

# Reconstruction of the Costume Elements of the Shilikty "Golden Man"

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## Abstract

The article contains the reconstruction of the Shilikty "Golden Man" clothing based on multidisciplinary studies of the archeological material from the royal kurgan "Baigetobe" in the Tarbagatai foothills. The authors describe in detail the reconstruction of the anthropological appearance and the results of studying organic samples from the burial complex, as well as explain the final shape of royal attire and justify the details and components of the reconstructed costume. The methodological basis of the study is the systemic approach that allows one to view the categories of the Saka royal clothing as profound systems. Within the approach, the methodology and the recreation of ancient royal clothing rely on a wide range of analogies from Eurasian Saka-Scythian monuments and ethnographic materials. Based on these monuments and materials, the authors have established that certain elements in the clothing of early nomads of Kazakhstan have more in common with the clothing of neighboring tribes of Asian steppes in the early Iron Age. This is evident in the cut, detailing and the décor of clothing recovered from such monuments as Pazyryk, Katanda, Tuyekta and Akalakha. The methodological challenge to study clothing based on archeological data is primarily related to the condition of the source. The authors briefly characterize the organic probes from the kurgan burial chamber that have been studied using regular and digital microscopes and conclude that the clothing of the Shilikty Man was colorful. Within the framework of multidisciplinary research, the authors have conducted an anthropological study of the skeletal remains and the sculptural reconstruction of the person from the Baigetobe kurgan. Anthropologically, this person belongs to the mixed Caucasoid and Mongoloid type with prevalent Caucasoid elements, which agrees with the anthropological features of the ancient population of Central Asia in the early Iron Age. Therefore, gold jewelry, the quality of fabrics and the multilevel burial structure confirm the high profile of the Shilikty Golden Man. The conclusions and results can be used for the reconstruction of the composite image of the nomadic nobility in Central Asia in the early Saka period.

**Keywords:** Shilikty, Tarbagatai, reconstruction, Saka-Scythian world, clothing, Golden Man.

## Introduction

From 1000 BC, cultures united by a similar set of weapons, horse harness, clothing and a common art of "animal style" existed and developed on the territory of the steppe belt of Eurasia, including all over Kazakhstan. This cultural entity, known in the scientific literature as the Saka-Scythian world, left an indelible mark on the history of ancient Eurasia. All aspects of this historical and cultural phenomenon require a comprehensive study. This work is devoted to the historical reconstruction of the Saka king's clothing based on the materials of the Shilikty monument and using the data from neighboring territories. As clothing is one of the valuable elements of the material and spiritual culture in society, one can use it to get significant information about the

origin, cultural ties and ideological foundations of the ancient population.

Morphologically, the Shilikty valley is located in the eponymous intermountain area formed during the Cenozoic (late Alpine) tectonic activity and bordered by a system of regional ranges spanning 100 km with about 30 km across. The valley is naturally limited by the Manyrak and Saur Mountains in the north and northeast and by the spurs of the East Tarbagatai Mountains that reach the altitude of 2,500-2,900 meters. Starting from 2003, research is conducted on Shilikty monuments located in the eponymous valley in the Zaysan district of the East Kazakhstan region of the Republic of Kazakhstan (Panyushkina *et al.*, 2016).

During this time, through excavation, we have studied four large, one medium and over 20 small kurgans and surveyed the topography of the monuments of the Shilikty Valley and its surroundings. According to the current information, there are more than 200 monuments of the early Iron Age in the Shilikty Valley including about 120 kurgans of the Saka-Scythian time located in the center of the valley, in an area of about 1 by 6 kilometers. Such a high concentration of elite monuments of Saka-Scythian culture is rare not only in Kazakhstan but throughout Eurasia.

The Saka and Scythian tradition to make their rulers and kings wear gold jewelry falls onto the period from the 8<sup>th</sup> to the 3<sup>rd</sup> centuries BC. This period in the development of the Saka-Scythian tribes can be called "the Golden Age" or "the Golden Period" as it corresponds to the construction of enormous and luxurious royal tombs.

Groundbreaking material has been obtained from the Baigetobe kurgan located on the southern side of the Zhalshi village. Structurally, the Baigetobe kurgan had three levels. The first level contained a wooden tomb built on the ground level. The tomb walls were double log structures where the gaps were filled with rocks. The eastern side of the tomb was frustum shaped. The floor area of the tomb amounted to about 20 square meters. The tomb was covered by a single layer of tightly joint logs. The height of the tomb was 3.7 meters.

The wooden tomb was covered by a round stone mound with a perimeter of over 65 meters and a height of 4.9 meters. One could see a raiders' tunnel in the middle of the stone mound.

The third level consisted of the soil mound over the stone kurgan. The current height of the soil mound is 7.9 meters and the diameter of the kurgan is about 90 meters including earthflow areas.

Like most other "royal" kurgans, this burial mound was plundered back in the ancient times. Raiders made a 4-meter-deep shaft at the center of the kurgan and, having cut a hole in the log structure, entered the tomb. Afterward, the tomb was filled with soil left by the raiders. Despite the partial pillaging, some treasures were still discovered in the kurgan. A total of 4,303 gold items were found in the Baigetobe kurgan of Shilikty-3 burial ground. The items included 153 plaques shaped like a leopard mask, 36 gold eagle-shaped plaques, 20 deer-shaped plaques, 39 plaques shaped as a young wolf or bear, a plaque shaped as an argali sculpture, a plaque shaped as a five-point star, 23 bell-shaped pieces, 63 ribbed tube-shaped pieces, 17 gold strips, 7 gold wires, 141 miniature hemispheric pendants, 2,835 miniature cup-shaped pendants with a welded on bail, 223 miniature tubular glass beads, 743 ring-shaped glass beads and a miniature clamp (Toleubayev *et al.*, 2013). All these have become the foundation for the reconstruction of the Shilikty "Golden Man".

## **Methods.**

The methodology for studying the clothing items of early nomads found in burial complexes on the

Eurasian Steppe (Reinhold, 2003; Polosmak, 2015; Faizullina, 2017) has often been considered in recent historical (Husein-zade, 2011; Yatsenko, 2010; Usova, 2006; Altynbekov 2013) and archaeological studies. The methodological complexity of studying clothing based on archaeological data is associated with the condition of the source itself. Many scientists set a condition for the accurate reconstruction of clothing as the scrupulous fixation of jewelry and costume elements in the field and the presence of numerous detailed plans. Conclusions are made based on burials containing a significant number of different decorations (Dode, 1995; Maitdinova, 2001; Prilipko, Boltrik, 1991; Golovchenko, Telegin, 2014). The reconstruction of the clothing of the Issyk and Arzhan Men was carried out according to this principle. The Issyk and Arzhan discoveries of "people in the golden clothing" were not found in the central burials but in the additional, inlet graves; therefore, the Issyk and Arzhan gold items were found in an undisturbed state and were completely recorded in situ.

The reconstruction of the clothing that belonged to the ancient peoples of Altai-Tarbagatai, including the Shilikty Valley, is essential to restore the local features of the clothing. Such features certainly must exist. In our opinion, the remoteness of this region from the cultural centers of the Iranian and ancient worlds, as well as the absence or weakness of Chinese influence at that time on the Saka-Scythian culture of the Altai-Tarbagatai region and the particular economic and climatic conditions of this area, all contributed to the formation of local, autochthonous elements of the clothing form, cut, material and color. The tastes, values, worldview of the people and its specific representatives are undoubtedly expressed in a person's appearance, which is mainly formed through clothing.

