

## ARCHAEOLOGICAL RESEARCH IN THE BUGRAKHAN SETTLEMENT

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### Abstract

The article contains a scientific analysis of the geographical location of the Bugrakhan monument, located on the territory of the Kungrad region of the Republic of Karakalpakstan. A detailed analysis of the square, city defensive walls, structures in the city, mosques, mausoleums, minarets is given, as well as written sources from Arab authors about when the population of the settlement moved, as well as archaeological research carried out on the monument, as well as scientific information about archaeological finds, discovered during archaeological excavations carried out in the settlement in historical and ancient times.

**Keywords;** Khovand, Karakol, Bugrakhan, Madminia, Citadel, Shahrstan, Ark, Rabat, Mosque, Minaret, Mausoleum, Base column, Kerpich, Monument.

### Introduction

The Bugrakhan settlement is located 10 km northwest of the town of Kungrad, on the right bank of the now dry medieval Karakol channel of the Amu Darya. Ya. G. Gulyamov left brief information about the monument, and also established that the riverbed was called Madminiya in the 10th century (Gulyamov, 1957, pp. 151-154). V. N. Yagodin considers the riverbed to be equivalent to Mazmina Istakhri (MITT. vol. 1 p., 178), al-Makdisi (MITT. vol. I p., 187) and Khududal-alem (MITT. vol. I p. 216). Ibn - Ruste (MITT. vol. I p., 150), and also considers it appropriate to consider Mazmina as the village of Berabid. The Bugrakhan monument was first discovered and put on an archaeological map in 1946 by the Khorezm archaeological expedition. At that time, archaeological artifacts were collected and described. In 1959, this monument was explored by the Karakalpak ethnographic detachment of the Khorezm expedition (Tolstov, Zhdanko, Itina. 1963. p. 27).

In 1960, the left bank of the Aral delta of the Amu Darya was explored, including the Bugrakhan monument (Yagodin. 1963. pp. 86-90) (Fig. 1).

In 1999-2004, the monument, according to business contracts, was studied by archaeologists of the Karakalpak State University. It consists of a citadel, shakhristan and rabat without walls. Its total area is 80 hectares. In the central part of the monument there is a shakhristan, the area of which is 250x200 m. The fortress is surrounded by a wall. On the north-western side of the shakhristan there is a citadel, the area of which is 60x50 m. It rises 1-2 m from the surrounding surface (Turebekov. 2012).

In 1998-2000, 39 m from the south-eastern corner of the shakhristan, near the eastern wall of the shakhristan, a pit measuring 23x15 m was dug. The pit was deepened to a depth of 3.5 m, to the base of the fortress wall, which stood on mainland.

