UDC 902; GRNTI 03.41.91

M.K.Tuiakbayev [1], **K.M. Zhetibayev** [2✉], **A.U. Altaev** [3]

[1]*Candidate of Historical Sciences, Chief Researcher, "Hazret Sultan" State Historical and Cultural Reserve-Museum. Turkistan, Republic of Kazakhstan.*

[2✉]*Candidate of Historical Sciences, Professor, Khoja Akhmet Yassawi International Kazakh-Turkish University. Turkistan, Republic of Kazakhstan.*

e-mail: kopzhasar.zhetibaev@ayu.edu.kz

[3]*Researcher, "Hazret Sultan" State Historical and Cultural Reserve-Museum. Turkistan, Republic of Kazakhstan*

THE ISSUE OF RESTORING THE FORTRESS WALL OF THE CITY OF TURKISTAN

Abstract. This article comprehensively examines the historical development stages of the city of Turkistan, specifically its medieval and modern fortification structures (fortress walls, gates, and defensive moats). Based on archival maps, drawings, and archaeological excavation results, the authors raise the issues of restoring the four main gates and fortress walls of the Shahristan. Furthermore, the structural features, height, width, materials used, and military-defensive characteristics of the walls are scientifically analyzed, and effective methodologies are proposed for fully enclosing and restoring the surviving historical territory. It is emphasized that this initiative must be implemented in accordance with UNESCO requirements.

Keywords: Fortress wall, medieval city, fortification structure, archaeological excavation, defensive moats, gate, tower.

ТҮРКІСТАН ҚАЛАСЫНЫҢ ҚАМАЛ ҚАБЫРҒАСЫН ҚАЛПЫНА КЕЛТІРУ МӘСЕЛЕСІ

Аңдатпа. Бұл мақалада Түркістан қаласының тарихи даму кезеңдері, атап айтқанда, оның ортағасырлық және жаңа дәуірдегі фортификациялық құрылыстары (қамал қабырғалары, қақпалары мен қорғаныс орлары) кешенді түрде қарастырылады. Мұрағаттық карталарға, сызбаларға және археологиялық қазба жұмыстарының нәтижелеріне сүйене отырып, авторлар Шахристанның төрт негізгі қақпасы мен қамал қабырғаларын қалпына келтіру мәселелерін көтереді. Сонымен қатар, қабырғалардың құрылымдық ерекшеліктері, биіктігі, ені, қолданылған материалдары мен әскери-қорғаныстық сипаттамалары ғылыми тұрғыдан талданып, сақталған тарихи аумақты толық қоршау мен қалпына келтірудің тиімді әдістемелері ұсынылады. Бұл бастаманың ЮНЕСКО (UNESCO) талаптарына сәйкес жүзеге асырылуы тиіс екендігі баса айтылады.

Кілт сөздер: Қамал қабырғасы, ортағасырлық қала, фортификациялық құрылыс, археологиялық қазба, қорғаныс орлары, қақпа, мұнара.

ПРОБЛЕМА ВОССТАНОВЛЕНИЯ КРЕПОСТНОЙ СТЕНЫ ГОРОДА ТУРКЕСТАН

Аннотация.В данной статье комплексно рассматриваются этапы исторического развития города Туркестан, в частности его средневековые и фортификационные сооружения нового времени (крепостные стены, ворота и оборонительные рвы). На основе архивных карт, чертежей и результатов археологических раскопок авторы поднимают вопросы восстановления четырех главных ворот и крепостных стен Шахристана. Кроме того, научно анализируются конструктивные особенности, высота, ширина, использованные материалы и военно-оборонительные характеристики стен, а также предлагаются эффективные методики

полного ограждения и восстановления сохранившейся исторической территории. Подчеркивается, что данная инициатива должна быть реализована в соответствии с требованиями ЮНЕСКО.

Ключевые слова: Крепостная стена, средневековый город, фортификационное сооружение, археологические раскопки, оборонительные рвы, ворота, башня.

