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“WARRIOR” KURGAN OF TASMOLA CULTURE AT THE BALYKTY BURIAL GROUND*

In 2022, scientific research was conducted on kurgan No. 1 at the Balykty burial site from the Early Iron Age (Kazakhstan, Akmola Region). The stone mound had a circular shape with a diameter of 4.5 meters and a height of 0.2 meters. There are traces of robbers from ancient times. 20 bronze items, one stone blade and one bone awl were found inside the barrow pit. The horse harness set was crafted in the “animal style.” Daggers, knives, arrowheads, grindstones, and bones were well-preserved. Based on the artifacts found, the site was classified as a “warrior” burial, typical of the Tasmola culture. Anthropological studies indicated the burial belonged to a male aged 45—50 years. Radiocarbon analysis, carried out by the Vilnius Radiocarbon Laboratory, dated the burial to the 8th—7th centuries BCE. The stone tool was made of sandstone. The material composition of the artifacts was analyzed, revealing that 90 percent of the metal was copper. A comparative analysis of the structures of other small burial sites in the region and the items found in them was conducted. Based on the analysis of materials and interdisciplinary research results, it was concluded that the kurgan is the burial site of a “warrior” from the Tasmola culture period.

Key words: Northern Saryarka, Balykty, Tasmola culture, early Saka period, warriors kurgans, harness, animal style, interdisciplinary research.

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«ВОИНСКОЕ» ПОГРЕБЕНИЕ ТАСМОЛИНСКОЙ КУЛЬТУРЫ НА МОГИЛЬНИКЕ БАЛЫКТЫ

В 2022 году проведены раскопки кургана № 1 раннего железного века на могильнике Балыкты (Акмолинская обл., Казахстан). Курган каменный, диаметром 4,5 м и высотой 0,2 м. Сохранились следы ограбления в древности. В процессе раскопок выявлено 20 бронзовых предметов, один каменный клинок и одно костяное шило. Набор конской сбруи выполнен в «зверином стиле». Сохранность кинжалов, ножей, наконечников стрел, каменных точил и костей очень хорошая. Судя по найденным артефактам, памятник относится к «воинским» захоронениям, типичным для тасмолинской культуры. Согласно антропологическим исследованиям, погребенный мужчина 45—50 лет. Данные радиоуглеродного анализа, полученные в Вильнюсской лаборатории, датируют захоронение VIII—VII веками до н.э. Каменное точило изготовлено из песчаника. Также определен состав бронзовых изделий, состоящих на 90% из меди. Проведен сравнительный анализ с конструкциями других могильников региона

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и найденных в них предметов. В результате анализа материалов и результатов междисциплинарных исследований сделан вывод о том, что курган является местом погребения «воина» периода тасмолинской культуры.

Ключевые слова: Северная Сарыарка, Балькты, Тасмолинская культура, раннескаский период, воинское погребение, конская узда, звериный стиль, междисциплинарные исследования.

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Introduction. The article examines the early Iron Age the burial site, discovered near the Zhanazhol village (Burabay district, Akmola region). In 2022, it was found by a resident of Zhanazhol village, local historian Rauan Yerzhanov. Based on the report, specialists of the state institution “Center for Protection and use of historical and Cultural Heritage” of the Department of culture of Akmola region and scientists of the Research Institute of Cultural Heritage at the National Museum of the Republic of Kazakhstan conducted an investigation of the kurgan. The research aims to study objects that are on the verge of destruction due to natural and anthropogenic factors and to introduce their materials into scientific circulation.

The site is located 3.2 km southwest of the Zhanazhol village, 3.4 km southwest of Lake Balykty, on a low hill, surrounded by forest (fig. 1).

The burial site consists of seven kurgans with mounds of stones and ground, aligned in a north-south direction. They are spaced 30—40 meters apart. The kurgans are simple burials with diameters ranging from 4 to 8 meters and heights from 0.15 to 0.50 meters. Kurgans No. 1—5, 7 are made of stone and earth, while Kurgan No. 6 is made of soil. Kurgans No. 1 and 2 have been heavily looted, with visible signs of plundering (fig. 2).

The probability of preservation of all burial monuments in the Necropolis is very low. Firstly, according to residents, the raw materials necessary for the economy are obtained here. Secondly, due to the exposed and elevated location, there is a risk of damage by modern looters.

The materials found were previously published in a brief description (Duisenbay et al. 2024). The novelty of the proposed publication lies in its inclusion of interdisciplinary research results: anthropological data, C14 radiocarbon dating, metallographic analysis, etc., which form the basis for exploring chronological questions. Additionally, a more thorough search for analogies has been conducted.

Research materials and methods. Human bones found in the burial pit were studied by an anthropologist (Emel Achar, PhD, Hittite University, Turkey). Processing and analysis of the anthropological material found during the excavations was carried out using standard anthropological methods (Alekseev, Debets 1964; Alekseev 1966). The gender and age of the person were determined using the paleoanthropological research methodology. Body length was reconstructed using K. Pearson’s formulas (Alekseev 1966).