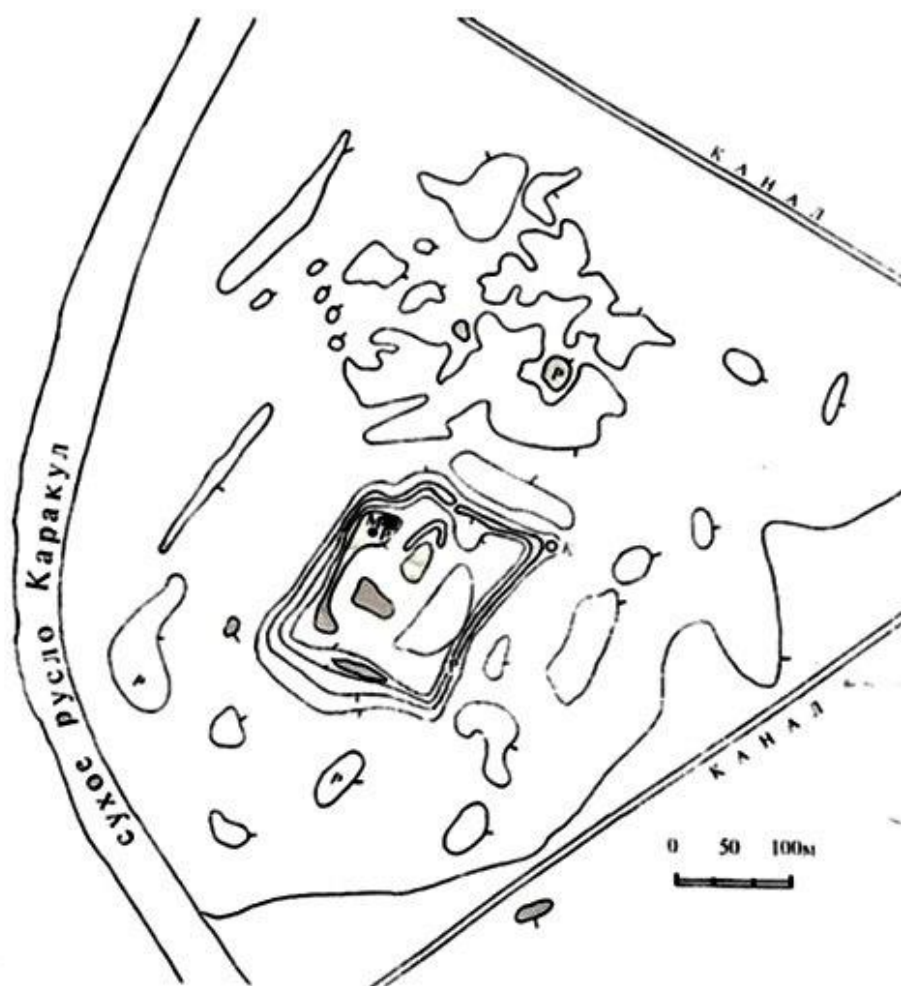


Fig. 1. Plan of the Bograkhan settlement

The mainland consists of brown soil. It was dug to a depth of 0.2-0.3 m. The fortress walls were dug to a depth of 3.5 m to the mainland. The mainland

consists of brown soil. It was dug to a depth of 0.2-0.3 m. The brown soil contains admixtures of ash, coal and burnt clay. Fragments of ceramic products are found in small quantities. The layer is 0.7 m thick. Above this layer, under the fortress wall, above the layer on the western side of the cut at a distance of 146 cm, there is a pakhsa wall. On both sides of the wall and on its surface, there is a layer of brown soil of medium hardness 25-50 cm thick. Above this layer, there is another similar layer. Its thickness is 0.4-0.6 m. On this layer there is a flooring of reed slabs. The thickness today is 5-10 cm. A wall with a thickness of 4.1 m was erected on top of it. Initially, the height of the first pahsa of the wall was 1 m, the second pahsa 0.1-1.2 m. In the second wall there is a corridor 1.5 m wide. The width of the outer wall is 1.1 m, the inner wall is 1.4 m. The inner space of the corridor is filled with pahsa. There are coal particles in it. The height of the first wall is one meter, the preserved height of the second is 20-30 cm. At the very bottom, on the inner and outer sides of the defensive wall, there are deposits of sand mixed with soil. Its thickness is 70 cm, in the west and east it thins to 0.2 meters. A wall of adobe bricks built at the same time as the defensive wall was revealed. The dimensions of the bricks are 25-26x25-26x5 cm. Its thickness is 0.7 m, and the preserved height is 65 cm. It is located 11 m to the east of the defensive wall.

On both sides of the fortress wall, a layer of destruction is noted, which thickens to 1.5-2 m as it approaches the wall. In the west, it stretches up to 8 meters. The excavation extends 14 meters to the east. At a distance of 7 m from the wall, fragments of burnt bricks are found in the layer. The width of this layer in the easternmost part is 0.6 m.

