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Excavations of catacomb 4 of the Silbelitobe 1 necropolis in 2023

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A. Podushkin[1] and G. Stamkulova[1]
[1]South Kazakhstan State Pedagogical University, Shymkent, Kazakhstan
**Corresponding author*

Excavations of catacomb 4 of the Silbelitobe 1 necropolis in 2023

This publication focuses on the archaeological study of the Silbelitobe 1 necropolis. In kurgan No. 4, a unique burial of a woman was discovered within a three-part underground catacomb structure featuring a hollow, vaulted burial chamber. This archaeological complex is ethnoculturally connected to the Kangju state (1st–4th centuries CE). The underground architecture of the catacomb, constructed from dense kaolinite clays with high binding properties and plasticity, necessitated a novel excavation method. This approach avoids traditional overburden removal above the mound and catacomb structure, instead allowing complete archaeological research of the chamber through the dromos and entrance passageway. This method, applied for the first time in Kazakhstan archaeology, has proven effective both scientifically and in terms of safety, preserving the mound's integrity and the historical landscape of the necropolis. Additionally, it opens new possibilities for reconstruction and interpretation of burial rituals and catacomb construction methods — one of the most widespread burial types among the ancient ethnic groups comprising the Kangju state.
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А.Н. Подушкин[1]*, Г.А. Стамкулова[1]
[1]Оңтүстік Қазақстан мемлекеттік педагогикалық университеті, Шымкент, Қазақстан
**корреспондент авторы*

Сілбелітөбе 1 қорымының 4-катакомбасындағы 2023 жылғы қазба жұмыстары

Мақала Сілбелітөбе 1 қорымын археологиялық зерттеуге арналған. Мұнда № 4 обадан құыс күмбезді жерлеу камерасы бар, үш бөліктен тұратын жерасты катакомбалық құрылымынан әйелдің жалғыз жерлеу орны табылды. Этномәдени тұрғыда I–IV ғасырлардағы Қаңлы мемлекетімен байланысты көрнекті археологиялық кешен анықталды. Катакомбаның (отқа төзімді каолинді, серпімді саздан жасалып, берік тұтасқан) архитектурасының ерекшелігі осы тектес нысандарда қазба жүргізу барысында камераға жету үшін обаның топырақ жамылғысын толықтай аршу секілді дәстүрлі жұмыстардан бас тартып, дромос және кіреберіс құыс арқылы археологиялық зерттеулердің толық кешенін жүргізу сынды жаңа әдістемесін қолдануға жол ашпақ. Бұл әдістеме Қазақстан археологиясында алғаш рет қолданылып отыр, қауіпсіздік шаралары сақталған жағдайда ғылыми жағынан өз тиімділігін көрсетті. Бұл жағдайда оба жамылғысы мен қорымның тарихи ландшафты бұзылмай сақталады, Қаңлы мемлекеті құрамына кірген ежелгі этностардың кең таралған жерлеу

дәстүрі – катакомбаның құрылымының салыну тәсілдері және ғұрыптармен байланысты реконструкциялық және интерпретациялық жүйенің басқа да мүмкіндіктері анықталады.
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А.Н. Подушкин[1]*, Г.А. Стамкулова[1]
[1]Южно-Казахстанский государственный педагогический университет, г. Шымкент, Казахстан
**автор-корреспондент*

Раскопки катакомбы 4 некрополя Сильбелитобе 1 в 2023 году

Публикация посвящена археологическому исследованию некрополя Сильбелитобе 1. Здесь в кургане № 4 в трёхчастном подземном катакомбном сооружении с полой сводчатой погребальной камерой открыто одиночное захоронение женщины, получен выразительный археологический комплекс, который в этнокультурном аспекте связан с государством Кангюй I–IV вв. Особенности подземной архитектуры катакомбы (выполнена в плотных с высокими связующими способностями и пластичностью каолиновых тугоплавких глинах) предопределили новую методику вскрытия таких объектов, смысл которой сводится к отказу от традиционных вскрышных работ по выемке грунта над курганом и всей конструкцией катакомбы с последующим проникновением в камеру и осуществления в ней полного комплекса археологических исследований через дромос и лаз. Подобная методика впервые применена в археологии Казахстана, она показала свою эффективность в научном плане и в контексте соблюдения техники безопасности. При этом в неприкосновенности остаётся курганная насыпь и исторический ландшафт некрополя, выявляются иные возможности реконструктивного и интерпретационного порядка, связанные с обрядностью и способами сооружения катакомб как одной из самых распространённых погребальных конструкций древних этносов, входивших в состав государства Кангюй.
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Introduction

The Silbeli tract is located 20 km east of the village of Kaskasu (Southern Kazakhstan, Turkistan Region, Tolebi District) in the mid-mountain landscape zone of the Karzhantau ridge (southern spurs of the Talas Alatau mountain range). The terrain features an altitude range from 1500 to 2200 meters above sea level. The small valley of the Silbeli tract, covering an area of about 22 sq. km, includes ridge-like elevations of the watershed between the Sayramsu and Aksu rivers to the north and the mini-ridges of the Karzhantau slopes covered with juniper forests to the south. These forests form the watershed between the Sayramsu and Silbeli rivers. The valley's character is emphasized by the Silbeli River, a right tributary of the Sayramsu River, which joins it at the exit of the latter from the eponymous mountain gorge.