A sample of human bone was collected and prepared for radiocarbon dating at the Vilnius (Lithuania) Radiocarbon Laboratory (scientific sup. Julius Paujolis). Metal researcher Milana Radivojevic, a specialist at the Institute of Archaeology, University College London, conducted a chemical study of all metal objects. This, in turn, gives the ability to determine the composition and quality of substances. The Mineralogical analysis of the stone artifact was carried out by Aigerim Aitpayeva, PhD, Karaganda Technical University. The mineralogical examination was determined according to the coefficients on the Moos scale developed by Friedrich Moos* (*The Mohs scale is a ten-point scale of relative surface hardness for minerals (Povarennykh 1963)).

The main *methodology* of the study is to determine the status of early Saka period warrior monuments discovered in the northern region of Kazakhstan, using archaeological materials and interdisciplinary research. Based on this, the methodology of the work focuses on the scientific analysis of fossil material processing results and natural science expertise, comparing them with similar burial monuments.

Description of excavations. Excavations were carried out on the stone-earth kurgan No. 1 of the burial ground. The diameter is 4.5 m, the height is 0.2 m. Traces of looting are observed in the central part of the burial mound. The surface of the mound is covered with turf, beneath which a layer of scattered small stones emerges. The stratigraphic layer reaches the bedrock. Below it, a burial pit was discovered, extending from the bedrock level in a northwest-southeast direction, with a dark gray color. Several medium-sized stones have been preserved around the oval pit. The dimensions are $0.45 \times 0.4 \times 0.15$ m. There is no tomb structure. The dimensions of the burial pit at the bedrock level are 2.6×1.2 m.

The burial pit was looted. The pit is filled with small stones and soil. At a depth of 0.45 m below the bedrock level, fragments of scattered human ribs were found. A human bone in an anatomical position was found at a depth of 0.9 m. There are no bones in the chest and back. The head of the person is facing the west, it is placed on its back. During a violent robbery, the skull was severely damaged. The legs did not move from their original position. The right leg is slightly bent. The dimensions of the floor of the burial pit are 2.6×1.1 m. The depth of the pit is 1.0 m (fig. 3).

Although the burial mound was looted, the archaeological artifacts from the burial pit were well preserved. A bronze dagger is placed near the warrior's right hip. It is located parallel to the right leg at a distance of 9 cm. The upper part and the central part are crescent-shaped. The total length of the bronze dagger is 34.6 cm. The length of the blade is 23.2 cm. The thickness of the blade is 0.7 cm. The thickness of the handle is 0.5 cm (fig. 4: 1).

A bronze bit and two cheekpieces were found near the right elbow, scattered during the looting. The total length of the bit is 18.9 cm. The connected parts are round with visible attachment points, and the ends are pointed-oval (fig. 4: 5). The lengths of the cheekpieces are 12.8 cm and 14.1 cm. One has a slightly rounded shape, while the other is straight. The diameters of the rounded parts at both ends of the cheekpieces are 1.1—1.2 cm. In the middle of each, there is a specially made hole measuring three by three. The outer diameter is 1.1 cm, and the inner diameter is 0.65 cm. Three lines are engraved on the outside of each round hole (fig. 4: 6—7).

Above it, there are bronze buckles on the right shoulder. There are seven pieces in total. It is divided into three groups. 1) The diameters of four large bronze buckles range from 3.7 to 3.9 cm. On the surface of the round buckles there are three circular lines located inside each other. They are surrounded by a square whose walls are curved inwards. On the back, there is a part that attaches to the belt (fig. 4: 8). 2) Small oval-shaped buckles. The dimensions are 1.6×1.9 cm. There are no patterns on the surface (fig. 4: 9—10). 3) The main piece is a buckle featuring the head of the mythical bird Samruk. The bird's beak is thick, with the head curved downward. The beak's opening is clearly defined, and the eye is represented by two circles. The buckle is 4.5 cm long and 3.4 cm wide, with a thickness of 0.25 cm (fig. 4: 11).

A bronze knife, a grindstone and a bone awl were found on the left thigh. They are in their original place. The length of the bronze knife is 20.2 cm, the width is 1.4 cm, and the thickness is 0.5 cm. One side of the blade is sharpened. The tip of the blade is pointed. An image of an animal is carved on the head. The body and legs are clearly visible (fig. 4: 2).

The total length of the stone blade is 10.9 cm. A bronze hook is attached to the head of the stone. The shape of the stone is elongated-oval. The stone is 10.1 cm long, 3.6 cm width and 1.6 cm thick. The hook measures 3.2×2.5 cm (fig. 4: 4). The bone awl is 10.4 cm long, 1.3 cm wide, and 0.8 cm thick, with a pointed tip. The head is rectangular, featuring a round hole with a diameter of 0.5 cm.

Additionally, three holes are located along the edges of the bone awl, with diameters ranging from 0.2 to 0.25 cm and depths from 0.1 to 0.2 cm (fig. 4: 3).

10 bronze arrowheads were found near the left knee of the deceased (fig. 4: 12—21). The arrowheads are two-vane and well-preserved. Their length ranges from 4.1 to 4.5 cm, and the width from 1.2 to 1.3 cm. The round notches have an outer diameter of 0.5 cm and an inner diameter of 0.4 cm. Notably, traces of gray-brown material, potentially decayed wood fragments, were found on the underside of the arrowheads. Due to severe damage, they could not be definitively identified.

