

Purpose of the Cross-shaped Buildings of Kangju: An Interpretation based on the Cult Character of the Architecture of Shashtepa and Mingurik Monuments in Uzbekistan

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Abstract

In recent years, several cross-shaped structures have been discovered in Central Asia in the territory of Uzbekistan and Kazakhstan. Scientists associate this area with the ancient state of Kangju also called Kang or Kangha. There are cross-shaped structures in Kangju the purposes of which are unknown. Many researchers have made efforts to understand these structures of Kangju, to no avail. Instead, there are different interpretations. Some believe that they were cult buildings, while others suggest that they are fortifications. In this context, this article examines two cross-shaped buildings in Tashkent: Shashtepa and Mingurik in order to establish their origins and the purposes.

The study uses a comparative analytical method within the framework of case studies as an approach. To obtain data, three research methods were used: a survey of literature, comparisons with analogies and interviews.

The article concludes that the cross-shaped buildings of Kangju, Shashtepa and Mingurik in particular, are religious buildings. Their original layouts, similar to the ancient Eastern mandala, comprise similar symbolism and reflect the sacred nature of these buildings. Shashtepa of the 2nd century BC is currently the oldest cross-shaped building in the region under consideration. Hence, it is obvious that it was the prototype of other cross-shaped layouts of Kangju. This monument, which has chronological priority and the form of an "ideal temple", absorbed the ideological ideas of the common Indo-Iranian space that had been formed over thousands of years. The further spread of cross-shaped buildings outside the Tashkent oasis indicates the development of this type of building and the possible expansion of the Kangju state.

Keywords: Cross-shaped buildings, Kangju, Uzbekistan, Kazakhstan.

Introduction

In Central Asia, in various regions of Uzbekistan and in the South of Kazakhstan, unusual cross-shaped structures have been gradually discovered in recent years. Shashtepa, Mingurik, Bilovurtepe, Ark-tepe, Setalak 1 are located on the territory of modern Uzbekistan. Ak-tobe 2, Kul-tobe, Kzyl-Kainar-tobe and Chol-tobe are located in the South of modern Kazakhstan. This circumstance has aroused great interest among the researchers. The problem of interpreting the purpose of these structures has become one of the main issues for many scientists. There are two main opinions regarding the purpose of the cross-shaped structures of the middle reaches of the Syr Darya. Some authors believe that these are fortifications, while others see them as cult buildings. The presence of fortification elements, powerful walls and loopholes in them is a clear sign of castles for the former. The symbolism of the planning structure is a distinctive feature reflecting the cult nature of these buildings for the latter.

However, scientists agree on one issue. According to the latest data, Smagulov and Erzhigitova (2017), Filanovich (2010), Bogomolov and Ilyasova (2010), Torgoev, Kulish, and Torezhanova (2020) and others, relate the cross-shaped buildings of the middle reaches of the Syr Darya to the Kangju state. This means that solving the problem of interpreting the purpose of these buildings will lead to an understanding of the principles of the formation and structure of the Kangju cities. Probably, it will also reveal the ideological and social aspects of the society.

Nevertheless, some scientists believe that the cross-shaped buildings have a residential purpose (Bogomolov and Ilyasova, 2010). This research takes the position that such a unique layout could not serve as residential buildings. After all, since time immemorial, the most convenient shape for houses in this region is considered to be a rectangular shape. At the same time, Torgoev, Kulish and Torezhanova (2020) argue that the cross-shaped buildings of Kangju could be castle buildings. Indeed, mandala-shaped buildings have very convenient fortifications too. However, cult buildings in ancient times also needed protection. As we can see, there is no clarity on this issue.

The author of this study is the first to use a comprehensive approach to resolve the issue of interpreting cruciform buildings. In doing so, the most recent and authoritative studies on this issue are analyzed, the architectural features of cruciform buildings are studied, possible ways of the emergence of unusual layouts and their genesis are considered.

The favorable geographical location of the Tashkent oasis at the crossroads of the ancient civilizations and cultures have led to various ideas, having collided in this region of Eurasia, formed completely unique cruciform buildings. Therefore, in addition to the cruciform buildings of Central Asia, a wide range of similar buildings of adjacent regions is used in the study. To understand the genesis of the cruciform buildings of Kangju, the author studies similar buildings in Iran, India, the Eastern Aral Sea region, and the southern civilizations of Central Asia. The time period covers the period from the Bronze Age to the beginning of the 1st millennium AD.

In addition to the two declared monuments, the study included seven cross-shaped monuments of Central Asia. These structures are of a common typology and are associated with the functioning and expansion of the Kangju state. Shashtepa, Mingurik, Ak-tobe 2, Kul-tobe, Kzyl-Kainar-tobe, Chol-tobe are associated with the original core of the Kangju state. Bilovurtepe, Ark-tepe, Setalak 1 are associated with its expansion.

In this context, this paper examines the purpose of the cross-shaped buildings of Kangju, Uzbekistan and Kazakhstan. Its aims is to determine the purpose of the cross-shaped buildings of Kangju and substantiate the cult nature of the architecture of the Shashtepa and Mingurik monuments. Its objectives are as follows.

1. To reveal the architectural features of the Shashtepa and Mingurik monuments, reflecting their cult character;
2. To identify the patterns and interrelationships of the architecture of the cross-shaped buildings of Kangju;
3. To identify analogies of cross-shaped buildings in adjacent historical and cultural regions and to reveal the theme of their influence on the architecture of Kangju.

Theoretical Framework

This paper examines several theoretical concepts such as “cross-shaped buildings” and “cult character” in the context of “architectural symbolism”, which includes “historical knowledge” and “traditions”. The theoretical concepts of the paper are based on the discussion of previous works by researchers examining the purpose of the cruciform buildings of Kangju. They are based on the importance of this issue for understanding the formation and existence of Kangju cities and Central Asia as a whole.

According to Filanovich (1983, 2010), the cross-shaped buildings of the middle reaches of the Syr Darya are based on a solar layout and reflect a cult character. Suleimanov (2000) shares a similar opinion. The author considers the cross-shaped buildings of Central Asia to be cult buildings. Khasanov (2004), while studying the Kindiktepa monument, draws attention to a wide range of similar cross-shaped buildings. Ternovaya (2008) studies cross-shaped buildings in the context of studies of Ak-Tobe 2 and comes to the conclusion about their cult purpose. A major architectural theorist Bulatov (2009) considers the ancient buildings of Central Asia through the prism of architectural symbolism. According to Baipakov (2010), cross-shaped buildings are temple buildings. Smagulov and Erzhigitova (2017) propose a typology according to which buildings are divided into two types: cross-shaped and cross-shaped. The discussion continued in 2020, when Torgoev, Kulish, and Torezhanova (2020) studied the cross-shaped buildings of Kangju, rejecting their cult character. According to Nazilov (2022), cosmological and sacred ideas were embedded in the architecture of ancient buildings in Central Asia. This shows how important this topic is, based on the theoretical concepts outlined above.

Review of Literature

The problem of interpreting the purpose of the cross-shaped structures of Kangju did not arise out of nowhere. For some time, knowledge about the architecture of cross-shaped buildings in Central Asia accumulated as new similar objects continued to be discovered. With the discovery of another cross-shaped object, interest in such buildings arose with renewed vigor. A general typology of these monuments gradually formed. This also applies to the question of the purpose of the cross-shaped buildings of Kangju. Each new researcher who discovered such an object turned to the existing knowledge about cross-shaped buildings. The most well-known of the objects studied is the Shashtepa monument. Its study began in the late 19th century. That is why almost all studies concerning the interpretation of the purpose of cross-shaped buildings in Central Asia include this monument. This also applies to our work. Much later, in 2008, the cross-shaped layout of the Mingurik building was revealed.

Let us consider how the idea of the Shashtepa and Mingurik monuments has changed since the end of the 19th century and up to the present day. According to Ostroumov (1896), Shashtepa is a guard post with an underground building. This conclusion was made based on just one trench that exposed vaulted rooms. Grigoriev (1934) interprets the building as an underground temple of the Saks, although he does not exclude that it could have been a guard post, a last refuge-fortification. The author cites the opinion that there are known cases in history when temples served as the last refuge in the event of an attack. What is interesting here is the interpretation of the temple as an underground structure. Obviously, Grigoriev formed this opinion due to centuries of cultural layers.

In the works of Krashenninnikova (1956), Buryakov and Dadabaev (1973), the Shashtepa monument is called a citadel. According to Filanovich (1982), it is an architectural and fortification structure. It is worth noting that by this time, the general planning structure of the monument had not yet been fully revealed. However, a year later, Filanovich (1983) saw a cult purpose in the monument. Already in those years, the architect Gurevich (1985) noted that the plan of Shashtepa had a reference to the proto-Indian cosmogram. Thanks to the open part of the ring wall, the central square and several towers, it was already possible to judge the composition of the entire structure, based on central symmetry. The cruciform shape of the structure became obvious.

In contrast, Bulatov (2009) considers the Shashtepa monument from the standpoint of ancient Indian canons of construction of altars and temples, illuminated in the texts of Brahmana (8th-5th centuries BC), Shulba Sutra and Grihya Sutra (5th century BC), and defines it as a temple of the astral cult. Obviously, the author bases his idea on the similarity of the Shashtepa plan with a Buddhist mandala. According to Ziyaev (2009), the Shashtepa settlement is the residence of the ruler and the temple of fire worshippers. Here we see a combination of two types of building purposes (civil and cult) in one, as it was in Grigoriev.

