



THE ARCHITECTURE OF THE LOST MAUSOLEUM OF NUR AL-DIN BASIR IN SAMARKAND: HISTORY OF ITS CONSTRUCTION AND DESTRUCTION, DIGITAL RECONSTRUCTION OF THE MONUMENT

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Abstract

The architectural and electronic reconstruction of the mausoleum of Sheikh Nur al-Din Basir (d.1249) destroyed in the late nineteenth century in Samarkand and an important Temurid monument is included in this essay. The study is interdisciplinary following the integration of the archival research, architectural drawing, cartography, and up-to-date geodetic research as the scientific basis of a 3D reconstruction of the mausoleum and its historical landscape. In addition to the reconstruction of the architectural image of the monument, the study showcases how it would fit in the urban fabric of Temurid Samarkand and how it would be incorporated in the fortified citadel of Amir Temur. The reconstruction has also shown the relevance of digital technologies in conservation of heritage, history of urban planning and marketing cultural tourism. Connecting the studies of architectural heritage to the modern techniques of planning and built environment, this paper will give a new understanding of how digital reconstructions may be used as the means of both academic study and sustainable management of cultural heritage.

Keywords: heritage conservation, architectural reconstruction, Samarkand, Temurid architecture, cultural tourism, urban planning

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INTRODUCTION

Sufism (at-Tasawwuf), a mystical and philosophical movement within Islam, began to acquire particular influence in Central Asia. In the 12th century, Sufi brotherhoods such as the Yasawiyya, Kubrawiyya, and Naqshbandiyya emerged in the region, later becoming the three principal Sufi orders of Central Asia. They established strong spiritual and social bonds, and the burial sites of Sufi masters became places of veneration (Zarcone, 2020). Within this context, the construction of mausoleums for revered saints and Sufi sheikhs gained increasing importance, serving not only as sites of pilgrimage but also as focal points of community identity (Salikuddin, 2018). For the training and ritual practice of the Sufis (murids), under the guidance and supervision of a mentor (sheikh, pir, murshid), there were necessary abodes, originally called khanaqahs, which contained ritual halls. These abodes were formed near the khanaqah, in which the revered Sufi used to live, or at the pre-existing grave of the saint. In them, the mausoleum of the saint, the ritual hall-khanaqah, the mosque, the living quarters (hujras) of the preceptor and the disciples (murids), cells for the temporary stay of pilgrims, spaces for household and domestic needs, kitchens, etc. were gradually built around a shady courtyard with a water reservoir (Trimingham, 1971).

The ruler of a vast empire in Central Asia, Amir Temur (1336–1405), who had been a disciple (murid) of several Sufi sheikhs during the early years of his reign, ordered the construction of several modest mausoleums in accordance with local traditions. At the turn of the 14th–15th centuries, Temur began to introduce bold innovative ideas, requiring his court architects to erect larger, and often monumental buildings (McChesney, 2021). During his reign, many significant ancient Sufi complexes of Central Asia were restored or reconstructed. The desire of this powerful ruler to commemorate revered Sufi sheikhs by erecting monumental mausoleums over their graves transformed the course of development of memorial and cultic complexes within his realm. The architecture of the mausoleums, which, along with Sufi khanaqahs, were the main components of such complexes, also underwent a significant evolution during the reign of Amir Temur.

The mausoleum of Nur al-Din Basir is a rare and significant example of sacral architecture of the 14th century, closely connected with the formation of the Temurid building tradition (Figure 1). Its loss in 1880 actually erased a key element of the spiritual heritage from the urban landscape of the Temurid capital of Samarkand. The virtual reconstruction of this monument is of great importance not only for the history of Central Asian architecture, but also for the better understanding of the processes of urban development of Samarkand during the reign of Amir Temur. The reconstruction of this lost mausoleum, based on an interdisciplinary approach, makes it possible to expand our understanding of

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religious structures from the early Temurid period and to restore a missing link in the evolution of mausoleum architecture and the historical topography of the city.



Figure 1: *The Mausoleum of Sheikh Nur al-Din Basir before its destruction, c. 1870s. General view from the south. Source: Turkestan Album, Library of Congress (USA).*

LITERATURE REVIEW

Digital technologies have emerged in the last few decades as a significant instrument of the recording, analysis, and reconstruction of architectural heritage. The intensive growth of 3D modelling, laser scanning, and virtual visualization has contributed greatly to the expanding opportunities in the study of monuments that are partially preserved or even lost altogether. Recent studies are giving more and more attention to the use of these technologies, as well as the creation of integrated methodological frameworks of digital reconstruction.

Among the most common techniques of heritage study is 3D laser scanning, although which the researcher can acquire very precise spatial information of architectural objects. Research indicates that laser scanning is capable of producing point clouds and digital mesh models which are accurate replications of the geometry and shape of historical monuments. Within the framework of Temurid architecture in Central Asia, Milosz, Kesik, and

Montusiewicz (Milosz et al., 2021) worked out a method of scanning large architectural complexes in real conditions, when the number of tourists is great, and the practical issues of information collection are emphasized. The approach to methodology developed further with subsequent studies of the Juma Mosque in Khiva where the use of high-resolution 3D scanning documented intricate interior geometry and generated detailed digital models to be analyzed as architecture (Milosz et al., 2024).