Research results. Anthropological analysis revealed that the buried individual was a male, approximately 56—60 years old, with a height of 174 cm and a robust physique. According to the paleopathological feature, the place of the intravital fracture, healed before death, is over again (fig. 5).

It was determined that the man was frequently on horseback. The research, focusing on general paleopathological and traumatic markers, contributes to the anthropological data on the Early Saka period. Such a database for the Early Saka has previously been established only in Central Kazakhstan (Beisenov et al. 2015). The study of dating issues was examined using only C14 radiocarbon dating results. According to the OxCal scale, the dating starts from the late 8th century BC and covers the period up to the mid-6th century BC (table 1).

Table 1. Radiocarbon dating indicators

Lab ID	Provenance (monument)	¹⁴ C BP	Calibrated (1 σ, 68.3)	Calibrated (2 σ, 95.4)
F T M C - GP12-3R	Balykty b. mound 1	3040±29	8.7% 760—742 cal BC 12.4% 692—665 cal BC 47.2% 647—549 cal BC	94.2% 776—537 cal BC 1.3% 531—518 cal BC

It was determined that the grindstone was made of sandstone. Stone tools are usually made from soft raw materials, making them highly suitable for processing and sharpening metal objects. It belongs to the ranks of 2—3 coefficients on the Moos scale (Ananyev, Peredelsky 1980). Based on the function of the stone blade, it belongs to the type used for metal processing (Beisenov et al. 2021: 192, fig. 6—7).

It was established that the majority of the bronze items consist of 90% copper and a smaller proportion of tin. The corrosion-resistant properties of copper and tin allow these objects to be used for domestic purposes and preserved underground to this day (table 2).

Discussion. The northern part of Saryarka is considered an integral part of the early nomadic culture of the Eurasian steppes. The study of monuments from this period associated with Mir K. Kadyrbayev. In the 1960s, Kadyrbaev first explored the Tasmola kurgan group and conducted excavations. As a result, small burials dating to the 7th—5th centuries BC were studied. The term “Tasmola culture” appeared in the scientific literature, named after the excavated sites. The researcher excavated numerous small burial monuments and raised questions about the initial dating of the Early Iron Age (Kadyrbayev 1966).

Small burials in Northern Saryarka are very poorly studied. In 1972—1975, excavations were carried out in Alipkash, Zhabay, Ulybay, Bektengiz and about 150 other small burials. Over 70 of these are dated to the 8th—5th centuries BC. Archaeologist Maral K. Khabdulina divided the monuments into the Petropavlovsk, Sergeevsk and Yesil-Shagalaly groups based on their regional locations (Khabdulina 1994: 19). Among these, we classify the Balykty burial site as part of the Yesil-Shagalaly group due to its geographical position (Khabdulina 2019).

At the end of the last century, scientific results were published on previously discovered monuments of the early Iron Age in Northern Saryarka (Khabdulina 1994). The Tasmola culture primarily represents the Early Saka culture, covering almost the entire territory of Saryarka.

Subsequent changes to this unified archaeological culture, with Central Kazakhstan as the core, led to the division of northern Saryarka into archaeological microdistricts: “Ulybay-Tasmola” (Khabdulina 1994), and “Bobrov-Tasmola” in the south Urals. However, the authors note that the Tasmola culture is considered a single archaeological culture based on the archaeological sites and material complexes. Early Saka burial sites discovered in Central and Northern Kazakhstan are quite similar in all their components, proving there are no significant differences.

Table 2. Index of composition of metal products*

	Conclusion	Ti (wt%)	Fe (wt%)	Co (wt%)	Ni (wt%)	Cu (wt%)	Zn (wt%)	As (wt%)	Ag (wt%)	Sn (wt%)	Sb (wt%)	Pb (wt%)	Bi (wt%)	SUM
1	Snbronze (with As)	0	0.2	0	0	87.5	0	0.5	0.1	10.7	0.1	0.9	0	100
2	Snbronze (with As)	0.1	0.1	0	0.1	91.2	0	0.5	0	8	0	0	0	100
3	Snbronze (with As)	0	0.1	0	0	91.4	0	0.6	0.1	7.7	0	0	0	100
4	Snbronze (with As)	0.1	0.1	0	0.2	85.4	0.1	1	0.1	13.1	0	0	0	100
5	Snbronze (with As)	0.1	0.3	0	0.1	87.7	0	0.8	0	11	0	0.1	0	100
6	Snbronze	0	0.5	0	0	95.2	0	0.1	0.1	4	0	0	0	100
7	Snbronze (with As)	0.1	0.1	0	0.2	86.6	0.1	1	0.1	11.8	0	0.1	0	100
8	Snbronze (with As)	0	0	0	0.1	87.8	0	0.8	0.1	11	0	0	0	100
9	Snbronze (with As)	0	0.1	0	0	82.9	0.1	0.8	0	15.4	0.1	0.5	0	100
10	Snbronze (with As)	0	0	0	0	86.1	0	0.8	0	12.4	0	0.5	0	100
11	Snbronze	0	0	0	0	89.2	0.1	0.3	0.1	10	0	0.3	0	100
12	Snbronze	0	0	0	0	92.9	0.1	0.2	0	6.7	0	0.2	0	100
13	Snbronze (low Sn)	0	0.1	0	0	98	0	0.3	0	1.4	0	0.1	0	100
14	Asbronze (Arsenical bronze)	0	0.6	0	0	97.6	0	1.4	0.1	0	0	0.3	0	100
15	Asbronze (Arsenical bronze)	0	0.4	0	0	97.3	0	1.4	0	0	0	0.7	0	100
16	Snbronze (with As)	0	0.1	0	0	93.1	0.1	0.3	0	5.8	0.3	0.3	0	100
17	Snbronze	0	0	0	0	91.2	0	0.1	0	7.7	0.1	0.8	0	100
18	Snbronze	0	0.1	0	0	92.1	0	0	0	6.9	0.1	0.8	0	100
19	Snbronze	0	0.1	0	0	92.1	0	0	0	6.9	0.1	0.8	0	100
20	Snbronze	0	0.1	0	0	92.2	0	0	0	6.8	0.1	0.8	0	100
21	Snbronze	0	0.1	0	0	92.1	0	0	0	6.9	0.1	0.8	0	100