In the central part of the valley, the spring-fed Kaindy stream flows into the Silbeli River. Between the two watercourses lies a ridge-like watershed, completing the overall landscape characteristics of the studied valley (fig. 1: *1*).

Statistics for the two rivers are as follows: the Silbeli River has a length of 15 km from its source in the Karzhantau mountains to its confluence with the Sayramsu River; the Kaindy stream has a length of 5 km from its source to its confluence with the Silbeli River.

During the 2023 field season, the Center for Archaeology of the South Kazakhstan State Pedagogical University continued work at the necropolis of the Silbelitobe 1 settlement. This necropolis is located 600 meters east of the Silbelitobe settlement, on the edge of a low left bank elevation of a dry ravine that joins the left bank of the Silbeli River almost at a right angle. The necropolis consists of a compact group of 16 irregularly arranged relief mounds made of loess. Most of the kurgans have circular "ditches" at their base. The average dimensions of the mounds are as follows: base diameters of 6–8, 10–12, and 14–16 meters, with heights ranging from 0.8 to 1.6 meters (fig. 1, *2*). In 2023, excavations were conducted at kurgan No. 4 (fig. 1, *2*).

Archaeological work

Kurgan № 4. The mound is of regular shape, well-profiled, with the following parameters: diameter 10–11 m, height 1.3 m, and the steepest slope facing north. Along the perimeter of the mound, a trench 1 m wide is observed, which resulted from the efforts of the builders to level the kurgan, as the slope of the ravine has a fairly significant incline (approximately 12–15 degrees; fig. 2, *1–2*). During the excavations in the northwestern sector of the mound, closer to the center of the kurgan, a classic three-part catacomb burial structure was uncovered at a depth of 2.6–3 m below the ground surface. It represents a "T"-shaped catacomb with a single-step ramped trench-type dromos.

The structure of the catacomb in Kurgan No. 4 includes:

- a narrow-trench dromos measuring 3.8 m in length, with a width of 0.4 m at the beginning and 0.9 m at the junction with the passage; a depth of 2.8 m in front of the passage, featuring a ramped slope descending toward the passage and the burial chamber (fig. 3, *1*);

- an arched passage in cross-section, measuring 0.45 m in length, 0.5 m in height, and 0.6 m in width at the base; it appears that the profile of the passage was lined with stone masonry (fig. 3, *3–4*);

- a trapezoidal hollow burial chamber with corner indentations in the southwestern and southeastern parts, measuring 2.1 × 1.6 m with a maximum height of the hemispherical vault at 0.8 m (fig. 3, *2*).

The entire structure is oriented almost perfectly in the north-south direction (fig. 5, *I*).

The catacomb in burial mound No. 4 of the Silbelitobe 1 settlement necropolis was extensively looted in ancient times. The chamber contained the remains of a single skeleton (skull, parts of the spine, ribs), scattered haphazardly across the entire floor area of the chamber (preliminary anthropological identification: a middle-aged woman). Only the tibia bones of the left leg were found in anatomical order, which allowed for the orientation of the skeleton to be determined. Additionally, along the northern wall of the burial chamber, a thick layer of burned organic fuel was observed at the floor level, upon which the skeleton rested. Burial ritual: the body was laid in an extended position on a corner bedding, with the head oriented to the east (fig. 5.II).

Characteristics of the archaeological complex

The burial inventory, sporadically scattered across the floor of the chamber, was found mainly in the area of the ribcage, pelvic bones, and near the inner end of the passage (explanation, fig. 5.II, *1–9*), it is represented by the following artifacts:

- a small fragment of pottery from a dining mug (part of the bottom and body). The mug is made of high-quality clay, hand-built, well-fired, and decorated with a reddish-brown slip with burnishing (fig. 4. III, *1*; 5.II, *1*);

- an amulet made of whitish-yellow stone (limestone), elongated in a triangular shape with a hole for suspension (fig. 4.III, *2*; 5.II, *2*);

- a round, tablet-shaped pendant made of jet with a perforated hole. One surface of the pendant is decorated with two concentric circular incised lines, at the center of which is a perfect cross, dividing it