At a distance of 40 m from the rear wall of the shakhristan and 20 m from the western wall, the Bugrakhan minaret was excavated. During its construction, a large pit was initially dug, about 3 m deep, which was filled with white sand. A round minaret made of burnt trapezoidal bricks was erected above the pit. The diameter of the minaret at the base is 9.5 m, the dimensions of the bricks are 35-37x33-36x29-30x6 cm. The height of the minaret is unknown, the surviving height is 5 m. Similar high minarets are known from such large cities of the 10th-11th centuries as Kunya Urgench, Kyat, Bukhara, Uzgen, Buran (Tolstov. 1962, pp. 269-271; Khmelnitsky. 1992, pp. 103-107; 1996, pp. 128-151).

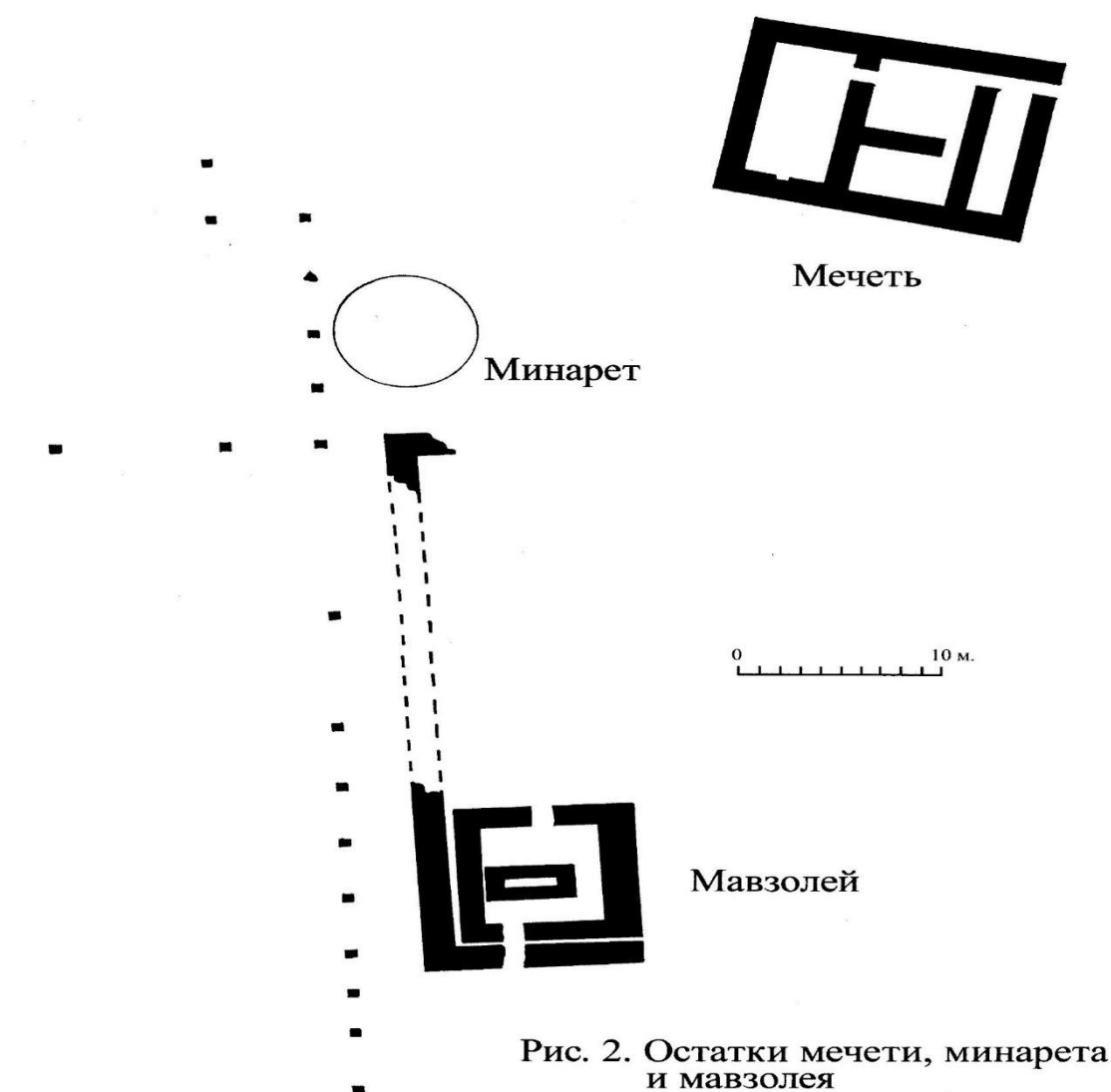


Рис. 2. Остатки мечети, минарета и мавзолея

**Fig. 2. Excavation plan of the northwestern section of Bograkhan**

The diameter of the highest part could be approximately 7.14 m, the slope of the wall is  $86^{\circ}$ . Starting from 2.3 m in height, the minaret was repaired. The dimensions of the bricks used are 22-26x22-26x4-5 cm. Alabaster was used in their laying (Fig. 3).



**Fig. 3. General view of the minaret**

Similar minarets in design are presented in the capital feudal cities of Kunya-Urgench, Kyat, Bukhara, Uzgen, Buran and other cities of Central Asia (Khmelnitsky. 1992. pp. 103-107; 1996. pp. 128-151). On the southern side of the minaret there is a protruding slightly bench-shaped sufa. Its length is 4.7 m, width 2.2-2.7 m and height 43 cm. It is made of burnt bricks, has a simple horizontal shape. The edges of its surface are laid out with bricks located below. Alabaster was used as mortar. The upper part is located at the same height as the section of the minaret with a diameter of 9.5 m. The dimensions of the burnt bricks are 26x26x5 cm. There is a layer of burnt soil here, which indicates that a fire occurred. A 25 cm thick layer was found on the sufa. In its upper part there is a masonry of three-row bricks. Their dimensions are 5.5 x 1 m. The height of the sufa is 18-20 cm. Burnt bricks measuring 24 x 24 x 5 cm were used in its construction.

In the northern part of the minaret, three rooms were discovered, preserved only from the eastern part of the wall. The width is 3.1 m. The length of the southernmost one is 3 m. From its north-eastern corner, 0.8 to the west, a pit measuring 1.4 x 1.4 m and 25 cm deep was discovered. In its northern part, a