Recent studies also focus on the significance of 3D modelling as an interpretation and reconstruction tool, in addition to information gathering. According to Tokoeva and Kozhonazarova (Tokoeva et al., 2025), computer modelling and virtual reconstruction are the interdisciplinary techniques that unite architecture, cultural studies, and information technologies. Such methods seem to be especially applied in monuments that are either partially or totally lost because they allow re-creating architectural forms, relying on historical records and comparison. Romanova and Poluboyarova (Romanova & Poluboyarova, 2021) (Tokoeva et al., 2025) describe similar methodological principles and suggest a model of virtual reconstruction based on the combination of archival sources, archaeological information, and the techniques of digital modelling.

A different prominent area of research in the modern world is the creation of integrated digital workflows that can be composed of several technologies. The research conducted by Campana et al. (Campana et al., 2025) and Tokarski et al. (Tokarski et al., 2025) shows that the adoption of terrestrial laser scanning (TLS), photogrammetry, and mesh modelling can be used to produce highly precise and visually detailed digital models of architectural heritage. Such techniques are especially significant in recording sites that are inaccessible or endangered so that they can be analyzed scientifically as well as be disseminated virtually. Moreover, the archaeological site of Nisa is one of the studies that suggest the possibility of integrating laser scanning and mobile mapping systems with SLAM technologies to create a comprehensive 3D documentation and enhance digital models into practical and visual forms, including 3D printing and video mapping (Kong, 2025; Spano et al., 2025).

Digital technologies have been particularly important in reconstruction of monuments that had been destroyed. As an example, the research on the Bamiyan Buddha statues enables showing that 3D models can actually assist in studying the fragmented remains and can be used as the foundation to judge the situation of restoration (Toubekis et al., 2017). Likewise, virtual reconstruction projects in Central Asia, including the reconstruction of the ancient city of Karakorum, demonstrate how digital visualization and interactive spaces may be applied to analyze archaeological evidence and create a previous urban platform (Khorloo et al., 2022).

The second block brings together studies devoted to the use of historical cartography and landscape data (Masson, 1956; Lebedeva, 2001). For the present project, these are particularly significant, since the localization of the mausoleum and the analysis of relief changes were achieved precisely through the combination of old maps, modern satellite imagery, and GIS analysis (Campana et al., 2025; Khorloo). Contemporary scholarship shows that the georeferencing of historical maps, their comparison with current spatial layers of the terrain, and the integration of earlier geodetic data with new remote-sensing data are now recognized methods for reconstructing lost landscapes and historical planning structures. For the reconstruction of outstanding lost monuments of Samarkand, regional studies are especially useful, where GIS is already being applied to identify and graphically reconstruct vanished objects of the Timurid period (Milosz, Kęsik, & Montusiewicz, 2021).

In general, the literature reviewed shows the transition to combined approach of methodology, which also combines data acquisition, modelling, and visualization. These methods prove especially useful in the situations within Central Asia, where numerous monuments were lost, or not documented enough. In that context, the online recreation of the mausoleum of Nur al-Din Basir adds to the literature on Timurid architecture and shows the possible opportunities of digital technologies in the reconstruction of the lost monuments.

RESEARCH METHODOLOGY

The interdisciplinary research methodology, which is the combination of three key elements, was applied to the reconstruction of the lost mausoleum of Nur al-Din Basir in Samarkand:

- (1) historical-documentary analysis.
- (2) architectural and typological analysis, and
- (3) 3D modelling and visualization.

In this way, it is possible to have a systematic combination of archival information, architectural interpretation, and digital reconstruction methods so that the model prepared is both historically reliable and spatially accurate.

Archival Sources and Historical Sources.

The first phase of the study was the gathering and examination of the historical records regarding the mausoleum of Nur al-Din Basir. The major sources were archival photographs, historical accounts of the monument, cartographic resources, and visual records that were kept in the famous Turkestan Album of the nineteenth century. These materials would be of great use as they give good visual and descriptive information of how the monument used to look before it was destroyed.

In the historical analysis, the scholarly works devoted to the history of architecture of Samarkand and the evolution of Timurid architecture were also reviewed. The written accounts of the mausoleum and the mention in the historical literature were thoroughly analyzed to determine important architectural components of the building such as its space layout, ornamentation, and its place in the city.

The archival materials gathered became the empirical reference of the further architectural interpretation and further digital reconstruction of the monument.

The materials obtained were organized and critically compared so as to come up with some consistent architectural features. The visual sources were interpreted by comparison and it was possible to extract the proportional relationships and compositional elements which could be applied in the reconstruction process.

Typical and Architectural Analysis

The second part of the research concerned the architectural review of the mausoleum. The monument structural composition was discussed based on the available visual and textual materials as well as its plan, elevation, the volumetric composition and the decorative elements.

A special focus was put on locating architectural features which can be associated with Timurid mausoleum architecture. The comparative analysis with the other monuments of that time in Samarkand and Central Asia allowed clarifying the most likely architectural shape of the structure and reconstructing its space ratios.

This part of the study also involved the explanations of architectural elements that were present in historical photographs and the recognition of compositional aspects that were common in the Central Asian funerary architecture, e.g. the dome shape, portal composition and organization of decorative facade.

The architectural analysis findings were interpreted into schematic drawings and proportional diagrams, in which, the perspective between the historical interpretation and the digital modelling were in between.

Restoration of the Spatial Composition

The third step was the reconstruction of the space and compositional structure of the mausoleum. The architectural scheme of the monument was created according to the existing historical data and architectural analysis.

