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Research at the Sarayshyk site in the 2023 field season

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Research at the Sarayshyk site in the 2023 field season

During the archaeological research of the Sarayshyk settlement in the 2023 field season, excavations were carried out in the western part, leading to the discovery of extensive materials related to the urban culture of the Ulus of Jochi period. As a result, a significant collection of artifacts was gathered, reflecting the everyday life and cultural features of the Middle Ages in this region. Methods and techniques of excavation, including the stratigraphic removal of cultural layers and the detailed study of discovered structures, were applied to accurately determine and chronicle the development of urban culture in this area. The discovered artifacts and structures were documented and analyzed to interpret their significance in the context of the history and culture of Sarayshyk. The archaeological finds indicate that the city began functioning in the 11th–12th centuries and reached its peak in the 13th–14th centuries, corresponding to the period of the Ulus of Jochi. The obtained data provide valuable information about urban life and its evolution in this territory during different historical periods.

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Сарайшық қаласында 2023 жылғы далалық маусымда жүргізілген зерттеулер

2023 жылғы далалық маусымда жүргізілген археологиялық зерттеулер барысында Сарайшық қаласының батыс бөлігіндегі қазбадан Жошы Ұлысы кезеңіндегі қалалық мәдениетке тән материалдар алынды. Нәтижесінде аймақтағы ортағасырдағы күнделікті тұрмыс тіршілік пен мәдени ерекшеліктерді көрсететін көптеген

жәдігерлер жинақталды. Аумақтағы қала мәдениетінің дамуын нақты анықтау және хронологиясын белгілеу үшін қазба жұмыстары барысында мәдени қабаттарды рет-ретімен аршу және табылған құрылыстарды егжей-тегжейлі зерттеу әдістері мен техникалары қолданылды. Табылған жәдігерлер мен құрылымдар толықтай құжатталып, олардың Сарайшықтың тарихы мен мәдениетін талдаудағы маңызы сарапқа салынды. Археологиялық олжалар қаланың XI–XII ғасырларда қызмет ете бастағанын және гүлдену кезеңі Жошы Ұлысының өмір сүру уақытына XIII–XIV ғғ. сәйкес келетіндігін көрсетеді. Алынған деректер қала өмірі мен оның әртүрлі тарихи кезеңдердегі даму барысы туралы құнды мәліметтер береді.
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Исследования на городище Сарайшык в полевом сезоне 2023 года

В ходе археологических исследований городища Сарайшык в полевом сезоне 2023 г. проведены раскопки западной части, позволившие получить материалы о городской культуре периода Улуса Жоши. В результате собрана значительная коллекция артефактов, отражающих повседневную жизнь и культурные особенности Средневековья в этом регионе. Методы и техники раскопок, включая послойное снятие культурных напластований и детальное изучение обнаруженных структур, применялись для точного определения и хронологии развития городской культуры на данной территории. Обнаруженные артефакты и структуры задокументированы и проанализированы для интерпретации их значения в контексте истории и культуры Сарайшыка. Археологические находки свидетельствуют о начале функционирования города в XI–XII вв. и пике его развития в XIII–XIV вв., соответствующих периоду Улуса Жоши. Полученные данные представляют ценную информацию о городской жизни и ее эволюции на этой территории в разные исторические периоды.
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Introduction

In the 2023 field season, scientific staff from the Bozok Museum-Reserve, with the participation of specialists from the Margulan Institute of Archaeology, continued archaeological research in the territory of Sarayshyk. According to the technical specifications, excavations were conducted in the north-western part of the city. The aim of the research was to clear the old excavation, identify objects for reconstruction, and determine the historical and cultural affiliation of the structures found in different cultural layers. The excavation dimensions were 40×15 m, with a total area of 800 square meters (fig. 1).