The Shilikty "Golden Man" artifacts were in very poor condition. The burial mound was pillaged in antiquity through a funnel-shaped raiders' shaft from above. Gold items and human bones were recovered on various layers and parts of the two-meter layer of soil in the eastern part of the tomb, on an area of about eight square meters. Even during the digging of the raiders' passage into the tomb through the top, a lot of soil may have fallen into the tomb and covered the deceased who lay directly under the shaft. After that, the raiders had to remove the soil from the body and throw it into the eastern part of the grave. In a hurry, due to low light and smoke from the torch at an eight-meter depth of the kurgan, the raiders, along with the soil, moved part of the bones and gold artifacts into the eastern part, so we got them. All the large gold items, expensive accessories (the belt with decorative plates, the torque, the acinaces, the sword, the votive wand, possibly a bow with a quiver) of the buried ruler were taken by raiders.

Therefore, it was practically impossible to map the decorations on the clothing based on their location after the plundering. Nevertheless, the location of every plaque during the excavation was carefully registered on a grid. Then the findings were superimposed on one another within three layers, with the first layer being from 0 to 0.6 meters of soil, the second was from 0.6 to 1.2 meters and the third was from 1.2 to 1.8 meters.

Moreover, in the conditions of a burial mound without permafrost, textiles and leather completely turned into organics, and we were completely deprived of the opportunity to get at least some specific material on the composition, cut and material of the Shilikty Man's clothes from the excavation site.

Thus, we obtained an enormous number of gold items that were exclusively ornaments for sowing onto clothes during the excavations of the Shilikty kurgan Baigetobe. Excavations at different sites and different levels of the soil in the tomb revealed a complete set of bones of the buried person along with the gold ornaments.

Written sources with descriptions of specific peoples' clothes and artistic monuments of their costumes are important for clothing reconstruction. Unfortunately, Saka history is represented by very few written sources. Therefore, to reconstruct the clothing of the Shilikty Man, one had to use additional sources on the history and culture of peoples ethnically close to the Saka, especially the Scythians. For example, the images of Scythians on objects of Greco-Scythian toreutics, the tombstone statues created by the Scythians and the stone reliefs with Greek-Scythian themes were also auxiliary sources. The study showed that certain clothing elements of the Saka who lived in Kazakhstan had more similarities with the clothing of neighboring tribes that lived in the Asian steppes in the early Iron Age. This is evident from the cut, certain details and the decor. The most reliable material on the costume of Saka-Scythians was obtained from the excavations of such frozen Altai mounds as Pazyryk, Katandy, Tuyakty and Akalakh (Polosmak, Barkova, 2005, p. 11-20). In terms of the time of existence and the location, the materials from Arzhan-2 burial mound show more similarities to the Shilikty (Altynbekov, Altynbekova, 2010).

Therefore, the comprehensive approach became the methodological basis for the research work on the reconstruction.

The grandiosity of the Shilikty "Golden Kurgan", its unique location, the burial of the deceased in golden clothing – all this points to the exceptional status of the Shilikty Man. In addition, it should be noted that Shilikty gold items that were mostly cast, were genuine and not props intended for a funeral ritual. The ruler wore clothing decorated with these gold plaques during his life, e.g. at important state ceremonies and receptions.

### **The study and reconstruction of the anthropological appearance of the "Golden Man".**

Most of the Man's bone remains were recovered inside the tomb on various layers of its soil filling. The osteological material was studied by anthropologists of Kazakhstan (Ismagulova, 2008). Below we present the main conclusions on the determination of the anthropological characteristics of the Shilikty ruler.

The results of the study showed that all the bones found in the tomb belong to the same male individual. The skull, lower jaw and most of the teeth were sufficiently preserved. The preserved upper teeth included both canines, the first and third pairs of molars, as well as the second right molar. The teeth on the lower jaw included the right lateral incisor, the left first and both second premolar and all three pairs of molars. The remaining teeth were lost posthumously. The enamel on all teeth was in fairly good condition without cracks or chips. The wear of the crowns was natural. No calculus deposits were detected on them.

The skull is quite high, relatively long and not wide, dolichocephalic according to the cranial index. The forehead is wide, of medium height, medium sloping, convex. The superciliary arches and glabella are moderately developed. The face is narrow, of medium height. The nasal bridge is narrow, not high, the nose is of medium size, the nasal bones are prominent, unlike the zygomatic bones. The lower jaw is slightly more massive, profiled and relatively large. Based on this fact, as well as other morphological features (the condition, structure and weight of bones, smoothness of their surface, a still noticeable joint between the epiphyses of long bones with their diaphyses, the absence of age-related pathological changes, including the structure of the pelvis according to the male type), it was concluded that these bone remains belonged to a man who was 35-40 years old.

The lengths of long bones are within large values. According to the calculated indices, the skeleton gravitates toward dolichocephalic massive forms. A rather asymmetric ratio of the bone

sizes in the arms and legs on the right and left sides indicates that the left side in the upper and partly lower (at the shin level) girdles was slightly larger and, therefore, we can confirm the leading role of the left arm and left leg.

It is worth noting the large sizes of the heads of the humeri and femurs when the former are oval and the latter are round. These features make it possible to ascertain good physical development not only at the level of bone structures but also a corresponding high degree of muscular development. The total sizes of the shoulder blades, clavicles and vertebrae, as well as their massiveness, a high degree of development of the surface relief, including on the humeri, indicate not only large sizes but also physical (muscular) strength in the shoulder girdle.

According to the lengths of the Man's long bones using several formulas and tables (for Caucasoid Negroids – the formulas of M. Trotter and G. Glezer, for Caucasoids – the formulas of K. Pearson and A. Lee as well as J. Olivier and H. Pineau, for Eastern Caucasoids – the formulas by V. Bunak and for Caucasoid-Mongoloids – the formulas of G. Debets), the average value of the Shilikty "Golden" Man's intravital height was calculated and amounted to 178-180 cm.

No particular pathologies were detected on the skeletal bones. There were only moderate changes on the bodies of the lumbar and lower thoracic vertebrae in the form of small depressions and growths, and a slight curvature of the coccyx which indicates not disease or age-related changes but rather an increased physical load on the lumbar region of the spine, the pelvis and the femurs. In this case, the predominant prolonged sitting position of the body is quite definitely reconstructed but with the active involvement of the lower limbs in the area of the hip joints which is most consistent with equestrianism as the main form of activity. If one takes into account the aforementioned pronounced development of the arm muscles from the shoulder to the hand which means involvement in considerable training and physical activity, this, along with equestrianism, suggests a mastery of weapons and, in general, military activity of the Shilikty "Golden Man".

The excellent condition of the bone structures, teeth and tooth enamel, the absence of any noticeable growth disorders and developmental shifts, as well as the consequences of diseases, traumas and injuries, indicate that the studied individual was in good health, had a favorable lifestyle and adequate nutrition.

The premature fusion of cranial sutures could have been partially determined by hereditary factors, as well as individual characteristics of metabolic processes in the body, in particular, the metabolism of minerals (calcium, phosphorus, etc.), the predominance of meat and dairy products in the diet compared to plant-based. The listed facts confirming a sufficient level of sustenance and lifestyle indicates that this individual had a rather high social status. As there are no signs of violent death on the skeleton, nevertheless, among the causes of death, despite such a young age and general health, there can be not only internal causes (poisoning, infections, diseases of internal organs that do not affect bone structures) but also external factors, e.g. various methods of deprivation of life that do not leave marks on the bones. In other words, in this case, one has to be content only with assumptions and not with facts.

The racial features of the individual under consideration provide a basis for classifying him as Caucasoid anthropological type with some Mongoloid admixture, as far as it can be judged based on the whole complex of morphological features expressed quite clearly.

Thus, the anthropological type of the studied individual is clearly defined as a mixed Caucasoid-Mongoloid with a significant predominance of Caucasoid elements, which is consistent with the anthropological characteristics of the early Iron Age population in the vast territory of Kazakhstan and South Siberia.