Note: *The numbering in the table corresponds to the number in figure 4.

Over the past two decades, comprehensive studies of large and small burials have been carried out in Central Kazakhstan (Beisenov 2015b: 11). Similar research has recently expanded into Northern Saryarka. In particular, research efforts in recent years have prioritized elite burial monuments (Kassenali et al. 2021). Simple and small kurgans have been well studied. Excavations of small burial sites were carried out on the territory of the Kokshetau forestry or in adjacent areas. In particular, the burial grounds of Taskora II, Kasan I, Taitobe, Produksi II, Besoba (Valchak et al. 2017: 142), Ulkensor (Yarygin et al. 2023), Shagalaly 5 (Yarygin, Sakenov 2018) can be noted.

The excavation of the Balykty burial site is part of the scientific exploration of several Early Iron Age monuments in Northern Saryarka. The “warrior” burial sites in Northern Saryarka are poorly studied. Similar burials have been discovered at sites like Shagalaly 5 (Yarygin, Sakenov 2018), Ulkensor (Yarygin et al. 2023), Myrzhik 6 (Beisenov, Duisenbay 2017). These sites are located within

the historical-geographical area of Saryarka and, chronologically, belong to the Tasmola culture. In agreement with Maral K. Khabdulina, who categorized kurgans into three types based on size, this burial belongs to the first type (Khabdulina 1994: 18).

In addition to the discovered artifacts, the deceased may have originally possessed belt sets, which were removed during the looting. Based on the looted grave and the absence of lumbar and rib bones, it appears that there were initially items related to the waist. This suggests that the deceased was buried according to ancient customs. This is confirmed by fragments of a belt from the village of Ulkensor in the Burabay district, which is closest to the cemetery. The discovery of a stone axe, a knife, and several bronze arrowheads from a burial dated to the 7th—6th centuries BC (Yarygin et al., 2023) suggests similarities in burial practices with the Balykty ritual. Additionally, one can mention the materials from the Myrzhyk 6 burial ground in Atasu (Beisenov, Duisenbay 2017: 18—25). However, the construction of the object and type of the items complex dates back to a much earlier period than the sites mentioned above. This is further evidenced by the results of radiocarbon research.

The plaques from bridle straps belong to the classification group of bronze buckles of the pre-Scythian and early Scythian eras, examined by Alexey I. Terenozhkin. The set includes more than 200 buckles of the solar-type. Motifs with a “rhombus-shaped figure with concave sides and a circle in the center” are widespread. An important feature of the motif is the absence of intersections between the rhombus and the circle inscribed in the figure (Ryabkova 2010: 309; Beisenov et al. 2017; Jumabekova, Bazarbayeva 2018). Tatyana V. Ryabkova concluded that the origin of the four-pointed motifs from the steppe zone and the Near East was also used in Central Asia. The researcher’s hypothesis is initially deemed unfounded due to the significant time gap and the differences in burial rites and material heritage between the Okunev and Scythian cultures (Ryabkova 2011: 104—106; Horvat 2021: 145). Earlier, Alexey I. Terenozhkin noted the borrowing of rhombic symbols from Western Asia, but did not highlight the differences in the shape of the Signs that were widespread in the steppe regions. At the same time, he did not exclude that the rhombic images could have come from the depths of Siberia, where many other types of horse equipment of the late pre-Scythian period originated (Horvat 2021).

A close analogy to the bronze knife can be found in the bronze knife from the Shagalaly 5 kurgan, discovered in the Zerendy district. It is single-edged and very similar in shape and size (Yarygin, Sakenov 2018: 27).

