly stated, based on archaeological research, that the Kangs lived in the southern region of Kazakhstan, on the northern and southern slopes of Karatau, on the shores of the Aral Sea, Syrdarya and Talas (Zholdasbaiuly, 1995, p. 42).

The territory of the Kangli State consists of fertile mountain slopes, river valleys, large steppe areas, and deserts due to its geographical location. The economy of those living in small towns has developed on the basis of the possibilities of nature. In the downstream of the Syrdarya River, in the Zerevshan Valley, and in the Tashkent region, settled culture developed and many settlements and cities were established. The lifestyle of the people living in these regions was based on semi-nomadic

livestock and agriculture. For example, communities in the Zhetyasar cultural district downstream of the Syrdarya River engaged in agriculture using rivers, ponds, and small irrigation systems that did not require much effort. Around Kok-Mardan Tumulus in the Otrar region, old irrigation systems are very well preserved. As a result of the research carried out here, it was determined that artificial ponds were built from the soil on the old beds of the Aris River and the fields and gardens were irrigated by means of wastes. Thanks to the aerial observations, traces of old waste streams, channels and small ponds were detected. The remains of barley, wheat, millet, melons, watermelons, apples, grapes, apricots, and other crops were found during the excavations of the Kangli mound (Qozybaev, 1996, p. 282).

During the excavations carried out in Kostobe, Botaitobe, Aktobe, and other mounds remains of grain, various stone grinders, and stone mills were found. Many granaries were found inside the chambers made of clay (Zholdasbaiuly, 1995, p. 45). In addition, bones of sheep, goats, cows, horses and wild animals such as deer, mountain sheep, steppe deer, and wild boar were found during the excavations. All this shows that the Kang people were engaged in hunting as well as animal husbandry. Keles region has been home to nomadic and settled cultures for many years. Therefore, it exhibits a cultural mosaic structure. For example, cities specific to settled culture and kurgan tombs specific to nomadic culture are integrated into a cultural environment. The communities in the Keles region were engaged in animal husbandry and agriculture during the Kangli period. This is evidenced by the 20 km long Zakh canal on the right bank of the Shirshik River near Tashkent (Qozybaev, 1996, p. 272-287).

Archaeological data show that the Kang, like other steppe communities, built kurgans for their deceased relatives.

From Kang kurgans were identified catacombs (Borisov, 1940, p. 301-311), naus (sagana) (Baipakov, 2005, p. 174; Maksimova, 1974, p. 95), and sklep-type tombs (Levina, 1996, p. 61).

The Kangites initially used catacomb tombs. For the catacomb tombs, the earthen ground is dug down in steps, the dromos is formed, and a burial chamber is made that intersects the other end of this dromos at a right angle. The burial chamber is sometimes 6 -7 meters deep. Generally, multiple burials were made in the Catacombs and their entrances were closed with mud or raw bricks (Podushkin, 2000). Archaeologists commented that burials were made at certain times through the dromos and that the catacombs may belong to a family member. As a matter of fact, the fact that a single individual was buried in the catacomb grave excavated in 2022 proves that this type of burial was made in single burials.

In later periods, the Kang people built naus for their deceased relatives. For the naus, the ring-shaped platform is first prepared by compacting the mud to the ground level. On top of this, a wall is built with a slight inward inclination so that one or two rectangular burial chambers are formed inside. In nauses, dromos are usually made in the south or southwest corner. The entrances are closed with bricks or mud. The benches along the walls and the top are plastered with mud. The dead are laid on the benches (Smagulov, 2011, p. 119-141; Bogomolov, 2005, p. 191).

Archaeologists determined that in both types of tombs, the skeletons of old individuals were gathered in a corner and replaced with new burials. This shows that the tombs have been used many times over the years. Pots, knives, swords, items made of bone, arrowheads, bronze mirrors, earrings, beads, bracelets and other finds unearthed in the tombs prove that the Kanglis had belief in the afterlife (Baipakov, 2005, p. 174). The



Fig. 2. Aerial view of Myntobe nekropolis.
Рис. 2. Вид с воздуха на некрополь Мынтотобе.

information we have given above also supports the kurgan data in the Myntobe necropolis.