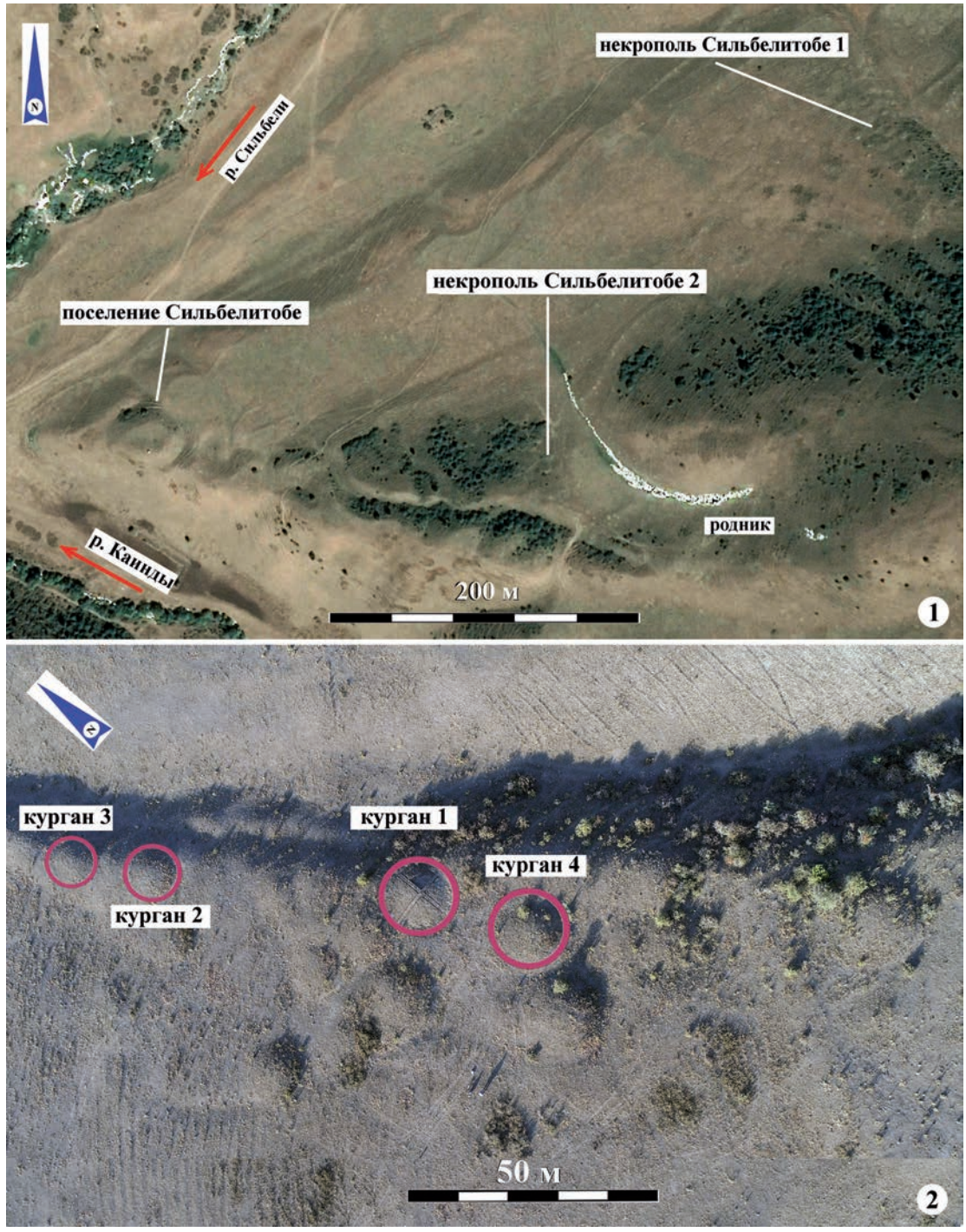


Fig. 1. Local archaeological cartography of the Silbeli tract: the Silbelitobe settlement and the planigraphy of the Silbelitobe necropolis 1 with the recording of kurgan No. 4 (top view)

1-сур. Сілбелі шатқалының жергілікті археологиялық картографиясы: Сілбелітөбе қонысы және №4 оба негізге алынған Сілбелітөбе 1 қорымының планиграфиясы (жоғарыдан қарағандағы көрініс)

Рис. 1. Локальная археологическая картография урочища Сильбели: поселение Сильбелитобе и планиграфия некрополя Сильбелитобе 1 с фиксацией кургана № 4 (вид сверху)