Bronze daggers became widespread in the early Iron Age during the 8th—7th centuries BC (Khabdulina 2017). The dagger is one of the main attributes of the Saka warrior. Analogs of the bronze dagger from the site were found in the Marinskoye settlement near Kokshetau, along the Yesil River, near the Rassvet village. It is dated to the 7th—6th centuries BC. The dagger found near Rassvet village is similar in shape and size to the dagger of the Balykty burial ground. It differs only in the absence of an animal image embossed with the style of the beast on the head (Khabdulina 1984: 228). The bronze dagger can be classified as one of the characteristic material complexes of the Saryarka region. Typologically, the earliest akinak daggers with a crosshair “mustache”, such as those found in the Arzhan-1 mound (Savinov 2018: fig. 1, 5, 8), as well as in the form of random finds in the Minusinsk Basin and Tuva, reproduce the shape of Chinese daggers of the era Western Zhou, with the same guard “mustache”, where they, in turn, had deeper antiquity (Savinov 2018: 95, fig. 1: 5, 8, 10, 11).

The closest type of bits was found in ritual structure No. 5 of the Bakybulak burial ground (Beisenov 2015b: 31). Similar materials were found in ritual structure No. 1 at Bakybulak, where bits and bridles were found together. The difference is that the Bakybulak bits have one central groove in an elongated form, whereas the Balykty bits feature three grooves. However, in terms of tradition and manufacturing technique, they are most similar to the Bakybulak finds. The metallurgical analysis of artifacts from Bakybulak revealed that they were cast using the Arzhan-Chernogorsk method

(Beisenov 2015a: 121). Another similar type of bit was found in 24 burials in Tolagai and Tasmola 1 (Kadyrbayev 1966: 316).

Another find of Early Iron Age bits comes from the Akzhailau-1 burial ground. The bronze two-part components, joined by two rings positioned on links in perpendicular planes, are dated to the 7th—6th centuries BC. The outer ends of the bits are somewhat squared (Samashev et al. 2023: 18).

The material complexes of the central and northern part of the Tasmola culture are very similar to each other. Although local cultural differences are examined separately, the ancient inhabitants shared a common lifestyle in a generally accepted sense.

Collecting and analyzing material complexes related to the Ulybai-Tasmola culture deepens our understanding of the Saka people's culture and worldview. The presence of arrows with different types of arrowheads indicates a high degree of military activity during that period (Khabdulina 2017: 50). The closest analogues for these double-edged arrowheads are found in the Alypkash burial site (Khabdulina 2017: 41).

Forty-two arrowheads from the Bakibulak burial ground (Beisenov 2015a: 121, fig. 2: 11—21) are categorized into four groups. Among them are ten two-bladed arrows, similar to those found at Balykty. The presence of 149 arrowheads from the Saba burial ground, located in the Torgay Basin, suggests that the site served as a warrior's burial place (Onggaruly et al. 2020: 240).

The presence of warrior burials confirms the special regard for them and their high status within the social stratification of the Tasmola culture. Compared to the study of large "royal" kurgans, targeted research on common graves provides substantial information about the social structure of Saka society.

Conclusion. The role of material complexes in addressing the issues of paleo-economics within the Tasmola culture and mutual cultural integration is significantly high. The diversity of high-quality metal, stone, and bone artifacts, including elements of jewelry, indicates a sophisticated culture among the ancient inhabitants of the region.

As a result of comprehensive archaeological studies at the Balykty site, new materials have emerged regarding the formation of the cultural complex of the Early Iron Age in northern Saryarka. C14 analysis shows that the site dates to the first half of the 8th century BC to the second half of the 6th century BC. Considering that solar symbols identified on the surface of bronze plaques and daggers find analogies in materials from the early Scythian period, the obtained materials logically fit within the interval from the end of the 8th century BC to the beginning of the 6th century BC. Furthermore, the presence of bronze two-bladed arrows with sockets indicates that they are characteristic of the early phase of the Early Iron Age. Based on the above, the site is dated to the end of the 8th century BC to the second half of the 7th century BC.

Targeted studies of common burials in the future will provide a new impetus for addressing key issues of the Early Iron Age in the region. Until recently, archaeological research on relevant issues from this era has often relied on data obtained from excavations of large burials. For instance, it has been found that stone anthropomorphic figurines are encountered during the study of the above-ground parts of «royal» kurgans (Beisenov et al. 2023: 18), whereas they appear only rarely in the context of common burials (Kasanova et al. 2023).

The high status of warriors in the society of the Tasmola culture in northern Saryarka is defined by the complexity of the accompanying items within the burial complex. The presence of warriors in the social hierarchy is viewed as a characteristic of an early state society.