A brief history of the archaeological research carried out in the Myntobe necropolis.

Myntobe necropolis is located 2 km south of Gani Muratbayev village in Keles district, on the high terrace at the confluence of Keles and Syrdarya rivers. Rough lands lie on the north and east sides of the necropolis. On the south, there is a steep slope with a depth of 20 m and the Syrdarya river is 1 km away from this slope. Keles River passes on the west side. The kurgans in the Myntobe Necropolis stretch for 2 km from east to west and for 1,5 km from north to south. As a matter of fact, it is also noticed that the kurgans are arranged in a single row on some hills. The diameter of the

kurgans in the necropolis is 6 – 33 m, and the height is 0,65 – 4,30 m. Most of the kurgans are circular in shape (Fig. 2). There are also drop-shaped ones among them. The necropolis in question belongs to the Kangli culture.

No research was carried out in the Myntobe cemetery until the 21st century. Excavations here were initiated by A.N. Podushkin. The aforementioned archaeologist excavated in two kurgans, which stood on the edge of the slope south of the cemetery and were destroyed by the downward slide of the soil, in 2016-2017. No finds were obtained from these kurgans, which can be described as salvage excavations in a sense (Podushkin, 2018, p. 101).

In 2017, the Kazakh National University archaeological research team under the direction of M. Eleuov excavated the bork-shaped kurgan in the

center of the necropolis. As a matter of fact, no burial traces were found from the kurgan.

In the same year, excavations were carried out in this cemetery by the archaeologists of Khoja Akhmet Yassawi International Kazakh-Turkish University. In the kurgan number 2, a circular naus tomb (a burial structure built with raw bricks and mud at ground level) was unearthed. It was observed that this tomb was robbed in the early period. Therefore, no finds were found, except for a few human bones. Later, excavation was carried out in kurgan number 3 and a catacomb grave with dromos containing five individuals was found. This is very important as it is the first tomb identified in the Myntobe cemetery (Zhetybayev, 2020, p. 409).

In 2018, A.N. Podushkin excavated the kurgan near the western corner of the cemetery and uncovered a catacomb tomb. The scientist found utensils, beads and arrowheads along with four individuals lying scattered in this grave (Podushkin, 2019, p. 163). After this date, the work in the Myntobe necropolis was suspended until 2022. In 2022, with a three-year project supported by the Ministry of National Education, archaeologists of Khoja Akhmet Yassawi International Kazakh-Turkish University started archaeological research again. While the naus tomb was unearthed from the 6th kurgan excavated at this date, the catacomb grave was found from the 7th kurgan. In particular, the burial tradition, burial structures and individuals of the burial tradition, burial structures and individuals in chronological order, unearthed by the archaeologists of Khoja Akhmet Yassawi International Kazakh-Turkish University in 2017 and 2022, are discussed in an integrated way.

A total of 9 skeletons were obtained, 5 skeletons in kurgan number 3 opened in Myntobe in 2017, 3 skeletons in kurgan number 6 opened in 2020, and 1 skeleton in kurgan number 7 opened in 2022. The

preservation status of the skeletons is poor due to the nature of the soil.

Although the number of skeletons is low, it is insufficient for us to obtain information about the profile of the society that lived in the period, but more data will be obtained with the excavations to be carried out in the coming years. At the same time, ancient DNA studies will support anthropological and archaeological studies. Whether these individuals are related or not will be revealed as a result of ancient DNA Studies This study is important as it is the first time that skeletons belonging to the Kangli community have been reached.