Introduction

Between 2008 and 2011, archaeologists M.K. Tuyakbayev, T. Oserov, and K. Musabayev from the "Azret Sultan" Reserve-Museum conducted archaeological excavations at the exact historical locations of the Shahristan's gates: Musalla (located opposite the Mausoleum), Takia (located opposite the Jewish cemetery), Zheti Ata (located opposite the former prison garden), and Darbaza (located opposite the Esim Khan square), uncovering and proving their foundations.

The precise locations of all these gates were recorded in two detailed maps of the city surveyed with specialized instruments (*plane table and alidade*) by Russian military cartographers in 1864. In addition, on the newly surveyed map of the city from 1875, all gates along with 18 towers (8 of which are gate towers) were recorded and preserved in the archives. Maps surveyed between 1864, 1890, and 1910 have also been preserved.

These and other maps, diagrams, plans, and documents were retrieved from the Russian Military Archive between 1969 and 1979 by B.T. Tuyakbayeva and A.N. Proskurin, who headed the Turkistan Restoration Workshop at that time. Along with these, photographs (from 1890 onwards) and lithographic prints (made on the basis of photographs, from 1865 onwards) of Turkistan were collected from the archives of Russia and Uzbekistan.

Furthermore, lithographs and photographs published in annual periodicals such as *Turkestanskiye Vedomosti*, *Zhivopisnaya Rossiya*, and many other collections published by the "Turkistan Circle of Archaeology Amateurs" (Tashkent) were compiled.

Between 1864 and 1880, as technology for directly printing photographs into books did not exist, photographs were converted into lithographic (graphic) drawings for printing. Utilizing these, based on the lithographic images of the Darbaza and Takia gates, the 1910 photograph of the Zheti Ata gate, and the cartographic document and archaeological excavation results of the Musalla gate, we drew the plans, provided precise graphic drawings, cross-sections, and dimensions, and submitted them to the "Kazrestavraciya" enterprise. Their specialists developed computer projects, calculated materials and costs, and the "Turkestan Restoration" branch reconstructed them. Today, all four of these gates have been fully restored.

While strongly supporting the full restoration of the fortress wall connecting these gates, we propose effective methodologies for solving various issues, such as their overall length, height, wall thickness, construction materials, period of construction, and other parameters.

Research Materials and Methods

First, let us review the available materials. The earliest document is a map (diagram) drawn in the late 17th – early 18th century. Known in science as the "Messerschmidt Map" (Figure 1), there are records that it was drawn during the reign of Tauke Khan by a Polish artist-cartographer based on descriptions provided by Kazakh ambassadors visiting the Russian military embassy in Siberia. Apparently, that cartographer had never visited Central Asian countries or cities. Therefore, he depicted the city gates in the form of tall towers similar to Kremlin gates, and the Mausoleum in the image of a Christian chapel, presumably explaining it as a "Muslim church".

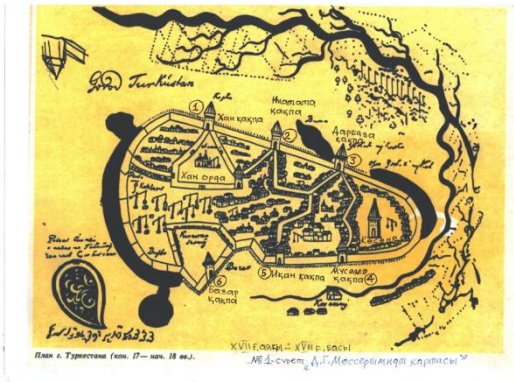


Figure 1. *Late 17th – Early 18th Century. "D.G. Messerschmidt Map" / Plan of the City of Turkestan (Late 17th – Early 18th Centuries)*

In the western part of the city, a triangular area with a rampart and two gates labeled "Khan's place" (*hanovo mesto*) stands out. Here, museum archaeologists conducted excavations between 2008 and 2014, uncovering and proving the structures of the Khan's headquarters belonging to the periods of Tauke Khan (1680–1715) and Abilmambet Khan (1739–1770).