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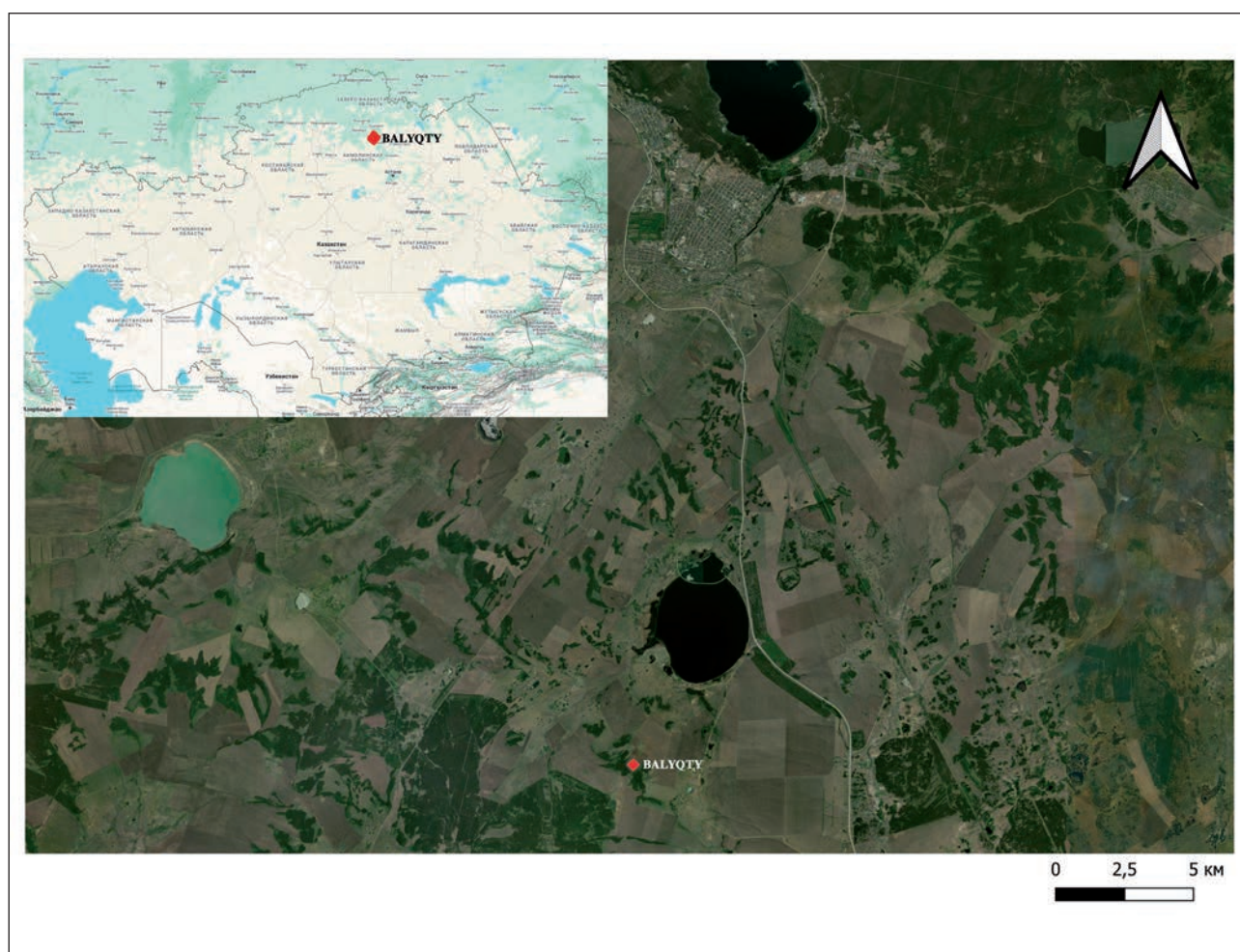