As a result of archaeological work in the territory of the city of Sarayshyk, an extensive collection of materials from the urban culture of the Ulus of Jochi period was uncovered. In the cultural layers of the excavated area, a significant collection of artifacts was gathered, reflecting urban life in the Middle Ages. In addition to numismatic finds, numerous items of daily life of the urban population were discovered, such as ceramic products: whole and fragmented kumgans, humchi, pots, chigirs, pitchers, lamps, tubeks, kese, and bowls (fig. 5). Many of these items were decorated with plant and zoomorphic motifs, reflecting the characteristics and cultural features of that era.

The typology and classification of materials and stratigraphic columns allowed for the characterization of the internal chronology of urban culture development in Sarayshyk. Based on indirect data, it can be



Рис. 1. Городище Сарайшык. Общий вид раскопа. Вид с северо-западной стороны.
Фото: Е.Ж. Рахманкулов
1-сур. Сарайшық қаласы. Қазбаның жалпы көрінісі. Солтүстік-батыс жағынан көрініс.
Фотосурет: Е.Ж. Рахманқұловтікі
Fig. 1. Sarayshyk site. General view of the excavation trench. View from the northwest side.
Photo: Y. Rakhmankulov

inferred that the city likely began to function in the 11th–12th centuries, during the pre-Mongol period [Байпаков 2013: 71]. The peak of urban culture development in Sarayshyk occurred during the 13th and 14th centuries, which corresponds to the period of the Ulus of Jochi [Тасмагамбетов, Самашев 2001: 16]. Then, in the 15th–16th centuries, during the period of Nogai rule, the development of the city continued [Арзютов 1949: 126]. These time frames provide valuable information about how the urban culture of Sarayshyk changed and developed throughout different historical periods.

Materials and methods

During the archaeological excavations, various methods and research techniques were employed with the goal of studying the archaeological layers and uncovering artifacts related to urban life in the early Middle Ages at the site of Sarayshyk. The initial stage of the research involved establishing the starting level of the excavation at a depth of 1.2 meters and defining the area, which measured 40×15 meters. To facilitate a deeper investigation of the archaeological layers, the excavation was further deepened by 0.4 meters.

The next step involved the stratigraphic removal of cultural deposits using tools such as shovels, trowels, and brushes. Each layer, measuring approximately 0.10 meters thick, was carefully removed to avoid damaging the artifacts. After each layer was removed, the site was cleared of residual cultural material for a more detailed study of the discovered structures and artifacts. Additionally, laser theodolites were used to record levels for later data transfer to a personal computer.

The discovered structures, including the remains of house walls from the early medieval period, underwent detailed study to determine their size, shape, materials, and construction methods. To increase

the accuracy of the excavation's location, Latin letters were used on the northern part of the site, and Roman numerals were applied on the eastern side to designate the excavation squares. All discovered artifacts, structures, and features of the excavation were documented through photographs, drawings, and descriptions for further analysis and interpretation.

The collected data were analyzed to interpret the significance of the findings in the context of the history and culture of Sarayshyk, as well as to determine the chronology of urban culture development at the site. These methods and techniques allowed the scientific staff of the "Bozok" Museum-Reserve to successfully conduct archaeological research and gather valuable information about urban life during the Middle Ages at the Sarayshyk site.

Below is a description and characteristics of the excavation process by squares ABCD/I, II.

Description of the material

In sector A/I of the 2023 field season, excavations began with the clearing of the area to a depth of 1.2 m. Later, with the resumption of archaeological work, the excavation was deepened by another 0.4 m, revealing the remains of wall structures from an early medieval dwelling.

According to archaeological methodology, cultural layers were removed stratigraphically. At a depth of 1.6 m in the northeastern part of the excavation, the remains of a room's wall were discovered. The northeastern wall is 2.5 m long and 0.2 m high, with four rows of masonry made of fired bricks remaining intact.

Along the west-east line, the foundation and several rows of longitudinal walls were cleared. It was found that the wall was preserved in two rows of brick masonry. The stratigraphy in the southwest part is complex: several cultural layers from different historical periods can be observed on a specially left brow. Two different architectural structures are clearly visible in this area.