hand-made turned-over pot from the lower part of the hearth has been preserved. Its diameter is 30 cm. The depth of the hearth is 25 cm and the diameter is 50 cm. A fragment of a humcha was used. The length of the back wall of this room is 3 m, the floor is laid with burnt bricks. The eastern part of room #2 has been preserved, the length of the rear southern wall is 5.4 m. Room #3 is located behind room #2. Only the southeastern corner of the room has been excavated. At a distance of 6 m from the northern defensive wall and 12 m from the western defensive wall, a large room has been inspected. Its dimensions are 16 x 10.7 m. To date, its northern part and outer eastern part have been excavated. The wall is 0.9 m thick. The wall was erected on a cultural package. Initially, the walls were made of burnt bricks, on which reed layers were laid. On top of them, a laying of stone slabs was made, the dimensions of which are 24-26 x 24-26 x 5 cm. The wall on the southern side has not been excavated.

In the northern part of this room, a fragment of a cauldron made from a conversation was found. The outer rim of the side holes has been preserved, as well as a slightly adjustable part. There are four handles. They are located on the outside, at the top, of the rim of the holes. Two are trapezoidal, and two are quadrangular. The diameter of the holes is 25 cm. In addition, a lamp made of talc was found in the pentagonal room, the diameter of its middle part is 9 cm, in its center there is a circle with an elongated eye. Its larger diameter is 24 cm. A bronze chain 22 cm long is attached to the central eye. The lamp was suspended with its help. Its lower outer side is flattened. Geometric, plant and circular images of fish are carved on it (Turebekov, Saparov. 2007). It is known that fish have lived here for a long time (Nikolsky. 1940; Pavlovskaya. 1982). To the west of the mausoleum and the city minaret, 27 column bases were recorded, located in four rows in the north-south direction, with intervals of 3.5 m. The column bases are marked along a length of about 60 m. In each row, the locations of 18 bases are marked. It is known that there were 72 columns in four rows. They consist of round yellow uneven stones, square-stepped and truncated-pyramidal at the bases. Under some column bases, brick layings measuring 1x1, constructed from burnt bricks measuring 27-28x27-28x5 cm, were recorded. The dimensions of the bases laid out of burnt brick are 1x1 m. The distance between the layings is 3.7 m. The column bases were located at the level of the second floor of the minaret. It is known that the total width of the column consists of four rows of minarets, is 12.5 m wide and 66.6 m long.