The interpretation of the plan and volumetric structure of the monument based on the existing visual documentation became a part of the reconstruction process. Incomplete historical data were utilized where necessary through

architectural analogies with other similar Temurid monuments to come up with plausible architectural solutions. This type of comparative study enabled the scholars to re-create the overall proportions and the spatial structure of the mausoleum to a reasonably acceptable level of historical fidelity.

This phase offered the conceptual architectural structure which was to be used in the following digital modelling of the monument.

Digital 3D Reconstruction

The last phase of the study was the digital reconstruction of the mausoleum by the methods of three-dimensional modelling. According to the architectural reconstruction that was created in the preceding steps, the architectural 3D model of the monument was prepared with the help of architectural 3D modelling software (including AutoCAD, SketchUp, CorelDRAW).

The space composition, architectural proportions, and structural elements of the monument could be viewed with the help of the digital reconstruction. It was modeled by means of step-by-step reconstruction of the main architectural elements of the monument, such as the building base, the walls, the portal, the dome, and the ornaments.

Digital modelling offers a useful research solution to the visualization of lost architectural heritage and experimentation of architectural hypotheses through historical evidence. The digital model in the given work does not only exist as a visual image of the reconstructed monument, but also as a research tool that is useful in resolving the question about the architectural composition and the spatial structure of the monument in question.

The 3D reconstruction that resulted helps in preservation and interpretation of the architectural heritage of Samarkand and offers a visual make appearance of a monument that is no longer there in the urban architecture.

It relied on the modelling process that was founded on 2D schematic reconstructions transformation into three-dimensional environment. The proportional analysis, the geometrical extrapolation and the comparison with the similar monuments of Temurid were used to reconstruct the architectural elements.

The combination of historical drawings, archival imagery and architectural analysis into the digital modelling environment also guaranteed consistency of the traditional research approaches and digital reconstruction approaches, which enhanced the credibility of the end model.

ANALYSIS AND DISCUSSION

THE TRADITION OF SUFI BURIALS

Historical overview of Sufi burials

The monumentalization of Sufi burial sites—despite contradicting Islamic prescriptions for modest interment—emerged gradually over several centuries. Historical, archaeological, and topographic evidence demonstrates a clear transformation: from inconspicuous grave mounds to the monumental mausoleums that, by the turn of the fifteenth century, had become dominant features of the urban landscape (Salikuddin, 2018).

In general, in Mawarannahr, according to an unwritten tradition, the burials of saints, including Sufis, were initially performed modestly — as an earthen mound under the open sky — which was later faced with brick in the form of a *sagana* or a rectangular platform (*dakhma*). Later, in order to protect the shrine from bad weather and destruction, the Sufi followers arranged a domed canopy (*chartak*) over the burial, which was square in plan and opened on four sides. Over time, out of reverence for the saint and to ascertain his burial more grandeur in the eyes of the pilgrims, the apertures were closed, leaving in them only one door that provided direct access to the shrine. As a result, by the time of Amir Timur, small-scale *chartaks* had been already erected, or some *chartaks* were rebuilt into a mausoleum over the ancient graves of some revered Sufi sheikhs (Abbasova-Yusupova, 2020).

A Historical Overview of the Architecture of Sufi Mausoleums in the Timurid Era

In line with Amir Timur's ambition to concentrate the sacred remains of venerated sheikhs near the imperial capital and to endow their shrines with monumental architecture, several Sufi mausoleums were constructed in Samarkand (Yusupova, 2023). The burial of disciples at the feet of their pirs was a widespread custom: for example, Buyan Quli Khan was buried at the feet of Sheikh Sayf al-Din Bokharzi in Bukhara, while Timur's father Amir Taraghay was reburied beside Sheikh Shams al-Din Kulal in Shahrissabz. This tradition continued into the Timurid dynastic mausoleums, most notably Gur-i Amir, where Timur and his descendants were interred alongside revered sheikhs.

THE MAUSOLEUM OF NUR AL-DIN BASIR

Historical data

Almost simultaneously with the above-mentioned Shahrissabz mausoleum, Timur built the mausoleum of another Sufi sheikh, Nur al-Din Basir in Samarkand. Nur al-Din Basir (d. 1249) was a famous miracle-worker, who was honoured for his wisdom and known as the “Qutb-i Chahardahum (Fourteenth Pole or Axis)”.

Sheikh of the Sufi order of Suhrawardiyya, Nur al-Din Basir was a teacher of another mentor of Amir Temur, Burhan al-Din Sagharji, sometimes referred to as “Khvajah-i Ruhabad.” According to the testimony of Abu Tahir Samarqandi, (writing after 1835-6)(Samarqandi, 1898):

Once Amir Temur Guragan asked for help and spiritual favour from his mentor - Sheikh Abu Said ibn Sheikh Burhan al-Din Sagharji, and the Sheikh-Zada recommended him to make ziyarat to the mazar of Nur al-Din Basir. On the basis of this recommendation, Amir Temur Guragan included the mazar of Sheikh Nur al-Din Basir in the limits of the Samarqand citadel and built a high building over it, decorating its dome with a golden ball. ...Amir Temur often visited this mazar and prayed on it.

In Sufi cosmology, Nur al-Din Basir was revered as a *qutb* or “cosmic axis” sustaining the harmony of the universe (Nazarov, 2006). This mystical role elevated his status beyond that of a local saint, transforming his shrine into a site of both spiritual devotion and political symbolism. For Temur, frequenting Basir’s tomb was an act of legitimization, linking his imperial authority to sacred charisma.