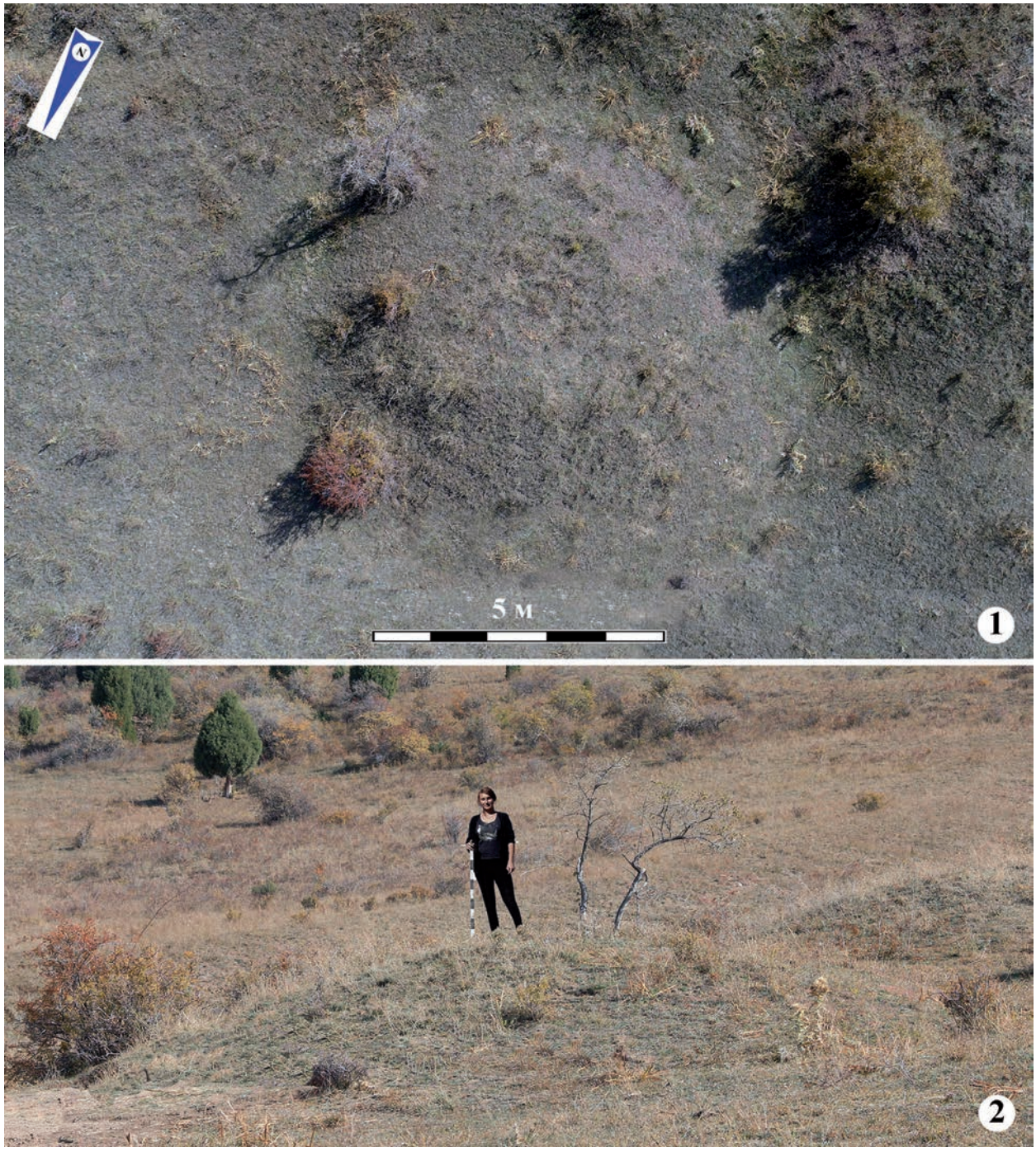


Fig. 2. Kurgan mound of catacomb 4 of the Silbelitobe 1 necropolis: *1* – top view of the kurgan mound; *2* – external view of the mound

2-сур. Сілбелітөбе 1 қорымы 4-катакомбасының оба үймесі: *1* – оба үймесінің жоғарыдан қарағандағы көрінісі; *2* – үйменің сыртқы түрі

Рис. 2. Курганная насыпь катакомбы 4 некрополя Сильбелитобе 1: *1* – вид курганной насыпи сверху; *2* – внешний вид насыпи



Fig. 3. Catacomb 4 of the Silbelitobe 1 necropolis: *1* – trench dromos and hole; *2* – burial in a hollow chamber; *3* – hole in front of the burial chamber; *4* – entrance opening with part of the burial chamber

3-сур. Сілбелітөбе 1 қорымының 4-катакомбасы: *1* – траншеялы дромос пен кіреберіс қуыс; *2* – қуыс камераға жерлеу; *3* – жерлеу камерасының алдындағы кіреберіс қуыс; *4* – жерлеу камерасының бөлігі бар кіреберіс қуыс саңылауы