A winter mosque was excavated, located 30 m southwest of Bugrakhan, in the northwestern corner of the defensive wall (Turebekov. 2012. p. 267). It has a quadrangular plan with dimensions of 15.6 x 11.2 m. It consists of four rooms. The area occupied by its farthest western room is 40 m<sup>2</sup>. It is built of burnt and adobe bricks, the dimensions of which are 21-25 x 21-25 x 4 cm and 29-32 x 29-32 x 5 cm. The outlines of two floors are marked in the room. The distance between them is 2 m. The preserved height of the walls is 2.39 m. The dimensions of the room with the mihrab are 4.35 x 8.8 m. The dimensions of the mihrab are 0.9 x 0.17 m. The width of the southern wall is 1.5 m and the width of the other walls is 1 m, the dimensions of the eastern door are 1 m and it is located at a distance of 1 m from the north-eastern corner.

Rooms No. 2 and No. 3 are located in the eastern part of room No. 1. The dimensions of room No. 2 are 5.2 x 3.3 m. Its door is located in the eastern part of the far well, the width is 1 m. Room No. 3 is located in the north of room No. 2. Its dimensions are 5.2 x 4.8 m. In its southern part there is a sufa 0.8 m wide and 35 cm high.

In the easternmost part of the winter mosque there is a long corridor. Its dimensions are 8.8 x 1.8 m. The doors are located in the eastern part of the most distant room, its width is 1 m. The western wall is made of pakhsa. Its thickness is 0.8 m, the remaining walls are made of burnt and adobe bricks. Their width is 1.1 m. In the southern part of the room, at a distance of 0.5 m, there is a sufa, 0.6 m wide and 1.4 m long, located along the western wall. It is lined with 6 rows of burnt bricks. The dimensions of the bricks are 29-30 x 29 x 30 x 4-5 cm. In its far part there is a hearth, the opening of which looks to the south, the depth of the hearth is 28 cm. Its upper diameter is 30 cm, the outside of the structure is coated with a clay solution with an admixture of straw. The width of the wall in the southern part of the building is 1.5 m. It is located on a 60-centimeter elevation from the floor, then narrows to 10 cm. The width of the wall of the mosque in the eastern part is 1.1 m. The lower layer of the floor is laid with bricks. The dimensions of the bricks are 29-30x29-30x4.5 cm. At a height of 2 m there is another floor. It is also laid with burnt bricks, the dimensions of which are 21-25x21-25x4 cm. On the lower floor there is a cultural layer of 8-10 cm. On the field No. 2 located on it there is a layer of rammed soil. The walls of the mosque are built of burnt and adobe bricks. From the inside and outside, the walls are coated with a solution of clay with an admixture of straw.

Archaeological excavations were carried out in the northwestern corner of the shakhristan. Seven rooms belonging to one structure were uncovered there. The entrance door was uncovered at a distance of 5 m from the rear defensive wall and 5.5 m from the western wall. Its size is 1.8 m. Right at the entrance there is a narrow room. The length of the room is 4.5 m and the width is 0.9 m. In the back of this room room No. 2 was uncovered. The dimensions of this room are 3.7 x 3.1 m. The thickness of the collapsed wall in the upper part is 1 m. Under this layer there is a layer of medium thickness with small admixtures of dark red ash. The width of the layer is 5-10 cm. In the lower layer there are outlines of the floor. On the western side, a door to enter room #3 was excavated, 0.6 m wide. The room measures 1.85 x 2.25 m. It was excavated to the floor. Rooms #2 and #3 were used to store various items. In the southern part of the room, there is a door to room #4. The area of room 4 is 5.5 x 3.1 m. A tashnau was discovered in the center of the western wall. It is poorly preserved, its dimensions are 1.1 x 1.1 m.