Some scholars believe that the former, probably smaller mausoleum of Nur al-Din Basir in 1371-72 “was demolished by order of Temur and a new mausoleum was erected a little higher, where the ashes were solemnly conveyed” (McChesney, 2021). Others suggest that the burial place was not disturbed and Amir Temur erected a domed mausoleum over it in 1371-72. In both versions, the new mausoleum of the saint was included within Temur's citadel in Samarkand (McChesney, 2021). It was a large single-chamber building with a tall blue dome on a high cylindrical drum decorated with “very large Kufic bands of religious texts”, adorned with a band of tile mosaic and muqarnas. The architecture of the lost mausoleum is reflected in a few unique materials from the late 19th century - a photograph of the monument taken around 1870s (Figure 1), a painting by the famous Russian artist V.A. Vereshchagin (Kök, 2022) from 1869-1870 (Figure 2), and two sets of architectural drawings from the late 19th century (Figure 3).



Figure 2: “View of the main street in Samarqand as seen from the citadel in the morning,” 1869–1870. Painting by Vasily Vereshchagin (1842–1904). Source: State Tretyakov Gallery, Moscow.

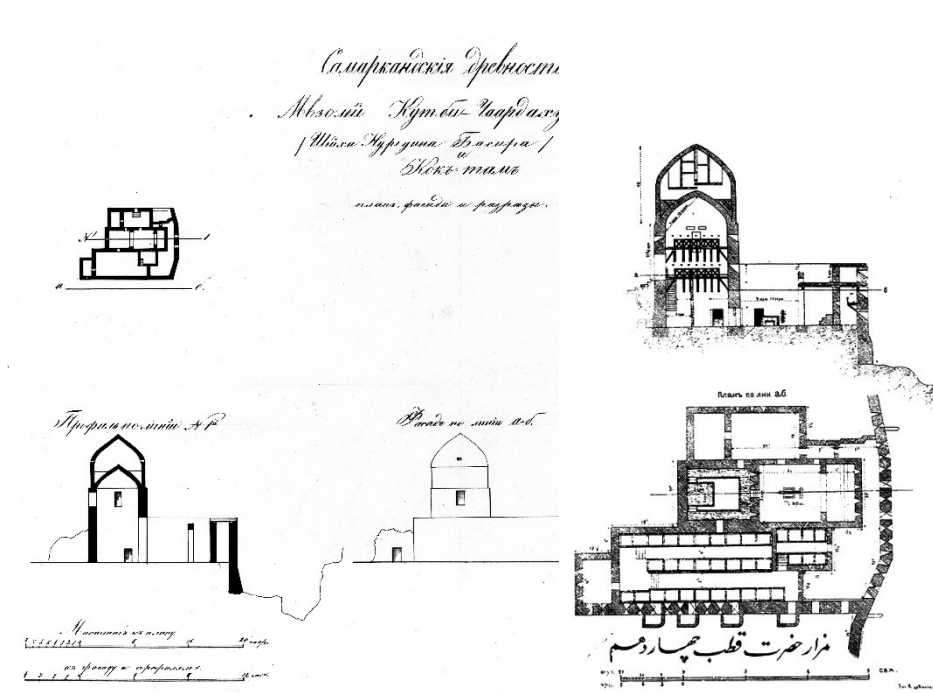


Figure 3: Architectural plans and cross sections of the Nur al-Din Basir mausoleum.

3a. (to the left) Plan from the *Turkestan Album*, Library of Congress (Part 1, vol. 2, pl. 128, no. 309).

3b. (to the right) Plan of the mausoleum c. 1380 with colonial buildings of the late 19th century. Source: Samariyya

In the early 1370s, Temur began constructing and fortifying his fortress, Arki Oliy, in the capital city of Samarkand. Built on a natural hill, the citadel rose prominently above the urban landscape of Samarkand, towering over the surrounding (shakhristan) medieval city (Masson, 1956). The mausoleum was erected on the eastern edge of Temur's citadel, Arki Oliy, overlooking the ravine of Novadon. The single-chamber domed mausoleum of Nur al-Din Basir was built above the ancient burial site of a saint, to which a hall for commemorative prayers (ziyaratkhana) was later added. The fact that the ziyoratkhana was constructed at a later date is evidenced by the difference in wall thickness compared to the 14th-century mausoleum walls, as well as by its simple architecture and flat beamed roof—features atypical of other Temurid monumental mausoleum structures. The silhouette of the mausoleum—a cubic form with a blue dome on a high drum and expressive epigraphic decoration—was a dominant landmark, particularly visible from the Registan Square to the east of the citadel. (Golombek & Koch, 2017).

In the 1380s, after the death of Amir Temur's mentor Burhan al-Din Sagharji, the ruler built a mausoleum for him, known as Ruhobod, meaning abode of the Spirit. As part of a traditional memorial complex, the mausoleum occupied the eastern side (north-eastern corner) of a courtyard with a water reservoir (hawz) surrounded by living premises (hujras) for Islamic students and pilgrims and other buildings (Zarcone, 2020). The mausoleum of Ruhobod was placed on the same line with the mausoleum of his teacher Nur al-Din Basir discussed above (Pugachenkova & Rempel, 1965). There are several legends, according to which, the body of Sheikh Sagharji, who died in China, was transported on a camel to Samarkand. The camel first went around Basir's mausoleum, then descended lower and finally lay on the place, which turned out to be at a distance, but “at the feet of the Sufi pir” of Nur al-Din Basir.