In general, the obtained results of osteometric and osteoscopic studies indicate that the studied skeleton from the Baigetobe burial mound undoubtedly belonged to a young man whose general physiological type was characterized by good physical development, a rather large and tall frame, long upper and lower limbs, the length of which exceeded the average values for Caucasoids.

Therefore, the anthropological reconstruction of the Shilikty "Golden Man's" appearance based on skeletal remains made it possible to achieve an important goal – obtain a reliable intravital sculpture of a man from the early Iron Age, which constitutes unique and reliable historical and cultural information about the ancient Altai tribes that left funeral monuments in the East Kazakhstan region.

The sculptural reconstruction of the Shilikty "Golden Man's" skull was performed at the Institute of Ethnology and Anthropology of the Russian Academy of Sciences. Thus, the appearance of the sculpture makes it clear that the person was a young man whose face was characterized by arched eyebrows, a horizontal position of the shape of the eyes, slightly convex eyeballs and a shortened palpebral fissure, a medium-sized fold of the upper eyelid, slightly protruding cheekbones, a medium-sized nose, the nasal ridge was symmetrical en face, and the alae were low and also symmetrically located, a rather low upper lip which protruded significantly forward, and generally significant tooth and jaw prognathism when the lips and jaws protruded, the oral fissure was wide, the chin was wide and high, slightly protruding, the contour of the chin en face was rounded (Figure 1).



**Figure 1.** The sculptural reconstruction of the Shilikty "Golden Man's" skull

## **Results**

The methodological complexity of studying clothing based on archaeological data is associated with the condition of the source itself. In the conditions of a burial mound without permafrost, items made from textile and leather completely disintegrate and turn into organics. Often, the condition of the accompanying items depends on the soil at the burial site, the structure of the grave, which allows one to create a unique dry microclimate in the burial chamber and ensure the preservation

of the burial. The matters of studying textile materials from archaeological monuments were also taken into account (Glushkova, Nurlubaeva, 2007; Glushkova, Sutula, 2008).

During the excavation at different levels and in different parts of the inside of the burial chamber, the remains of organic matter were found. Samples were taken from all organic remains.

The samples taken from various sections of the burial pit served as material for macro- and microscopic studies. Despite the anthropogenic and spontaneous disintegration of the unique jewels of that comparatively distant period and against the background of today's modern level of development and socio-economic formation, we tried to compare these parallels in a comparative aspect.

In the study, we planned on not only viewing and analyzing various micro-morpho-structural units but also we believe it to be appropriate to consider the physicochemical properties of the studied objects "in vitro" and under optical visualization and morphometry, for objectification and argumentation of the results of our own research. This approach to research is the most acceptable and the shortest way to achieve the goal. For the study, we used the regular and digital microscopes Leica DM 4000 B and Leica MZFLIII with software.

Sample 1. Burnt bone. Macroscopically, a small fragment of the flat bone appears to be part of the ilium of the pelvis. It has a smooth surface on both sides. From the side, the bone has a matte-light grey color and crumbles when pressed with fingers, the center is charred, dark black and has a spongy structure. The raid may have been accompanied by a fire. The reason for the latter may have been the fire used to illuminate the interior of the kurgan during the collection of gold and other valuables from the deceased.

Sample 2. The package contains about 1.5 grams of a mostly uniform flaky, fine-grained substance of grey-white-smoky color. In some places, there are small dark-colored grains with a somewhat dense texture that turn into powder when pressed with fingers. Microscopically, the powder consists only of small flaky substances. It is not possible to establish the initial form and structure of matter by microscopy.

Sample 3. The sample mainly consists of a large amount (90%) of a plant-based substance that was found in the area of the human spine. Macroscopically, the substance is dark brown, a large dense lump, charred areas are visible in some places, dark black and 1.5 by 6 cm in size.

In the dry sample and in a 0.85% solution of NaCl, the smears contain the structural elements of cell groups with clearly defined elongated contours that belong to a familiar plant. The charredness may have been caused by a fire during the raid. The poor preservation of the plant is probably due to the humid microclimate in the funeral chamber caused by a large amount of precipitation in the area of the burial mound and the proximity of groundwater and the raiders' tunnel.

Sample 4. The sample was taken in the area of the human spine in the stage of decomposition. The sample is very similar to Sample 3 in terms of the organic structural components and the color. Macro- and microscopic studies indicate the presence of larger plant fragments in the sample.

Sample 5. The sample is macroscopically different from other samples due to the light grey, sometimes grey color and the large lumps of small size. The sample was obtained at the level of the ground surface of the burial chamber and consists of organic matter in a state of decomposition and decay. The microscopic examination of smears in the saline solution as well as in dry form revealed the presence of collagen structural components in the form of short, sometimes long, fibers –

organic in nature, probably human tissue with their shape and traces of connective tissue veins. There are similar rounded protozoan structures.

Sample 6. Organic matter in the decomposition stage was found at the depth of 180 mm in the burial chamber. The matter is cinder-shaped, sometimes cottony, the texture is loose and shapeless. Under the microscope, the matter is homogeneous, flaky. Among the flakes, there are seeds of some plants of elongated shape with sharp ends, a double seedcoat and a fine-grained structure at the center.

Sample 7. There is burgundy ocher on the surface of compacted clay. The ocher is layered on the clay in a thin layer with a uniform composition.

Sample 8. A macroscopic and very small fragment of fabric had two colors: one side went from light blue to dark blue, the other was burgundy and was very different from the other samples due to a special shine. The findings attracted attention with its flicker, despite the minuscule amount of powdery and loose substance with small grains. The fragment with the macroscopic size of 1.5 by 0.6 mm was subjected to a thorough, comprehensive study on both sides. Out of the examined samples from the burial chamber, two were revealed to have micro fragments of the Golden Man's clothing.

A light blue, somewhat compacted and flat sample of the described find was located near the southern wall of the wooden log structure built around the burial complex, this color of the material sometimes resembles the color of copper oxide from bronze (Figure 2, 3).



**Figure 2. Compacted two-layer silk fabric in various states of decay. Burgundy silk (on the left), the range from light blue to dark blue and greenish on the right.**

There are the remains of the deteriorated fabrics from light grey to light brown on the surface. Digital stereomicroscope Leica.



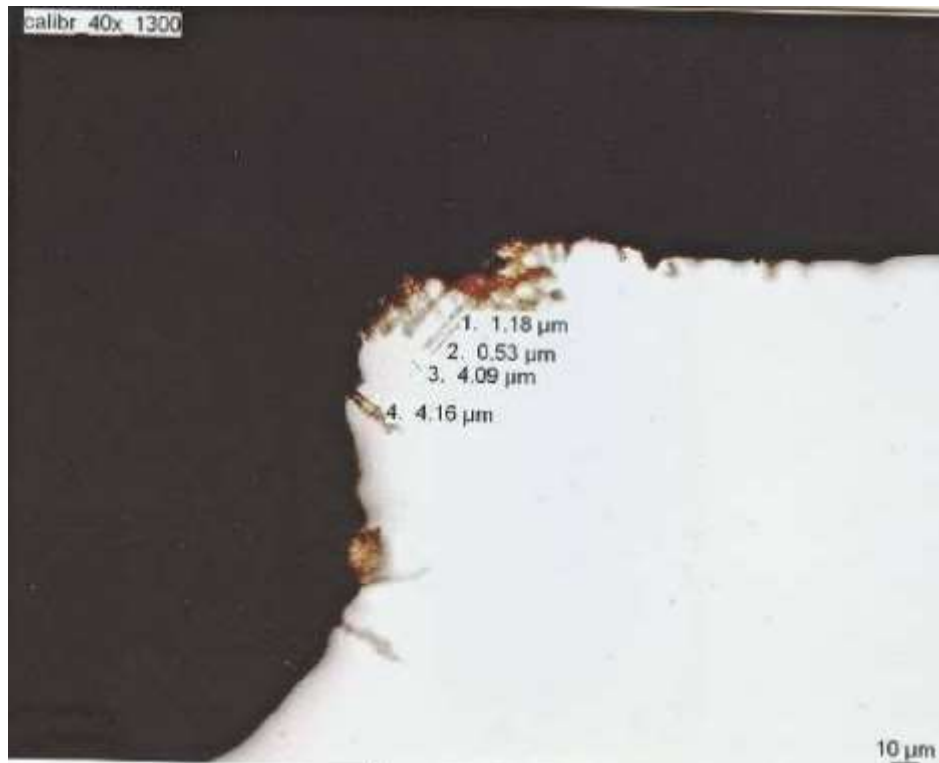


Figure 3. Detail for Figure 2. Biometrics of the silk fiber, magnification 40x1300. Trinocular microscope.