Рис.3. Катакомба 4 некрополя Сильбелитобе 1: *1* – траншейный дромос и лаз; *2* – погребение в полой камере; *3* – лаз перед погребальной камерой; *4*–проём лаза с частью погребальной камеры

into four segments with round depressions inside, while the other surface also features a perfect cross, the contours of which are emphasized by double triangular incision (fig. 4.III, *3*; 5.II, *3*);

- a bronze needle-shaped ear-pick with one pointed spoon-shaped end and the other rounded end with a hole in the center (fig. 4.III, *4*; 5.II, *4*);
- a silver ring with open ends (Fig. 4.III, *5*; 5.II, *5*);
- small pieces of chalk as an element of burial ritual (fig. 4.III, *6*; 5.II, *6*);
- fragment of a bone cylindrical bead with a longitudinal hole (fig. 4.III, *7*; 5.II, *7*);
- the top part of an iron needle (fig. 4.III, *8*; 5.II, *8*);
- remains of a wooden item in the form of a round flat vessel, similar to a low bowl or a small dastarkhan (fig. 5.II, *9*).

Analogies, historical-cultural, and chronological interpretations

As argued historical-cultural and chronological indicators in the archaeological complex of the catacomb 4 of the Silbelitobe 1 necropolis, the following artifacts are presented:

- a fragment of pottery from a hand-made dining pitcher with traces of decoration in the form of red-brown slip and burnishing. Similar decorative techniques are known on vessels of this type at the Silbelitobe settlement [Подушкин и др. 2022: 93, рис. 6, 9.11] and the pottery of the Arys culture of Southern Kazakhstan from the 1st centuries CE [Подушкин 2000: 109–111];

- a stone amulet-pendant in the shape of a triangle with a hole for hanging. Such amulets, as protective charms against “evil” forces and guarantors of health, were practiced in the Sarmato-Kangju ethnic-cultural milieu during the first centuries BCE – first centuries CE [direct analogy: Скрипкин 1990: 88, рис. 32, *26*]. An amulet pendant of similar shape made of colored glass, part of a composite necklace, was