Excavation results and paleoanthropological evaluation in kurgan number 3

This kurgan was unearthed in 2017 as a result of excavations carried out in partnership with Kazakh-Turkish archaeologists. The diameter of the number 3 kurgans was calculated as 13 m and the height as 1,70 m. After measuring, a margin (0,35 m in width) was left along the east-west direction to divide the kurgan into two sectors. The southern part of the said share is designated as the “A” half and the northern part as the “B” half (Fig. 3, 1). The excavation was started in the “B” half and continued until the main ground at a depth of 1,95 m. After the masonry in the “B” half was removed, the structural feature of the kurgan was tried to be determined by the observations made on the section. Thus, it was understood that the top layer was covered with 0,5 m thick grass (naturally growing plants formed a layer over time), humus soil was under the turf, and stone was not used for the construction of the kurgan. Then, in order to detect the “grave trace”, the section in the “B” half and the main floor were cleaned smoothly.

As a result of the studies, no grave traces were found. Therefore, excavations were continued in the “A” half. After the masonry was removed, a

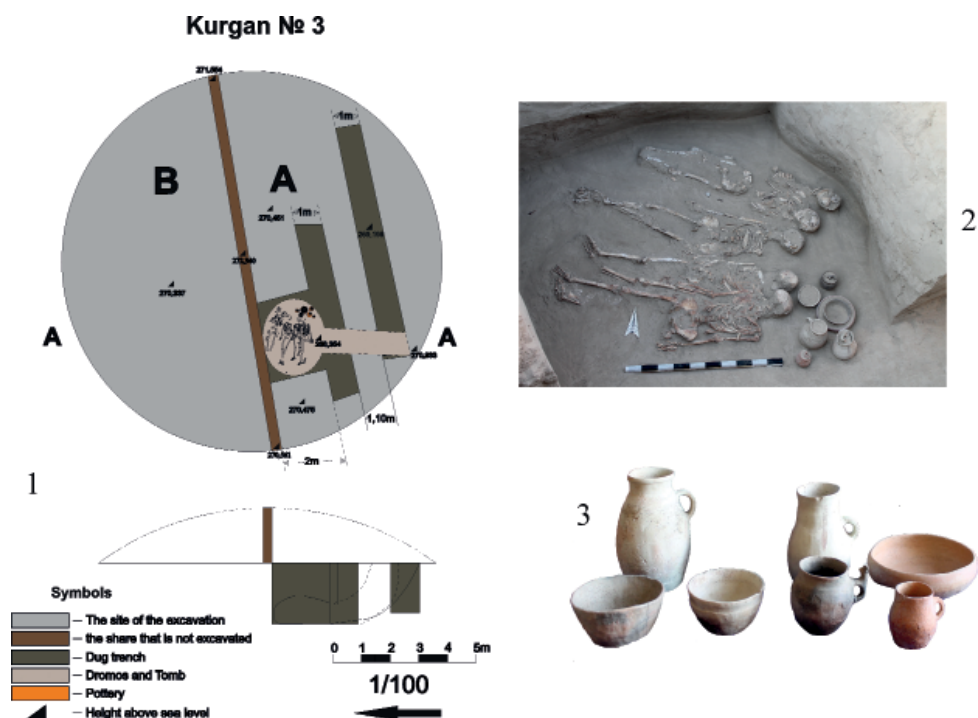


Fig. 3. Kurgans No. 3. 1 – kurgan No 3 plan; 2 – skeletons lying in the catacomb Tomb; 3 – ceramics.

Рис. 3. Курганы № 3. 1 – план Кургана № 3; 2 – скелеты, лежащие в катакомбной гробнице; 3 – керамика.

"grave trace" was tried to be determined here, according to the previous method. No traces of burial were found. After failing to detect the "grave trace" on the vertical surface of the left share and on the main floor, "drainage opening method" was applied. Starting from the southernmost skirt of the "A" half, a drainage measuring 8,20 m in length, 1 m in width and 2,40 m in depth was dug on the main ground in the east-west direction (Fig. 3, 1). At the western end of the opened drainage, a 0,37 m deep and 0,87 m wide earth fill was found down over the main ground. After this filling continued to a depth of 2 m, a hard clayey layer was exposed at the bottom. Then, in order to understand whether the fill continues to the north, a second drainage was dug with a length of 6 m, a width of 1 m and a depth of 2,40 m and 1,10 m north of the first drainage.