The materials were viewed and analyzed by research microscopes of optical and digital trinocular microscopes with software. The visualization of the studied object was carried out with light coming through and in a dark field.

The object had different colors. When examining the material, one side was painted in a dark burgundy color uniformly distributed over the entire surface of the studied material, strictly in the fine-mesh form of the opening that had double strands of silk fibers. Nevertheless, a significant part of the mesh opening was somewhat enlarged, subjected to destruction. The weave was typically simple, using the same-type thread, which formed four carbon squares. It is extremely rare to find samples in the original, preserved structure. We had the opportunity to observe that most of the mesh was square-shaped, with clearly translucent inlets or uniform red paint. As can be seen from the figure, the nets and their traces gradually disappeared in some places under the influence of adverse factors, were translucent due to the increasing whitish – homogeneous – flickering substance in a state of disintegration. Over the burgundy layer, there is another darkened light blue substance of the second layer. There is plain weave of single-strand thin fibers with a diameter of about 4.09 to 4.16 microns with intersecting fibers at the same distance across the entire plane. At the same time, one should note the straight nature of the fabric bend despite its very small size. The stereoscopic and stereometric studies of fibers and surviving fragments showed the prismatic structure of silk that caused flickers in a dark field when scanned on a trinocular microscope.

Moreover, due to the scarcity of Sample 8, we additionally researched samples and modern varieties of silk in terms of color and weaving features for control.

Silk samples from different countries (China, India, Korea, Italy) were selected to Kazakhstan according to the trademark through the distribution network. The samples differed drastically in microscopic structure, mainly in the technology of weaving, as compared to Sample 8. As a rule, during the macroscopic study of natural silk from distribution networks in Almaty, one noted their

physical and chemical properties, in particular, their good combustibility and fast charring under pressure, the comparative solubility of their paints in 96° alcohol rather than in water or saline.

The microscopic characteristic of modern natural silk compared to Sample 8 showed the features of the weaving technology in the shape of a bundle. The bundles consisted of 12-13 or more fibers with varying density and direction, forming a complex network of silk material of different thickness, color and quality.

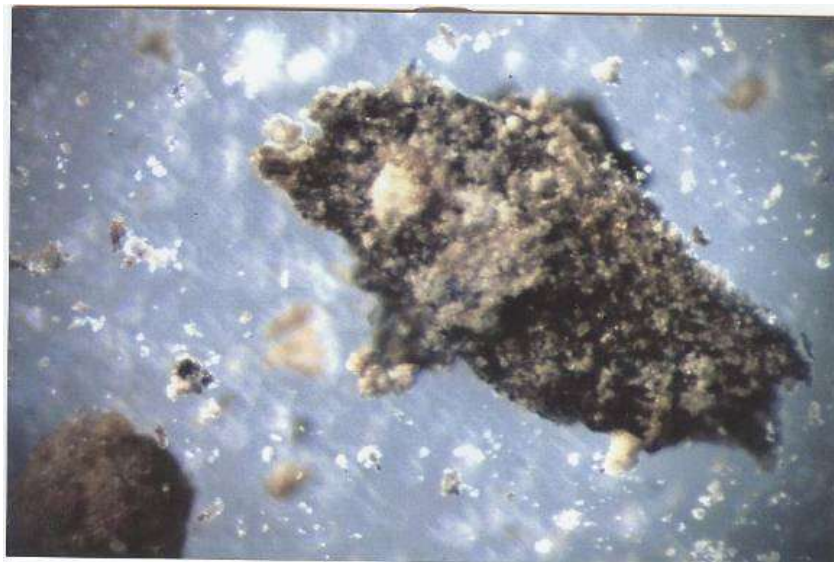
The study of Sample 8 found in the Shilikty Golden Man's burial chamber using modern microscopes with light passing through and in a dark field, is an efficient way to identify and detect silk fibers. Comparing the ancient and modern silk samples, one should note that the find is an element of natural silk, probably double-layer, dyed, respectively, in burgundy and dark blue colors, of the plain, single-strand (square) weave.

The faded fiber fragments in the surviving meshes (squares) of weaving in the dark field of the microscope were distinguished by a peculiar flicker typical of silk.

Sample 9. Macroscopically, the sample is grey-black and has a sparkling property. Some grains of the components of the sample are distinguished by a dark greenish substance. Sample powder resembles ash in some areas. The powder consists of large (1.5 by 2 cm), medium, small and tiny homogeneous structures.

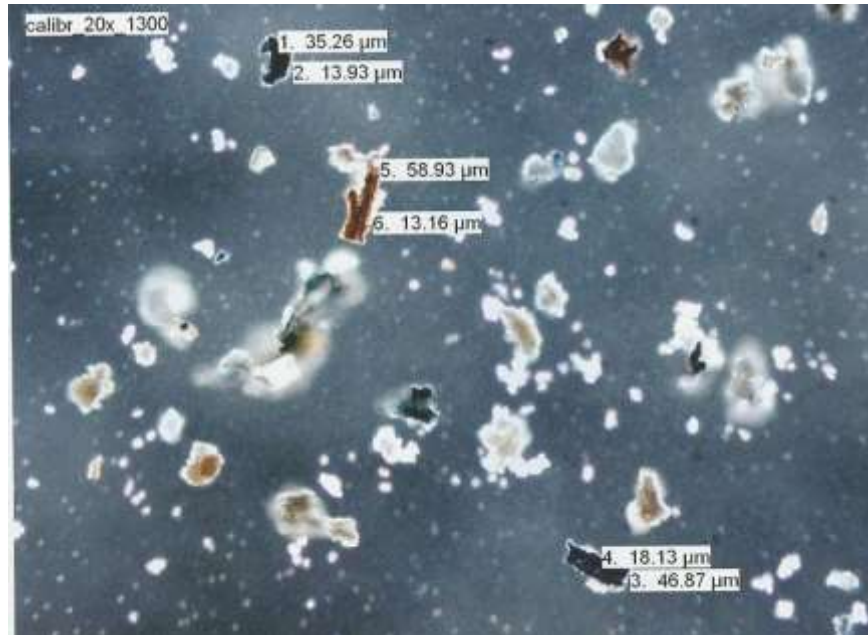
Microscopy of the loose powdery substance in a dark field showed homogeneity of colorless and white structures shaped as sugar-like crystals and large, sometimes aggregated structures with a peculiar flicker.

In the field of view, the burgundy and many dark blue silk threads are visible. As a rule, the threads are oriented, short, sometimes with the decay and splitting of their bundles. These micro fragment residues are the surviving fabric materials of the Golden Man clothing, made of two fabric colors. The scarce amount of the burgundy silk thread should indicate the multi-colored fabric or the presence of a patch on the dark blue colors of outerwear. In the field of view, there are polymorphic fragments that are difficult to identify, transitional forms from dark blue to grey-bluish, and from burgundy to light brown, grey and white. This transformation of the material indicates a deep disintegration of silk, and discoloration and decomposition from the initial sparkling state (Figure 4, 5).