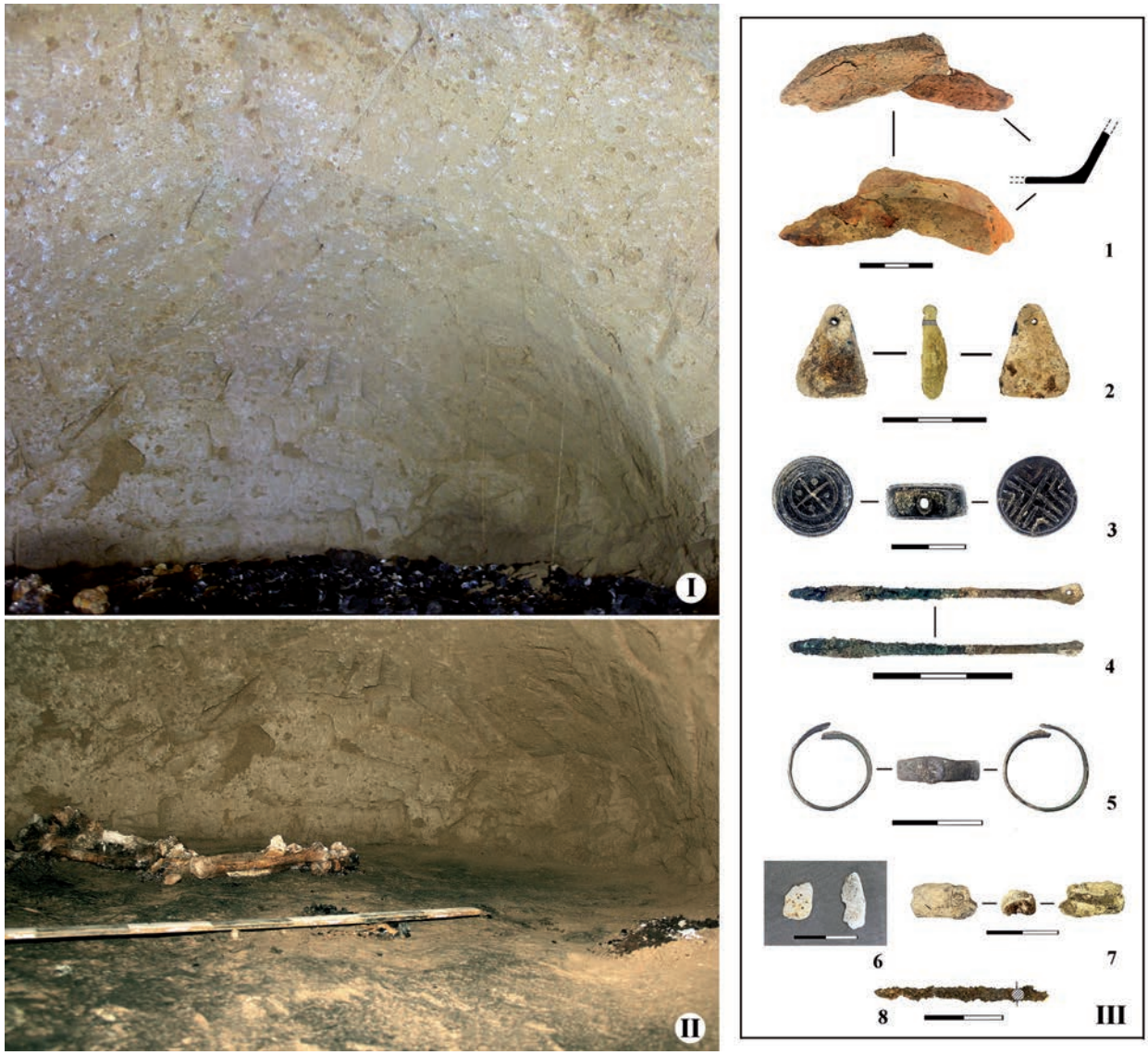


Fig. 4. Internal view of the chamber in catacomb 4 of the Silbelitobe 1 necropolis:
I–II – walls and part of the vault with traces of tools; *III.1–8* – archaeological complex of catacomb 4 of the Silbelitobe 1 necropolis

4-сур. Сілбелітөбе 1 қорымының 4-катакомбасындағы камераның ішкі көрінісі:
I–II – еңбек құралдарының іздері бар қабырғалары мен күмбез бөлігі; *III.1–8* – Сілбелітөбе 1 қорымының 4-катакомбасының археологиялық кешені

Рис. 4. Внутренний вид камеры в катакомбе 4 некрополя Сильбелитобе 1:
I–II – стенки и часть свода со следами инструментов; *III.1–8* – археологический комплекс катакомбы 4 некрополя Сильбелитобе 1