With the opening of the second drainage, it was determined that the filling seen in the first drainage continued towards the north.

Especially when the second drainage reaches a depth of 2,40 m, the trace of the dromos with a height of 1,65 m was determined in the section formed between the first and the second drainage. In addition, with the opening of the second drainage, a catacomb tomb with an entrance width of 0,85 m and a height of 0,70 m was found. A small red slipped, the loop-handled pot was found, which was left at the head of the 1st and 2nd skeletons on the south side of the tomb. The dromos, which is 1,65 m high at the skirt of the kurgan, descends or narrows by 0,70 m towards the burial chamber where the skeletons lie. After the soil in the burial chamber was completely cleared, it was seen that five

individuals were buried there by turning to the east. Individuals were identified as the 1st, 2nd, 3rd, 4th, and 5th skeletons from south to north (Fig. 3, 2).

The first skeleton was laid on its back with its head turned to the east, right at the entrance of the catacomb tomb. While both legs of the individual are left longitudinally, the left arm is placed under the hip bone. The individual's right arm extended along the left side of the second skeleton. The skull and left leg of the 1st skeleton were very poorly preserved. One red slipped and two white slipped pots, one red slipped plate and one white slipped bowl were left on the head of the individual (Fig. 3, 3). A stone bead, a bone bead piece, a bronze object (cylinder) and an iron bowl were found in the said bowl.

The 2nd skeleton was laid on its back, on the right side of the 1st skeleton, with its head turned to the east. Its two legs are located longitudinally. While the left arm of the individual is placed under the hip bone, the right arm is placed on the hip bone. At the head end of the 1st and 2nd skeletons, a white slipped bowl and a zoomorphic pot with a handle (slightly sooty surface) were found. In addition, an arrowhead was found at the foot of the 2nd skeleton.

The 3rd skeleton head was turned to the east and was laid in a cross-legged position. While the right arm of the individual is left next to the body, the left arm is placed under the hip bone. While it was found around the right wrist (a stone button with iron solder on it?), a bead was found on the tip of the right-hand finger.

The 4th individual was laid on his back with his head turned to the east. The iron knife remains and a stone button were found on the left side of the skeleton, whose arms were poorly preserved.

Since the skeleton belonging to the 5th individual was very poorly preserved, the laying style could not be determined.

Since the skeleton belonging to the fifth individual was very poorly preserved, the laying style could not be determined. Two talus were found on the left side.

Paleoanthropological evaluation in kurgan number 3

The individual numbered Bintepe No 3-1 (2017) was determined to be male as a result of anthropological examinations. According to the clavicular and acicular facet aging method, it was determined that the individual was over 60 years old. Height was calculated according to the humerus. The individual's height is $163,686 \pm 4,61$ cm according to M. Sağır (Sağır, 2000) and 158,908 cm according to K. Pearson (Pearson, 1899). While osteoarthritis may occur for an unknown reason, it may also occur due to genetic, environmental factors, aging, and physical behaviors R.W. Mann (Mann, Hunt, Lozanoff 2005, p. 15, p. 17). Schmorl's nodule occurs when damage to the end plate of the vertebra reduces the pressure on the nucleus and transfers the load to the annulus, and the end plates become herniated. It can be seen in different ways on the vertebral surface (Waldron, 2009).

Osteoarthritis in the lateral epicondyles of the right and left humerus (Fig. 4, 1), Schmorl's nodule in 5 lumbar vertebrae (Fig. 4, 2), joint deformation (arthritis) in the articular facets of the right and left coxa and sacrum (Fig. 4, 3) were observed. The low degree of wear in the molar teeth in the mandible of this elderly individual may give an idea that this individual is better fed. Apart from this, the presence of arthritis is normally compared to age. Arthritis observed especially in the lumbar vertebrae and pelvis also shows that this individual does heavy physical work throughout his life.