The first layer, dating to the Golden Horde period, is characterized by the use of standard fired bricks measuring 25×25×5 cm. At this level, a heating system in the form of channels running along the walls is clearly visible. These channels represent heating systems typical of the Golden Horde period and have been well preserved due to the remnants of combustion and soot filling

In the southwest part of sector A/I, a two-level heating system was discovered. The early-period stove is a round structure with an arched vault, with long chimney channels extending from it. This heating system is made of fired bricks. One of the chimney channels runs horizontally from north to south, constructed of vertically installed bricks. The other channel runs to the southwest and passes along the wall, which was discovered in sector A/II.

After the heating system ceased to function, it was repurposed in the 15^{th}–16^{th} centuries as the basis for a new stove. However, a different technique and materials were used in the construction of the new stove. The new stove somewhat resembled a modern tandoor. The later layer of plaster covered the earlier one, and the construction used unfired bricks measuring 12×12×10 cm.

In the southeastern part of the sector, transverse partition walls 0.2 m thick, built in a single row of fired bricks, were found. One row of partition wall masonry has survived. In the northeastern corner of sector A/I, where the eastern and northern walls meet, a fireplace was identified.

In sector A/II, at a depth of 1.5 m, the remains of houses with several compartments (rooms) were discovered. The main structure is rectangular, with long sides oriented along the southeast-northwest line. Part of the large room extends into the area of another sector, B/II, but for the sake of completeness, it will be considered in this context.

According to the excavation plan, the rectangular structure has all its walls preserved up to five rows of brickwork, with the height of the remaining walls ranging from 0.5 to 0.7 m. The walls of the structure were built with fired bricks using a double-row masonry technique, and their thickness was 0.5 m. Thanks to the surviving walls, the area of the large room (4×6 m) and the small room (4×4 m) has been identified.

Inside the large room, along the southern and eastern walls, benches (sufas) made of clay bricks were discovered. Niches were also found in the walls. In the northwest corner of the small room, the remains of a storage container for bulk products (such as grain, millet, etc.) were found, while a tandoor-like stove was cleared in the opposite corner. The entrance to the small room is located on the southern side, with a doorway measuring 1 m in width.

To the south of this sector, very close to the southern wall of the small room, a structure from another historical period was found, representing a rectangular building. Unlike the first dwelling, this later structure has long walls oriented strictly along the north-south line, and its walls are made of unfired bricks of a different standard. The thickness of the walls in the later structure does not exceed 0.3 m. This structure also consists of two equally sized rooms.

In the eastern room, along the eastern wall, poorly preserved remnants of a bench (sufa) were discovered. The western room is divided into two compartments; in the southern part, near the entrance, a large khum (water reservoir) was cleared, embedded in the floor (fig. 2). Similar large khums in the Middle Ages were used for storing grain. In the northern compartment of this room, a khum was cleared from the floor, also intended for storing cereal seeds.



Рис. 2. Городище Сарайшык. Хум. Фото: Е.Ж. Рахманкулов
2-сур. Сарайшық қаласы. Хум. Фотосурет: Е.Ж. Рахманқұловтікі
Fig. 2. Sarayshyk site. Khum. Photo: Y. Rakhmankulov

In sector B/I, the majority of the area had previously been occupied by spoil heaps from last year's excavations, which were entirely cleared and removed from the site during the current season. Complex stratigraphy revealed the southeast portion where walls from various historical periods were preserved. The overlapping cultural layers from different eras complicated the identification of architectural remains. Structures from the late Middle Ages could be distinguished from earlier ones only by the materials and wall construction techniques.

The use of stratigraphy allowed for a clear tracing of the superimposed cultural layers. For example, in the southeast part of the sector, at a depth of 0.30–0.60 m, walls constructed from unbaked bricks were preserved. In this layer, several rows of brick masonry from two walls—southern and eastern—forming a

right angle were intact. The late medieval structure likely had a rectangular shape measuring 8×4 m, with the preserved walls being 0.40 m thick.