## 1 | Reconstruction of the Costume Elements of the Shilikty "Golden Man"

**Figure 4. Micro fragment of clothing from Sample 9 with dark blue color on the surface after full decay. Digital stereomicroscope Leica. High magnification.**



**Figure 5. Sample 9. Biometry of micro fragments of clothing fabric in dark blue and burgundy colors. Numerous flaky fragments in the state of disintegration.**

The comparative and microscopic study of two fragments from different samples (8 and 9) showed the similarity of dark blue silk with a greenish tint and some differences between them. In Sample 9, the silk color is uniform from dark blue to dark black with greenish and single-layer in Sample 8, the two-layer silk is approximately the same color from light green, in some places brighter, and in the areas where there were no disintegrated residues, dark burgundy color, with the preserved silk structure which is on the front side of the double silk.

In both Samples 8 and 9, the changed disintegrating residues were found in various forms, from white to light green and light brown, on the surface of the surviving silk. The remnants of the burgundy and dark blue-green colors of the fabric retained the gloss typical of silk during the total targeted inspection of their relief. The last and lighter, flickering particles in the field of view of the microscope in both samples were faded silk fragments.

We believe it necessary to consider that the ruler – "Shilikty Golden Man" – was the superelite of the society since the burial mound was particularly grandiose and complex in construction, there were a lot of gold items and clothes were sewn from the fabric of different that was expensive at the time, which represented a particular identity and composition of that time.

### **Discussion**

#### **The clothing of the Shilikty Golden Man (characteristics, justification of composition, cut, accessories and jewelry locations).**

Based on our many years of research, we have come to the following conclusions. The clothing of the Shilikty Man from the Baigetobe burial mound consisted of the following elements: a kandys-type chapan, kaftan, trousers, shoes, headwear and a belt with decorative plaques. Jewelry includes the torque, an amulet, an earring on the left ear and a ring. The accessories and weapons included

an acinaces, a sword and a votive wand (Figure 6).

The main Saka materials for making clothes were fur, leather and felt. Along with these, the Saka were very familiar with various fabrics that were found in almost all kurgans where they could be preserved [Rudenko, 1952, p. 112].

*Chapan-kandys*. A coat is rarely mentioned as part of the traditional clothing of the Saka and Scythians. There is no documented information available. We believe that the Shilikty king always wore a chapan on top of a kaftan. This was required by the ruler's socio-political status. The Persian had an analogy of the Saka chapan in the Achaemenid period. The item was called kandys and was wide, usually ankle-long, with sleeves longer than the arm and worn over one's shoulders (Yatsenko, 2006, p. 38- 39).

A counterpart of the chapan was found in Altai in the Katanda kurgan of the Saka culture [Vidanova, 1938]. The chapan went down to one's heels, had long decorative sleeves, sable fur, with a top of a scaly mosaic pattern made up of ermine fur fragments. The fur was dyed green and red with leather accents. The shoulders, flaps and sleeves were decorated with a pattern of sewn-on wooden squares and triangles cut from the thick leather. The ornaments were also covered with gold foil.

The kandys-type chapan from the Katanda burial mound became the basis for the reconstruction of the Shilikty Man's outerwear. The Shilikty chapan is also quite long, wide and designed to be worn over one's shoulders. Unlike the Katanda counterpart, the Shilikty chapan is the summer version and the sleeves are wider and shorter. The color of the chapan is the favorite and often found among the Saka and Scythians burgundy color [Rais, 2004, p. 78]. This is confirmed by our micro- and macroscopic studies of organic residues from clothes in the Shilikty tomb. The chapan was made of coarse wool. The lining was made of light-yellow silk with patterns creating a faint patterned background. The flaps and hem of the Shilikty chapan are adorned by a wide strip of light brown material. In general, applique along the flaps of clothes was very likely because we know that the Saka and Scythians made applique designs with such precision and skill that sometimes they looked like the most exquisite embroidery (Rais, 2004, p. 61). In Ulandryk clothes, appliques were sewn onto the sleeves, shoulders, chest and even on the back. The appliques also adorned the front hem of the jacket (Kubarev, 1987, p. 85). The edges of the strip of the Shilikty chapan are trimmed with gold ribbed tube-shaped plaques. The plaques shaped like tubular beads most likely adorned the lines of constructional seams of clothing. The middle of the strips is decorated with four "leopard mask"-shaped plaques sewn on in a circle. There is a plaque of the Scythian panther inside the circle. Thus, a series of such identical patterns border the flaps and hem of the chapan. The patterns include circles separated from each other by strips made with tubular beads.



**Figure 6. The drawing of the reconstruction of the Shilikty "Golden Man"**

The shoulders of the chapan are hemmed by similar wide strips of dark golden ribbons, the edges of which are also decorated with tubular plaques. In front, the forearm strips are connected with the strips of the flaps, forming a semicircle. The front of the chapan is completely covered with plaques. The "leopard mask"-shaped plaques were predominantly used. The same or similar ornaments with images of predatory and non-predatory "great animals" are not known in the Saka-Scythian art of Eurasia, and are the most widespread and probably have a very complex belief-related and sacred significance among the Shilikty finds. The mask in the shape of a leopard or a feline animal adorns the entire front side of the chapan in continuous horizontal stripes in a checkerboard pattern. The edges between the solid stripes of the leopard plaques and the hem and the flaps are also decorated by S-shaped continuous patterns composed of griffin-golden eagle plaques.

There is blank space between the hem and the continuous rows of the leopard mask plaques that is 25 cm wide. There we placed an image of a catfish carved from gold leaf. Semantically, the lower part of the chapan corresponds to the lower world. The catfish theme is taken from the finds by S.S. Chernikov (1965, p. 64,) on the Shilikty kurgans. The back of the chapan consists of two parts, which are also adorned with decorations similar to the front plaques. However, it should be noted that chapans, gowns and all the ruler's clothes are designed for a special effect from the front, dress part. There are fewer plaques in the back and they are located not continuously but only in some areas and the leopard mask-shaped plaques are predominant.

The shoulders of the Shilikty chapan are decorated quite densely. The shoulder strip of dark golden color continues to the back and forms a patterned ribbon in the form of a brace in the area of the shoulder blade, like in the Katanda chapan. There are fewer plaques on the back, they are located not continuously but only in some areas and the leopard mask-shaped plaques are predominant. The sleeves of the Shilikty chapan were decorated in the forearm area and at the edge of the sleeves. The forearms were decorated by leopard mask-shaped plaques. In general, the decoration of the sleeves of outer clothing only at the edge was characteristic of Scythian and Saka tribes of ancient times (Yatsenko, 2006).

Men's clothing from the second Pazyryk burial mound was used as a basis for the back of the chapan. The Pazyryk kurgan contained the back of men's outer clothing made of sable fur that was decorated with a thin leather applique adorned with gold circles. The applique pattern was a pair of deer heads facing opposite sides, with unusually long tree-shaped antlers, offshoots and stylized griffin heads (Rudenko, 1953, p.105-106). Thus, we considered the decoration of the back of the Shilikty chapan with a leather applique in the shape of deer heads with long antlers the most probable.

*Kaftan.* A form of clothing that was widespread among the Saka and Scythians. The Shilikty Man's kaftan was bright red with an open collar, folded from right to left. The kaftan fell to the bottom of the hips and had a horizontal hem. The main decoration of the kaftan was plaques in the shape of a griffin eagle. The flaps and hem of the kaftan were accentuated by an open red strip framed by small tubular glass beads. The strips of the collar and flaps were decorated with "deer" plaques and between them are horizontal gold leaf strips. The hem strip is also bordered by tubular beads and leaf strips. The middle part of the hem strip is decorated with plaques in the shape of a wolf-bear (the Scythian panther). The hem of all Scythian kaftan variants of the archaic period had a decorative strip. The usual ornamental motifs were a zigzag, "moving wave", a series of round plaques between two horizontal stripes. The classical Saka kaftans were decorated mainly along the flaps, at the hem and at the armholes (Yatsenko, 2006, p. 62, 68).