Subsequently, at the end of the 14th century this sacred line was extended at the request of Amir Temur. A new complex comprising a royal madrasa and a Sufi lodge (khanaqah) was erected “at the feet,” but at a considerable distance from the mausoleums of the two sheikhs – Nur al-Din Basir and Burhan al-Din Sagharji by Temur's grandson and heir-presumptive of Chingisid descent, Muhammad Sultan (d. 1403). Desolated by the untimely death of Muhammad Sultan, Temur erected a mausoleum in his honour that was constructed in 1404 to the south of the complex. In the course of the next forty years, it was transformed into the Temurid dynastic mausoleum of Gur-i Amir, in which Temur and the male descendants of his family were interred, together with two revered Sufi sheikhs - Mir Sayid Baraka and Sheikh Omar.

To place these developments into a broader architectural and cultural context, a comparative analysis of selected Temurid mausoleums was conducted. The results, presented in Table 1, illustrate the evolution from modest Sufi burials

to monumental dynastic mausoleums that combined sacred veneration with imperial representation.

Table 1: Comparative features of selected Temurid mausoleums.

Period / Monument	Type of Burial	Dome Construction	Decorative Program	Urban Location	Cult Function
13th c. (Basir, early stage)	Simple burial mound	None	None	At the foot of the citadel, near river	Initial veneration of the saint
14th c. (Mausoleum of Basir)	Cubic <i>gurkhana</i>	Dome on a high drum	Kufic friezes, mosaic	Incorporated into fortified citadel	Center of pilgrimage
Rukhobod (14th c.)	Cubic chamber	High dome on a low drum	Simple decoration	Within urban fabric	Sacred center
Gur-e Amir (15th c.)	Monumental mausoleum	Large dome on a high drum	Rich tile decoration	Within urban fabric	Dynastic mausoleum

Source: Compiled by authors based on archival and architectural data.

As shown in Table 1, the progression of architecture from the mausoleum of Nur al-Din Basir to Rukhobod and finally to Gur-i Amir reflects not only increasing monumentality and artistic refinement but also a growing integration of sacred sites into the urban landscape of Samarkand. This evolution underlines the dual function of Temurid mausoleums as centers of pilgrimage and as symbols of dynastic legitimacy.

The destruction of the Nur al-Din Basir mausoleum

In 1878, the Governor-General of the Turkestan region decided to build a new fortress on the site of the ancient citadel of Samarkand (Figure 4). This decision required the demolition of a number of historic buildings, including the mausoleum of Nur al-Din Basir (Kuhn, 1871)(Figure 5). By that time, Russian engineers had already constructed a gunpowder storehouse next to the shrine. The residents of the city were instructed to exhume and reinter the remains of the saint, a task carried out by Qadi Mir Nizam al-Din Khwaja, the son of Mir Abu Ghaffar, who left a written account of this event. The remains of Nur al-Din Basir and his mother were reburied near the Hazrat-i Khizr mosque, at the eastern edge of the Shah-i Zinda necropolis.

The shrine itself was demolished in July 1880 by two successive dynamite explosions, after local residents refused to dismantle it manually, bricks and other construction materials from the ruins were reused in the building of Russian military barracks within the citadel (Vyatkin, 1899). This act of

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destruction underscored the profound rupture between sacred heritage and colonial urban policy, symbolizing both the loss of a revered monument and the imposition of new power structures over Samarkand's sacred landscape.

