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VARAKHSHA CITADEL AND PALACE: ARCHITECTURAL STRUCTURE AND CONSTRUCTION TECHNIQUES

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Annotation: This thesis analyzes the structure of the citadel, defensive installations, spatial layout of the ruler's palace, and construction techniques of Varakhsha, one of the oldest parts of the city, based on the results of archaeological investigations. The construction methods of the palace walls, brick dimensions, spatial arrangement of rooms, and datable artifacts discovered at the site are examined within the broader context of Early Medieval Sogdian architecture.

Keywords: Varakhsha, citadel, palace, Eastern Hall, Red Hall, mud brick, fired brick, defensive wall, Sogdian architecture.

Varakhsha, an ancient urban settlement, is regarded as one of the most important archaeological sites for the study of Early Medieval Sogdian architecture. Located approximately 40 km northwest of Bukhara, the city occupied an area of 9 hectares during its period of prosperity and was irrigated through 12 canals [1]. The most informative part of the archaeological site is the citadel, situated at the highest point of the settlement, together with the ruler's palace located within it.

The aim of this thesis is to describe the spatial organization, defensive system, and construction techniques of the Varakhsha citadel and palace and to compare them with the architectural traditions of the wider region.

The citadel represents the oldest part of Varakhsha and was constructed at the highest point of the settlement. The hill on which the citadel was situated was divided into two sections: a relatively higher western part and a lower eastern part. The western section was almost square in plan, with each side measuring approximately 26 meters. Its slopes were steep, particularly on the southern side. Remains of ancient residential structures were identified in this area. In the northwestern corner, there was a rectangular defensive tower containing a small chamber. The tower, constructed of fired bricks, reached approximately 20 meters in height. The western and eastern sections were separated by a road approximately 15 meters wide. The principal structures were constructed at the highest point of the western section [2].

The palace complex consisted of nine structures, each of which possesses distinctive historical significance. The structures were built of square-shaped mud bricks [3]. A royal palace was situated on one of the platforms, while a gatehouse with a guardroom occupied the other. In the eastern part of the citadel, there were elongated corridor-like rooms, including a barracks and a gatehouse, covered with arched domed roofs.

At the center of the citadel, adjoining the defensive wall on its southern side, stood the palace of the ruler of Varakhsha. It consisted of an Eastern Hall measuring 11.5 × 17 m, a Western Hall measuring 6.6 × 7.25 m, and the Red Hall. On the western side of the palace, a luxurious portico with three arches and stucco-decorated columns was constructed. The columns and arches of the portico were decorated with raised stucco reliefs and various geometric girih patterns. Archaeological excavations fully uncovered the Red Hall and the Eastern Hall. The walls of the rooms were plastered with a thin layer of gypsum over a

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clay coating containing finely chopped straw and were decorated with wall paintings executed in red, yellow, gray, black, blue, pink, and brown pigments [4].

The city of Varakhsha underwent several stages of reconstruction throughout its history. The appearance of the palace was reconstructed by the architect-restorer V. A. Nielsen [5]. The palace was surrounded by a defensive wall. At its upper section, the wall reached a thickness of up to 5 meters. It slightly inclined inward and formed a small slope on the western side; this inclination was particularly pronounced on the southern side.

The wall was constructed using an ancient technique involving a "wooden framework." Fired bricks measuring 37–38 × 25 × 9–10 cm were laid between wooden frames and bonded with a special sandy mortar. Some of the bricks were directly secured within the wooden frames. The orderly arrangement of the bricks is particularly evident in the southern wall, where the wall thickness was 1.55 meters. The inner part of the wall was reinforced with wooden beams, which increased its structural strength. During the excavations, remains of wooden beams and other construction materials were discovered in several sections of the wall. Although some parts of the wall had deteriorated, its general structural arrangement remained relatively well preserved.

In some areas, the wall had suffered severe damage, and its upper section had collapsed in antiquity. Therefore, in order to protect the interior of the citadel, a new wall 1.5–2 meters thick was constructed from fired bricks measuring 40 × 25–26 × 10 cm.

The largest room of the palace was the Eastern Hall. An entrance approximately 1 meter wide was preserved in its wall. The Eastern Hall was directly attached to the western building, suggesting that the eastern structure was constructed at a later stage. Like the citadel itself, the building was erected on an artificial platform reinforced with supporting walls; however, this platform was situated considerably lower than the stylobate of the citadel. Mud-brick walls were preserved along the northern side of the building.

The building was constructed from mud bricks measuring 42–43 × 26 × 9–10 cm. During construction, relatively thick joints, measuring 7–8 cm, were left between the bricks, which were laid alternately lengthwise and crosswise. In some courses, however, the bricks were placed closely together without clay mortar. The wall thickness varied from 1.15 to 2 meters. The southern wall was particularly strong and simultaneously served as part of the city's external defensive wall. The internal walls were closely attached to the southern wall, although the bricks were laid without being structurally bonded to one another.

The building was relatively well preserved: most of the walls survived almost to their original height, while in some areas remains of domed ceilings were also preserved. Consequently, it is possible to reconstruct the internal layout of the building almost completely. Only certain sections of the northern and eastern walls had been destroyed, while the structural arrangement of the northeastern corner remains unknown.

A total of seven rooms were identified within the building. The longest and narrowest room extended along the northern wall. Three rooms were interconnected through doorways on the northern side. Parallel to them was a long corridor-like room extending from west to east; its exact length remains unknown because its eastern section and a substantial portion of the northern wall had been completely destroyed. A similar arrangement of narrow interconnected rooms can also be observed in the architecture of the Devashtich Fortress in Tajikistan. This suggests the existence of common construction traditions within Sogdian architecture.

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The second major hall of the palace, the Red Hall, measured 7.85 × 12 m, and all of its walls have been preserved. Plant-like ornaments with a diameter of 43 cm were discovered on the southern wall. Research indicates that the palace was constructed and reconstructed between the 6th and 11th centuries, although the construction works undertaken in the 11th century were not completed. The palace was decorated with various ornamental elements made of stucco and clay.

In several parts of the floors of the rooms where carpets had been laid, thin layers of greenish soil, traces of sleeping areas, and ash deposits were recorded. Numerous animal bones, fragments of fired and mud bricks were found in the western sections of the rooms. In one of the rooms, a vessel made of light gray-pink clay was discovered. It had a low ring-shaped handle, a height of 5.5 cm, and a mouth diameter of 11.1 cm. It is attributed to the 7th century, although it may have remained in use somewhat later. A copper fals minted in Bukhara in 768 was also discovered in the same room. This coin clearly indicates that the building was taken out of use, filled with soil, and reinforced with mud bricks in certain areas after this date. Fragments of flooring, glass objects, pieces of mud brick, and a copper coin depicting a predatory animal facing right with its tail raised upward were also found in the filled rooms.

The Varakhsha citadel and palace demonstrate the high level of development achieved by Early Medieval Sogdian architecture. The effective use of the natural topography of the hill, artificial platforms, thick defensive walls constructed with wooden frameworks, and the deliberate use of both mud and fired bricks reflect the advanced engineering experience of local builders. The reconstruction of the palace walls during different periods, together with datable finds such as the coin minted in 768, provides an opportunity to clarify the chronology of the site. The architectural similarities between Varakhsha and the Devashtich Fortress further indicate that common construction traditions were widespread throughout the Sogdian cultural sphere.

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