In the eastern part of the back wall of room 4, a door to room 5 was excavated. Its dimensions are 4.4 x 3.5 m. In the southeastern corner of the room, there is a tashnau. It is made from a fragment of a hand mill made of stone. In the northeastern part of the room, there is a sufa. Its dimensions are 3.2 x 2.1 m and the height is 35 cm. In its southeastern corner, there is a hearth. In the western part of the southern wall of room #4, through the door, you can get into room #6. Its width is 1 m. The dimensions of the room are 4.4 x 3.7 m. In the southern part of the eastern wall, there is a tandoor. It occupies an area of 1.5 x 1 m in the western corner of the eastern wall. Behind the tandoor, there is a hearth cut into the sufa. In the center of the room, there is also a hearth, the opening of which faces south.

In the very east of the southern wall of room 4, there is a door, 0.8 m wide, through which you can get into room 7. The dimensions of this room are 3.8 x 6.3 m. In the western part of the room, a sufa is built, 0.7 m wide and 40 cm high. In its southern part, a ceramic hearth was excavated. In the center of the room, 1/3 of the mill has been preserved. It is made of burnt brick.

Thus, the western walls of rooms 3-6 were used as defensive ones. This design is also seen in relation to the rear walls of rooms No. 2 and No. 3, which also served defensive functions. Rooms No. 1 and No. 2 were storage rooms, rooms

No. 3-5 were residential, room No. 6 served as a bathroom, and the rest were used to store things.

The northwestern corner of the courtyard is uncovered 3.5 m south of the minaret. The preserved length of the northern wall is 2.1 m. The length of the northern part of the western wall is 3.4 m. The total length of the western wall is 34.6 m. The preserved southern part of this wall is 12 m.

The western part of the southern wall is 10.65 m. This wall is built of burnt and adobe bricks, the dimensions of which are 24-28x24-28x5 cm. The thickness of the wall is 1.35 m. On the elevation 1 m from the bottom of the masonry, a reed lining can be traced.

On the southern side, 3.9 m from the western corner, there is a door opening. Its height is 1.4 m. The lower part of the door is 1.15 m and the upper 0.7 m.

In the southwestern corner of the long western wall there is a mausoleum. Its dimensions are 6x6.4 m. The preserved height is 1.2 m. The floors of the room are marked. There is a 5-6 cm thick layer of soft clay on it. On top of it is compacted soil with fragments of adobe brick. A 0.7 m wide wall was erected on the layer. Its internal dimensions are 3 x 0.7 m. Burnt brick was used for masonry in the lower three layers. It has been preserved to a height of 0.8 m, the upper part is covered with adobe brick. No human burials were found inside (Fig. 4).

Fragments of an Arabic inscription were found in the eastern rubble of the mausoleum, first carved on raw clay slabs. The slab dimensions are 48 x 45 x 6 cm, and then fired in a special kiln. Words have been preserved, previously glorifying someone (Fig. 5).

Under the wall of the mausoleum there is a 30 cm high layer of compacted soil. Under it, 56 cm from the rear southern wall, a wall was discovered. Its width is 46 cm. For the masonry, adobe bricks measuring 30x30x5 cm were used. The preserved height of the wall is 54 cm. Reed pads are laid at the base. On the sides lie parts of the collapsed wall, under them a layer of soil and outlines of the floor. Under the floor there is a layer of soil 7-10 cm high, consisting of compacted clay, under it the continent is marked.