According to Filanovich (2010), Shashtepa is a temple of sun and fire worshippers. The author also calls Mingurik a temple of fire worshippers. Obviously, this conclusion is based on the original plan of these buildings, in which the author sees a solar symbol. However, Bogomolov and Ilyasova (2010) attribute the monuments of Shashtepa and Mingurik to civil architecture for residential purposes. Although it is known that for thousands of years, the most popular building was a rectangular building, Nurulin (2016) believes that Shashtepa is an observatory temple. This conclusion is based not only on the similarity of the plan of the structure with the ancient Eastern mandala, but also on the orientation of the structure and the direction of its towers to the heavenly bodies. According to Nazilov (2022), regardless of the function of the Shashtepa monument, whether it was a temple, a settlement, or an estate, its plan reflects cosmogonic ideas. Nevertheless, the author is still inclined to accept the version that it was a castle structure. Here, probably, the idea is promoted that when erecting any building during the ancient times, the principle of sacralization of architecture was used.

In this context, it is worth paying attention to the general works concerning the definition of the purpose of the cross-shaped structures of Kangju. According to Suleimanov (2000), the cross-shaped structures of Central Asia, in particular Shashtepa, are cult and memorial buildings. Suleimanov (2000) came to this conclusion based on the finds of skulls on the monuments. However, Baipakov (2010) believes that the cross-shaped structures of the middle reaches of the Syr Darya are temple structures. He associates the cross shape of the structures with the solar layout. In contrast, Smagulov and Erzhigitova (2017) consider the cross-shaped structures to be defensive. Obviously, referring to the presence of loopholes in the walls of these structures, Torgoev, Kulish, and Torezhanova (2020) reject the cult purpose of the cross-shaped structures of Kangju. Thus, researchers believe that these structures are castle structures. Unfortunately, most authors focus on the fortification elements of the buildings and completely reject the symbolism of the planning structure of the cruciform buildings.

Having considered the main points of view, two main concepts regarding the purpose of the cross-shaped buildings of Kangju stand out. Some authors consider them to be cult structures, while others consider them to be castle buildings. However, some researchers attempt to combine these two versions, believing that the principle of sacralization of architecture was applied to fortification buildings at that time. The weak point of this argument is that the researchers focus only on the idea regarding the purpose of the buildings, ignoring other important details. Supporters of the 'cult purpose' highlight the symbolism of the architecture of the cross-shaped buildings, and followers of the theory of the 'castle purpose' of these buildings note the successful architectural solution in terms of their fortification. This is an erroneous approach: consideration of this issue requires a comprehensive approach.

Research Methodology

This research uses a comparative analytical method to analyze the planning structure of the cross-shaped buildings of Kangju and determine their purpose. Data collection methods used include:

1. Case study,
2. Literature analysis,
3. Interview.

The research employs primarily the case study method, which facilitates a deep study of the architecture of the Shashtepa and Mingurik monuments, which is important for understanding their significance for understanding the architecture of Kangju and their interpretation as religious buildings.

The review of literature included the examination of previous studies, archaeological reports, monographs and articles. Literature related to the history and theory of Central Asian architecture, archeology, was found mainly in the electronic resource Academia.edu, in the personal library, and in the archive of the Tashkent branch of the Department of Cultural Heritage of Uzbekistan. During the study, 20 sources were found directly related to the problem of interpreting the cross-shaped buildings of Central Asia (46 sources in total). An in-depth analysis of the literature related to the problem of interpreting the purpose of the cross-shaped buildings of Kangju was conducted.

The next step was to search for sources devoted to the cross-shaped structures of adjacent regions. To obtain additional information, an interview was conducted with a local authoritative scholar in the field of archeology of Tashkent, Margarita Filanovich. This provides a holistic understanding of the problem of the cross-shaped buildings of Kangju. The data obtained were classified and systematized.

The application of these methods allows us to create a reliable basis for researchers interested in the architecture of Kangju and the problem of its interpretation.

Purpose of the Cross-shaped Structures of Kangju

In Central Asia, from the 4th century BC to the 4th century AD, there was a state called Kangju. For many years, the question of the location of this state was the subject of numerous disputes. However, in recent years, the opinion concerning the identification of Kangju with the territory of the middle reaches of the Syr Darya has firmly entered into science. At the beginning of the first millennium AD, this area was part of the historical and cultural region of Chach. This is the modern territory of the Tashkent oasis of Uzbekistan and the South of Kazakhstan (Fig. 1-5). Filanovich (2010) considers the Kanka settlement of the Tashkent oasis to be the capital of Kangju.

In recent years, unusual cross-shaped buildings have been gradually discovered in Central Asia, in particular in the middle reaches of the Syr Darya. Shashtepa, Mingurik, Bilovurtepe, Ark-tepe, Setalak 1 were found on the territory of modern Uzbekistan. Ak-tobe 2, Kul-tobe, Kzyl-Kainar-tobe and Chol-tobe were discovered in the South of modern Kazakhstan. The discovery of such unusual buildings aroused great interest among researchers. The main question for the scientists was to determine the purpose of the cross-shaped buildings of Kangju. A dilemma arose. Some researchers believe that these are castle structures, while others believe that these are religious buildings. Let us consider and analyze these ideas in order to determine the purpose of the cross-shaped buildings of Kangju.



Fig. 1: Cross-shaped buildings of Kangju.

Source: Author, based on: satellite images

Tashkent oasis

In the modern city of Tashkent, there are two cross-shaped structures, Shashtepa and Mingurik. Shashtepa is located in the Southwest of the capital, and Mingurik is in its very center (Fig. 2).



Fig. 2: Shashtepa and Mingurik on the map of Tashkent.
Author, based on: satellite images

Shashtepa

The monument is dated by the archaeologists to the 2nd century BC (Filanovich, 2010). Shashtepa has an original architectural solution (Fig. 3). The central square building, on the sides of which trapezoid towers are attached, is surrounded by a double ring of walls. Obviously, such a layout is not accidental. It reflects the worldview ideas of the ancient people who occupied this region and their associations with a certain cult. Filanovich (2010), noting the unusual layout of Shashtepa, identifies it as a temple of sun and fire worshipers. According to the him, this temple was built on the principle of combining a cross and a circle (cosmogram) which is the most ancient solar symbol. However, this cruciform shape probably contains deeper concepts associated with the ideas about the structure of the universe. Since the layout of Shashtepa is surprisingly similar to the ancient Indian mandala, Gurevich (1985), Bulatov (2009), Nurulin (2016), Nazilov (2022) drew attention to this. According to Bulatov (2009), for the ancient Indians, the square symbolizes the heavenly world, and the circle symbolizes the earthly world.

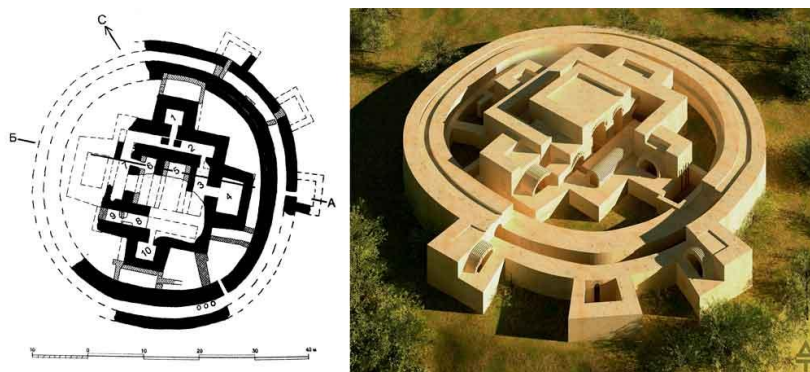


Fig. 3: Shashtepa. Archaeological plan. Source: Filanovich, 2010 and 3D reconstruction: Author

The complex system of rooms and bypass corridors obviously testifies to a certain ritual being conducted in this building. Individual structures of the building, such as the central square building, ring walls, towers have a sacred meaning. At the same time, special attention was paid to the sun and fire in this building. Fire was lit in the corridors, in the room of one of the four towers an altar of fire was found (Filanovich, 2010).

The discovery of a skull in one of the rooms of the structure made Filanovich (2010) to establish that over time, the temple structure gradually turned into a cult-funeral complex. It is possible that a priest who was directly connected with the cult structure was buried here. This emphasizes the sanctity of this structure.

Mingurik

This structure has been erected following the same principle as the Shashtepa monument. The object is dated to the 1st century AD (Filanovich, 2010). Here, semicircular (petal-shaped) towers have been added to the sides of the central square building, and the entire complex has been surrounded by walls forming a square (Fig. 4). Excavations in 2008 at the Mingurik monument has also revealed a cross-shaped building.

The opinions of the authors of the excavations were divided. Bogomolov and Ilyasova (2010) believe that the cross-shaped structures of Shashtepa and Mingurik belong to civil architecture for residential purposes. However, Filanovich (2010) insists that the early architectural and construction complex of Mingurik has been erected according to the same principle as the primary building of Shashtepa, that is, it was a cult one. Filanovich (2010) also calls Mingurik a temple of fire worshipers. According to him, this temple may have been a national shrine. He argues that this is reflected in the epithet of the state itself - "Sacred High Kangha". It is difficult to agree with the opinion that these buildings were residential. Since ancient times, people have erected residential buildings using rectangular shapes. This is the most popular and convenient method of constructing a residential building. It is unlikely that the sacred mandala layout based on ideological ideas was used for a civil building. However, for religious buildings, the use of such a scheme is justified.