Fig. 1. Map of the burial ground Balykty

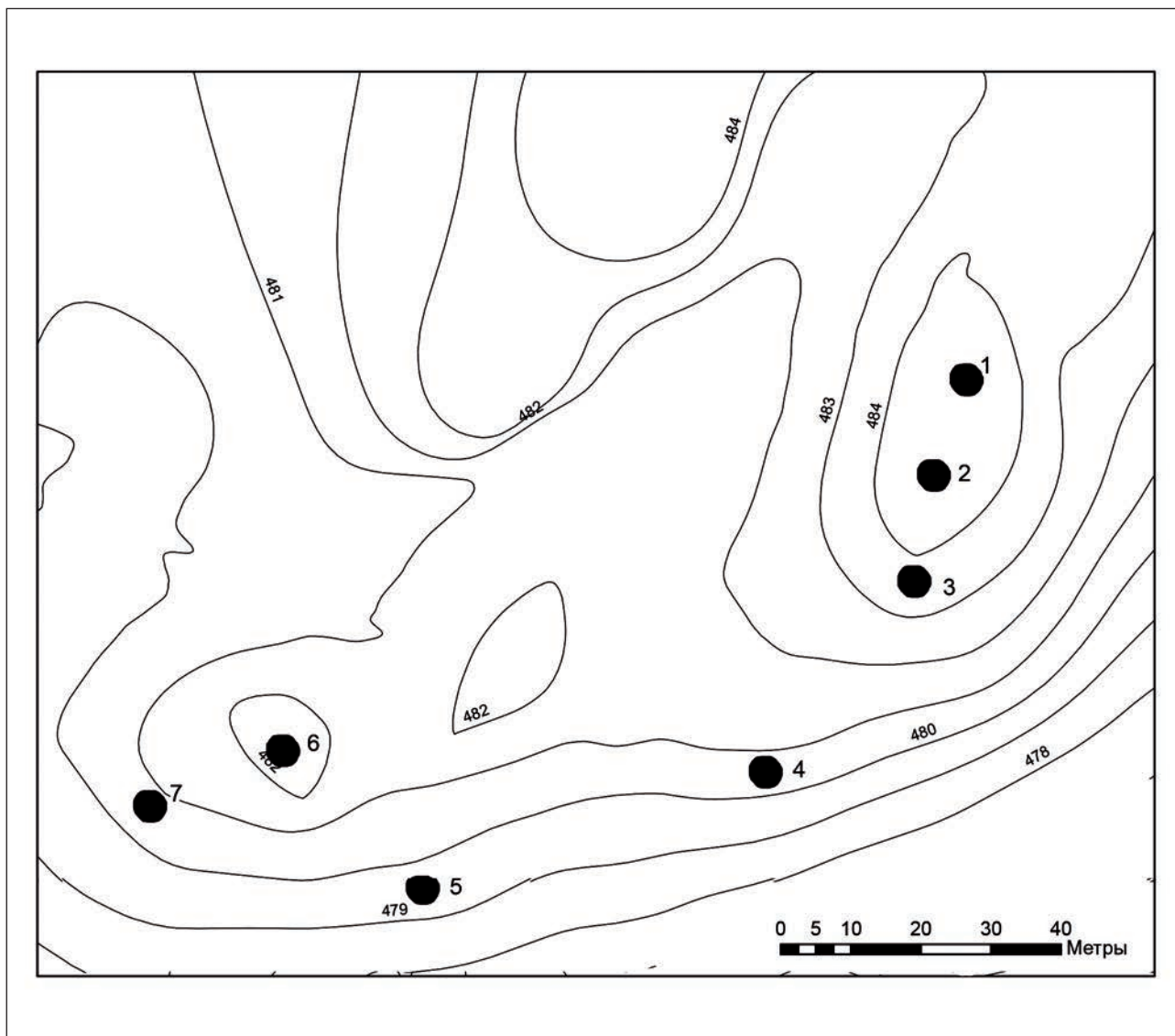


Fig. 2. Balykty burial ground. Topographical plan

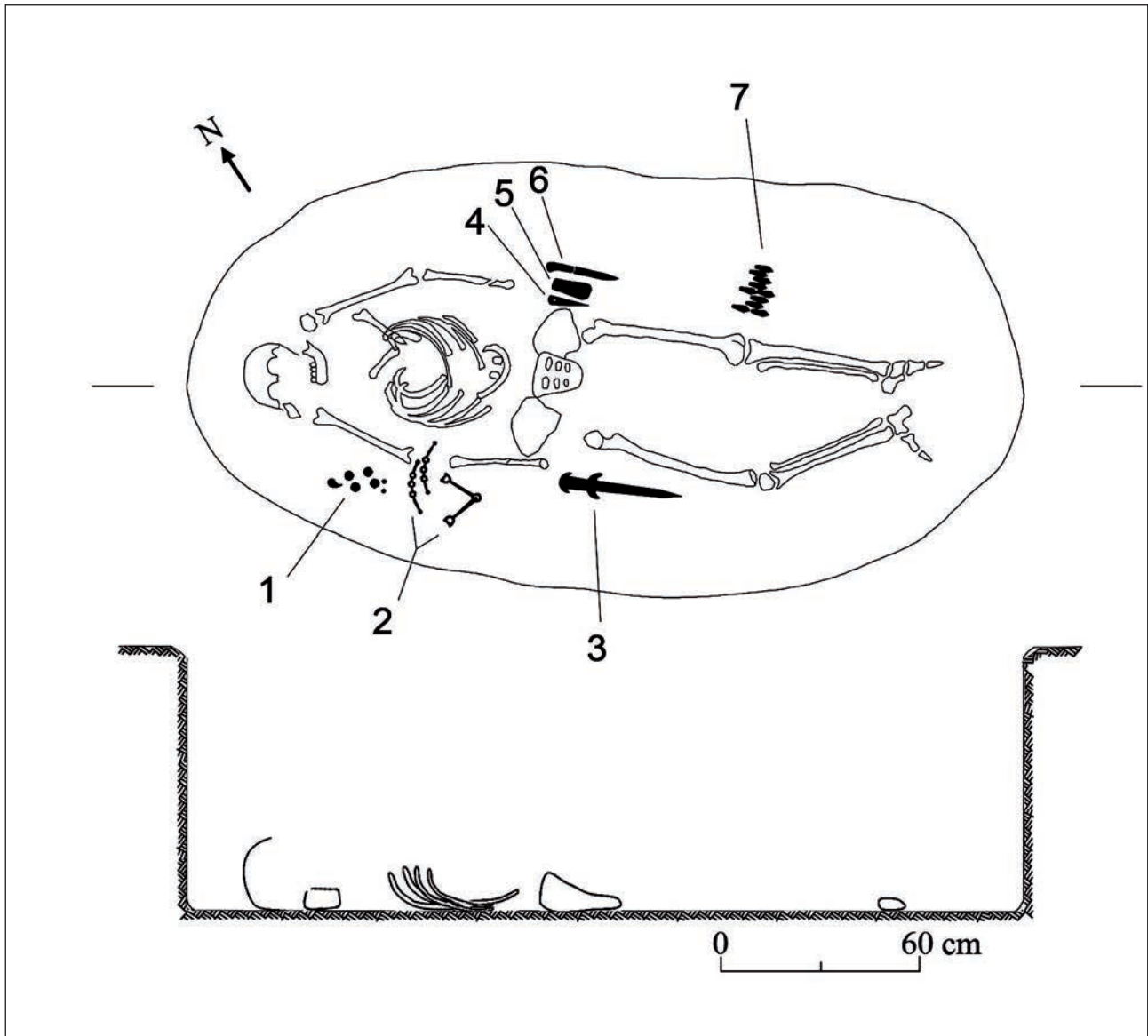


Fig. 3. Balykty burial ground. Kurgan No. 1. Plan and section of the mound pit: 1 — buckles; 2 — bit and cheekpieces; 3 — dagger; 4 — awl; 5 — sharpener; 6 — knife; 7 — arrowheads.

