

Features of the urban planning concept of the steppe culture in the educational process

Olga Semenyuk, Zhandarbek Malibekuly, Ulkairbek Dyisebayev, Khalil Maslov & Gulnaz Andabayeva

*L.N. Gumilyov Eurasian National University
Astana, Kazakhstan*

ABSTRACT: In the Architectural Faculty of *L.N. Gumilyov Eurasian National University*, Astana, Kazakhstan, students study national traditions in the organisation of the town-planning environment at practical lessons of architectural design. They study cultural and national traditions of architecture formation, local building materials and stylistic techniques in architecture. The study of the ancient urban planning culture of Kazakhstan is important for the training of future specialists in architecture, which needs to instil the ability to distinguish national and regional flavour, create a unique recognisable appearance of the modern city and a comfortable environment for every resident of the city. The article considers the main directions of developing residential, public buildings in the steppe culture, and socio-environmental, urban planning aspects of architecture. Ancient settlements and mounds, fortifications, archaeological excavations serve as objects for studying urban planning concepts of the steppe culture of Kazakhstan. The analysis of architectural objects and their development factors is aimed at improving the quality of design of modern objects in the urban environment.

INTRODUCTION

Since ancient times, there could be distinguished large historical and cultural regions with developed settlements and urban life in Kazakhstan. When studying these areas, archaeologists revealed ancient settlements with mud brick-made palace buildings covered with domed arches. The rapid growth of cities in the territory of present-day Kazakhstan is associated with the development of Turkic states of the Middle Ages. Also, for thousands of years, from antiquity to the late Middle Ages, various groups of people had erected mounds in this area, and this kind of structure had been known from the time of the Neolithic period.

Students study in educational programmes, in architecture diploma courses:

- Historical periods of genesis and development of urban planning culture in the territory of modern Kazakhstan;
- Features of the formation and evolution of the architectural and planning system of historical settlements;
- Basic principles and regularities of architectural and planning development of historical cities of Kazakhstan;
- Features of the architectural and artistic system of historical cities of Kazakhstan.

In each historical period of the development of urban planning culture, in accordance with the laws and principles of its formation, an original architectural and artistic system of settlements with characteristic features was developed, most clearly manifested in the spatial and planning composition, silhouette and, in general, the appearance and image of cities. The aesthetic and artistic direction of the settlements at the stage of their founding was organically linked to the surrounding landscape, which subsequently also determined the originality and harmony of the image and appearance of cities. Until the middle of the 19th century, in the territory of the modern south of Kazakhstan, the architectural and artistic system of settlements was formed mainly under the influence of the culture of Central Asia, which determined their typically Asian appearance, the features of which can be traced in modern Kazakhstan. This historical continuity can be traced in the formation of the modern appearance of Kazakhstan cities. The study of cultural and architectural heritage is important for students, and they learn the traditions of local culture in the process of skills formation, which can motivate them to create architectural and urban planning projects that reflect the characteristics of the region. The natural and climatic features of the territory of modern Kazakhstan and the geographical location in the centre of Eurasia led to the emergence and formation of urban planning culture, various forms of resettlement, typology, architectural and planning structure, and the unique architectural and artistic appearance of cities [1].

ANCIENT MOUNDS IN KAZAKHSTAN

The ancient mounds on the territory of Kazakhstan are a particular feature in the formation of the ancient steppe culture. According to experts, the Tasmolin culture existed on the territory of Central Kazakhstan from the 7th-6th century BC

until the beginning of the present era. It got its name from the tract Tasmata in the Karaganda region. A characteristic feature of this culture are mounds with a *mustache*. At first, they could be found in the central regions of Kazakhstan, but later it turned out that they were widespread all the way to Mongolia. The characteristic feature of burial mounds are two *mustaches* that extend from the central mound to the east; these are stone mounds or mounds of sand. The largest length of the *mustache* of the discovered mounds is 350 m [2].

For example, in the area of the Konyr Aulie cave in the Abai region, a man was buried in such a mound, and horses were buried at the ends of the *mustache*, or a sacrificial fire was lit there. Near the main burial, where most likely that person lies, there are three satellites: two of them are two meters in diameter, and the smallest, located between them - one meter. It can be assumed that they had not only ritual significance, but also were used as an astronomical complex for orientation in space and in time. With the help of sighting lines passing at sunrise from the central mound through the end of one of the *mustaches* and exactly between them, people determined the moment of the summer and winter solstice, and the spring and autumn equinox.