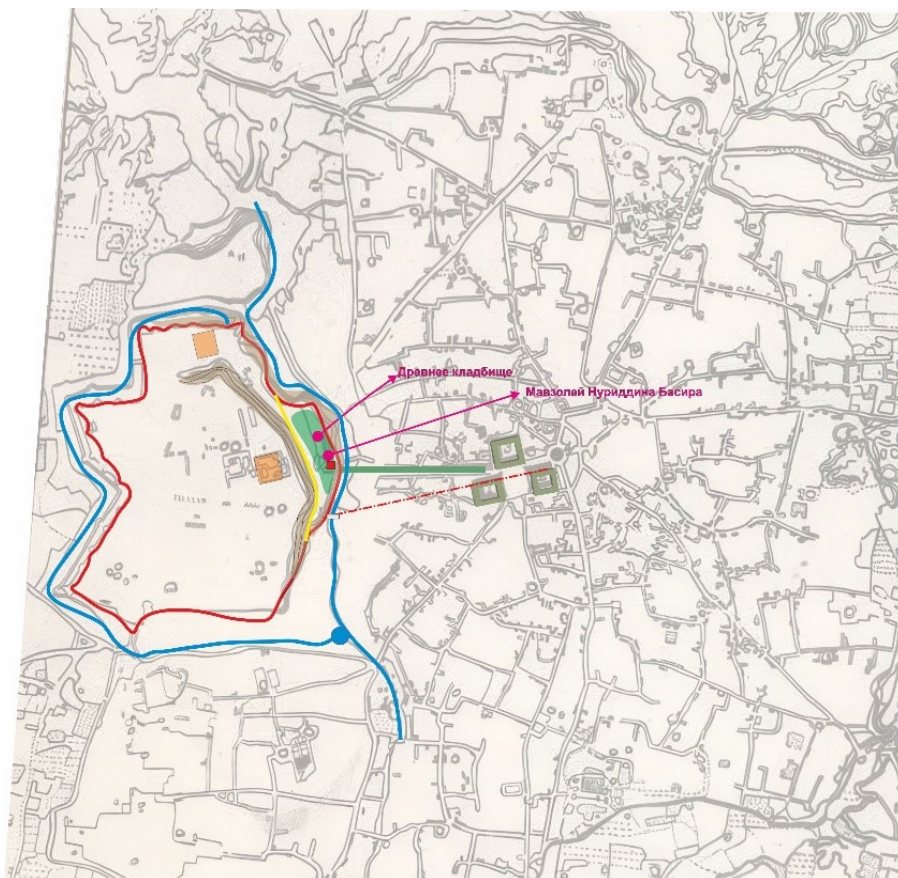


Figure 4: Location of the mausoleum of Nur al-Din Basir and the ancient cemetery within the Samarkand citadel. Source: Authors' elaboration based on historical maps.



Figure

5: *The mausoleum of Nur al-Din Basir (left) incorporated into the Russian fortress.*
Source: Turkestan Album, Library of Congress (USA).

Topographic reconstruction and localisation

The comparison of the historical plans shows how the defensive wall of Amir Temur's citadel made a protrusion to the east, so that the mausoleum of Nur al-Din Basir was included in the fortified fortress (Buryakova & Lebedeva, 1988). In our opinion, the original place of the burial was at the foot of the citadel hill, on the left bank of the Novadon River. When the citadel was expanded under Temur, its borders were shifted by 18 metres to the east, as a result of which the mausoleum was situated within the walls of the new fortification. Cross-sections of the current relief show the slope of the citadel in the eastern part bordering the medieval city.

Analyses of modern geodetic data allow us to clarify the position of the mausoleum. Despite the fact that the Novodon aryk has now been taken into a collector and diverted underground (Buryakova & Lebedeva, 1988), the Chashma spring itself, located to the north of the mausoleum's presumed position, is preserved. It serves as an important point in the reconstruction of the former landscape: its water level is 8 metres lower than the supposed level of the burial chamber (gurkhana). This indicates a significant artificial build-up of the cultural layer in the area of the citadel through rubble and redevelopment. Moreover, since

the Timurid period, the ground level has risen by 5–6 meters due to the accumulation of cultural layers, and by an additional 2–4 meters following the destruction of the citadel. According to calculations, the single-chamber mausoleum was located on the western eastern side of the citadel, in the area of modern Dagbit Street, near the pedestrian bridge (Figures 7 and 8). To identify the remains of the foundations of the walls of the mausoleum of Nur al-Din Basir, this very site requires detailed archaeological research.

At the time of the mausoleum's existence, the Navodon River flowed openly at the foot of the citadel terrace, while the Chashma spring corresponded to its historical channel. These hydrological conditions not only determined the site's natural setting but also carried symbolic value, linking the shrine to sources of life and purity in Sufi cosmology.

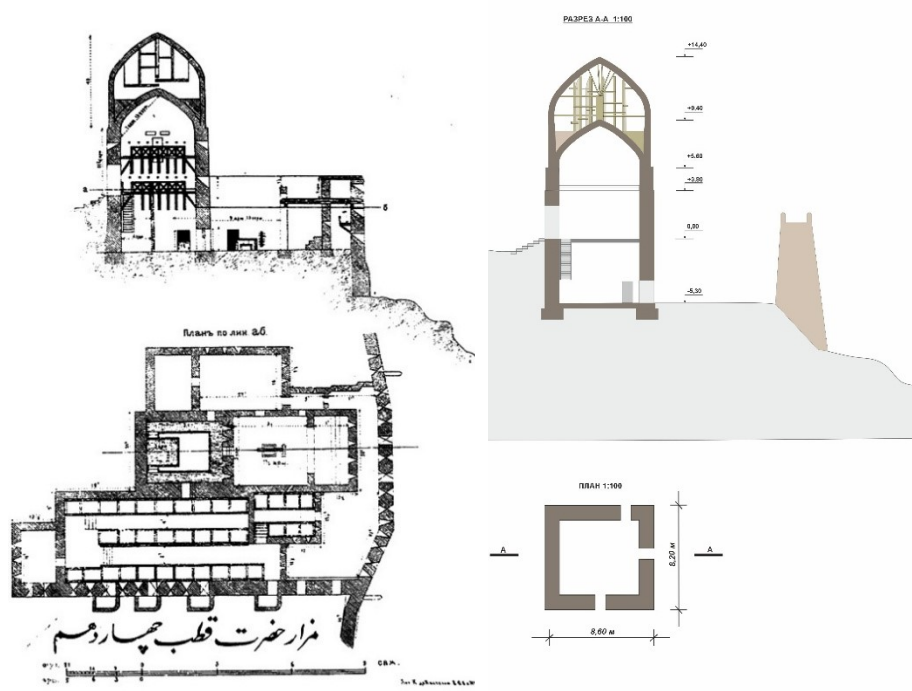


Figure 6: Reconstruction of the Architectural plan and cross section of the Nur al-Din Basir mausoleum

7 a. (to the left) plan and cross section presented by Abu Tahir Samarqandi in Samariyya. 1898.

7 b. (to the right) Reconstruction of the cross-section and plan of mausoleum by Fatima Khudaikulova. Scale 1:100.