The interior featured an L-shaped sufa extending along the southern and eastern walls, made of compacted earth blocks 0.20 m high. In the northwest corner, a hearth lined with circular bricks with a diameter of 0.3 m was discovered, its interior cleaned of ash and soot. At a depth of 0.6 m, remains of an earlier structure were identified, heavily damaged by later constructions. From this early architectural structure, only the lower courses of the walls survived. Its orientation was clearly determined by the preserved single row of masonry, indicating that the structure was aligned strictly along the north-south axis. The masonry technique and wall construction materials of the early structure differed from the later building: the walls were made of fired bricks measuring 25×25×5 cm, typical of the Golden Horde period.

The lengths of the long and short walls were determined: the facade walls were 8 m long, while the end walls measured 6 m. The entrance to the building (0.9 m wide) was located on the eastern side. The cultural layer had been reworked due to numerous reconstructions in subsequent historical periods. The cultural layer's destruction was also exacerbated by the reinforcement of the Ural Riverbank with modern construction materials, which were uncovered during excavations.

Thus, in the area of sector B/I, structures from two historical periods were identified: the early layer represented by a building from the Golden Horde period, while the later structure, based on the materials, dates to the 15th–16th centuries.

In sector B/II, complex stratigraphy was observed, where late medieval structures were well preserved. One of the significant buildings is a rectangular structure measuring 3×4 m, with a floor entirely paved with fired bricks measuring 25×25×5 cm. The long walls are oriented west–east, and the short walls north–south. Based on the preserved masonry, there was an edge along the perimeter, also made from fired bricks of a 12×10×5 cm standard. A hole was discovered in the floor, likely for water drainage. The northwest corner of the building adjoins a complex stove consisting of several compartments, with a circular furnace section and a horizontal flue. Several channels branch off the flue, one leading to the described structure and another running along the wall of another room, serving as heating. The flue outlets were made of fired bricks and were cleaned of soot.

Based on the architectural features, this is likely a small bathhouse adjacent to a house, as evidenced by the presence of a shared external channel on the southern side, which drained wastewater underground. On the southern edge of the sector, a channel about one meter wide is clearly visible, filled with humus and reworked soil. A significant quantity of zooarchaeological material, along with anthropological samples and the skulls of three individuals, was collected here.

In sector C/I, the ruins of a mausoleum constructed from fired bricks were discovered. The main objective of the 2023 field season was to clear the old excavation and document details for subsequent reconstruction. Based on the preserved brick masonry of the walls and floor, the dimensions of the tomb were determined to be 5×4 m. The central part of the tomb had been partially cleared during the previous field season. Meticulous clearing of the external and internal spaces enabled careful sifting of the soil, resulting in the collection of numerous numismatic materials requiring further laboratory analysis.

The walls of the mausoleum consist of two rows of bricks of the Golden Horde standard, with a thickness of 0.8 m. Based on the thickness of the walls, it can be assumed that this funerary structure had a spherical dome, which is supported by the ruins preserved around the remaining structure. As a result of the mausoleum's collapse, some sections of the masonry fell in monolithic pieces and were buried in the soil.

In sector C/II, a square structure measuring 4×4 m, constructed from fired bricks measuring 25×25×5 cm, was completely cleared. The masonry and walls retained remnants of alabaster plaster. This was a multifunctional building: on one side, it housed a tandyr-type oven, with several horizontal flues for heating the room, while on the other side, it had a sufa that was heated by the oven. For the subsequent

reconstruction of this structure, all details were carefully cleared and recorded, and after excavation, conservation was carried out according to the methodology. In the northeastern part of the sector, a long wall of the room was preserved—several rows of masonry—while in other parts, only traces of the masonry remained. Based on this indirect evidence, the dimensions of the residential room were restored, measuring 8×4 m. The entrances to the rooms were located on the southern side.