The knowledge of various examples of the Tasmolin culture is very significant, because the people of that culture lived in unity with nature, and observed the starry sky. The mound complex, recently discovered near Semey city, remained intact, untouched by either the robbers of antiquity or modern humans. The diameter of the main mound is 7.5 m, and its height is 0.5 m. The height of the satellite mounds is 0.2 m. The length of the *mustache* is 50 m, and the distance between their ends is 30 m (Figure 1).



Figure 1: Mounds with *mustaches*.

Nearby in the steppe is located a 13th-century mausoleum with a blue dome on the ruins of the city of Orda Bazar. There lies Jochi (Zhoshi) - the eldest son of Genghis Khan and the father of Batu. Ancient paganism was a deeply practical religion, one might even say - applied. In addition, all its rites were somehow associated with the one-year agricultural cycle, so they were strictly bound to specific dates. The pagan temple served as a part-time observatory that tracked these dates. In that sense, the *mustaches* of the mounds could be regarded as a calendar (Figure 2).



Figure 2: Mausoleum of Jochi (Zhoshi) Khan next to mounds with *mustaches* in the steppe.

Even more curious was the discovery of a large funeral complex, which was located about half a kilometre from the mound under study with a *mustache*. Apparently, these burials date back to the same Saka era. There are 27 mounds of various diameters in this complex, and almost all of them were looted in ancient times. Among archaeologists investigating this historical phenomenon, there is now no consensus on the true purpose of the stone ridges, arcing from the main mound. According to one version, *mustaches* are hands that extend to the rising sun. Therefore, they are located on the eastern side. This suggests that the tribes who built these mounds were sun worshippers. According to another version, which was based on experiments, a mound with a *mustache* is not only the grave of the leader or ancestor of the gens, but also an ancient astronomical complex for determining a solar equinox and a solstice - as mentioned above. Mounds with *mustaches* are currently little-studied monuments of the Tasmolin culture. Detailed

archaeological excavations are needed, as well as full-fledged studies of topographers and astronomers. Students during the summer practice take part in archaeological research (Figure 3).



Figure 3: Study of *mustache* mounds of the Tasmola tracts.

INFLUENCE OF THE URBAN PLANNING CONCEPT OF THE STEPPE CULTURE ON THE FORMATION OF MODERN ARCHITECTURE

Regional features in the appearance of settlements in the territory of modern Kazakhstan were determined under the influence of the urban planning concept of the steppe culture. Features of this process:

- They were formed by traditions in the organisation of space (picturesque layout of southern settlements and regular layout of the northeast).
- Using different natural materials (burnt brick in the south and wood in the northeast).
- Ethnic structure of the population, reproducing the usual and established cultural ideas about the forms and style of dwellings, religious buildings (in the Central Asian style of the mosque in the south, and in the Siberian Tatar in the northeast) [3].

An analysis of historical sources gives reason to assert that the beginning of the development of architectural and urban planning culture in the territory of modern Kazakhstan dates from the Bronze Age (18th century BC) and takes place over several millennia. This is reflected in archaeological materials and manuscripts, based on which the main periods and stages of the evolution of urban planning culture can be identified.

The evolution of urban planning culture in the territory of modern Kazakhstan took place during historical periods related with climate changes and natural and geographical features; with the process of settlement by different tribes and peoples; with the change of socio-economic formations, the formation and collapse of state formations. The Western Turkic Khaganate, the Türgesh Khaganate, the Karluk and Karakhanid states, Desht-i-Kipchak (Cumania), Ak Orda, Mogolistan were reflected in the typology, architectural and planning structure and stylistic features of the settlements.

Features of the genesis and development of settlements are:

- In the 1st period (18th century BC - 5th century AD) - the foundation and development of proto-cities and settlements;
- In the 2nd period (6th - beginning of the 15th century) - the era of the Middle Ages associated with the formation of early feudal states, the intensification of trade, transit flows along the Great Silk Road;
- The 3rd period (15th - early 18th century) is characterised by the formation of single large centre cities;
- The 4th period (beginning of the 18th - middle 60s of the 19th century) is associated with the formation in the northeast of fortified cities.