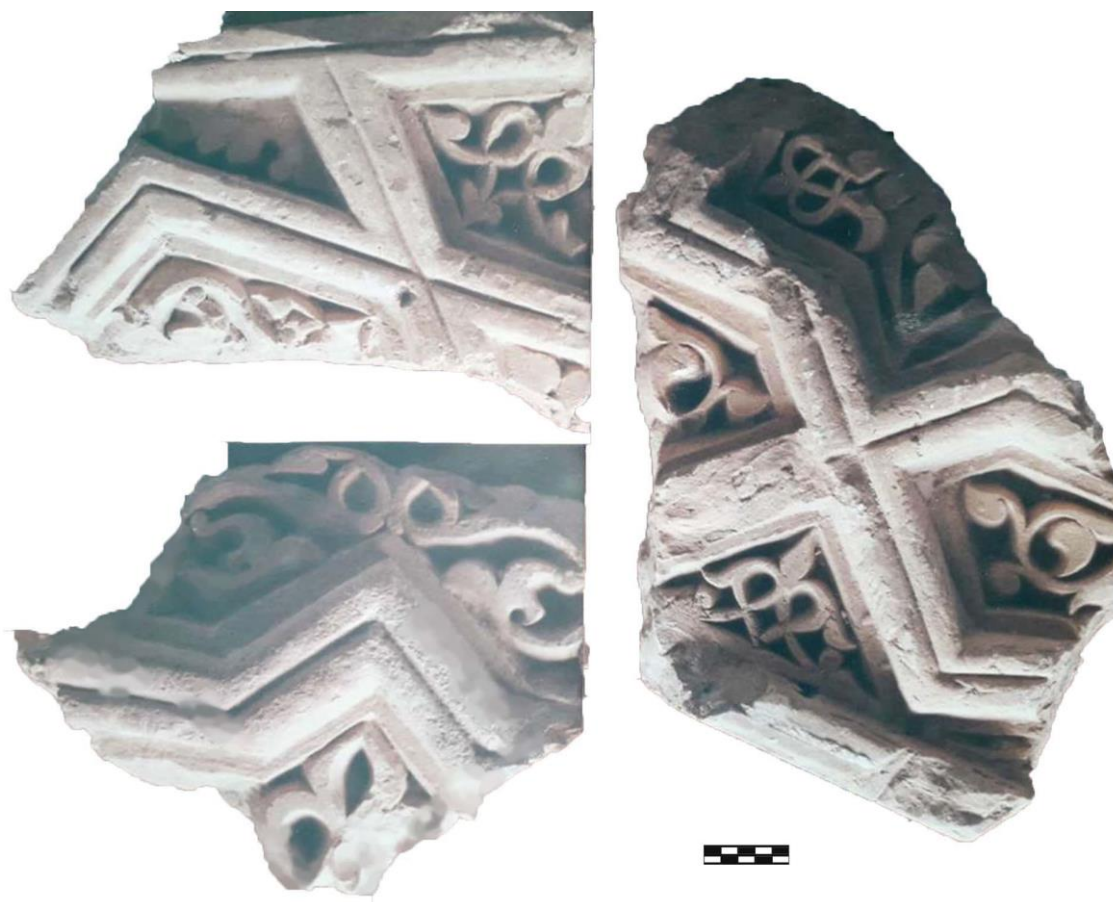
**Fig. 4. General view of the mausoleum from the northeast**

In the southern part of the mausoleum, at a distance of 3.2 m on the surface at a depth of 1.7 m, the floor of the sufa, laid out of burnt brick, was uncovered. Its eastern border is equidistant from the eastern side of the mausoleum. It descends in two steps to the floor. Its width is 20 cm. The height of the sufa floor is 40 cm. The dimensions of the sufa to the west-east are 3 m, in the western part of the sufa there is one step of 18 cm. It descends to the floor laid out of burnt brick. In the southern part of the sufa there is a wall. The floor of the sufa is laid out of burnt brick. The dimensions of the brick are 30x30x5 cm. In the southern part of the mausoleum at a distance of 3.2 m, a wall stretches 1 m from east to west. Its length is 4.2 m. It is built of burnt and adobe bricks. The dimensions of room 1 in its back part are 3.1 x 2.8 m. The thickness of the wall in the east is 60 cm. The length of the wall on the southern side is 1.5 m. It was built only on the eastern side. In its center is the lower part of the quadrangular column. In the southern part is a fireplace. The thickness of the wall in the southern part is 50 cm. In the corner of the southwestern part of the room there was a tashnau.