*Shirt.* In the Saka-Scythian world, underclothes with no opening in the front such as a shirt are very rarely documented. The men's shirt from the first Pazyryk burial mound was made from a rather thin white plain weave fabric with dogbane fiber threads. The shirt was long, to the knees and wide. Typically, there was no opening on the chest or an attached collar. The neckline is round, trimmed with a rather wide strip of the red woolen band; the ends of the sleeves are trimmed with the same band (Rudenko, 1952, p. 90-91).

The organic remnants of clothing in the tomb of the Baigetobe burial mound included remains of silk. We believe that the undershirt of the Shilikty ruler was made from silk. In the region under study, a female shirt from Akalakha-3, a male shirt from the burial site Ulandryk-1 and a breastplate from Katanda were made from silk (Yatsenko, 2006, p. 86).

*Trousers.* For a long time, there were no trousers among the equipment and clothing that were provided for the dead for life in another world. At a time, V.D. Kubarev believed that "this feature typical of the funeral rituals in the Pazyryk culture, probably reflects the popular ancient idea about the continuation of human activities after death. Therefore, the absence of trousers in the kurgans is explained by the desire to render harmless "the living dead man" by preventing him from moving and appearing among living people" (Kubarev, 1987, p. 86). Trousers were later found for the first time in Akalakha (Polosmak 1994, P. 38). According to S.A. Yatsenko, such a custom was characteristic only for the population of the eastern part of the Altai Mountains; in other parts of Altai trousers were found in the burial grounds of Katanda-1 in 1865 and Tuyekta in 1954. Of particular interest to us are the Tuyekta trousers made of suede with a wide crotch seam and wide



at the bottom. These pants were made using over 400 multi-colored rags. There were seven hollowed-out gilded leather strips with a cutout ornament inside in the form of circles and squares that were sown vertically onto each leg (Yatsenko, 2006, p. 94).

The reconstructed Shilikty trousers are not wide, tight-fitting. In this respect, the trousers are again similar to the Katanda ones. The trousers were tucked into wide shoes that went over the knees. The trousers were woolen, decorated with bead gold forming vertical stripes, like in the Tuyekta leg. There were patterns in the shape of circles, S-shaped entwinements and straight stripes. Thus, the areas of the Shilikty man's pants that did not interfere with movement or sitting were embroidered with gold beads. In the Scythian world, there are instances when trousers were decorated with cross- or circle-shaped plaques. The trousers of ordinary Saka were made of fur or felt, were long and tapering to the bottom, tucked into boots. In the materials from Subeshi graves, there were knee-length trousers made of wool that are tucked into long leather boots (above knee-high) (Maitdinova, 2004, p. 171). In our opinion, the Saka elite wore trousers with piping on the outer seams. Piping was found in the Pazyryk, Achaemenid Persian, early Scythian, Saka trousers (Yatsenko, 2006, p. 62, 76, 82, 111).

*The headdress* of the Shilikty Man had an oval-conical shape. The oval of the inner opening of the cap repeated the shape of the human head. The length of the cap ranged between 30-40 cm. The upper part of the cone had a solid base and a slight inclination forward. In the lower part of the headdress, there was a neck guard and earflaps in the shape of wide, oblong wedge-fields with soft lining.

According to some scholars, in an ancient nomadic society, a person's headdress, "crown, kulah or investiture signs... played the same part as the country's coat of arms" (Akishev, 1984, p. 23-25,) and had other symbolic purposes (Golovchenko, Telegin, 2012). The headdress served as ethnical identification. This tradition reached late to the Kazakhs. At large gatherings, people could easily determine a person's tribal affiliation by their tumak.

We believe that the Shilikty Man's headdress is decorated abundantly. It was very difficult to restore the placement of gold jewelry on the headdress. To solve this issue, we often turned to the materials of the Issyk golden man. In our opinion, the Issyk and Shilikty golden people, according to many cultural and historical parameters, belong to the same ethnic group of the Saka – the Saka tigraxaudā.

When drawing up the structure of the pattern, when placing gold figures and patterns on various parts of the headdress, we were guided by semantic-semiotic, symbolic contents and components of various images from the arsenal of Shilikty finds. To decorate the cap of the Shilikty Man, along with the aforementioned ornaments, individual copies of almost all the main zoomorphic and "bird" themes, such as argali, deer with pulled up legs, deer with fused horns, the young wolf-bear and the griffin-eagle, were used. Moreover, the order of decorations and their locations were determined based on specific historical-cultural, typological analogies from the well-known, to a degree, documented artifacts of the Saka-Scythian time. In some cases, such work was carried out in a purely intuitive way, where along with the semantic meaning of jewelry, spatial symmetry on the surface of a particular part (area) of clothing was also taken into account along with the aesthetic correspondence of jewelry to a particular space.

To correctly place the jewelry, in accordance with the principles of ancient decoration and worldview, the headdress was conventionally horizontally divided into four ornamental zones. The first zone was the middle front part of the cap, the second was the back part of the cone and the occipital wedge-shaped area, the third and fourth were the right and left sides of the cap. In general,

all the clothes of the golden people of Saka-Scythian time were created according to the principle of a special effect and magnificence precisely from the front. According to these principles, two bone rectangular plates with triangular ends were installed vertically in the middle of the front side of the cap. These bone plates covered with leaf gold were discovered at the skull of a male burial site of the Saka mound No. 4 of the same era, located 400 meters northwest of the Baigetobe mound. Between these plates, we installed a five-point gold star with lapis lazuli and bone inserts in one of the most prominent parts of the cap. In general, in this case, the decoration of the Shilikty headdress is almost identical to the Issyk one. The fact is that there are five-point stars schematically painted on the Issyk central plate (Zhumabekova et al., 2011, p. 193). We believe that the five-point star located in the most prominent place of the headgear of the Shilikty man was certainly associated with the symbols of power, was the subject of a special investiture sign that indicated the high rank of its bearer. The edge of the forehead part of the headgear is somewhat turned outward. Just above the forehead, there is a plaque in the shape of a bird with outstretched wings. Such a plaque, but smaller, was found in the Shilikty burial mound No. 5 during S.S. Chernikov's excavation. On both sides of the bird's wings, there are feather-shaped ornaments with a slight inclination in different directions. In general, the decoration of colorful headgear with feathers was popular in the Saka-Scythian culture and later nations. When placing jewelry in the lateral ornamental zones, the principle of pairing of the same plaques on both sides of the cap was observed. We used tree-shaped ornaments as decorations for the upper part of the sides of the cap. Those were images of a tree cut from a leaf plate with sewn-on holes at the ends of branches. Such ornaments were common in the Saka-Scythian cultural space and are interpreted as a symbol of the world tree (Akishev, 1984, p. 23-25).

Massive gold argali adorn the sides of the second level of the cap. The third level consists of the area of the crown of the head and the ear and is decorated with a deer with its legs pulled up, deer with fused horns and a young wolf-bear, as well as mountain goats. The deer with their legs pulled up on a headdress were documented in the Scythian burial mound of Sinyavka. The head of a man from the Sinyavka mound was covered with gold plates depicting lying golden deer, and plaques in the shape of mountain goats adorned the headdress in the burial mound near the village of Bobritsy (Miroshina, 1977, p. 83). Golden figures of argali adorned the headdresses of those buried in the unique monuments of Tillya tepe (Sarianidi, 1983).