Additionally, in the southern part of the city, between the Bazar and Ikan gates, an indented area labeled "Bazar" was excavated between 2019 and 2023. Excavations revealed a trapezoidal medieval market surrounded by shops, with two large entrance doors and awnings over the shop fronts—known in medieval cities as a *tim* or *chorsu* ("four-cornered market"), designed primarily for operation during winter months.

This diagram clearly depicts Old Turkistan as formed between the 14th and 18th centuries. This historical stage of the city is preserved in modern urban topography as an elongated mound elevated 2 meters above its surroundings (visible on the 1951 plan and the 1970 topoplan), where streets survive only in the form of ditches. Nevertheless, the core area of the city is defined as 36 hectares; adding the 52.7 hectares annexed in the 1840s brings the total to 88.7 hectares. Of this, 50.7 hectares remain preserved and accessible for archaeological research (Figure 2).

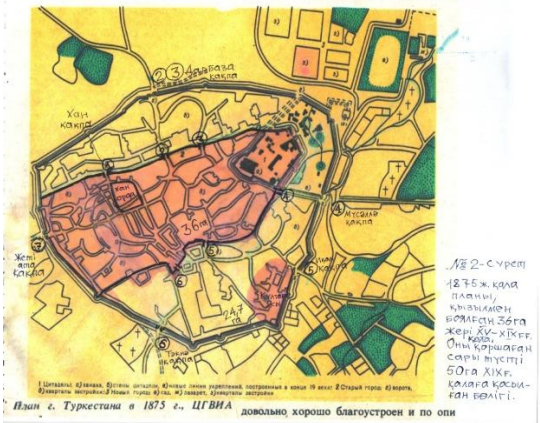


Figure 2. *City Plan of 1875 / Plan of the City of Turkestan in 1875 (CSMHA - Central State Military Historical Archive)*

The 1864 plan-map of the city is repeated in 1875, differing only in the structures built by the Tsarist army in the citadel and its eastern side over the intervening 11 years. Photographs taken from Kultobe confirm that in the 1860s–1880s, the fortress wall surrounding the inner 36-hectare portion of the city was still intact (Figure 3).

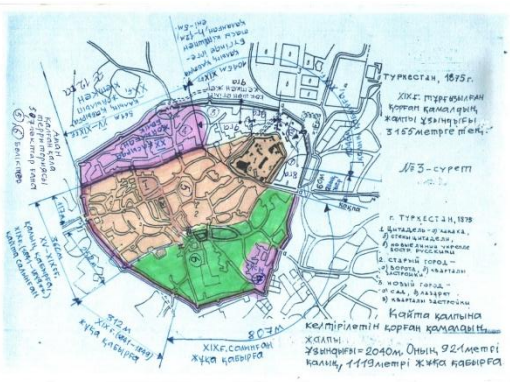


Figure 3. *Map of restorable fortress wall sections and 50.7 ha preserved territory*

Results and Discussion

Architectural and Technical Characteristics of the Fortress Walls

The 1864 city plan provides cross-sectional views of the fortress walls along line "No. 1b". A line drawn from the base of the eastern tower (on the *peshtak*) of the Mausoleum turns sharply north after 32 meters, intersects the citadel wall at 40 meters, turns northeast after another 40 meters, and intersects the city fortress wall 208 meters further along this line ("Section No. 1b"). This straight line captures the cross-section of the walls and the water-filled moats outside them (Figure 4, 5).



Figure 4. *Plan of the Fortress of Turkestan (1864)*



Figure 5. *Cross-section profile along line No. 1b*

Using the height of the Mausoleum's eastern facade (15.39 m) as a baseline:

The top of the citadel wall merlons lies **2.7 m lower** than the Mausoleum, while the bottom of its outer moat is **14.4 m lower**.

The city fortress wall lies **9.4 m lower** than the Mausoleum, and the bottom of its moat is **18.3 m lower**.