A Comparative Analysis of Survey Drawings published in the Turkestan Album and in the text of Samaria, combined with visual and historical sources, has made it possible to reconstruct both the original appearance of the mausoleum of Nur al-Din Basir and to identify the stages of its later transformation within the structure of the Russian military fortress. As a result, the dimensions of the building were determined to be 8.20 m × 8.60 m, with a height of up to 19,70 m to the top of the dome.

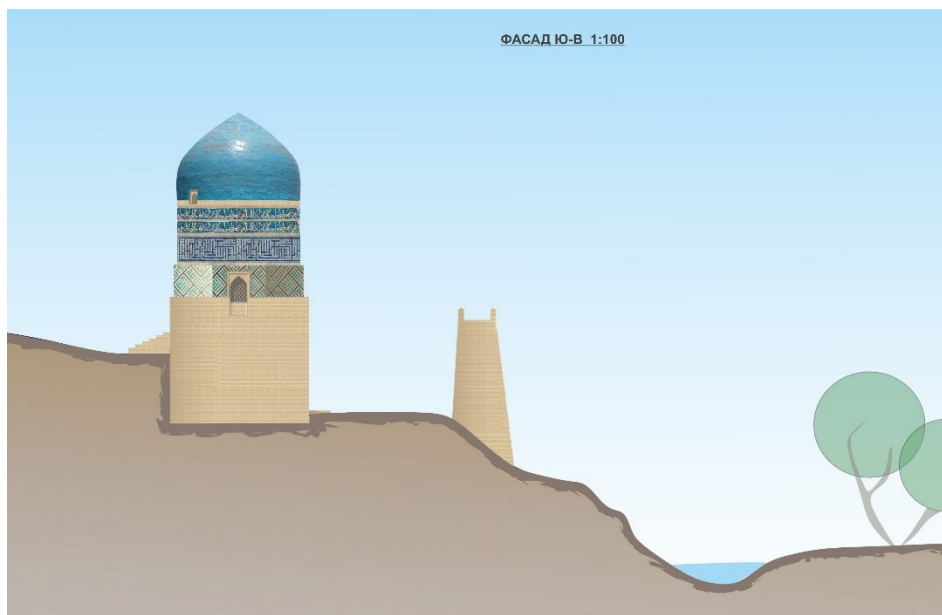


Figure 7: Reconstruction of the Nur al-Din Basir mausoleum south-eastern façade, scale 1:100. © Fatima Khudaikulova.
Source: Author's Development

Landscape Changes and the Localization of the Mausoleum of Nur al-Din Basir. The contemporary landscape in the area of the former Samarkand citadel has undergone significant alterations compared to the landscape of the 14th century. According to the results of geomorphological analysis, the comparison of historical maps, archival cross-sections, and current topographic data, the ground level in the zone of the mausoleum's location has risen by 6–8 meters. This elevation is attributed both to the centuries-long accumulation of cultural layers and to the deliberate raising of the terrain during military and urban development transformations. The most intensive elevation occurred during the demolition of the old fortress walls: construction debris and soil were dumped

eastward — in the direction of the Novadon Canal, which is now confined to an underground collector (Lebedeva, 2001). These processes substantially deformed the original landscape, complicating the precise identification of historical elevation markers.

Thus, the synthesis of the collected materials has made it possible not only to clarify the location of the lost monument but also to reconstruct its role in the urban landscape of Samarkand from the 14th to the 19th centuries.

Comparative Architectural Analysis of the Nur al-Din Basir Mausoleum

The mausoleum of Sheikh Nur al-Din Basir in Samarkand is a very significant structure of early Temurid architecture where strong links with the preceding traditional architecture of Mawarannahr can be traced. According to the archival drawings and historical photographs, the monument was made up of an almost square burial chamber made of fired brick and overlaid by a smooth dome over a cylindrical drum. The decorative system of the building was rather modest: the lower wall surfaces were simple in architecture, and the main artistic burden was concentrated in upper part of the building, especially, in the drum and the dome. The smooth dome was tiled with turquoise and the Kufic epigraphic band was used in decorating the drum. However, in this mausoleum the decorative program was not yet at the stage of sophistication which the subsequent monuments of the Temurid era were to be.

Structurally, the mausoleum was a one-chamber domed building having a definite space plan. It comprised a single, square-planned chamber containing the burial of the saint. It is likely that the transition from the square to the circular base of the drum was achieved by means of angular arched squinches. These formed an octagonal transitional tier of squinches, upon which the cylindrical drum rested through a system of small additional arches, supporting a tall sphero-conical dome. This kind of structural arrangement square chamber, octagonal, cylindrical drum, and domed superstructure was very common in the architecture of Mawarannahr and was indicative of previous regional construction traditions. The architectural comparison of comparable objects was also a significant part in the interpretation and digital re-construction of the Nur al-Din Basir mausoleum. The fact that the monument has not been preserved in its initial state makes it possible to compare it with typologically similar Temurid mausoleums and thus rely more on the reconstruction of architectural proportions, spaces structure and structural components.

One of the most topical comparisons can be made with the so-called Double-Domed Mausoleum situated on the first platform of the necropolis of Shah-i-Zinda situated in Samarkand. However, contrary to the conventional name of a double-domed building, the monument is actually two-chamber mausoleum with a ziyaratkhana (visit room/ chamber of visitation and prayer) and a gurkhana

(burial chamber). The ziyaratkhana surrounded by a high dome is architecturally and structurally similar to the Nur al-Din Basir mausoleum. It is also made up of a square room whereby the square base is changed to a drum is done through a system of squinching to create an octagonal zone of transition which supports a cylinder-shaped drum and a dome. Simultaneously, the decorative treatment of Shah-i-Zinda monument is much richer and represents the further evolution of the Timurid architecture and augmentation of the decorative programs.