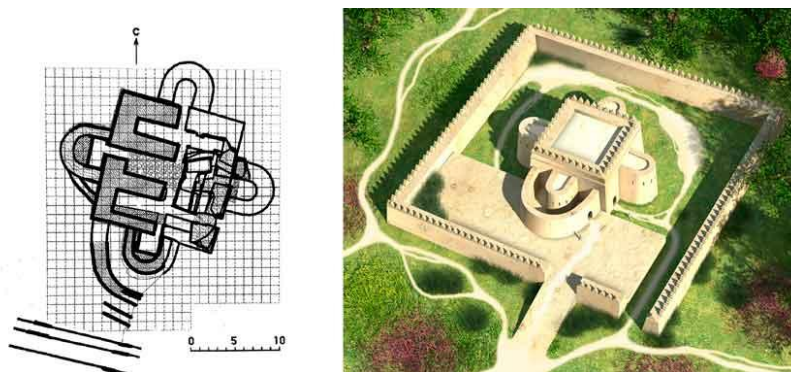


Fig. 4: Mingurik. Archaeological plan. Source: Filanovich, 2010 and 3D reconstruction: Author

If the cross-shaped buildings of Tashkent are religious buildings, this may mean that the urban formations of this area have been formed on the basis of temples or other religious sites. Their prestige is emphasized by the fact that these are the most significant buildings, surpassing the surrounding buildings. Using the example of cross-shaped buildings, Shashtepa and Mingurik Filanovich (2010) substantiates the process of city formation in the Tashkent oasis. According to him, the city-forming core of settlements were temple buildings. In fact, he introduces a new term for this region - Temple town, believing that temple cities are one of the first models of urban development in the middle reaches of the Syr Darya. He argues that the genesis of the urban culture of Tashkent is derived from the Eastern Aral Sea region.

According to Filanovich (2010), the processes of aridization in the lower reaches of the Amu Darya forced the population to move upstream, to a more favorable oasis in the Chirchik River valley.

However, the Eastern Aral Sea region is one of the routes of origin of the cross-shaped structures of Kangju.

Bukhara oasis

A direct analogy to Mingurik can be a later structure discovered in the Bukhara oasis Setalak 1. It also has a layout in the form of a central square building with semi-circular towers on its sides. The cross-shaped structure is surrounded by a square wall. Suleimanov (1983), who did the excavations, dated it to the 3rd-4th centuries AD and identified it as a cult site. It is noteworthy that this monument not only inherited the architecture of Mingurik, but also has a similar complex of archaeological finds. The cultural layer here is represented by alternating ash pits covered with clay. This, according to the author, is associated with a certain cult and ritual. It is worth noting an interesting detail: the semi-circular towers attached to the central square were monolithic. This probably means that these towers were more symbolic in nature and were not part of the fortification.

Suleimanov (2000), analyzing the purpose of Setalak 1, considers the cross-shaped structures of Central Asia as cult-memorial. He notes the main direction of the spread of cross-shaped layouts from the Aral Sea region to the middle reaches of the Syr Darya. He notes that at Shashtepa, a transition of the ritual from archaic cremation (funeral mausoleums of the Aral Sea region) to a public cult-memorial complex is noticeable. His remark about the fact that Shashtepa is a mausoleum is interesting. He says,

"... in the Shashtepa mausoleum, special rooms appeared, where, possibly, rituals were performed that imitated the ancient rite of burning the mausoleum, and periodic services were performed to the spirits of ancestors."

Suleimanov (2000) refers to archaeological data that fires of individual rooms, the presence of special rooms with an altar were indeed noted in the building. Therefore, he calls the settlement itself a temple settlement, with the core of the cult structure of Shashtepa. Moreover, he classifies other cross-shaped buildings of Central Asia, such as Bilovurtepe, Ark-tepe, Chol-tobe, Kyzyl-Kainar-tobe, Aktepa Chilanazar, Setalak 1, as buildings with a memorial cult that have traces of fire (Suleimanov, 2000). Although he considers cross-shaped buildings as cult ones, he gives them a slightly different interpretation. He puts the cult of ancestors in the foreground, rather than the solar cult. However, these buildings were not originally memorial ones, but became so during the exploitation of the buildings.

Fergana Valley

The monument from Eastern Fergana, Bilovurtepe, dating back to the 1st-2nd centuries AD, has been built according to the same plan as the Shashtepa building. Here, trapezoidal towers are attached to the central square building. The entire building is surrounded by a double ring of walls, as in Shashtepa. The ring wall is flanked by four towers located diagonally relative to the central square. The building is almost twice as small as the Shashtepa monument. Zadneprovsky (1985) calls the monument a citadel. Interpreting the purpose of a citadel in a rural settlement, he suggests calling it a donjon – a refuge for the agricultural nobility. Although he admits that there is no specific data that would unambiguously prove the purpose of the structure. Just as there is no data that would indicate a cult purpose for the cruciform building. However, he does not consider the symbolism of the layout of Bilovurtepe. In fact, the interpretation of the structure as a defensive one does not fit with the small size of the structure. Given that Bilovurtepe structurally repeats the layout of the Shashtepa building, it can be assumed that this cross-shaped structure was also a cult structure.

Gorbunova (1994) has studied the cross-shaped form having the structure of Ark-tepe from Southern Fergana, dated to the 2nd-3rd century AD. He calls it the central building, and suggests not to ignore the symbolism in the cross-shaped structure of Ark-tepe and cosmogonic ideas that could be reflected in its layout, since they can be traced in the ornaments of ceramics. In fact, he mentions another monument located in the immediate vicinity of Ark-tepe - this is Ak-tepe, which has a plan in the form of two ring walls. Therefore, he comes to the conclusion

that the cosmogonic ideas of the ancient people are reflected in both defensive structures. In fact, he believes that cross-shaped layouts were associated with solar cults. Nevertheless, he does not directly consider cross-shaped buildings as cult ones, but notes the symbolism of their planning structure. This approach reflects the idea of the sacralization of the architecture of the cross-shaped buildings of Kangju.

The so-called Tepe 5 from Southern Fergana is unusual in its architecture too. It has the form of a four-petal cross with a central square, and is complemented by semicircular extensions at the corners of the building. From the outside, it looked like a figure with eight petals 24x24 m. Only one small room was found in the crosspiece. Gorbunova (1985) who conducted the research assumes the monument to be of a cult purpose. With its composition and semicircular towers, Tepe 5 resembles Mingurik, Setalak 1 and a group of monuments in Taraz.

Iran

In Iran, at the Shahr-i-Qumis settlement of the 1st century BC, almost complete analogies of Shashtepa have been discovered: the same cross-shaped structures, surrounded by a wall ring. Filanovich (2010) in a personal conversation with Stronach informed him about the close parallels of these two monuments, separated by thousands of kilometers. It is noteworthy that in Shahr-i-Qumis, the same rite of burying skulls in a cross-shaped building was noted, as in Shashtepa. This gave him reason to consider them cult buildings (Hansman and Stronach, 1974). In fact, Filanovich (2010) connects these buildings with the migration of tribes from the Eastern Aral Sea region to the East and the South, although these involve weighty arguments testifying to the cult purpose of the cruciform structures under consideration. Interestingly, recently, another cruciform structure with a more complex internal layout has been discovered at Shahr-i Qumis V (Stronach and Ruth, 2019), indicating a further development of this type of building.

Karshi oasis

Khasanov (2004), studying the cross-shaped monument Kindiktepa of the Karshi oasis of the 4th-5th centuries AD, also examines a wide range of analogies of the cross-shaped monuments of Central Asia. He interprets the monument as an estate. As he points out, Kindiktepa has close analogies with the cross-shaped monuments of the Tashkent oasis. Khasanov cites Zadneprovsky's idea about cross-shaped buildings (Bilovurtepe), that such ancient citadels were part of early medieval castles, although he himself notes that after the 5th century AD, the cross-shaped layout is not found. Nevertheless, he summarizes that in Central Asia and in Iran, cross-shaped buildings could be cult buildings or estates. Another interesting remark of his is that in cross-shaped buildings with a central square core and towers attached to its sides, this is as successful a defensive technique as in the case where the towers are located at the corners (Khasanov, 2004). This argument forces some researchers to think that cross-shaped buildings are fortifications. If towers on the sides of a square are such a successful defensive technique, then a fair question arises: why then did cross-shaped buildings disappear in the early Middle Ages, as Khasanov (2004) himself points out? This is particularly, in a period when fortifications were in demand as never before.

South of Kazakhstan

Let us return to the region of interest to us, the middle reaches of the Syr Darya and the areas adjacent to the Tashkent oasis. The prototype for the cross-shaped building Ak-Tobe 2, located on Chardara, is obviously the building of Shashtepa. Ak-Tobe 2 was built on the same principle, but slightly distorted in comparison with the Shashtepa building. The monument is dated to the 1st-4th centuries AD and called a palace by the authors (Maksimova, 1968). Ternovaya (2008), based on her studies of Ak-Tobe 2, analyzes the purpose of the cross-shaped buildings of the middle reaches of the Syr Darya. He comes to the conclusion that Ak-Tobe 2 is a fortified temple where the cult of the Sun was developed. According to him, the presence of residential buildings and various industries (pottery and copper foundry) nearby should not

be confusing, and he cites the words of E. Bickerman, where in Asia sanctuaries were also settlements that were under the control of priests. He also cites an example from Mesopotamia and Egypt, where each temple was a small town, as well as examples of temple city-states of the Seleucid state and Parthia, the Bactrian temple of Oxus. It is impossible to deny that temples also needed to be protected: hence, the fortification elements in the architecture of cult cruciform buildings.

Two interesting monuments, Chol-tobe and Kzyl-Kainar-tobe, have been discovered near Taraz. Both monuments are dated to the 1st-4th centuries AD (Mershiev, 1970). Chol-tobe is a four-petal cross with an oblong room and two small rooms. This central building is surrounded by a square double wall with towers. Kzyl-Kainar-tobe has a similar composition. Mershiev (1970) notes the originality of the plans of these architectural complexes and suggests their temple purpose. Although these buildings have the same cross-shaped form as the Shashtepa building, they are significantly smaller. The Shashtepa building has a well-thought-out system of rooms that are connected by corridors.

This obviously reflects a certain ritual. However, in these buildings, the internal structure is organized in a completely different way. Their rooms are so small that the level on which they are located can probably be considered the base of the building. It is possible that the space inside the structure, among other things, was left to lighten the structure. The main functional area was probably located on the second level. Considering both of these possibilities, it is arguable that these were not temples, but sacred objects of worship. The original form in the form of rosettes and the small size of the buildings suggest that these were cult architectural and sculptural structures, possibly sacred altars.