Sector D/I was completely cleared of accumulated soil deposited as a result of previous archaeological excavations. Massive amounts of soil were removed beyond the site's boundaries, allowing for an expansion of the excavation area.

In the areas of two sectors—D/I and D/II—several structures were discovered. The first object was a building spanning sectors D/I, D/II, and partially extending into sector C/II. Based on the preserved walls, the area of the building was determined to be 7×4 m. The long walls were oriented from west-northwest to east, while the end walls ran from northeast to south. The walls were constructed from unbaked clay blocks, with a thickness of 0.5 m. Inside the structure, three large-capacity hums were discovered, with the diameter of one reaching 1.2 m. All the hums were embedded in the floor. The first and largest hum was cleared in the northwest corner, the second in the opposite southwest corner, with a diameter of 0.90 m. The third large-capacity hum was found in the southeast corner of the room, buried under wall debris that had completely collapsed and covered it (fig. 3). The entrance to the room is located on the eastern side, its dimensions clearly visible in the stratigraphy, and it was filled with redeposited soil. The width of the entrance is 1.2 m. Presumably, the room had an economic purpose and was possibly used as a storage facility for food products.

Object No. 2, located in the eastern part of sector D/II outside the room, represents a heat engineering structure of rectangular shape, constructed from fired bricks. This structure features two hearths of different sizes, conventionally referred to as the small and large hearths. It is an open furnace



Рис. 3. Городище Сарайшык. Сектор D/I и D/II. Расположение хумов. Фото: Е.Ж. Рахманкулов
3-сур. Сарайшық қаласы. D/I және D/II секторы. Хумдардың орналасуы. Фотосурет: Е.Ж. Рахманқұловтікі
Fig. 3. Sarayshyk site. Sector D/I and D/II. Location of khums. Photo: Y. Rakhmankulov

with a complex chimney system. The horizontal chimney structure of the furnace is well-preserved and has a length of 4 m. It is built from fired bricks of standard size 25×25×5 cm, laid on edge and covered from above with bricks of the same size but laid flat (fig. 4). The upper part of the structure is topped with a vertical chimney of a circular shape. All these features suggest that this structure was used by medieval craftsmen for metal smelting, glazing, and other similar purposes, confirming the existence and development of craft production in medieval cities of Kazakhstan.



Рис. 4. Городище Сарайшык. Система канов в секторе D/II. Фото: Е.Ж. Рахманкулов
4-сур. Сарайшық қаласы. D/II секторындағы кан жүйесі. Фотосурет: Е.Ж. Рахманқұловтікі
Fig. 4. Sarayshyk site. Canal system in sector D/II. Photo: Y. Rakhmankulov

Object No. 3 was discovered along the eastern edge of sector D/II. It is a fragment of a structure, part of which extends beyond the excavation area. In this part of the sector, a wall measuring 8 m in length and the southwestern corner of a large building were recorded. Based on the preserved lower rows of wall masonry, it can be concluded that the structure was multi-room, with rooms separated by passages. The building was constructed from unbaked bricks, with the western wall having a thickness of 0.5 m and the longitudinal load-bearing walls 0.6 m thick. Traces of several niches were also identified in the wall. All indications suggest that this structure was most likely built and used during the late medieval period.

Object No. 4, located in the southwestern part of sector D/II, is a square-shaped structure measuring 6×6 m. This is a two-level building with a square-shaped lower level and an upper structure entirely made of unbaked bricks. It is likely a mausoleum from the late medieval period. It is worth noting that this sector was cleared of soil from the previous year's excavations, which was removed beyond the city limits of Sarayshyk.

Results

The study of the site has revealed the distinctive layout features of the medieval city of Sarayshyk. The urban development consisted of quarters where residential and utility buildings were constructed according to a specific plan, clearly divided into blocks. Rectangular or trapezoidal residential complexes, built adjacent to each other, formed dense urban areas, with living and utility spaces opening onto internal

courtyards rather than main streets. The main streets of the quarters were enclosed by blank walls, and residents interacted through courtyards and narrow alleys that could be closed with gates.