The structure of the individual numbered Bintepe No 3-2 (2017) shows that he is male. The height of this individual, aged 18-21, was calculated according to the radius. The individual's



Fig. 4. Bones belonging to the first skeleton (1, 2, 3). 1 – arthritis observed in the lateral epicondyle of the humerus in a 60-year-old man; 2 – Schmorl's nodule in the vertebra of a 60 year old man; 3 – osteoarthritis in the coxae of a 60-year-old man. Bones of the third skeleton (4, 5). 4, 5 – osteoarthritis in the styloid in the distal left ulna of a 60-year-old man.

Рис. 4. Кости первого скелета (1, 2, 3). 1 – артрит латерального надмыщелка плечевой кости у мужчины 60 лет; 2 – узел Шморля в позвонке мужчины 60 лет; 3 – остеоартроз тазиков у мужчины 60 лет. Кости третьего скелета (4, 5). 4, 5 – остеоартроз шиловидного отростка дистального отдела левой локтевой кости у мужчины 60 лет.

height is 161.595 ± 4.62 cm according to Sağır, and 154,616 cm according to Pearson. The high degree of molar wear indicates that this individual is mostly fed hard foods such as grains or fibrous foods.

It has been determined that the individual numbered Bintepe No 3-3 (2017). According to the clavicular and articular facet aging method, it can be said that this individual is 60+ years old. The high degree of molar wear can be interpreted as both age and diet being hard foods. Due to the poor preservation of the skeleton of this individual, the height could not be calculated. There is osteoarthritis in the left ulna styloid (Fig. 4, 4-5.). Osteoarthritis was observed in the right and left coxa and a small degree of osteophytes due to osteoarthritis in 2 lumbar vertebrae.

It has been determined that the individual numbered Bintepe No 3-4 (2017) is a 15-18-year-old adolescent whose epiphyses have not yet been fused.

Since the skeleton of individual Bintepe No 3-5 (2017) is poorly preserved, there is no gender criterion. However, according to molar tooth wear, it can be said that the individual is young between the ages of 18-25.

Excavation results and paleoanthropological evaluation in kurgan number 6

This kurgan, which was excavated in 2022, is located on the ridge starting from the northeast of the cemetery and extending towards the south. Keles river is located 310 m north of the kurgan, while Syrdarya river is located 1 km west of the kurgan. A.N. Podushkin,



Fig. 5: Individuals buried in naus.

Рис. 5: Захороненные в наусе.

who conducted research here in 2017-2018, stated that there were several king kurgans in the cemetery (Podushkin, 2019, p. 153). The king kurgan mentioned by A.N. Podushkin may have been the number 6 kurgan, since it is larger in both diameter and height compared to other kurgans. This kurgan is “drop” shaped. The northeastern part of the kurgan is higher than the southwestern part. It measures 20-17 m in diameter and 3,3 m in height. Initially, it was speculated that there might be a naus here, based on the topographical appearance of the kurgan and previous years experience. In order to confirm this, a sounding pit (10 m in length, 1,5 m in width) was dug in the south-north direction of the central part of the kurgan.

Very hard raw brick pieces were seen at a depth of 0,4 m from the top point. Afterward, the earth pile began to be removed from the top of the kurgan, covering the entire area. During the excavation, body fragments of 21 plain vessels and a bottom part were found from the kurgan heap.

When the entire soil was cleared and the excavation depth reached 2 m, the naus with dromos of 5,5 m in diameter, made of raw bricks and clay, were exposed at ground level (Fig. 5). It was prepared for a 0,49 m high platform with clay blocks underneath. On top of this, a wall with a slight inward inclination was built with raw bricks. The wall thickness is 1,60-1,70 m. Its height with the platform is 1,38 m. There is a 2,5x2 m burial chamber in the middle. The dromos of the building are in the northeast and southwest directions. Its length is 2,65 m and its inner width is 0,6 m. Its edge thickness is 0,55 m and its height is 0,85 m. The inner surface and base are light yellow clay plaster. The dromos extend to the middle burial chamber and a «II»-shaped bench was built next to it. The benches are located 0,5 cm above the base of the dromos. Its width is 0,75 m. During the excavation, traces of fire were found on the edge of the benches. It is possible to associate these traces with the ritual performed with a set of fires. After the burial chamber