The Kul-tobe settlement, located in the city of Turkestan, is called a citadel by Smagulov and Erzhigitova (2017): the archeologists who did the excavations. They date it to the 1st-3rd centuries AD. The building is presented in the form of a four-petal cross. It has three rooms. One oblong, and two square rooms inside the tower. In fact, they consider the presence of holes in the wall to be an important point in determining the purpose of the building as a defensive one, although temple buildings also needed protection.

Baipakov (2010) calls the buildings of Kangju, such as Chol-tobe, Kzyl-Kainar-tobe, Kul-tobe, Ak-tobe 2, Shashtepa and others, temples with a cross-shaped layout. According to him, the crosses contain an idea reflecting the religious beliefs of sun-fire worshippers. Therefore, he concludes that settlements were formed around cult-memorial complexes with a cross-shaped layout. He argues that these traditions have been brought from the Eastern Aral Sea region and reflect the urbanization processes of the Kangju state. Baipakov (2010) thus came to the same conclusions as Filanovich (2010).

Torgoev, Kulish, and Torezhanova (2020), examining the cross-shaped structures of Kangju, see Baka-Tobe monument as castle buildings. They propose to separate the external fortification scheme from the internal layout (Archaeology and history ..., 2020), and classify as cross-shaped structures not only buildings with attached towers on the sides of the square, but also early medieval monuments with semicircular towers at the corners of the central square. These are the monuments of Aktepa Chilanzar, Baka-Tobe and others. They call all these monuments castles.

Based on the above, it can be noted that there are two main interpretations regarding the purpose of the cross-shaped structures of Kangju. On the one hand, there is a suggestion that they were cult structures. On the other hand, there is a suggestion that they were fortification structures. However, some authors attempt to combine these two versions. Thus, two more secondary concepts appear as 'fortified temples' and 'fortress structures', which are based on the idea of the sacralization of architecture. Nevertheless, most scientists assume that the cross-shaped structures of Kangju were cult structures.

In classifying the cross-shaped structures of Kangju as castle buildings, many refer to individual elements of fortification: powerful walls, outrigger towers and holes in the walls. However, religious buildings in ancient times also looked the same. A feature of buildings built from adobe is monumentality. The higher the building, the thicker its walls are.

The presence of towers and holes in them can also be explained by the fact that temple buildings in those days needed protection. For example, treasures, relics, shrines, and remains of saints that needed to be protected could be stored in the temple. The Oxus Temple looks like a fortress from the outside. It is surrounded by powerful walls, flanked at the corners and sides by towers. At a certain distance, it is fenced off by another row of walls with a moat. However, this does not prevent it from being identified as a temple. The internal contents and the complex of finds indicate its religious purpose. On the other hand, a temple is a sanctuary, a dwelling place of a deity, where, for example, a sacred fire was lit, which also needed protection. The slit-like openings in the thick walls could be not only just holes, but also vents. Thanks to them, smoke was removed from the premises, and fresh air came in from the outside.

From a worldview point of view, a temple is a fortress that resists chaos. The combination of the simplest figures of a circle and a square reflects the idea of a world order that needs protection.

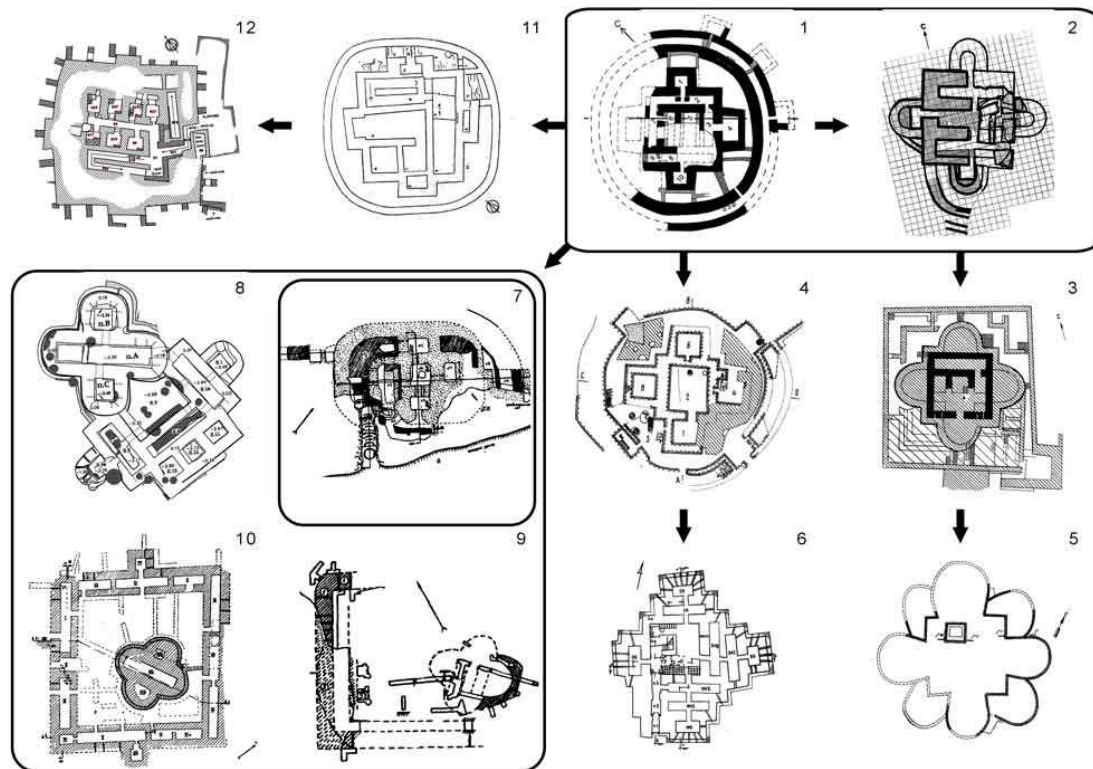


Fig. 5: Typology of cross-shaped buildings of Kangju:

1. Shashtepa. Source: Filanovich, 2010; 2. Mingurik. Source: Filanovich, 2010; 3. Setalak 1. Source: Suleymanov, 1983; 4. Bilovurtepe. Source: Zadneprovsky, 1985; 5. Tepe 5. Source: Gorbunova, 1985; 6. Ark-tepe. Source: Gorbunova, 1994; 7. Ak-tobe 2. Source: Maksimova, 1968; 8. Kul-tobe. Source: Smagulov, 2017; 9. Kzyl-Kainar-tobe. Source: Merschiev, 1970; 10. Chol-tobe. Source: Merschiev, 1970; 11,12. Shahr-i-Qumis. Source: Stronach, 1973; 2019

Typology of Cross-shaped Buildings of Kangju

The cross-shaped building of Ak-tobe 2 is surrounded by a wall that forms a super ellipse. A ring wall was obviously originally intended here, but it turned out to be distorted. It is noteworthy that the central square building is also reduced in size here. It was absorbed by the towers attached to its sides and became invisible from the outside. This shows the transformation processes that affected the subsequent typology of cross-shaped buildings. Subsequently, in the northern parts of Kangju, the cross-shaped building without a central square has become widespread. We are talking about buildings that have four-petal crosses or rosettes in their plan: Chol-tobe, Kzyl-Kainar-tobe and Kul-tobe (Fig. 5).

Another direction, testifying to the transformation processes, is the Mingurik building. Here, semicircular towers (petals) are attached to the sides of the square building. At a certain

stage, one of the towers was surrounded by another semicircular wall of a larger diameter. Thus, on one side, the central square was completely hidden behind a new semicircular wall. If we bring the composition of the plan to its logical conclusion and surround each of the remaining towers with a semicircular wall, we will get a building in the form of a four-petal cross of the Chol-tobe, Kzyl-Kainar-tobe and Kul-tobe types.

Smagulov and Erzhigitova (2017) propose to distinguish two types of such structures: "having the form of a cross" of the Kzyl-Kainar-tobe type (Chol-tobe, Ak-tobe 2 and Kul-tobe) and "cross-shaped layout" of the Shashtepa type, including Mingurik. The proposed typology is expressed by the division into buildings with a four-petal cross and structures with a central square and towers attached to it. This is quite justified, with the exception of some clarifications, which are presented below. However, it is difficult to agree with the difference in the definitions of "having the form of a cross" and "cross-shaped layouts". They should be considered synonyms, since there is no particular difference between them.

It is proposed to make a small amendment to this typology. In view of the fact that, obviously, Ak-tobe 2 is a transitional link from buildings of the Shashtepa type to structures of the Kzyl-Kainar-tobe type. Evolutionarily, these monuments are arranged in the following order: Shashtepa, Mingurik, Ak-tobe 2, Kul-tobe, Kzyl-Kainar-tobe, Chol-tobe. Not only does the composition of these buildings transform, but their functional purpose also changes, although not dramatically. The main vector of their development is outlined, originating in the Tashkent oasis with the monuments of Shashtepa and Mingurik, and further spreading to the North through Ak-tobe 2 on Chardara, and ending its development in Taraz at such monuments as Kzyl-Kainar-tobe, Chol-tobe, Kul-tobe.

Continuing the typology of Smagulov and Erzhigitova (2017), Torgoev, Kulish, and Torezhanova (2020) propose dividing them not into two, but into three types. The first type includes small buildings with one long room and two small ones, represented by Chol-tobe, Kul-tobe, and Aktope Baba-ata. They also include Ak-tobe 2 and Kindik-tepa (Archaeology and history ..., 2020). The second type includes buildings with a central square of comb layout and towers attached to its sides. This type, in their opinion, is represented by Shahr-i Qumis, Bilovurtepe, Ark-tepe, Shashtepa and Mingurik. The third type includes square buildings with towers at the corners. These are Baka-tobe, Kindikli-tepa, Jar-tepa, Aktepe near Nau, and, obviously, Aktepa Chilanzar (Archaeology and history ..., 2020).