Wall Dimensions:

Citadel Wall: Height – 6.5 m; base width – 5.3 m; walk-way (*barbet*) height from ground – 5 m (width – 1.8 m); height from outer moat edge – 8 m. Water-filled moat depth – 5 m; bank width – 8 m. Although the wall was solid, previous experience shows that constructing the northern and southeastern walls of the citadel with a hollow interior forming a longitudinal corridor is much

more effective—economically, for security, and as a utility space for museum storage or archaeological bases (as the dry interior prevents moisture penetration) (Figure 6).

Thick City Wall (Type II): Total length – 921 meters(Figure 6).

Thin City Wall (Type III): Total length – 1,119 meters (surrounding the southwestern area annexed in the 19th century). Subtracting the 100-meter segment already built from the Musalla gate leaves 1,019 meters to be reconstructed(Figure 6).

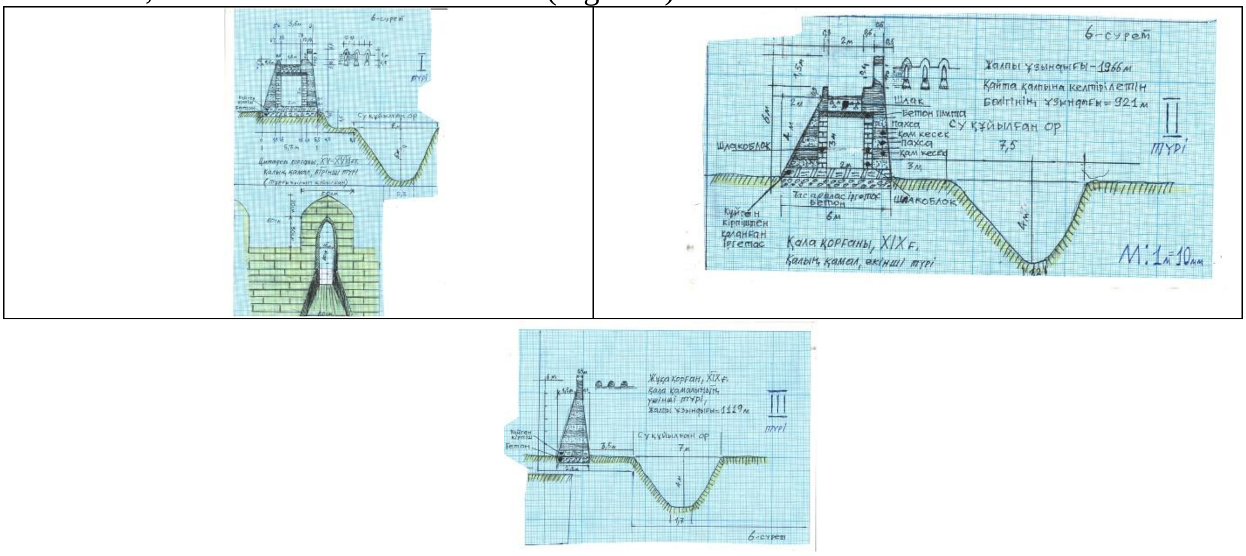


Figure 6. *Type I Citadel wall profile with moat and battlement embrasure detail*
Type II Thick city wall cross-section with internal gallery
Type III Thin city wall cross-section

Work reports by Ruslan Sherbayev (2021–2022 excavations) show that the upper 3-meter portion of these walls was demolished in the late 1860s, and the remaining lower portion was used as a load-bearing wall to attach residential houses on both sides. The surviving 3-meter-high rampart has a width of only 1.2 m at the top, widening downward to 2.5 m.

During the 2009–2010 excavation of the Takia gate, a 2.5-meter-high fragment surviving since the 19th century was found 10 meters northwest of the gate. Its structure consists of alternating layers: half a meter of rammed earth (*pakhsa*) topped with 30–40 cm of sun-dried mud bricks (*kesek*). The dry mud bricks absorb moisture from the wet *pakhsa* layer during construction, accelerating drying, saving time, reducing brick usage, and ensuring a strong bond. Furthermore, straw in the *pakhsa* makes it sturdier than bricks and holds plaster well. This ancient technique was used as early as the 5th–8th centuries at the Sidak Ata settlement.