Fig. 6. 1 – Myntobe No 6-1 (2022). 42–45 years old male individual with osteoarthritis in his third metatarsal; 2 – Myntobe No 6-1 (2022). Calcaneal spur in a 42–45-year-old male.

Рис. 6. 1 – Мынтобе № 6-1 (2022 г.). Мужчина 42–45 лет с остеоартрозом третьей плюсневой кости; 2 – Мынтобе № 6-1 (2022). Пяточная шпора у мужчины 42–45 лет.

was cleaned, an individual preserved in situ on the eastern wall of the room and human bones lying scattered on the left side of the room were found (Fig. 4). In addition, one transparent bead, which escaped the robbers' eyes, was found. Anthropological analyzes were carried out on the scattered human bones, and as a result, it was understood that the bones in question belonged to two adults and a child. Therefore, the human skeleton and parts in the grave were determined as №1, №2 and №3 individuals.

№1 individual was laid on its back longitudinally on the eastern wall of the naus and its head was turned to the south. The right arm of the individual is placed on the hip bone and the left arm is placed next to it. Its two legs are left longitudinal. The individual is very poorly preserved. The named individual №2 was found scattered on the left side of the first individual, right in the middle of the burial chamber. Only the foot bone, scapula, clavicle and skull were preserved in situ. From this, it was understood that this individual was oriented towards the south. The bones of the individual named №3 belong to a child. It was found scattered in the burial chamber. The skull fragment, radius and ulna bones remained from the skeleton.

Since none of its bones were preserved in place, the laying shape and direction of the skeleton could not be determined.

Paleoanthropological evaluation in kurgan number 6

It has been determined that the individual Myntobe 6-1 (2022) is male. According to the articular facet, it is between 42–45 years old. There are Schmorl's nodules in 2 lumbar vertebrae, arthritis in the proximal end of the fibula, arthritis in the anterior facets of the right and left patella, arthritis in the right 1st and 3rd metatarsals (Fig. 6, 1), and in the 1st distal phalanges of the right foot. Calcaneal spurs may occur in elderly individuals with ankylosing spondylitis (AS), diffuse idiopathic skeletal hyperostosis (DISH), and mechanical pull in the Achilles tendon or plantar fascia (Mann, Hunt, Lozanoff, 2005, p. 363). A calcaneal spur (Fig. 6, 2) was observed in the posterior part of the left calcaneus of this individual.

The bones of the individual numbered Myntobe No 6-2 (2022) were badly damaged. However, it can be said that she is a woman according to her morphological structure. According to the articular facet, it is between 50–55 years old. Osteophytes were observed in 1 vertebra of this individual.



Fig. 7. Kurgan number 7. 1 – view before excavation; 2 – pots standing on the ground level under the kurgan pile; 3 – “T” shaped catacomb; 4 – the individual found in “T” shaped catacomb tomb.

Рис. 7. Курган № 7. 1 – вид до раскопок; 2 – горшки, стоящие на уровне земли под курганным штабелем; 3 – катакомбы Т-образной формы; 4 – человек, найденный в катакомбной гробнице «Т» – образной формы.

The bones of Myntobe No 6-3 (2022) belong to the child. However, since the bones are very damaged, there is no criterion for age determination.

Excavation results and paleoanthropological evaluation in Kurgan number 7

After the work in the number 6 kurgan was completed, excavations were started in the number 7 kurgan in the southwest of the necropolis. This kurgan is located on sloping land in the northeast and southwest directions on the edge of the natural drainage, which is not very deep. Its shape is drop-shaped. Its diameter is 14 m and its height is 1,30 m (Fig. 7, 1).