Based on the above, the following conditional typology of the cross-shaped structures of Kangju is proposed.

- The first type includes monuments with a central square core, towers attached to its sides and surrounded by a round or square wall. This group includes monuments such as Shashtepa and Mingurik. This group also includes Shahr-i Qumis, Bilovurtepe, Setalak 1.
- The second (transitional) type only includes one monument, Ak-Tobe 2. Although it can be attributed to both the first and third types. This monument is a transitional link between these groups of monuments. Ak-Tobe 2 continues the idea of the Shashtepa building with a central square building, towers attached to its sides and a ring wall. However, the ring wall is far from the shape of a circle, and the towers have absorbed the sides of the square. From the outside, the central square building has become invisible. Thus, a four-petal cross was obtained in the plan. This form has been developed in the next group of monuments attributed to the third type.
- The third type includes buildings with a plan in the form of a four-petal cross. These are the monuments Chol-tobe, Kzyl-Kainar-tobe, Kul-tobe. The composition of these buildings obviously originates from the first and second types.

The structures with a central square and towers at its corners (Baka-tobe, Aktepa Chilanzar, etc.), classified by Torgoev, Kulish, and Torejanova (2020) as cross-shaped

buildings, do not belong to them. Due to the fact that such structures, although they have a similar internal layout to the cross-shaped structures of Kangju, have a slightly different genesis and are functionally different from them. Nurulin (2025) discusses their origin and purpose in another work by.

Based on this typology, it is clear that all these types of buildings have in common an external cruciform shape. However, their internal structure indicates different functional purposes of the buildings. In the Shashtepa building, the interaction of various rooms, united by bypass corridors, is clearly visible. This planning structure reflects the cult nature of the entire structure. More precisely, its temple purpose. In the four-petal buildings of the Kzyl-Kainar-tobe, Chol-tobe and Kul-tobe type, there are only three small rooms that cannot be used for temple purposes. Their presence has led to the assumption that this level was a basement. These rooms could be used for relics, burials, or simply as a warehouse for firewood. In this formulation of the question, in the buildings of the third type, features of cult architectural and sculptural buildings that were used as objects of worship are visible. In other words, in Kangju, under the influence of common ideological and religious ideas, two main types of religious buildings have emerged: temples and sacred architectural and sculptural structures.

The cross-shaped form of the Kangju buildings reflects their cult character. Despite the diversity of compositional solutions, in general, a single approach and desire to reproduce the model of an ideal temple built in the image of a mandala can be traced. For example, such practices are common in Buddhism. The first stupas of Buddhism also had a room in which the remains of priests or relics were kept. It is noteworthy that in India, there has been a practice of updating and lining stupas, due to which their size increased. This technique is also found in the buildings of Kangju Kul-tobe and Chol-tobe. Here, along the outer contour, the cross was lined with another row of adobe bricks and coated with clay. Thus, a certain connection between the architecture of Kangju and Indian architecture can be seen, due to the fact that the idea of the mandala arose in the common space of the Indo-Iranian cultures.

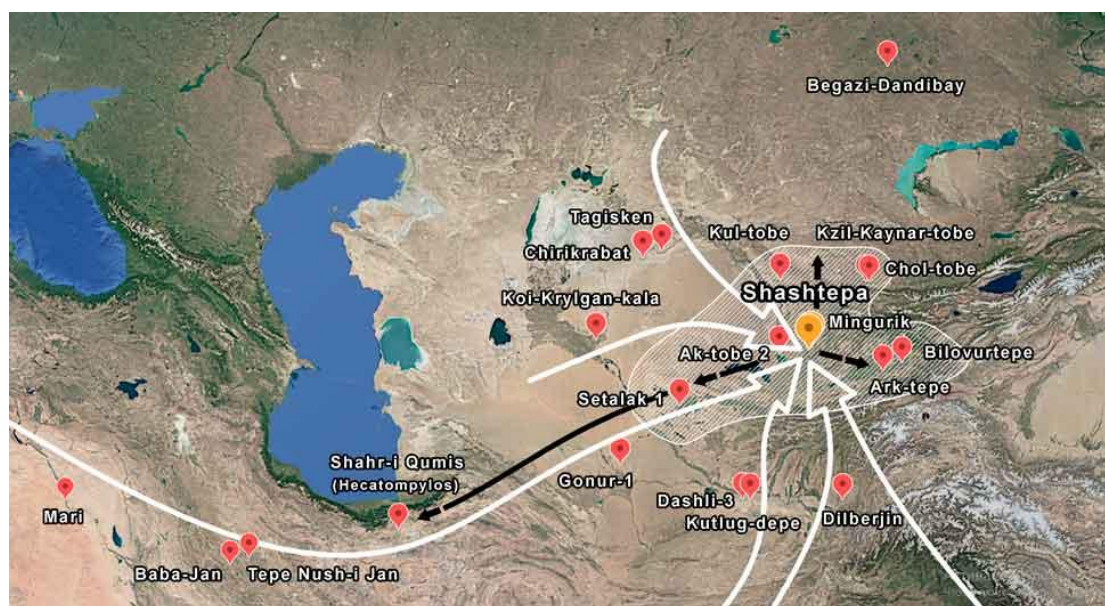


Fig. 6: Genesis of the cross-shaped buildings of Kangju.

Source: Author, based on: satellite images

Genesis of the cross-shaped plans of Kangju

In a broad sense, the question of the origin of the cross-shaped layouts of Kangju is outlined in three main directions as follows.

- The influence of the Bronze Age cultures: the architecture of the Southern civilizations of Mesopotamia, Iran, Margiana, Bactria and the North;

- The influence of the Eastern Aral Sea region. The direction from the lower reaches of the Syr Darya to its upper reaches: the mausoleums of Tagisken and Chirikrabad;
- The influence of ancient Indian cultures: Hindu and Buddhist altars, temples and stupas (Fig. 6).

Cross-shaped and round structures have been known since ancient times. In the Bronze Age in Mesopotamia, Bactria and Margiana, a special type of fortified structures was formed, built on a combination of two simple figures of a square and a circle in different variations. From a functional point of view, such planning structures are built on the principle of a fenced yard with a central building. As a rule, the yard is built up with chaotic buildings. What distinguishes these buildings is that they were erected according to an originally conceived plan.

Combinations of a square and a circle form four layout schemes of the most ancient cities: a circle in a circle, a square in a circle, a square in a square and a circle in a square (Fig. 7). These schemes are also found in all subsequent periods. For example, the circle in a circle scheme, according to which the ancient city of Mari or the Arkaim settlement of the Sintashta culture has been built in Mesopotamia, was embodied in the building of Koy-Krylgan-kala in antiquity. Another settlement of Sintashta has been built according to the circle in a square scheme, which was reflected in the ancient Dilberdzhin.

One of the most popular schemes for several millennia can be considered the square in a circle composition. This scheme has been known since the Bronze Age from a clay model found in the Mesopotamian city of Mari. In Bactria, the square (rectangle) in a circle scheme has been embodied in the round temple of Dashly-3 of the Bronze Age. In the late Bronze Age - in the mausoleums of Tagisken. In the Achaemenid period, the circle-in-circle and rectangle-in-circle designs continued to develop in the Kutlug-Tepe temple. In the ancient period, the development of this design, complicated by towers attached to the sides of the square, is observed in the Tashkent building of Shashtepa and the later fortress of Deu-kala in Khorezm. The square-in-square design has undergone the same evolutionary path; one of the variations of this is the Gonur-Depe temenos of the Bronze Age. This structure has the shape of a beveled rectangle. In the center of it there is a rectangular structure with towers on its sides. In fact, this follows the same principle of a cross-shaped structure as in the ancient settlement of Mingurik. The development of this design does not end there. By increasing the radius of the towers attached to the sides of the square, in the Chol-Tobe and Kzyl-Kainar-Tobe buildings, a four-petal rosette inscribed in a square was obtained.

Let us consider the evolution of structures based on a combination of a square and a circle, as well as cruciform buildings of the common Indo-Iranian space. These structures are obviously the pre-requisites for the emergence of the cruciform structures of Kangju. Regardless of the functional purpose of such structures, be they settlements, fortifications or temples, their form is determined by worldview ideas. Settlements or temples built on a combination of a circle and a square acted as structures opposing chaos. Therefore, they symbolized, apparently, in the minds of the ancient people, the universe acting as reliable protection. Mamedov (2003), explaining the origin of a square and a circle inscribed in each other, cites Brentjes's words that this is a way of understanding the world of the Indo-Iranian people. According to Mamedov, these contrasting forms probably symbolized heaven and earth, space and chaos, etc.

Cities and Settlements of the Bronze Age

A peculiar cross-shaped structure in the circumference of a ring wall with a central square structure is depicted in the so-called "model from Mari" of the 2nd-3rd millennia BC (Mamedov, 2003). This suggests that the layout based on a combination of a circle and a square was widespread since ancient times. In a later period, a similar layout with a round building and a central square has been embodied in the construction of Deu-Kala in Ancient Khorezm (Lavrov, 1950).

In Margiana, a very interesting cross-shaped structure, the temenos Gonur-1, has been discovered, identified by scientists as a temple (Mamedov, 2003). The central monumental structure in the form of a rectangular courtyard, on the sides of which are rectangular towers, is surrounded by walls that form a slanted rectangle. The towers of the central crosspiece have an intra-tower space with exits to the courtyard. Each corner of the crosspiece is decorated with round turrets. This cross-shaped structure of the temenos Gonur-1 echoes the planning structure of Shashtepa. The principle of organizing the plan with an enclosed space and a central core is an idea that genetically goes back to the most ancient settlements of Central Asia (Fig. 8).