We believe that the tall conical cap should have some solid base inside. Other excavation materials previously included special sticks or birred sticks with a slight bend that held the shape of tall hats or hairstyles. We think that such a role in the Shilikty cap was played by a wooden prong covered with sheet gold, which adorned the back of the cap vertically. Alternatively, there could be long vertical ridges made of gold plate and sewn to the hem at the back of the cap that were cut from the symmetrical blades of a single piece of felt vertically.

The shape of the headgear and the scalloped ridges that adorn the tall cap of the Shilikty Man have a distant parallel with the tiara of the character from the Darius Crater from the National Museum in Naples (Yatsenko, 2006, p. 38-39). The scalloped ridges on the back of the Shilikty cap can be compared with the cult of the sun (Akishev, 1984, p. 80-86). Scalloped gold plates are known from the findings of the Issyk and Chertomlyk kurgans. The chin wedge is decorated with plaques in the shape of a golden eagle griffin.

*Earrings.* Starting from the 8<sup>th</sup> – 5<sup>th</sup> centuries BC, jewelry occurs in the men's clothing set for the first time in the Saka environment in the north of the Central Asian region – earrings in the left ear, necklaces made of beads and decoration of headgear with beads. However, bracelets remained purely women's pieces of jewelry (Maitdinova, 2004, p. 137). From the materials of the frozen burial



mounds of the Altai Mountains, it is known that men were buried with one earring in their left ear (Rudenko, 1962, p. 22). In the eastern regions of Central Asia, there was another archaic way for men to wear earrings. It consisted in wearing two different types of earrings. Usually, these were ring earrings with a soldered cone-shaped detail or a conical thickening at the lower end. Such earrings date back to the 8<sup>th</sup> – 5<sup>th</sup> centuries BC (Kubarev, 1987, p. 122).

We believe that the Shilikty Man had an earring in the left ear, which was a ring earring with a soldered cone-shaped thickening at the bottom end, which, according to experts, is an earlier form of earrings. This conclusion is confirmed by the fact that Shilikty culture, as a rule, has more parallels with the Pazyryk Altai region and the Saka of Central Asia.

*Torque.* The Shilikty Man's torque was most likely taken by raiders. It was not recovered during S. Chernikov's Shilikty excavations. That is why we chose a torque from a related cultural region – Altai – for the Shilikty Man's neck, which, we believe, does not contradict the historical reality. Neck jewelry – torques – served as talismans. Mirrors also carried sacred and magical significance. According to V.D. Kubarev's correct statement, the bearers of Pazyryk cultures "had developed mythology, rich folklore and complex cosmogonic beliefs that included a mix of various Indo-Iranian cults, local ancient beliefs and foreign cultural borrowings" (Kubarev, 1987, p. 129).

Many Iranian-speaking peoples used torques as signs of rank and the symbols of supreme power (Akishev 1975, P. 59). During the late Scythian era, torques lost their initial meaning and became popular as jewelry for the Scythians, the Maeothians, the Ananyino people, the Sarmatians and the Saka (Kubarev, 1987, p. 121).

According to the parallels with the finds in similar royal burial mounds of the Saka-Scythian world (Solokha, Pyatibratny burial ground, Issyk, etc.), the Shilikty king's hands were adorned with gold bracelets and rings, and there was a torque around the neck.

*Shoes.* The Shilikty Man's boots are leather, one-piece, with a firm sole and a low heel, above the knees, with the top expanding upward. Similar shoes were found in the Altai burial mounds at Bashadar, Ulandryk, Akalakh and Pazyryk (Yatsenko, 2006, p. 95). The Shilikty Saka wore boots with high stockings reaching to the knees, and the lower part of the trousers was tucked into boots.

In the Saka-Scythian cultural space, one could decorate shoes with gold plaques. For example, the shoes found in the Melitopol kurgan were adorned with plaques decorated with the image of Aracea flowers, the ones in the Tolstoy mound were decorated with crosses, the shoe plaques in the Taimanov tomb were decorated triangles and pseudo granulation. Based on these facts, we decorated the tops of the Shilikty Man's boots with a patterned applique in the animal style with festoons on top. The front of the top part of the boot was decorated with triangular and rectangular plaques. In general, the tradition of decorating women's and men's shoes with solid gold embroidery, various metal inserts such as a festoon, stripes of geometric shapes continued among Kazakhs till the beginning of the 20<sup>th</sup> century. Until the 1920-1930s or 1950-1960s in some areas, the Kazakhs had long boots with felt stockings that were very similar to the Saka boots. It seems that late Kazakh long boots of the "saptama" type are a very distant continuation off the tradition that stems from the Saka-Scythian time.

*Belt.* According to researchers, the belt was one of the clothing items of the ancient nomads. The lack of a belt for nomads was always not quite decent. Classical Saka and Scythians had wide men's belts that were fastened with a buckle and decorated with a set of homogeneous gold plaques (Yatsenko, 2006, p. 55; Kubarev, 1987, p. 79).

The belt is an integral part of the Saka ceremonial clothing. We believe that royals like the

Shilikty ruler wore a wide belt decorated with sewn-in plaques and waist plates shaped as triangles, diamonds and rectangles. The Shilikty Man's belt is also wide and decorated with gold triangular, diamond-shaped plaques. Two buckles in the form of rolled up panthers are connected by waist hooks.

The Shilikty ruler holds the *votive wand* in the right hand. The shape and the tip of the votive wand were taken from the Saka-Scythian prototypes of these elements.

### **Conclusion.**

The results described above are the product of long-term collective interdisciplinary research by archaeologists and representatives of the natural and exact sciences. We are convinced that such a comprehensive, multidisciplinary approach to the study of archaeological monuments undoubtedly yields positive and more reliable results.

Due to archaeological research not only in Kazakhstan but also in neighboring regions, abundant factual material has been accumulated that characterizes the clothing elements of the Saka-Scythian world. Today, many studies on the reconstruction of clothing of the ancient nomads are based on this material, including our interpretation of the Saka costume provided above.

We believe that, in terms of its social and symbolic functions, the attire of the Shilikty Man corresponds to the status of a king, khan or other ruler but in no way, as one used to believe, a warrior or chief.

The golden clothing of the Shilikty Man reflects the model of the world, the universe in the worldview of their creators and carriers. Images of sacred animals that adorn the clothes of the Shilikty Man, made on gold material, denote a special significance, holiness, and, at the same time, act as a talisman (Lelekov, 1987; Litvinskii, 1982).

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### **References**

- R. Husein-zade, 2011. Beliefs, Customs and Rites of 7th-12th Century Turks (According to Syrian Sources). The Caucasus and globalization. *Journal of Social, Political and Economic Studies*, 5(1-2): 87-102
- I. Panyushkina, I.Y. Slyusarenko, R. Sala, J.M. Deom and A.Toleubayev, 2016. Calendar age of the Baigetobe kurgan from the iron age Saka cemetery in Shilikty valley, Kazakhstan. *Radiocarbon*, 58(1): 157-167
- N. Polosmak, 2015. Steppe fashion items from the wardrobe of ancient nomads. *Science first hand*, 2(41): 72-95
- S. Reinhold, 2003. Traditions in transition: some thoughts on late bronze age and early iron age burial costumes from the Northern Caucasus. *European Journal of Archaeology*, 6(1): 25-54
- A. Toleubayev, R. Zhumatayev and K. Toleubayeva, 2013. Royal Mound "Baygetobe" from the Burial Ground Shilikty. *International Journal of Humanities and Social Sciences*, 7(6): 1874-1878