This kurgan was excavated by dividing the northeast and southwest sectors. The northeast sector is designated as the “A” half and the southwest sector as the “B” half. Before the excavation, a georadar survey was

conducted to determine the architectural features of the kurgan. As a result, it was determined that stone was not used as a building material in the kurgan. Before the excavation, the cairn was covered with various vegetation. Therefore, the kurgan was first cleared of these plants. Later, excavation was started in the “A” half. At a depth of 0,90 meters from the upper point, the rim of three vessels was seen above the old ground level. Afterward, the soil covering these containers was meticulously cleaned. As a result, it was determined that these were pitchers, double-handled pots and a small red slipped vase (Fig. 7, 2).

Two of them are handmade and one is wheel made. Traces of fire can be noticed on the outer surface of the pot. Based on this, it can be assumed that dead food was cooked in the said vessel. All these containers were removed by



Fig. 8. 1 – the appearance of worn teeth; 2 – diploë thickening in the cranium of a 32–43-year-old female individual with the code Myntobe No 7 (2022); 3 – the temporomandibular joint disorder in the mandible of a 32–43-year-old female individual with the code Myntobe No 7 (2022) is shown in a circle. The double mental foramen is shown in a square.

Рис. 8. 1 – внешний вид изношенных зубов; 2 – утолщение диплоэ в черепе женщины 32–43 лет с кодом Мынтобе № 7 (2022 г.); 3 – кружком показано поражение височно-нижнечелюстного сустава нижней челюсти у женщины 32–43 лет с кодом Мынтобе № 7 (2022). Двойное подбородочное отверстие показано квадратом.

labeling. After the pots were removed, cleaning works were carried out in the excavated area in order to detect grave traces. As a matter of fact, no grave traces were found in and around the area where the vessel was found. After that, the excavation area was expanded as a drainage excavation towards the southwest skirt of the kurgan. When the excavation depth reached 2,80 m from the upper point, cleaning works were carried out in the inner part of the drainage. As a result, a trace of a rectangular dromos was found in the southwest corner of the drainage. This dromos starts from the ground level on the southwestern skirt

of the cairn and extends down to 4,6 m in the northeast direction. Thus, it was connected to the tomb at a depth of 5 m in a “T” shape at a right angle in the southeast-northwest direction (Fig. 7, 3). Such tombs are referred to as catacombs in scientific publications. During the excavation, it was seen that the entrance of the catacomb tomb was in the form of an arch. The tomb measures 2.20x0.75 m.

The face of this individual is facing the three vessels above the old ground level under the kurgan heap, that is, facing north (Fig. 7, 4). The black remains found on the grave floor show

that an organic mattress was laid under the body. No finds were found from the burial chamber during the excavation. After that, the excavations were terminated and the skeletal remains were collected and anthropological studies were carried out on the skeleton.

Paleoanthropological evaluation in kurgan number 7

The skeleton, which was given the code Myntobe No 7 (2022), was identified as a female. According to the clavicular aging method, this individual was found to be between the ages of 32-43. The advanced degree of tooth wear indicates (Fig. 8, 1) that this individual was fed hard foods in bad conditions. Cribra orbitalia and porotic hyperostosis are symptoms of anemia (Fig. 8, 2). These lesions often occur with diploeme enlargement of the skull in response to bone marrow hypertrophy (Walker et al., 2009). Diploe thickening shows that he has anemia due to his diet (Fig. 8, 2). Temporomandibular joint disorders appear more frequently in past societies due to changes in diet, use of teeth as tools, and biomechanical stress on jaw muscles (Burt et al., 2013, p. 8). The individual has a minor temporomandibular joint disorder in the mandible (Fig. 8, 3). Periostitis occurs due to infection of the soft tissue to the bone, a specific disease, and osteitis or the involvement of osteomyelitis on the bone surface or trauma (Morse, 1978). They have periostitis in their tibia. There is a double mental (accessory) foramen in the left mandible of the individual (Fig. 8, 3).