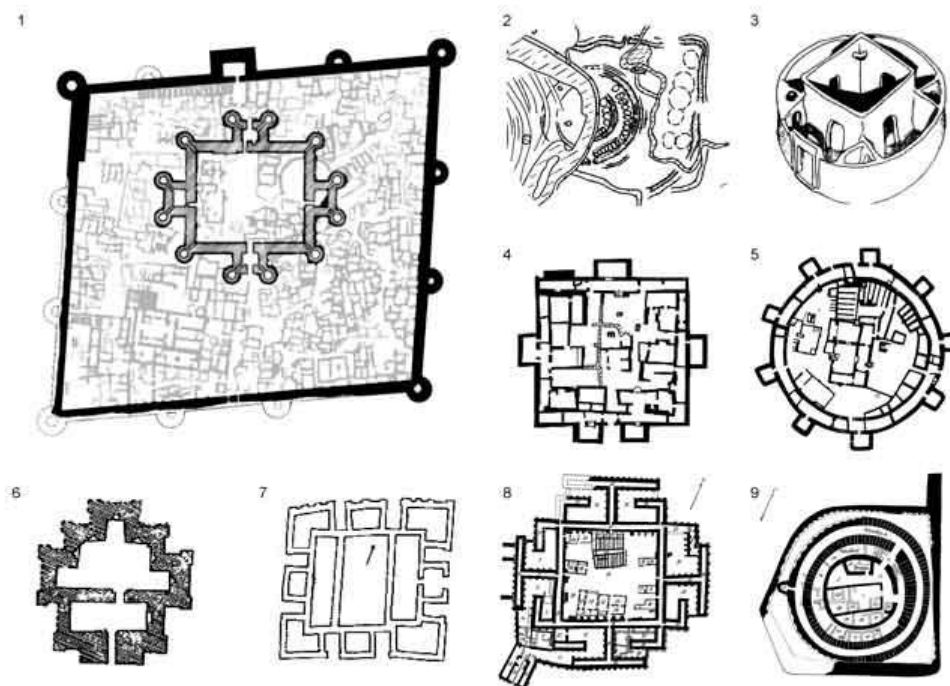


Fig. 8: Cities and settlements of the Bronze Age:

1. Temenos Gonur-1. Source: Sarianidi, 2003; 2. Sintashta. Source: Zdanovich, 2007;
3. Layout from Mari. Source: Mamedov, 2003; 4. Kelleli-4. Source: Mamedov, 2003;
5. Round temple Dashly-3. Source: Sarianidi, 1977; 6. Tepe Nush-i Jan. Source: Roaf, 1973; 7. Tepe Baba-Jan. Source: Mamedov, 2003; 8. Dashly Palace-3. Source: Sarianidi, 1977; 9. Kutlug-Tepe. Source: Sarianidi, 1977

According to Mamedov (2003), another monument from Margiana, Kelleli-4, dating back to the 2nd millennium BC, has a cross-shaped layout and is defined as a residential complex. The square building has a bypass corridor with partitions and rectangular towers attached to its sides. The central courtyard is built up with row houses.

In Bactria, the round temple of Dashly-3 of the 1st-2nd millennia BC is known. The monument is a round settlement with a core of a monumental round structure, taken in a double ring of walls, forming a bypass corridor with exits and nine towers. According to Sarianidi (1977), the courtyard formed in this way is occupied by a central multi-room rectangular building, identified as a cult complex, or a fire temple. Indeed, in the center of the courtyard is a cult building. Sarianidi (1977) notes the cult character of the central monumental structure of Dashly-3, and attaches economic significance to the buildings remote from the core. In his opinion, residents serving the temple, priests or servants lived here. He also notes that this building shows the desire of the inhabitants to fence off the sacred place from the outside world, where the deity lived. In the context of our research on the cross-shaped structures of the middle reaches of the Syr Darya, in particular Shashtepa, it is worth noting the similarity of the round temple of Dashly-3 with the ring wall of Shashtepa. In both cases, the double ring of walls forms a bypass corridor with exits to the towers and the central courtyard.

Sarianidi (1977) notes the unusual plan of another building discovered near the round temple of Dashly-3, which he called the palace-cult building of Dashly-3. It is a cruciform

building with a central square-courtyard and T-shaped walls attached to its sides, which have internal narrow corridors and L-shaped extensions of the same nature at its corners. Sarianidi (1977) thus concludes that the monumental architecture of the buildings under consideration dates back to the Mesopotamian ones.

Settlements of the Southern Trans-Urals of the Sintashta-Arkaim culture of the 2nd- 3rd millennia BC, the so-called "Country of Cities", are well known. In particular, there exists the Arkaim settlement, which is a round settlement with a double ring of walls and a central square. There is also the Sintashta settlement with a round central core and a rectangular rampart of walls along the perimeter, and a large burial mound (Zdanovich, 2007). This suggests that in ancient times, variations of settlements based on a combination of a circle and a square had developed independently.

During the Achaemenid period, the round building of Kutlug-Tepe has been erected in Bactria, which, according to Sarianidi (1977), echoes the round temple of Dashly-3 of the Bronze Age and the ancient temple of Koy-Krylgan-kala. He notes that Kutlug-Tepe fills the chronological gap between these monuments. This genesis clearly shows the development of the idea of a ring structure with a bypass corridor, a central courtyard, where a cult rectangular structure is erected. It is noteworthy that in this building, a single tower is attached to the ring wall. This principle is also observed in the building of Shashtepa, where three towers are attached to the ring wall.

In Iran, there is an interesting cross-shaped building Tepe Nush-i Jan from the 8th-7th century BC, identified as a cult building. According to Roaf and Stronach (1973), the researchers of the study of this monument believe that it was a fire temple. Tepe Nush-i Jan is a cross-shaped building in plan. The principle of its construction can rather be called stepped. Although outwardly, this building is similar to the cross-shaped building of Shashtepa, they are fundamentally different in the internal arrangement of the planning structure. In the case of Tepe Nush-i Jan, it is based on an internal space formed by ledges that can hardly be called towers.

Mamedov (2003) points out that in the West of Iran, there is a monumental structure Baba Jan of the 9th century BC. The rectangular structure, with three parallel rooms, is flanked by rectangular towers on its sides, complemented by corner towers. This suggests that the cross-shaped layout has been widespread in Iran already at the beginning of the 1st millennium BC.

Eastern Aral Sea region

The unique complex of mausoleums of Northern Tagisken of the late Bronze Age, dated to the 8th-9th centuries BC from the Eastern Aral Sea region, have been built on a combination of square and circle. The burial part of these structures has burned in. According to Itina and Yablonsky (2001), this is one of the signs of a burial structure. The authors also include the layout of the Tagisken mausoleums, built on a combination of a square and a circle, in this group. The Pillar pits located in a circle, the orientation of the walls to the cardinal points, and the ring corridor around the burial chamber, connect the Tagisken mausoleums with the Shashtepa monument (Fig. 9).

In the Eastern Aral Sea region, there is another complex of burial structures based on various combinations of circles, squares and crosses. This is the Chirikrabad settlement, dated by scientists to the 2nd - 4th centuries BC. Weinberg and Levina (1993) point out that the mausoleums of Chirikrabad are associated with the mausoleums of Northern Tagisken, noting that the rite changed from cremation to display of corpses. Undoubtedly, these layouts of Chirikrabad may have influenced the cross-shaped structures of Kangju. Round mausoleums with a central square room are consistent with the construction of Shashtepa. One of the round mausoleums of Chirikrabad has an internal cross-shaped layout, and consists of three rooms: one oblong and two small square ones located diagonally. This layout exactly repeats the internal structure of such monuments as Chol-tobe, Kul-tobe (Fig. 9.8).

In Khorezm, in the lower reaches of the Amu Darya, the Koy-Krylgan-kala monument has a cross-shaped structure inscribed in a circle. According to Tolstov (1967), such a layout is the basis of the Saka mausoleums of Tagisken and Chirikrabad. Researchers came to the conclusion that Koy-Krylgan-kala is a large cult structure, where priests and service personnel of the temple lived in the outer ring of the building. At the initial stage, it has been probably associated with the funeral cult. Tolstov (1967) also associates the monument with the astral cult and astronomical observations. He points out that the monument is dated to the 3rd-4th centuries BC. It is worth noting that the central round building of the Koy-Krylgan-kala temple is comparable to the building of Shashtepa. This may indicate the special importance of these buildings.

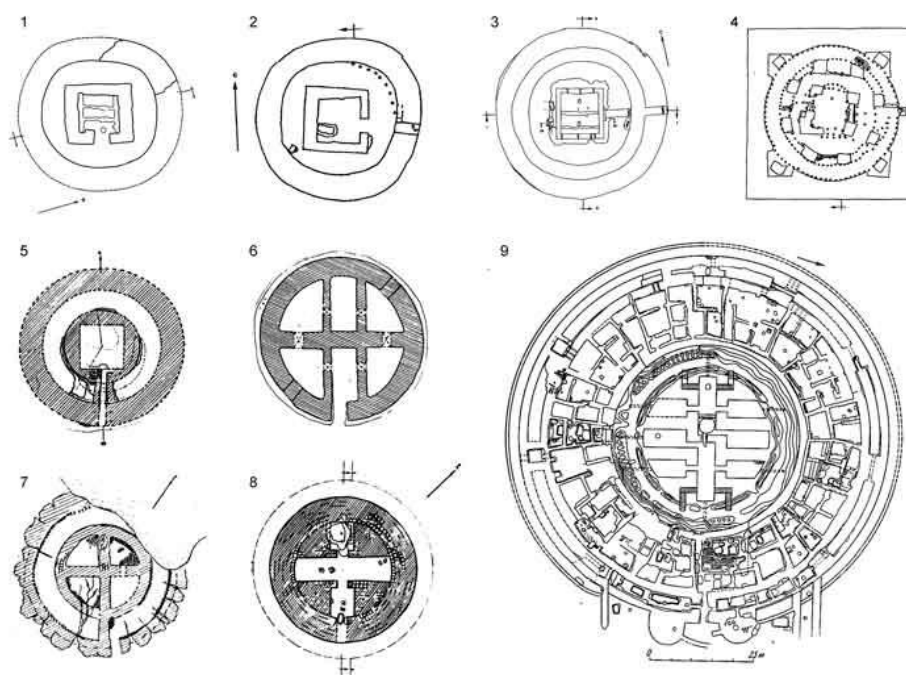


Fig. 9: Eastern Aral Sea region:

1-4. Mausoleums of Northern Tagisken. Source: Itina, 2001; 5-8. Mausoleums of Chirikrabad. Source: Weinberg, 1993; 9. Koy-Krylgan-kala. Source: Tolstov, 1967

Speaking about the origin of the Shashtepa layout in the Tashkent oasis, scientists point to the origin of the tradition of constructing crosses in the Eastern Aral Sea region (the burial ground of Northern Tagisken and the further development of solar layouts in the Chirikrabad culture). This movement is explained by scientists by climate change, the drying up of rivers (Filanovich, 2010). However, examining the construction techniques of the Tagisken and Chirikrabad settlements, Weinberg and Levina (1993) and Filanovich (2010) note the influence of the architecture of Southern civilizations on them.