Close in date of construction, the Rukhobod Mausoleum is a cubic, centric architectural structure without a pronounced portal, with an evenly articulated exterior and a square internal chamber crowned by a dome. The square shape base is replaced by the dome using pendentives which create a transitional zone of octangles. The architectural design is self-restrained, with curved niches, insignificant decoration of the exterior and the use of ceramic panels mostly inside.

The monument combines the pre-Mongol tradition of centric funerary construction with the added magnitude of the Timurid era, which makes the monument a rather unusual type of architecture in Samarkand. It is this aspect that makes it specially applicable when compared to the mausoleum of Nur al-Din Basir.

Whereas the Rukhobod Mausoleum is characterized by a compact and inward-oriented composition and a rather modest treatment of the decoration, the reconstructed shape of the Nur al-Din Basir mausoleum implies a more vertically oriented composition with a dominant silhouette. Unlike the closed and laconic nature of Rukhobod, Nur al-Din Basir mausoleum, erected on an elevated urban landscape, seems to have been more monumental in nature and indeed had a stronger urban function because of its orientation towards visual perception in the space of the Samarkand citadel.

A similar architectural plan to that of the building of Nur al-Din Basir can also be observed in the mausoleum of Chupan-Ata, where the square chamber is likewise covered by a dome set upon a cylindrical drum. But this monument is a later one and is of a more advanced ornamental veneering. The resemblance of the structures is thus, due rather to the architectural and structural frame than to the nature of the ornamental treatment which it receives. Moreover, the drum of the Chupan-Ata mausoleum is considerably higher, which adds a stronger vertical accent to its overall composition.

Still more radical architectural changes may be seen in later Timurid monuments like those of the Gur-e Amir mausoleum at Samarkand and the monumental complex at Khoja Ahmed Yasavi at Turkestan. In these structures, the scale becomes considerably larger, the architecture more monumental, and the domes acquire a ribbed surface. Ribbed domes, characteristic of Iranian architecture, appear here as a result of the participation in the construction of

Amir Temur's buildings of Iranian and other foreign craftsmen brought by him from the conquered lands. In general, such previously untraditional ribbed and patterned domes become a distinctive feature of the period of the flourishing of Timurid architecture. At the same time, the façades of buildings receive increasingly elaborate and rich treatments, including revetment with glazed ceramics, epigraphic bands, and a complex decorative system. Therefore, the mausoleum of Nur al-Din Basir takes a special place in the history of architectural development of the Timurid era. The monument maintains the structural values of earlier brick construction of Mawarannahr and at the same time illustrates the development of new aesthetic values like a turquoise dome covering, the epigraphic decoration of the drum, and a growing tendency towards monumentality.

Thus, it becomes evident that the mausoleum of Nur al-Din Basir, as one of the earliest memorial structures of the period of Amir Temur, occupies a special place in the evolution of Central Asian architecture of the late fourteenth century. It preserves the constructive principles of the earlier brick architecture of Mawarannahr, yet at the same time demonstrates the emergence of new artistic tendencies and a striving for greater monumentality — expressed in the taller sphero-conical turquoise dome and cylindrical drum, as well as in the large-scale epigraphic decoration of the drum, clearly visible and legible from a distance. For this reason, the monument may be regarded as a characteristic example of early Timurid architecture, reflecting the transition from the preceding local building tradition to the mature style of Timurid architecture.

These findings out of the comparative analysis were directly applied to the 3D digital reconstruction process and offered a typological and proportional framework that enhanced the historical dependability and architectural verisimilitude of the model recreated.

CONCLUSION

The measurements, structure, plan, space arrangement, and ornaments of the Mausoleum of Nur al-Din Basir, lost in the 14th century have been identified due to extensive studies and the application of new techniques of architectural research and reconstruction. An effective hypothesis was formed with respect to the localization of the Mausoleum of Nur al-Din Basir to the east of the citadel — it seems likely, in the direction of the current Dagbit Street, and close to the current pedestrian bridge. The mausoleum was originally located in a high position in the end of a straight street directed to the Registan Square and could be seen far away which predetermined its high memorial, cultic and architecture role in the urban system of Samarkand. The work is also a sign of the formation of the Timurid memorial architecture, which shows how it has grown, being

simple, single-chamber mausoleums, into multi-component complexes of buildings of a dynasty. This procedure is reflective of larger changes in the spatial organization of Samarkand, in which sacred buildings more and more defined the architectural image of the city as well as their symbolic identity.

The mausoleum was on the border between religious worship and political symbolism as it was among the first monumental-funerary buildings of the Temurid period in Samarkand. Its demolition during the end of the nineteenth century wiped off a fundamental component of the sacred landscape of the city. In addition to the academic contribution, the project proves the practical significance of digital technologies in preserving the heritage. These reconstructions will help bring the masterpieces that have been lost to more people and will contribute greatly to the historical development of the city form and landscape. Furthermore, the 3D model and virtual visualization creation opens the possibilities of preserving the living memory of heritage, as well as educational purposes and creation of cultural tourism.

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DISCLOSURE STATEMENT

The authors declare that there is no conflict of interest regarding the publication of this article.

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