It is noteworthy that Sarayshyk did not have a clear separation of quarters into wealthy and poor areas. Each block housed people of varying social statuses—wealthy, middle-class, and poor. This is evidenced by the variety of residential types, including those equipped with heating systems and utility rooms with large-capacity hums, likely belonging to affluent townspeople.

Additionally, excavation results indicate that the population was differentiated by occupation. For example, the thermal engineering structure discovered might have belonged to a metallurgist, while other parts of the city revealed houses associated with potters, blacksmiths, merchants, and others. This diversity of craft specializations highlights their critical role in the medieval society of Sarayshyk.

The study of residential architecture in Sarayshyk has uncovered features of housing complexes that reflect typical traits of medieval urban planning. Residences often followed a linear layout, with adjoining rooms arranged in a row according to an enfilade scheme used not only in building design but also in the planning of streets and courtyards. However, later constructions deviated, featuring cross-shaped layouts and interconnected rooms that disrupted the linear structure.

The interiors of houses comprised standard elements, including a room with a tandyr oven, which served as a bedroom, dining room, and kitchen simultaneously. Doorways were located in the center of the facade wall, and interiors often included clay sufas reinforced with bricks. An important feature was the niches, located in walls or near tandyr ovens, used for various purposes such as cooking and storing food. Residential rooms frequently included entryways or aiwans, as well as storerooms and granary-like spaces for food reserves. The discovery of cellars, particularly in late medieval houses, indicates their functional use for storing dairy products, butter, and meat. These cellars were located at or below the level of the sufa. Housing complexes in Sarayshyk display typical architectural characteristics of medieval settlements and widespread use of qanats, which were prevalent during the 13th–14th centuries.

Discussion

Analogies with dwellings built in Sarayshyk during the late Middle Ages can be found in the houses of sedentary Kazakhs in the northern and central parts of Kazakhstan, predominantly at wintering sites of the 18th–19th centuries [Ганиева, Сакенов 2022].

Kazakh winter dwellings from that time were typically single-room houses, divided by an adobe partition wall into two or three rooms. These rooms were designated as a living room, kitchen, and pantry. The partitions, up to 1.5 meters high, were used for heating the space, as the attached adobe stoves-kazandyks had chimneys that vented smoke outside and heated the adjacent rooms. The stoves were also used for cooking. The materials used for constructing these houses included adobe bricks, sod (layered) bricks, and flagstone. The roofs of these dwellings were often flat, supported by one or several longitudinal beams, with a covering of reeds or grass, plastered with clay. Similar two- or three-room houses can also be found at the Kazakh wintering sites in Zhetysu, located along the Ili River. The main difference was the addition of a shoshaly – a utility annex to the main dwelling. These houses were heated by stoves with direct chimneys [Байпаков 2014; Жолдасбеков 2017].

Thus, both in the housing complexes of Sarayshyk and those of the Kazakhs in various regions of Kazakhstan, there were similarities in architecture and functional purposes of the dwellings.

Conclusion

The study of the Sarayshyk settlement during the 2023 field season led to the following conclusions:

1. The general stratigraphic situation in the excavations was established, with three construction horizons identified, covering the periods from the 11th to the 16th centuries. This provides an opportunity to reconstruct the sequence of construction phases in the city's development.

2. The primary component of the city's layout was the quarters, which were square, rectangular, or more complex in shape. Houses faced internal streets of the quarters, with the rear blind walls of the houses serving as the boundaries of the quarter.

3. The dwellings in the city were characterized by the presence of a room with a U-shaped sufa occupying a significant portion of the space. Each dwelling contained a universal hearth, or tandyr, often with a chimney that vented outside through a vertical shaft. The houses included aiwans or courtyards, as well as storage rooms for food.

4. The accumulated material allows for the study of some aspects of the social and economic life of the city's population, such as demographic analysis using house-counting schemes in the quarters, which will help determine the population size of the city of Sarayshyk in the future.

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