India: Buddhist architecture

As early as the Vedic period, a set of rules, the Shulba Sutra (5th century BC), appeared in India, intended for the construction of fire altars. These geometric problems of Indian mathematics solve the problem of the interaction of the simplest forms of a square and a circle, in particular the squaring of the circle. Obviously, this knowledge as a whole influenced the development of the cult architecture of Hinduism and Buddhism, which originated in ancient India (Bulatov, 2009). The shape of the cross appears in Hinduism and Buddhism, particularly in the Sanchi monastery complex of the 3rd century BC-12th century AD (Vol. I, VIA, 1971): one of the structures located Southeast of the main stupa has a cross-shaped plan.

More precisely, it has a central square, to the sides of which rectangular projections are attached. The geometry of the Sanchi stupa is based on the interaction of a circle and a square. The hemisphere of the stupa is surrounded by a fence with four exits that form a cross. With the spread of Buddhism to the North, Buddhist monasteries and temples appeared in Central Asia in the first centuries of our era. In the temple complex of Fayaz-tepe of the 1st-3rd centuries AD, the stupa is located outside the complex. It is built on a combination of a circle and a square. In the Buddhist complex of Ajina-tepe of the 6th-8th centuries AD (Litvinsky and Zeimal, 1971), erected at a later period, the cross-shaped base of the stupa has been preserved. It is located in a square courtyard with exits on its four sides (Fig. 10). This planning solution makes the Buddhist complex of Ajina-tepe related to the monuments of Kangju Chol-tobe and Kzyl-Kainar-tobe. In both cases, the central architectural and sculptural structure is located in a square courtyard. This courtyard is enclosed by a double row of walls and flanked by towers on the sides of the square.

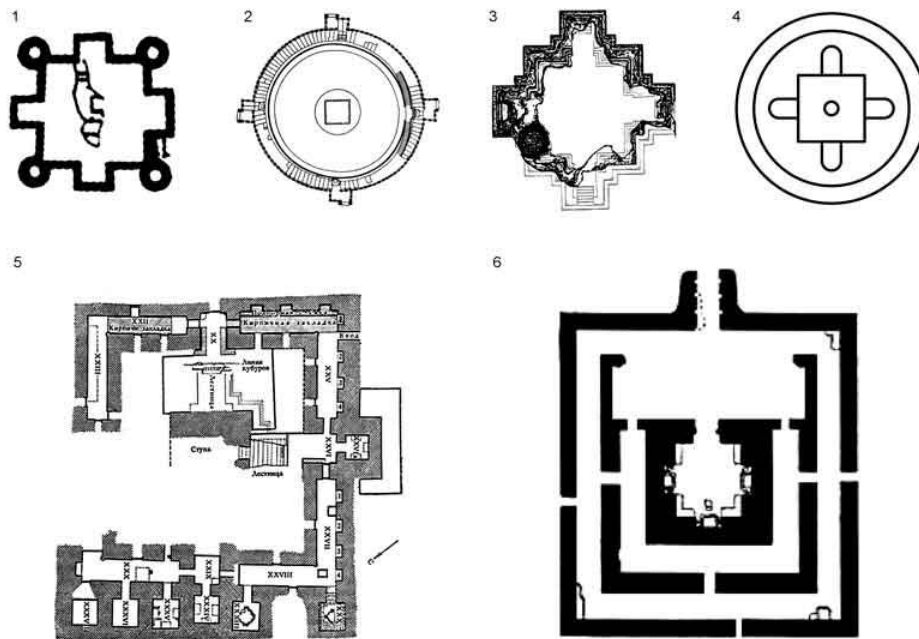


Fig. 10: India and Central Asia. Architecture of Buddhism: 1. Construction of the monastery complex in Sanchi. Source: Vol. I, VIA, 1970; 2. Stupa in Sanchi. Source: Vol. I, VIA, 1970; 3. Model of the stupa from Ajina-tepe. Source: Litvinsky, 1971; 4. Image of the ideal temple of Tibetan Buddhism; 5. Temple part of the Ajina-tepe complex. Source: Litvinsky, 1971; 6. The second temple of Ak-beshim. Source: Zyablin, 1961

During the early Middle Ages, Buddhism began to penetrate Tibet. In Tibetan Buddhism, special images of mandalas appeared, built on a combination of a square and a circle. Of particular interest are mandalas surrounded by a double ring and a central square with petals attached to its sides. Such mandalas are models of an ideal temple, exactly repeating the layout of the Shashtepa temple. It is noteworthy that Tibetan mandalas were depicted as an architectural structure and were taken as a basis for planning temples.

Based on the above, it can be seen that the cross-shaped buildings of Kangju have a long history of origin. The idea of the mandala and the construction of religious buildings based on it have been formed in the common space of the Indo-Iranian cultures. Cross-shaped buildings and structures based on a combination of a circle and a square have been known since ancient times.

Genetically however, the architecture of the cross-shaped buildings of Kangju goes back to the civilizations of Mesopotamia, the Southern historical and cultural regions of Central Asia, the Eastern Aral Sea region, the Southern Trans-Urals, and India. It is thus arguable that

the formation of mandala buildings based on a combination of a circle and a square, has crossed the vast space of Eurasia over thousands of years, and then has been introduced in the architecture of the cross-shaped buildings of Kangju, such as Shashtepa, Mingurik, Kul-tobe, Chol-tobe and others. That is, it became their culmination.

The Cross-shaped Buildings of Shashtepa and Mingurik as Religious Buildings

The cult nature of the cross-shaped buildings of Kangju, in particular the Shashtepa monument, is indicated, first of all, by the original plan, built on the principle of a mandala. Two rings of walls enclose the central square building with towers attached to its sides. This composition refers to the ancient Eastern mandala. Undeniably, such a layout is filled with symbolism. Researchers have long noticed that the buildings of Central Asia, built on a combination of a circle and a square, reflect the ideological concepts of the Indo-Iranians. In earlier works, the author of this paper considered the issue of the symbolism of the Shashtepa building, comparing its plan with a mandala (Nurulin, 2012). The philosophical side of this issue will not be developed here. The article focuses on the architectural features and individual elements of the Shashtepa monument, indicating the cult purpose of the cross-shaped buildings.

The presence of bypass corridors is a sign of a temple building. Apparently, the bypass corridor of the ring wall of the Shashtepa building had a cult character. On the Southern side, at the entrance to the building, three hums (large vessels) have been installed, possibly ritual ones. There is also a bypass corridor in the central square building. It provided access to four attached towers. Later, in this bypass corridor, as archaeologists note, a ritual fire has been lit after the remains of a person have been buried in the temple (Filanovich, 2010).

Bypass corridors around sanctuaries are a frequently used technique in temple architecture. A gallery surrounded the sanctuary of the Zoroastrian temple in the palace of the Parthian kings in Hatra (1st-2nd centuries AD), in the fire temple in Sogd, and in the Achaemenid temple in Susa. Bypass corridors are also found in one of the temples of Penjikent, in the Ak-Beshim temple. There is also a bypass corridor in the Round Temple of Old Nissa. Similar corridors are also typical of Buddhist temples. Obviously, the bypass corridors were of a ritual nature, facilitating the circum-ambulation of the temple servants around the sanctuary. According to Nielsen (1966), the sanctuaries of the Zoroastrian temples of Iran and Khorezm have been surrounded by a bypass corridor to prevent sunlight from penetrating them.

Of particular importance in the entire Shashtepa complex has been the room of the North-eastern tower. This is evidenced by the pylons attached to the opening leading to the room of the tower. It is noteworthy that a small altar has been found in this room, where a fire has been lit. As Filanovich (2010) shows, this room is also painted red like the ring corridor itself. Indeed, all these indicate a cult purpose of the entire structure. It is especially worth mentioning the painting of the walls with red ochre - this had an important cult significance. This technique has been known since ancient times. Stavisky (1966) adds to this when he shows that the walls of the aivan of the Parthian Nisa temple of the 2nd-3rd centuries BC, as well as the burial chambers of the necropolis located near the temple, have been painted red too. Red has also often been used in the Buddhist temples. In ancient times, red symbolized fire, life and the idea of rebirth. It has in fact, been used in the funeral rites. Moreover, the burial mannequins of the Tashtyks, after cremation, have been covered with red silk cloth; the Srubno-Andronovo tribes of the Bronze Age had a custom of adding ochre to the grave (Akishev, 1984).