Technical Specifications for Reconstruction:

Thin Wall (Type III): Base width – 2.5 m; top width – 0.5 m; height – 6 m. Rises from the outer base at an 85° angle up to 5 meters, then vertically at 90°. Rises from the inner base at a 73° angle up to 5 meters, then vertically.

Thick Wall (Type II): Outer face rises at an 85° angle to a height of 4.5 meters, then vertically for 1.5 meters. Inner face rises at a 65° angle to a 4-meter-high, 2-meter-wide *barbet* for guards.

Internal Corridor & Base: A 2-meter-wide, 3-meter-high internal corridor constructed of cinder blocks is covered with 3-meter concrete slabs, waterproof membrane, 0.6 m slag layer, concrete screed, and flat flagstones (*rvanyi kamen*), sloped inward for rainwater drainage. The wall rests on a 0.5-meter reinforced concrete foundation topped with a 0.5-meter baked brick base to prevent dampness.

Moats: Reconstructing the deep moats is impossible, as only two historical segments survive: 561 meters on the northwest side (built in the 15th century) and 360 meters from the southwest to

the south corner. The remaining sections were re-excavated along old riverbeds during the 1969 flood and have since turned into streets.

Status of Destroyed and Preserved Territories

The destroyed portion of the medieval city covers approximately 37.5–38 hectares:

Northwestern area around Darbaza Gate (~12 ha): Leveled in the 1950s–1960s for a mechanization school, driving range, and educational buildings; converted to a vocational school in the 1970s; housed History and Law faculties of IKTU in the 1990s.

Eastern area (~9–10 ha): Developed with the "Yassy" hotel; a 2-meter cultural layer was leveled down to the Mausoleum for roads and fountains.

Eastern area opposite the Citadel: Developed with Tsarist barracks (now the "History of Turkistan" Museum), a textile factory, police department, sobering-up station, and parking lot.



Figure 7. *City plan of Turkistan in 1951*

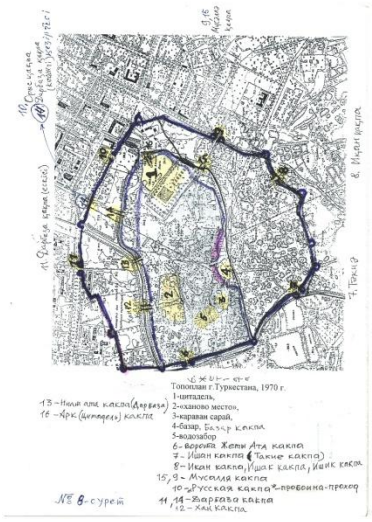


Figure 8. *Topoplan of Turkistan in 1970*

Southeastern area ("Jewish Sloboda" / *Zhoyt Rasta*): Settled from 1785–1815 and 1864–1910 with Jewish shops, homes, and a synagogue; later housed a music school and dental clinic.

Subtracting these 37–38 hectares leaves **50 hectares** of preserved medieval city territory, which must be strictly protected and preserved (Figure 7, 8).

Battlements, Loop-holes, and Tower Spacing

On thick walls (Types I & II), a 1–1.5 m high outer parapet (0.5 m thick) is built with battlements/merlons measuring 0.5 m in height, width, thickness, and spacing. Loop-holes (*embrasures*) inside each merlon measure 15 cm wide and 60 cm high, widening outward to 25 cm to expand the field of view and firing angles. Below, a chute widens down to 50 cm with sloped sides to observe and engage enemies scaling the wall. For tourist safety, a 0.5 m high, 0.3 m wide curb should be added along the inner edge of the *barbet*.

Towers should be placed every **50 to 100 meters**, corresponding to the effective lethal range of an arrow ("arrow killing power" ≤ 50 m). Spacing towers 120–150 meters apart creates a 20–50 meter "safety zone" where arrow velocity drops drastically.

The 17th–18th-century map shows 6 city gates (12 towers) plus towers at corners. The 18th-century Kokand-era fortress had 18 towers (8 flanking the 4 gates, plus 10 military towers).