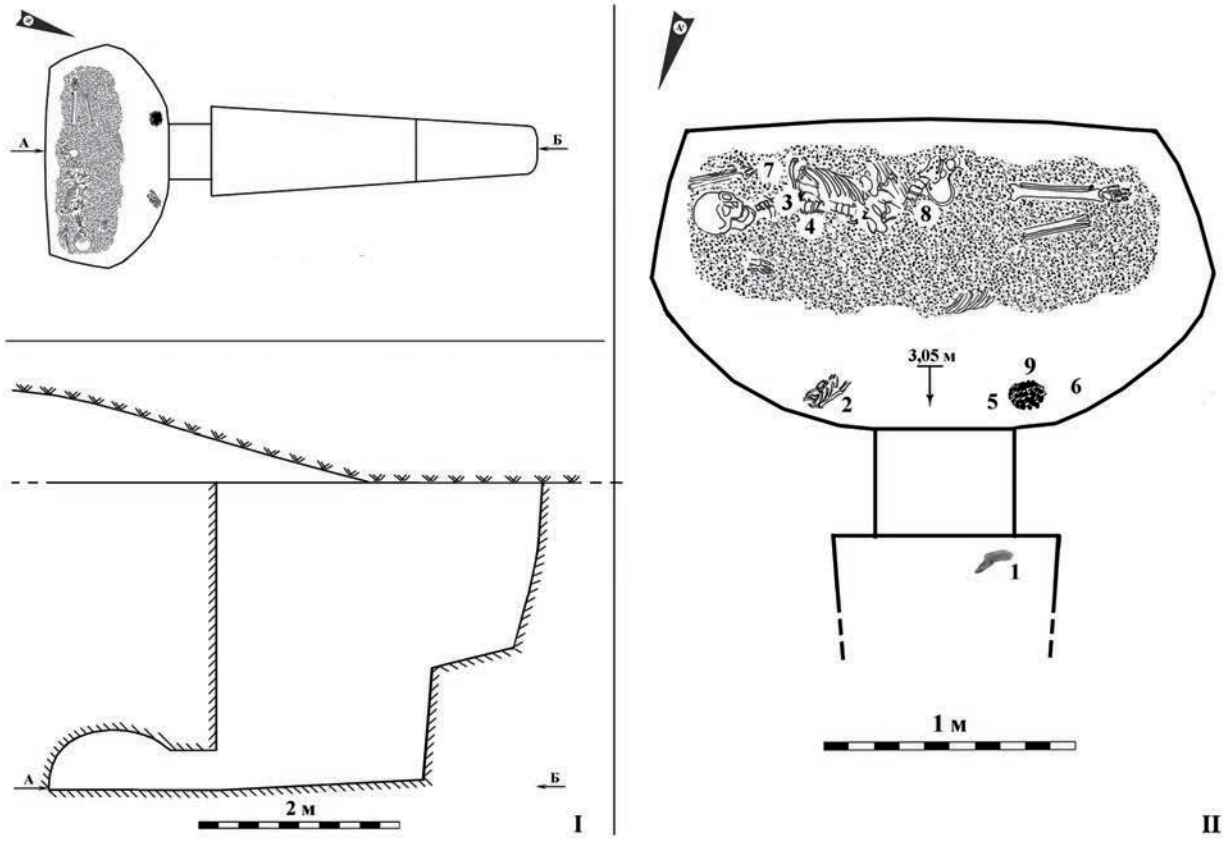


Fig. 5. Catacomb 4 of the Silbelitobe 1 necropolis: *I* – plan, section of the burial structure;
II – burial, ritual and explication of grave goods

5-сур. Сілбелітөбе 1 қорымының 4-катакомбасы: *I* – жерлеу құрылысының жоспары, қимасы;
II – жерлеу орны, рәсімі және құралдардың экспликациясы

Рис. 5. Катакомба 4 некрополя Сильбелитобе 1: *I* – план, разрез погребального сооружения;
II – погребение, обряд и экспликация инвентаря

found in the catacomb of tomb 12 at the Kylishzhar burial site from the Kangju period (1st–3rd centuries AD) [Подушкин, Донец 2021: рис. 9, *8*], It is also found in the materials from the Valovoy 1 burial site on the Lower Don (kurgan No. 33, burial 1), which is dated to the Late Sarmatian period [Беспалый и др. 2007: 77–79, табл. 88, *e*] and other burial sites of Asian Sarmatia [Скрипкин 1990: 77, рис. 25, 89–90; 82, рис. 27, 53];

- a round pendant made of jet with a through hole at the end and solar motifs on both surfaces. Direct analogies to this artifact, especially in terms of solar decoration, have not been found. However, similar items, especially made of jet and other materials (carnelian, bone), are fairly common in the burial sites of Sarmatian tribes across Eurasia from the first centuries CE [Скрипкин 1990: 86, рис. 30, *60*];

- a bronze ear pick. A similar item in shape and function was found in the burial materials of grave 43 at the Konyrtobe necropolis in the Otrar Oasis, dating to the 3rd–5th centuries CE [Байпаков и др. 2005: 23, рис. 1–26, *2, 3*].

An indirect ethno-chronological indicator can be considered the presence of pieces of chalk on the floor of the chamber of catacomb 4 at the Silbelitobe 1 necropolis as part of the ritual. This practice was

widespread among the Sarmatians of Eurasia in the early centuries BCE – early centuries CE and symbolized the process of the sacred "cleansing" of the interior and walls of the burial chamber [Медведев 2008: 55; Мошкова 1989: 179].

In general, the archaeological complex of catacomb 4 at the Silbelitobe 1 necropolis, left by the inhabitants of the Silbelitobe settlement, can be dated within a broad range of the 1st–3rd, possibly 4th centuries, based on the provided analogies. In the ethno-state context, it can be associated with the state of Kangju.

The issues of techniques and methodologies of archaeological work on catacomb burial sites

It should be noted that the Archaeology Center of the South Kazakhstan State Pedagogical University had previously conducted research at the Silbelitobe 1 settlement necropolis. Specifically, catacombs 1, 2, and 3 were excavated, which had been severely looted in antiquity – during the work, it was only possible to document the catacomb underground structures and the burial ritual [Подушкин, Донец и др. 2022: 98–100]. Due to this, the burial inventory and even skeletal remains were virtually absent, with the exception of a group of ceramic vessels at the beginning of the dromos of catacomb 3 [Подушкин, Донец и др. 2022: 98, рис. 10, *2–3*], this is a rarity for the catacombs of Southern Kazakhstan during the period of the Kangju state (2nd century BCE – 4th century CE).

The traditional methodology for uncovering catacomb burial structures was practiced, meaning the systematic removal of the burial mound using both mechanical techniques and manual labor to clear the soil over all the elements of the catacomb (dromos, passage, burial chamber) down to a significant depth (up to 4–5 meters from the surface level). This labor-intensive process is particularly difficult when it involves hard and extremely hard soils. Furthermore, as a consequence of large-scale earth removal, the historical landscape suffers, and it is impossible to restore it to its original state even after the filling of the uncovered areas and the reconstruction of the burial mound.

The team at the Archaeology Center encountered this challenge when studying the catacombs of the Silbelitobe 1 necropolis. It turned out that at a depth of about 0.7–0.9 meters across most of the Silbeli area, there are so-called kaolin-rich refractory clays (white or grayish in color) of significant thickness. These clays are characterized by high binding capacity, plasticity, and hardness (official conclusion from the management of "ONIKS-R," "Geology and Exploration of Mineral Deposits" by E.G. Unyaev). This factor is crucial for ensuring safety during archaeological excavations of hollow underground burial structures, such as catacombs, as it entirely eliminates the risk of collapse.