More reliable information regarding the purpose of the cross-shaped structure can be provided by material evidence found in the rooms of the complex. For example, some of the finds indicate that cults and rituals have been held here. Archaeologists report possible cult libations in room 3 of the central square building of Shashtepa. Here, layers of ash, rotten mats, and white concretions were found above the cobblestone floor, which, according to Filanovich (2010), indicate the cult purpose of this room. The cult nature of the entire complex is indicated by the long-term lighting of a fire in the corridor 8. The fire has been so strong that the plaster has melted in places. In the Mingurik building, it was noted that a fire has been lit at the top of the building. The ash from the fire has been thrown to the foot of the building and each time carefully layered with a layer of clay.

This indicates a ritual associated with fire, the ash from which was sacred. In the room 6 of the Shashtepa monument, human remains were found: a skull and separate bone fragments. According to scientists, at the last stage, the building had become a burial place. The same burial was noted in the Mingurik building (Filanovich, 2010). Obviously, this is the burial of a person who has been directly connected with this cult complex. Perhaps he was a temple minister.

It is also worth noting the special orientation of the Shashtepa building. Its central core, a square building, is oriented with its corners to the cardinal points. Accordingly, the towers attached to the centers of the square are oriented to the Southeast, Southwest, Northeast, and Northwest. A similar orientation of the corners to the cardinal points is also found in the mounds in the form of a truncated pyramid in Semirechye (Alekseevsky burial ground), which have square altars on the upper platform (Akishev, 1984). Probably, such an orientation is associated with ancient Indian and ancient Iranian worldviews about the creation and structure of the world. Thus, in the Avesta, the center of the world is Mount Khara, from which rivers flow, moving through the country of Khvaniriata. These rivers flow into the sea of Voorukasha. The mountain was surrounded by six regions (keshvars). The two main vectors emanating from the center, Arezahi (sunrise) and Savahi (sunset), marked the positions of the two keshvars located in the East and West, respectively. The remaining keshvars were located in the Northwest (Vidadafshu), Northeast (Fradadafshu), Southwest (Vorubareshti), and the Southeast (Vorujareshti) (Karim, 2007).

The surviving arched openings in the Eastern and Southern parts of the ring wall of the Shashtepa structure are oriented towards sunrise and the culmination of the Sun on the day of the vernal equinox. The entrance directly leading to the crosspiece, located in the western part of the structure, seems to "catch" the last rays of the sunset on this day. Two other openings in the ring wall, leading to the supposed towers, are oriented towards the rising of the Moon on the days of the summer and winter solstices. Earlier, this circumstance persuaded the author to assume that the Shashtepa building is an observatory temple (Nurulin, 2012, 2016). This also has practical significance. The time of worship, the beginning of the sowing season and harvest in the country, religious holidays; all required accurate calendars, which were possibly compiled by the priests in such observatory temples.

The cult purpose of the Shashtepa and Mingurik buildings is emphasized by the use of the principles of geometric harmonization by ancient architects in their constructions (Nurulin, 2013). Analysis of the plans of the Shashtepa and Mingurik temples of Ancient Tashkent showed that they are based on the law of "holy section". The construction of the plans of the monuments in question is subordinated to a certain module. Thus, the main square of the Shashtepa temple consists of a 4 x 4 grid, each cell of which is 5 m 30 cm x 5 m 30 cm in size. The main square of the Mingurik temple is a 3 x 3 grid, consisting of cells of the same sizes as on Shashtepa. This not only confirms the interpretation of the archaeologists about the continuity of architectural and construction traditions in Ancient Tashkent, but also probably indicates the use of certain mathematical treatises. This approach resembles the geometric construction of altars from the ancient Indian texts of the Shulba Sutra. With some certainty, we can speak about one problem from the Shulba Sutra, which is applied in two cross-shaped buildings of Kangju. We are talking about Chol-tobe and Kzyl-Kainar-tobe. The author of this paper has established that the cross-shaped plan of these buildings is built by crossing four circles, forming a conventional square in the center. In the Shulba Sutra, this is an elegant solution to the problem of constructing a square from a circle (Price, 2001).

It seems that the fact that the Shashtepa building is quite large in comparison with other Kangju crosses is of no small importance. The diameter of its outer ring is 50 m. If we consider this monument as a cult one, then we can probably assume that this indicates its significance. With such dimensions, Shashtepa is comparable to the cult building of Koy-Krylgan-Kala in Khorezm, as well as to the central cross-shaped building of Temenos Gonur-depe in Margiana. In the Tashkent oasis and nearby areas, cross-shaped monuments have more modest dimensions (Mingurik, Setalak-1, Bilovurtepe, etc.). In ancient times, social hierarchy has been reflected in

the hierarchy of architectural objects, according to the principle: higher-lower and more-less (Akishev, 1984).

It can be seen that a comprehensive approach to the study of the cross-shaped structures of Kangju, in particular Shashtepa and Mingurik, indicates their cult nature. The Shashtepa structure is obviously a temple structure. Although it has large dimensions, the interior spaces are quite modest in size and are not intended for a large number of people to be in them. This means that the Shashtepa temple belongs to the type of an exclusive sacred building, access to which was permitted only to the priests and the clergy, as opposed to an inclusive sanctuary, where a large number of parishioners are implied.

Conclusion

As stated at the very beginning of this paper, there is a problem of interpreting the purpose of the cross-shaped buildings of Kangju. There are two main concepts proposed: cult and fortification. During the study, it was established that there are also secondary versions. They are based on the unification of the first two main concepts. Thus, it should be taken into account that the cross-shaped buildings could also be fortified temples and fortress structures, which are based on the idea of the sacralization of architecture. However, most scientists are inclined to accept the version related to the cult purpose of the cross-shaped buildings of Kangju.

The powerful defensive walls of the ancient buildings of the middle reaches of the Syr Darya mislead scientists who believe that this is a clear sign of a fortified structure. It is obvious that the temple, in those times, was a fortress built according to the ideal model of the universe. In a symbolic sense, the temple was opposed to chaos. In a pragmatic sense, it was a sacred place where relics were kept that needed to be protected. Undeniably, the comprehensive approach to the study of the cruciform structures of Shashtepa and Mingurik indicates their cult nature.

Based on the above, it is concluded that the cross-shaped structures of Kangju, in particular such structures of the Tashkent oasis as Shashtepa and Mingurik and the South of Kazakhstan Ak-tobe 2, Kul-tobe, Chol-tobe, Kzyl-Kainar-tobe are cult. Typologically, they have similar external forms and reflect the idea of the mandala, formed over thousands of years in the common space of Indo-Iranian cultures. The genesis of the cross-shaped structures of Kangju has deep roots. A special geographical position, at the crossroads of ancient civilizations from Iran to India, gave rise to a special type of cross-shaped buildings or mandala-shaped structures of Kangju, being the culmination of the development of such buildings. This indicates deep ties between these regions and the middle reaches of the Syr Darya during the ancient times.

Thus, the cross-shaped structures of Kangju are proposed to be considered as cult structures. However, functionally, they are divided into two types. It seems that some were temples (Shashtepa, Mingurik), and the others were cult architectural and sculptural objects of worship or altars (Kul-tobe, Chol-tobe, Kzyl-Kainar-tobe). This may mean that beyond the Syr Darya River in the state of Kangju, a special type of temple or monastery cities arose, the core of which were sacred buildings: temples, sacred buildings and altars. These structures were characteristic of Kangju. The spread of cross-shaped buildings to the Fergana Valley, the Bukhara oasis indicates the expansion of the Kangju state. The identification of Kangju with the sacred Avestan Kangha, in the context of studying the cross-shaped buildings and identifying them as cult objects, acquires special meaning.

It is posited that the cult life in these temples was complex. The closeness of Avestan ideas and Vedic traditions led to the emergence of a special type of Kangju buildings in the form of a mandala. The buildings of Shashtepa, Mingurik, Chol-tobe, Kzyl-Kainar-tobe reflected the ideas of ancient Indian canons of building altars, in particular, the Shulba Sutra. Probably, individual cross-shaped buildings (Chol-tobe, Kzyl-Kainar-tobe) can be remotely compared with Buddhist stupas, architectural and sculptural sacred buildings based on the idea of a mandala. It is known that at the first stages, stupas had rooms for relics, in which the remains of holy persons were placed. A similar rite is found in some Kangju crosses. The

mandala, formed in the common Indo-Iranian space, in its completed form found its embodiment in India in altars, stupas and temples, and in Kangju - in temples and religious architectural and sculptural buildings.

In general, the article is a valuable contribution to the theory and history of Central Asian architecture. It reflects an important and relevant problem of interpreting the cross-shaped buildings of Kangju. The article is clearly structured and well-illustrated, which makes it easy to follow the course of reasoning. The work provides a deep analysis of the origin of the cross-shaped buildings of Kangju, which allows for a deeper understanding of the processes of the formation of Kangju cities. The study presents several points of view on the problem of interpreting the cross-shaped buildings of Kangju. An integrated approach, as well as the use of a wide range of analogies, leads to more reliable results. This paper provides convincing evidence regarding the cult purpose of the cross-shaped buildings of Kangju.

In conclusion, this article, using two monuments Shashtepa and Mingurik as case studies, reveals the cult purpose of the cross-shaped buildings of Kangju. It is based primarily on a comprehensive approach to these two case studies interpreted based on the symbolism of the planning structure of the cross-shaped layouts. The unusual composition of these buildings reflects the ideological ideas of ancient people and is associated with a certain ritual. The plans of the cross-shaped buildings are made according to a single mandala scheme, known among the Indo-Iranian peoples since ancient times. This is the crux of the argument.

However, the article also has some shortcomings. Some aspects of the topic could have been considered in more detail and supported by a larger number of evidence and interpretations. This would have allowed for a deeper understanding of their relationship. In the concept of the cult purpose of the cross-shaped buildings of Kangju, the problem is revealed using specific examples of Shashtepa and Mingurik. Although the work examines almost all known cross-shaped buildings of Kangju, each of these cross-shaped buildings could have been examined in more detail. This topic can be the subject of a separate work. However, these shortcomings do not undermine its strengths and do not prevent it from being useful for science.

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