Conclusion

The surviving 50-hectare territory of the city fortress wall must be thoroughly researched and reconstructed. All restoration and reconstruction works should be carried out in consultation and agreement with **UNESCO** standards and guidelines.

REFERENCES

Artykbaev Zh. O. (2026). Qazaqtyñ dästürli qala mädenieti jäne qazırgı urbanizatsia mäseleleri [Traditional Kazakh Urban Culture and Issues of Modern Urbanization]. In *«Syrdaria öñırınıñ arkheologialyq mūrasy: zertteuler men nätiijeler» khalyqaralyq ğylymi-praktikalyq konferentsia materialdary* [Materials of the International Scientific and Practical Conference "Archaeological Heritage of the Syr Darya Region: Research and Results"] (pp. 11–18). Turkistan. (In Kazakh).

Dinasheva L. S. (2026). XIX ğasyrdyñ ekınshı jartysyndağy Türkıstan qalasynyñ äleumettık qūrylymy: dästürlı mahallä jüyesı men resmi kvartaldyq bölınıs [Social Structure of the City of Turkestan in the Second Half of the 19th Century: Traditional Mahalla System and Official Quarter Division]. In *«Syrdaria öñırınıñ arkheologialyq mūrasy: zertteuler men nätiijeler» khalyqaralyq ğylymi-praktikalyq konferentsia materialdary* [Materials of the International Scientific and Practical Conference "Archaeological Heritage of the Syr Darya Region: Research and Results"] (pp. 170–176). Turkistan. (In Kazakh).

Faizulla G. F. (2026). Orta ğasyrdağy qala mädenieti jäne jazba ädebiettegı «qala» kontseptısı [Medieval Urban Culture and the Concept of "City" in Written Literature]. In *«Syrdaria öñırınıñ arkheologialyq mūrasy: zertteuler men nätiijeler» khalyqaralyq ğylymi-praktikalyq konferentsia materialdary* [Materials of the International Scientific and Practical Conference "Archaeological Heritage of the Syr Darya Region: Research and Results"] (pp. 165–167). Turkistan. (In Kazakh).

Oñalbayqyzy R. (2026). Orta Asiadaghy ortaghasyrlyq qala maedenietının korınısı [Manifestation of Medieval Urban Culture in Central Asia]. In *«Syrdaria öñırınıñ arkheologialyq mūrasy: zertteuler men nätiijeler» khalyqaralyq ğylymi-praktikalyq konferentsia materialdary* [Materials of the International Scientific and Practical Conference "Archaeological Heritage of the Syr Darya Region: Research and Results"] (pp. 177–183). Turkistan. (In Kazakh).

Pirgulieva G. F. (2026). Krepostnye steny, kreposti i gorod Shabran na zapadnykh beregakh Kaspiiskogo morya: istoricheskoe nasledie Velikogo Shelkovogo puti [Fortress Walls, Fortresses and the City of Shabran on the Western Shores of the Caspian Sea: Historical Heritage of the Great Silk Road]. In *Materialy mezhdunarodnoi nauchno-prakticheskoi konferentsii «Arkheologicheskoe nasledie Syrdar'inskogo regiona: issledovaniya i rezul'taty»* [Materials of the International Scientific and Practical Conference "Archaeological Heritage of the Syr Darya Region: Research and Results"] (pp. 26–33). Turkistan. (In Russian).

Plan g. Turkestana (kon. XVII – nach. XVIII vv.) [Plan of the City of Turkestan (Late 17th – Early 18th Centuries)]. (1994). In *Svod pamyatnikov istorii i kul'tury Kazakhstana. Yuzhno-Kazakhstanskaya oblast'* [Corpus of Historical and Cultural Monuments of Kazakhstan. South Kazakhstan Region] (p. 31). Almaty. (In Russian).

Plan g. Turkestana v 1875 g., TsGVIA [Plan of the City of Turkestan in 1875, Central State Military Historical Archive]. (1994). In *Svod pamyatnikov istorii i kul'tury Kazakhstana. Yuzhno-Kazakhstanskaya oblast'* [Corpus of Historical and Cultural Monuments of Kazakhstan. South Kazakhstan Region] (p. 266). Almaty. (In Russian).