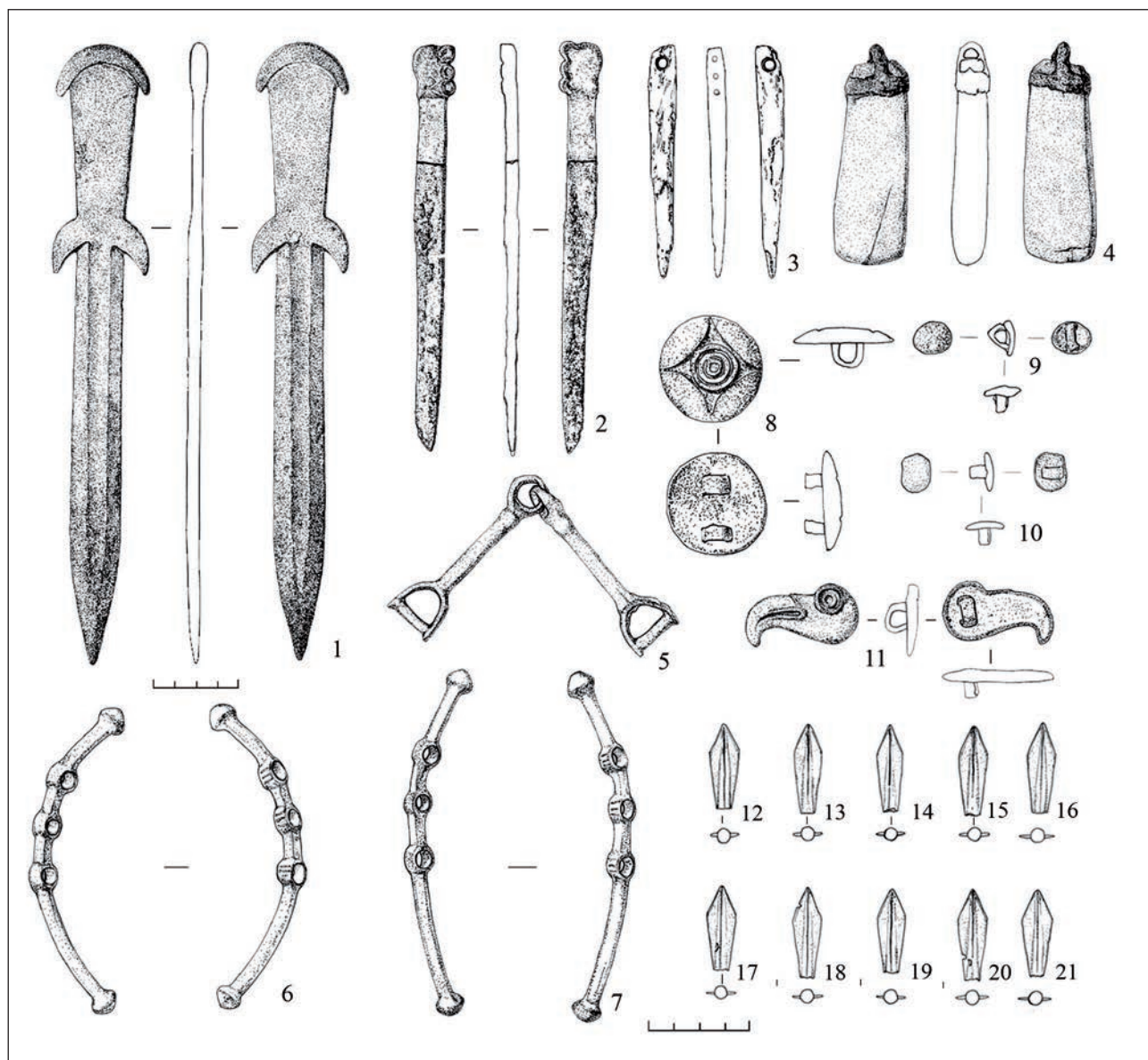


Fig. 4. Balykty burial ground. Kurgan No. 1. Finds: 1 — dagger; 2 — knife; 3 — awl; 4 — grindstone; 5 — bit; 6, 7 — cheekpieces; 8—11 — buckles; 12—21 — arrowheads. 1, 2, 5—21 — bronze items, 3 — bone, 4 — stone.



Fig. 5. The right *tibia*. Antemortem fracture.