**Fig. 5. Fragments of burnt bricks with Arabic inscriptions from the mausoleum**

In the southern part of room 1, the eastern wall is missing. Room 2 has been preserved, its dimensions are 2.5 x 3.3 m. The western walls of rooms 1 and 2, 0.4 m away from room 2, bend to the west, where at a distance of 23.8 m, a door 1.75 m wide was opened. The entrance to room #5 is through it. The dimensions of the room are 3.5 x 3.8 m. At a distance of 2.1 m from the door is the entrance to room #6. Its dimensions are 3.6 x 3.5 m. The thickness of its walls is 75 cm. At a distance of 13.5 m from its western wall is the western defensive wall. The total length of the wall in the southern part of the mosque is 41.6 m. In the lower part of the wall there is a masonry of baked bricks in 10 rows. The dimensions of the brick are 34x34x5 cm (Fig. 6).



**Fig. 6. Fragments of burnt bricks**

In some places, a 1-2 cm thick coating has been preserved. The wall thickness is 1.25 m.

Thus, the defensive walls of the shakhristan, the winter and summer mosques, the minaret, the mausoleum and ordinary residential buildings were studied. In the future, it is necessary to conduct archaeological work to study the gates, the outer corners of the defensive walls and the structure in the western part.

A 23 x 1.5 m section was laid on the Eastern defensive wall. It was deepened to 3.6 m and brought to the mainland. At the level of the mainland there was a cultural layer with an admixture of coal, ash of burnt group with ceramics of the 7th-8th centuries. The thickness of the layer is 0.4-0.6 m. A layer of the 9th-10th centuries can be traced above. A 0.8 m thick wall made of adobe bricks measuring 32 x 24 x 4 cm is built on it. Then there is soil with fragments of burnt bricks, coal and backfill of soil. Its thickness is 0.7 m. A reed pad is laid on it. A defensive pakhsa wall is built on the pad. The current height of the wall is 2.3 m, the thickness is 4.1 m and there is an internal corridor 1.6 m wide. The floor

is 1 m higher than the base of the wall. There is no external ditch. Inside, the steppe corridor is filled with pakhsa. A semi-settled rural settlement appears on the territory of the ancient settlement in the 7th-8th centuries. Judging by the ceramic finds, Shakhristan was surrounded by a defensive wall in the 10th century and was repaired in the 10th-11th centuries. The heyday of Bugrakhan dates back to the 11th-early 13th centuries. The rabad expands to 80 hectares. After the Tatar-Mongol invasion, the life of the city was restored in the late 13th-14th centuries. After Timur's victorious campaign in 1388 to Khorezm, the lower delta of the Amu Darya changed its course. In this regard, the life of the city gradually ceased.

Based on the results of archaeological research, preliminary conclusions can be made. On the right bank of the Karakul, a semi-settled rural settlement appeared; in the 7th-8th centuries, a mosque, a minaret and a fortress wall were built around the settlement. In the 11th century, the northwestern settlement and rabad of the city were built. Since the end of the 13th century, the minaret, mosque were repaired and a well, a summer mosque and a mausoleum were built. At the end of the 14th - beginning of the 15th century, life in Bograkhan gradually ceased. In some places the thickness of the water is 1-2 cm. The thickness of the wall is 1.25 m. In conclusion, the defensive wall of the shakhristan in winter and summer mosques, minarets, mausoleums and houses of ordinary people is examined. In the future, it will be necessary to conduct archaeological research, excavations and study the outer corners of the defensive wall of the gates and buildings in the eastern part.

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