- S.A. Yatsenko, 2010. Costume contacts of Ancient Central Asia. *Archaologische Mitteilungen aus Iran und Turan*, 42:47-52
- A.K. Akishev, 1984. *Iskusstvo i mifologiya sakov* [The art and mythology of the Saka]. Alma-Ata: Nauka, 176 p.
- K.A. Altynbekov, 2013. Drevnie kochevniki Evrazii: sobiratelnye obrazy nomadov v istoricheskikh rekonstruktsiyakh kostyuma [Ancient nomads of Eurasia: composite images of nomads in historical dress reconstruction] // *Vestnik Tomskogo gosudarstvennogo universiteta. Istoriya*. 3 (23): 206-210.
- K.A. Altynbekov, D.K. Altynbekova, 2010. Issledovaniya i rekonstruktsiya kostyuma po materialam kurgana Arzhan-2 [The study and reconstruction of dress on the materials of the Arzhan-2 kurgan] // *Integratsiya arkhologicheskikh i etnograficheskikh issledovaniy*. Kazan, Pp. 253-255.
- E.S. Vidanova, 1938. Katandinskii khalat (po materialam restavratsionnoi masterskoi GIM) [The Katanda Gown (on the materials of the restoration workshop of the State Historical Museum)]. *Trudy Gosudarstvennogo istoricheskogo muzeya*, Issue 8. Leningrad, Pp.169-178
- T.N. Glushkova, S.M. Nurlubaeva, 2007. Rekonstruktsiya izgotovleniya tekstilnykh izdelii arkhologicheskogo pamyatnika Arzhan-2 [The reconstruction of the textile manufacturing from the archeological monument Arzhan-2] // *Arkheologiya, etnologiya, paleoekologiya Severnoi Evrazii i sopredelnykh territorii*. – Novosibirsk: Izd-vo NGPU, Pp. 101-102.
- T.N. Glushkova, A.V. Sutula, 2008. Metodologiya i metodika istochnikovedcheskogo issledovaniya arkhologicheskikh tekstilnykh materialov [The methodology and methods of source studies of archeological textile materials] // *Vremya i kultura v arkhologo-etnograficheskikh issledovaniyakh drevnykh i sovremennykh obshchestv Zapadnoi Sibiri i sopredelnykh territorii: problemy interpretatsii i rekonstruktsii*. – Tomsk: Agraf-Press, Pp. 31-34.
- N.N. Golovchenko, A.N. Telegin, 2012. Kozhanye i voilochnye golovnye ubory nositelei arkhologicheskikh kultur skifo-sakskogo mira: morfologiya i naznachenie [Leather and felt headwear of archeological culture bearers of the Saka-Scythian world: morphology and purpose] // *Drevnosti Sibiri i Tsentralnoi Azii*., 4(16): 70- 72.
- N.N. Golovchenko, A.N. Telegin, 2014. Odezhda evraziiskikh nomadov skifosakskogo vremeni (opyt razrabotki tipologii i terminologicheskogo apparata) [The clothing of Eurasian nomads of the Saka-Scythian era (the experience in developing the typology and the terminology)] // *Vestnik Tyumenskogo gos. un-ta.*, 2: 5-13.
- Z.V. Dode, 1995. K voprosu o metodike rekonstruktsii arkhologicheskogo kostyuma [On the methods of reconstruction of archeological clothing] // *Integratsiya arkhologicheskikh i etnograficheskikh issledovaniy*. - Omsk, Part 1, Pp. 49-53.
- G.S. Zhumabekova, G.A. Bazarbaeva, A. Ongar, 2011. *Issyk [Esik]*. Almaty, 200 p.
- A.O. Ismagulova, 2008. Rezultaty antropologicheskikh issledovaniy i rekonstruktsii. Otchet po nauchnomu proektu "Issledovanie, rekonstruktsiya i publikatsiya shiliktinskogo zolotogo cheloveka" [The results of anthropological studies and reconstruction. The report on the academic project "Research, reconstruction and publication of the Shilikty Golden Man"]. Almaty, Pp.49-70.
- V.D. Kubarev, 1987. *Kurgany Ulandryka* [Ulandryk kurgans]. Novosibirsk: Nauka, 302 p.
- L.A. Lelekov, 1987. O simvolizme pogrebalnykh oblachenii ("zoloty lyudi" skifo-sakskogo mira) [On the symbolism of burial clothing ("Golden men" of the Saka-Scythian world)] // *Skifo-sibirskii mir. Iskusstvo i ideologiya*. – Novosibirsk: Nauka, Pp. 25-31.
- B.A. Litvinskii, 1982. "Zoloty lyudi" v drevnykh pogrebeniyakh Tsentralnoi Azii (opyt istolkovaniya v svete istorii religii) ["Golden men" in ancient burials of Central Asia (the experience of interpretation in light of religious history)] // *Sovetskaya etnografiya*, 4: 34-43.

- G.M. Maitdinova, 2001. Drevnii kostyum iz mogilnikov Sintszyana [Ancient clothing from Xinjiang burial grounds]// Problemy drevnei i srednevekovoi istorii i kultury Tsentralnoi Azii. -Dushanbe, Pp. 70-87.
- G.M. Maitdinova, 2004. Istoriya tadjhikskogo kostyuma. Genezis kostyuma tadjhikov: drevnost i ranee srednevekovye [The history of the Tajik clothing. The origin of Tajik clothing: the ancient times and the early Middle Ages]. Vol. 1. Dushanbe, 280 p.
- T.V. Miroshina, 1977. Ob odnom tipe skifskikh golovnykh uborov [On a type of Scythian headgear]. Sovetskaya arkheologiya, 3: 79-94
- N.V. Polosmak, L.L. Barkova, 2005. Kostyum i tekstil pazyryktsev Altaya (IV-III vv do n.e.) [Clothing and textile of the Altai Pazyryk (4-3 cc. BC)]. Novosibirsk: Infolio, 232 p.
- Ya.P. Prilipko, Yu.V. Boltrik, 1991. Opyt rekonstruktsii skifskogo kostyuma na materialakh pogrebeniya skifov iz Vishnevoi mogily [The reconstruction of Scythian clothing on the materials of the Scythian burial in Vishnevaya Mogila]// Kurgany stepnoi Skifii. Kiev, Pp. 18-33.
- T. Rais, 2004. Skify. Stroiteli stepnykh piramid [The Scythians. The builders of steppe pyramids]. Moskva: Tsentrpoligraf, 223 p.
- S.I. Rudenko, 1952. Gornoaltaiskie nakhodki i skify [Gorno-Altaysk findings and Skythians]. Moskva-Leningrad, 268 p.
- S.I. Rudenko, 1953. Kultura naseleniya gornogo Altaya [The culture of the population of the Altai Mountains]. Moskva-Leningrad, 387 p.
- V.I. Sarianidi, 1983. Afganistan: sokrovishcha bezymyanykh tsarei [Afghanistan: the treasures of unknown tzars]. Moskva, 160 p.
- I.A. Usova, 2006. Algoritm izucheniya odezhdy kochevnikov Tsentralnoi Azii po arkheologicheskim, pismennym i izobrazitel'nyim istochnikam [The algorithm of studying clothing of Central Asian nomads based on archeological, written and painted sources]// Arkheologiya, etnologiya, paleoekologiya Severnoi Evrazii i sopredelnykh territorii. Krasnoyarsk, Vol. 2, pp. 72-75.
- D.F. Faizullina, 2017. Kostyum naseleniya Volgo-Kamya ananinskogo vremeni v kontekste razvitiya kostyumnykh kompleksov Evrazii rannego zheleznogo veka [The clothing of the Volga-Kama population from the Ananyino period in the context of development of Eurasian costume complex of the early Iron Age]. Povolzhskaya arkheologiya, 3(21): 305-317
- S.S. Chernikov, 1965. Zagadka zolotogo kurgana. Gde i kogda zarodilos "skifskoe iskusstvo" [The mystery of the Golden Kurgan. The place and time of origin of "Scythian art"]. Moskva. Nauka, 188 p.
- S.A. Yatsenko, 2006. Kostyum drevnei Evrazii [Ancient Eurasian Clothing]. Moskva: Vostochnaya literatura, 664 p.