Smaghūlov E., & Tūyaqbaev M. (1998). *Türkıstannyñ ortaghasyrlyq tarikhy* [Medieval History of Turkestan]. Turkistan. pp. 33–39. (In Kazakh).

Türkıstannyñ orys äskeri kartograftary tüsırgen plandary: «Plan' Kreposti Turkestana s' pokazaniem' osadnykh' rabot' s' 9-go po 19-go iyunya 1864 g.», Türkıstan qalasynyñ 1951 jäne 1970 jyllardaghy plany men topoplany [Plans of Turkestan Drawn by Russian Military Cartographers: "Plan of the Fortress of Turkestan Showing Siege Operations from June 9 to June 19, 1864", Plan and Topoplan of Turkestan in 1951 and 1970]. (n.d.). In *«Äzıret Sūltan» memlekettık tarihi-mädeni qoryq-muzeii, «Eskertkıshterdı qorğau jäne eseptke alu» bölımınıñ jeke arkhivi* [Personal Archive of the Department of Protection and Accounting of Monuments of the "Hazret Sultan" State Historical and Cultural Reserve-Museum] (Figs. 4–5, 7–8). (In Kazakh/Russian).

Zalivinskaya E. D. (2026). Sooruzheniya dlya torgovli na Vostoke i v Zolotoi Orde [Structures for Trade in the East and in the Golden Horde]. In *Materialy mezhdunarodnoi nauchno-prakticheskoi konferentsii «Arkheologicheskoe nasledie Syrdar'inskogo regiona: issledovaniya i rezul'taty»* [Materials of the International Scientific and Practical Conference "Archaeological Heritage of the Syr Darya Region: Research and Results"] (pp. 26–33). Turkistan. (In Russian).

Авторлар туралы мәлімет:

Тұяқбаев Марат *– тарих ғылымдарының кандидаты, «Әзірет Сұлтан» Ұлттық тарихи-мәдени музей-қорығының бас ғылыми қызметкері. Қазақстан Республикасы, Түркістан қаласы.*

Жетібаев Көпжасар *– тарих ғылымдарының кандидаты, профессор, Қожа Ахмет Ясауи атындағы Халықаралық қазақ-түрік университетінің профессоры. Қазақстан Республикасы, Түркістан қаласы. e-mail: kopzhasar.zhetibaev@ayu.edu.kz*

Алтаев Әділхан *– «Әзірет Сұлтан» Ұлттық тарихи-мәдени музей-қорығының ғылыми қызметкері. Қазақстан Республикасы, Түркістан қаласы.*

About the Authors:

Marat Tuyakbayev *– Candidate of Historical Sciences, Chief Researcher, "Hazret Sultan" State Historical and Cultural Reserve-Museum. Turkistan, Republic of Kazakhstan.*

Kopzhasar Zhetibayev *– Candidate of Historical Sciences, Professor, Khoja Akhmet Yassawi International Kazakh-Turkish University. Turkistan, Republic of Kazakhstan. e-mail: kopzhasar.zhetibaev@ayu.edu.kz*

Adilkhan Altayev *– Researcher, "Hazret Sultan" State Historical and Cultural Reserve-Museum. Turkistan, Republic of Kazakhstan.*

Сведения об авторах:

Туякбаев Марат *– кандидат исторических наук, главный научный сотрудник Государственного историко-культурного заповедника-музея «Азрет Султан». Республика Казахстан, г. Туркестан.*

Жетибаев Копжасар *– кандидат исторических наук, профессор Международного казахско-турецкого университета имени Ходжи Ахмеда Ясави. Республика Казахстан, г. Туркестан. e-mail: kopzhasar.zhetibaev@ayu.edu.kz*

Алтаев Адилхан *– научный сотрудник Государственного историко-культурного заповедника-музея «Азрет Султан». Республика Казахстан, г. Туркестан.*