Since the middle of the 19th century, the cities of Kazakhstan have been developing in line with a single urban planning concept based on the principle of regularity and emphasising the façade of streets and squares. Starting from the period of trade and craft cities, the unification of the appearance of cities had been planned. The architectural and artistic system of cities in different historical periods was formed: from typologically and architecturally characteristic elements of monotonous arrays of residential buildings in the south; quarters of settlements in the northeast; of the same type of public structures; with the inclusion of unique, mainly religious, structures - the main silhouette-forming dominants. At the same time, during each period, the principle of placing the main buildings in accordance with functional and hierarchical requirements was preserved.

The reconstruction and analysis of the vertical composition of the settlements showed that the silhouette of historical cities formed in line with the architectural and urban planning traditions of the period of their development. At the same time, the features of the formation of each city determine the variety of silhouette types. Each historical period is characterised by certain architectural and style features of cities. The architecture of the ancient cities of the south until the middle of the 19th century mainly developed in line with the artistic styles characteristic of the local regional architecture and architecture of Central Asia. Considering that the preservation of the architectural and urban planning heritage is one of the leading factors in the formation of the original appearance of modern historical cities, the promising development of settlements should be based on theoretical and practical reconstruction.

In the era of the Karakhanids, mausoleums, mosques, residential apartments, Buddhist temples and monasteries, etc., were built in the steppes and cities of Central Asia. The buildings were constructed of mud bricks and blocks. The roofs were flat, vaulted, domed or hipped. The doorways were made in the form of arches and closed with wooden doors. Monuments of a cult nature near Taraz city testify to the high level of architecture of the Karakhanids. The earliest are the Babaja Khatun mausoleum, built in the 10th-11th century, and the Aisha Bibi mausoleum, the construction of which dates back to the 11th-12th century (Figure 4). A distinctive feature of Karakhanid architecture was the frequent use of burnt bricks. For the design of the outer walls and domes, patterned and glossy brick were used. Ancient architectural monuments located in Kazakhstan, Kyrgyzstan, Xinjiang and Uzbekistan have been preserved from the Karakhanid era.



Figure 4: Babaja Khatun mausoleum and the Aisha Bibi mausoleum (l-r).

The mesmerising spirit of the Middle Ages is also present in the modern appearance of ancient cities. The spiritual capital and the oldest city in Kazakhstan is Turkistan. Currently, the city is experiencing a rebirth, is actively developing and with an increasing number of modern buildings. The first settlement on the site of modern Turkistan appeared more than 1,500 years ago. This is 1,000 years earlier than Christopher Columbus discovered America, and more than 500 years earlier than the founding of Moscow. The ancient settlement was located at the intersection of all caravan routes and over the centuries became the centre of ancient agricultural cultures, the place of preaching activity of the great thinker Khoja Ahmed Yesevi [4].

In the 18th century, the city received the status of the capital of the Kazakh Khanate. Great people of the Kazakh steppe were buried in Turkistan - 20 khans, 8 sultans and 50 bis (noble judges), including the great Kazybek bi. It is a sacred place. Modern buildings and adjacent mausoleums seem to symbolise the closely intertwined reality and legend. More than 170 new modern facilities were built in the city during its reconstruction (Figure 5).



Figure 5: Examples of modern architecture (l-r): hotel; Akimat (government building); drama theatre; museum, tourist complex Karavan Saray and Keruen Saray complex in Turkistan (l-r).

Many projects were implemented by the innovative construction holding BI Group, the southern division of BI Construction and Engineering, including an international hotel Hampton by Hilton Turkistan, a museum of the Turkic world, a museum of khans and bis, a centre *Uly dala eli*, a drama theater, a stadium for seven thousand seats, the Akimat building of the Turkistan region, the *Nur-Sultan* square with a complex of unique fountains and a media centre. More than 57 tourist routes were developed in Turkistan in the direction of ecological, historical, cultural and educational tourism. The project for the reconstruction of the urban planning plan of Turkistan, and projects of new architectural objects for the city were selected on a competitive basis. Teachers and students of the Department of Architecture of *L.N. Gumilyov* Eurasian University, Astana, Kazakhstan, participated in the architectural competition (Figure 6).



Figure 6: Competitive project of a tourist complex for the city of Turkistan, design by Zh. Malibekuly, with the participation of students of the Department of Architecture.

At a new, modern stage in the development of urban planning culture of sovereign Kazakhstan, in addition to the preservation of architectural monuments, the task of forming an innovative architecture of cities arises. The solution to this problem lies in the continuous development and interpretation of regional traditions based on centuries of experience in adapting to natural conditions and preserving the cultural customs of peoples.