Discussion Conclusion

There are a total of 9 skeletons found from Kurgan 3, Kurgan 6 and Kurgan 7. These 9 skeletons are important because

they represent the first skeletons found belonging to the Kangli period. Of the skeletons whose sex was estimated, 4 were male, 2 were female, 1 was an adolescent and 1 was a child. The gender of 1 individual could not be determined. According to the aging table of Buikstra and Ubelaker (1994), 1 individual is a child and 1 individual is an adolescent. According to the aging table of Buikstra and Ubelaker (1994), 1 individual is a child and 1 individual is an adolescent. Two individuals (one male, whose gender cannot be determined) are young adults. Two individuals (1 female and 1 male) are middle adults. 3 individuals (2 male and 1 female) are advanced adults. Molar wear in individuals shows that the diet of these individuals is grain-based. The joint deformations observed in the advanced adult male individuals in the Kurgan No. 3 give the impression that they do heavy physical work both in terms of age and in the geography they are located. The presence of osteoarthritis and calcaneal spurs in the middle-adult male individual in Kurgan No. 6 shows that this individual also did heavy physical work and experienced mechanical strain. The symptoms of anemia in the female individual in kurgan 7 indicate that the individual is malnourished. At the same time, the temporomandibular joint deformation observed in this individual shows that the individual used his chin in works such as basket knitting throughout his life.

With the excavations to be carried out and more skeletons to be unearthed, detailed and valuable information will be obtained about the mysterious Kangli society, which has an important place in Central Asia.

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ПАЛЕОНТОПОЛОГИЧЕСКИЙ АНАЛИЗ ОСТЕОЛОГИЧЕСКОГО МАТЕРИАЛА ИЗ МОГИЛЬНИКА МЫНТОБЕ

М. Гурсой, Б.А. Байтанаев, Э. Ажар, Б.С. Сиздиков

В данной статье освещены результаты палеоантропологического анализа остеологического материала из могильника Мынтобе, датируемого II–IV веками н.э. Мо-

Статья подготовлена на основе научного проекта «Исследование курганов в нижнем течении реки Келес в рамках археологии и междисциплинарных наук», финансируемого Министерством науки и высшего образования Республики Казахстан. индивидуальный регистрационный номер (AP13068455)

гильник Мынтобе расположен в 2 км южнее села Гани Муратбаева Келесского района Туркестанской области. Могильник состоит из более 600 бессистемно расположенных курганов разного размера. Все курганы с грунтовой насыпью. На могильнике в 2017 и 2022 годах были проведены археологические раскопки, в результате которых были вскрыты захоронения в катакомбах и наусе. Анализ погребальной традиции и подъемный материал позволяют исследователям говорить о принадлежности этих погребений племенам канглы. Поскольку погребения относятся к периоду канглы, теоретическая часть раскрывает вопросы расположения и политического устройства племен и, главное, определению палеопатологии мынтобинцев путем проведения макроскопического анализа обнаруженных скелетов. Результаты анализа позволили сделать предварительные выводы об образе жизни, социальной жизни и состоянии питания. При написании теоретической части статьи использовались электронные учебники и ресурсы из книжного фонда Национальной библиотеки Казахстана и библиотеки Международного казахско-турецкого университета имени Кожа Ахмета Ясави. Всего для палеоантропологического и палеопатологического анализа было отобрано 9 скелетов, из курганов № 3, № 6 и № 7. Палеоантропологические рассуждения в основном разделе написаны на основе материалов на турецком и английском языке из фондов библиотек Турции. Найденные скелеты были проанализированы макроскопически и выявлены многие заболевания, такие как остеоартроз (деформация суставов), остеофиты, анкилозный спондилит, пяточная шпора, утолщение черепной кости, деформация нижнечелюстного сустава. Сделаны предварительные выводы о палеопатологии обнаруженных скелетов.

Ключевые слова: археология, палеоантропология, Келес, могильник, погребальные традиции, период канглы, Мынтобе.

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