This circumstance predetermined a new approach to the methodology of archaeological research of the catacomb burials at the Silbelitobe 1 necropolis, which is summarized as follows: the abandonment of large-scale excavation work to remove the soil above the burial mound and the entire catacomb structure. Instead, access to the burial chamber and the full range of research were carried out using the method practiced by the ancient builders of the catacomb (and later by the tomb robbers), that is, through the dromos and the passage. At the same time, the burial mound and the historical landscape of the necropolis itself remained untouched, and the scope of work was limited only to the soil extracted from the narrow trench dromos (which significantly eased the subsequent reconstruction activities related to filling the dromos). The vaulted burial chamber (even after all the manipulations associated with the burial ritual and subsequent looting) typically remained completely hollow (as demonstrated by the excavations of catacomb 4 at the Silbelitobe 1 necropolis; fig. 3, *2*; 5).

This circumstance also opened up other possibilities for researchers regarding reconstructive conclusions related to the creation of such an underground structure as a catacomb. For example, on the walls of the hollow burial chamber of catacomb 4 at the Silbelitobe 1 necropolis (even after their filling), the traces of tools used to excavate the soil and form the underground cavity of the chamber are clearly

visible due to the density of the soil (fig. 4, *I–II*): These were at least three metal tools with sharp, straight blades of varying lengths (from 28 to 10 cm), which likely had short handles and presumably resembled small spades or so-called "shots." Based on this "soil" tracology, the catacomb — as a relatively labor-intensive structure (fig. 4–6; table 1) — was created by at least three underground craftsmen, working sequentially, as only one person could be in the confined space at a time.

Conclusion

As a conclusion regarding the advantages of using the new methodology for archaeological research of the catacombs of the Silbelitobe 1 necropolis, the following points can be noted:

- For safety reasons, this methodology can only be practiced in catacombs built in soils characterized by high binding properties, plasticity, and hardness, which exclude the risk of collapses in case of force majeure situations.

- Minimal labor and subsequent reconstruction costs for researching the catacombs.

- Preservation of the historical landscape in almost unchanged form.

- Additional practical and scientific opportunities for reconstructing burial rituals and identifying the structural features of such a complex underground structure as a catacomb.

Regarding the last point, it is worth noting the extraordinary fact of the residents of the Silbelitobe settlement cultivating catacombs as a key burial structure, which is extremely difficult to create in the highly solid soils of the Karzhantau mountain zone. For this reason, and due to the labor-intensive nature of the work, these catacombs, unlike the loess catacombs of the middle reaches of the Arys River, are located at a relatively shallow depth (about 2.5–3 meters) in contrast to loess catacombs, which are situated at depths of 3.8 to 6 meters [Подушкин 2012: 448–496]. This may indicate deeply rooted conservative traditions in burial rites and underground architecture that were characteristic of the population in the state of Kangju.

Thus, the first experience of using the new methodology for archaeological research of catacomb burial structures in Southern Kazakhstan can be considered successful, as evidenced by the results of excavations of catacomb 4 of the Silbelitobe 1 necropolis.

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About the Authors

Podushkin Alexander – Doctor of Historical Sciences, Professor, Center for Archaeology, Zhanibekov University, Shymkent, Kazakhstan. ORCID: 0000-0003-1603-1373 E-mail: p_a_n_alex@mal.ru

Stamkulova Gulmira – researcher, Center for Archaeology, Zhanibekov University, Shymkent, Kazakhstan. ORCID: 0000-0003-0031-2971 E-mail: gulmira.stamkulova.97@mail.ru

Авторлар туралы мәліметтер

Подушкин Александр Николаевич – тарих ғылымдарының докторы, профессор, Өзбекәлі Жәнібеков атындағы Оңтүстік Қазақстан мемлекеттік педагогикалық университетінің Археология орталығы, Шымкент қ., Қазақстан

Стамкулова Гүлмира Абдукаримқызы – ғылыми қызметкер, Өзбекәлі Жәнібеков атындағы Оңтүстік Қазақстан мемлекеттік педагогикалық университетінің Археология орталығы, Шымкент қ., Қазақстан

Сведения об авторах

Подушкин Александр Николаевич – доктор исторических наук, профессор, Центр археологии Южно-Казахстанского государственного педагогического университета имени У. Жанибекова, г. Шымкент, Казахстан

Стамкулова Гулмира Абдукаримовна – научный сотрудник, Центр археологии Южно-Казахстанского государственного педагогического университета имени У. Жанибекова, г. Шымкент, Казахстан

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