EDUCATIONAL PROCESS

Integration of scientific knowledge, technical knowledge and artistic skill is a necessary condition for teaching students of architectural specialties. It depends entirely on the methodology of teaching project activities, focused on the greater performance of each student. These qualities are becoming especially relevant in anticipation of the transition to a new system in education, in conditions of increased rates of development of the Republic of Kazakhstan. When teaching the profession, the development of students' skills of in-depth independent work, the culture of scientific thinking, mastery of methods for obtaining and transforming knowledge is of paramount importance.

In practical classes on architectural design in the activities of students, methods of professional assessment of specific circumstances have been formed, a creative attitude to the task developed, independence in decision-making encouraged. The teacher needs to build training on real-life, on objective facts that are significant for everyone. To teach architectural design, it is important to understand and analyse the historical architectural heritage of the country. Continuity in architecture, appeal to the best examples of national architecture provides a new incentive for the creative development of future architects. The teacher should guide the student in the educational process, helping him/her to acquire a common basis of artistic expression, which develops from observations and experience. With this approach, not only the degree of responsibility of the teacher for the teaching methodology chosen by him/her increases, but also the requirement for the nature of personal mobility and the ability to search for new, sometimes even non-standard and experimental methods of educational design increases.

Conducting Master's classes by experienced architects, involving students in real designs, in creative competitions - this constitutes an innovative basis of training. Urban planning, together with civilisations, experienced its ups and downs, delusions of a socio-utopian nature, hundred-year stagnation, periods of revival. Currently, civilisation is experiencing the most significant and responsible stage of its development, and, accordingly, the development of architecture and urban planning is at the same stage. Today, the following processes cause a sense of anxiety: the thoughtless growth of existing and the emergence of new megacities by exposing the periphery, the disappearance of the original appearance of the centres of historical cities, their transformation into business centres. The architectural composition of the city is the achievement of its internal integrity, expressing the unity of the functional, technical and aesthetic content of the city [5].

The emphasis in the criteria for the quality of students' preparedness should be placed on:

- Competence in a number of intellectual, spatial, technical and interpersonal communication skills;
- Understanding of the historical, socio-cultural and environmental context of cities;
- Understanding of the role and responsibility of urban planners to society.

With the current volume of knowledge, the pace of improvement of technologies and changes in style, the responsibility of the architect, urban planner as the head of scientific and practical developments, have increased significantly. Currently, it is important to develop architectural and urban planning schools in conditions of survival with the maximum approximation to the reality and today's requirements of postgraduate practice while maintaining the identity of these schools [6].

Increasing the level of training of graduates by involving reputable specialists - practitioners and theorists in teaching practical disciplines with the possibility of students practically consolidating their knowledge, scientific work with a teacher - consultant, participation in creative competitions and scientific conferences and self-supporting works, are all of paramount importance. It is necessary that the student is transformed into a motivated person. Without motivation, there is no training. It is necessary that the student have a specific professional vision of the world. Architecture is a kind of sign system, and people constantly read these signs.

The study of architectural monuments on the territory of Kazakhstan, and the application of the knowledge gained from experience, is an important process in learning. The student needs to learn how to solve the paradoxes of combining internal and external space, proportions of spatial elements, connectedness, proportionality and accessibility of all parts of the object. To know how the object works with the environment. To learn how to combine harmoniously and competently structures of different eras when re-building historical areas of a modern city, how to identify stylistic and plastic features in architecture, how to integrate the object into the environment. In the process, when mastering the project language, the student learns to perceive creatively any new information. After that, he/she, with ease, can master any typical project in the design bureau.

CONCLUSIONS

The urban planning culture and architecture of Kazakhstan is a unique phenomenon in world civilisation. It reflects the centuries-old development and interaction of sedentary-agricultural and nomadic cultures, ethnic groups inhabiting the region. They had left their descendants an original architectural and urban planning heritage, the preservation and adaptation of which in the modern realities of growing urbanisation and globalisation is an urgent problem.

The importance of the problem of preservation and subsequent development of architectural and urban planning heritage, the diversity of the initial natural situation and a significant centuries-old path of development of historical settlements of Kazakhstan determine the interest in their evolution, the formation of the spatial structure and architectural and artistic appearance as components of urban planning culture. This is the key to improving the architectural and urban planning educational process - preserving the model of training architects. Knowledge of the town-planning concept of the steppe culture gained by students in the course of training can be used in the future in professional design, in restoration and design activities for preservation of the town-planning heritage of Kazakhstan.

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