

# MĪRZĀ ULŪGH BEG IN SELECTED HISTORICAL SOURCES OF THE FOURTEENTH TO NINETEENTH CENTURIES

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**Abstract:** Every source, regardless of when it was written, is a unique narrative that provides information about the past. While works by authors who directly witnessed historical processes are of significant importance, historical works written in later periods are also crucial for studying comparative approaches and relationships. This is because source researchers have been interested in observing how historical events were interpreted in subsequent eras, as well as how people's attitudes toward the past changed or remained constant over time. As most historians emphasize, limiting oneself to works written in a single period when researching a topic leads to a superficial study of the subject and failure to grasp its fundamental essence. Therefore, carefully considering multiple works before drawing conclusions is a crucial task facing the researcher. This article analyzes information about Muḥammad Taraghay Mīrzā Ulūgh Beg Kūrāgān's (1394–1449) from sources written during his lifetime and in later periods, and compares historians' opinions about him.

**Key words:** Mīrzā Ulūgh Beg; Ulūgh Beg Observatory; Zīj; Zīj-i Jadīd-i Kūrāgānī; Ulūgh Beg madrasah.

## 1 INTRODUCTION

Numerous sources serving as primary references for illuminating the history of Central Asian and Middle Eastern states during the fourteenth to sixteenth centuries, specifically the era of Amīr Tīmūr (1336–1405) and the Tīmūrīds (1370–1507), are well-known to scholars. Consequently, the renowned researcher V.V. Bartold, who studied many scientific works dedicated to Central Asian history, commented on these sources:

In this case, the researcher struggles not from a lack of material, but from an abundance of it scattered across many libraries, requiring critical examination and, above all, critical publication ([Bartold, 1964: 199](#)).

Indeed, even without considering the collections of documents that illuminate the period of Mīrzā Ulūgh Beg's life, the conditions in which he developed as a great scientist, statesman, and founder of the astronomical school, as well as other historical monuments, the sources created as complete historical works themselves constitute a large list. Below, we will briefly discuss some of them.

## 2 FOURTEENTH AND FIFTEENTH CENTURY SOURCES

### 2.1 Ghiyāth al-Dīn al-Kāshī's Letter from Samarkand to His Father in Kāshān

The author, Jamshīd ibn Mas'ūd ibn Mahmūd Ghiyāth al-Dīn al-Kāshī, widely known as Ghiyāth al-Dīn al-Kāshī (for more information about his works see [al-Kāshī, 1956](#); [Kari-Niyazov, 1950](#); [Matviyevskaya, 1967](#); [1972](#); [Sobirov, 1973](#)), was a great mathematician and astron-

omer of the fourteenth and fifteenth centuries and a leading scholar at Ulūgh Beg's scientific school in Samarkand. He was born in the city of Kāshān (a city in Iran, situated between the cities of Teheran and Isfahan), which was renowned at that time for its skilled craftsmen, mathematicians, physicians and artisans. The year of his birth is unknown. He spent most of his life in Kāshān, but lived in Samarkand during his final years, where he passed away in 1429.

Ghiyāth al-Dīn al-Kāshī wrote two letters to his father. The two letters have different aspects, and both provide important information about Mīrzā Ulūgh Beg's scientific school. The first letter was translated with annotations in 1997 by the Iranian scholar Muhammad Bagheri. This letter is preserved in the Majlis Library of Iran. One of the most interesting pieces of information in the first letter is that Mīrzā Ulūgh Beg reportedly donated thirty thousand *kapakī* (monetary unit during the Chaghatai and Timurid periods) dinars. It was stipulated that ten thousand dinars of this amount would be given to students, and a list of recipients was compiled ([Bagheri, 1997](#)). According to al-Kāshī, this arrangement significantly improved the ongoing financial situation of ten thousand students. Since this list has not been found to date, it is difficult to prove whether this number is accurate or inaccurate.

The second letter penned by al-Kāshī was written in Persian and sent from Samarkand to Kāshān, addressed to his father. The letter forms part of a collection preserved in the library of the Sipahsalar Mosque in Teheran ([Sayili, 1960: 32](#)). For more detailed information about the manuscript [Sayili \(1960: 33–35\)](#). [Kennedy 1960: 192](#)) mentioned another copy belonging to an unidentified person.

The letter is noted to have been written on the 7<sup>th</sup> day of *dhu al-qa'dah*, but the year of its composition is not specified (Sayili, 1960: 55). Based on the content of the events described in the letter it can be surmised that it was written in 1420 or 1421. This letter was translated into Russian in 1979 (Yusupova, 1979), and subsequently into Uzbek in 1996 by D. Yusupova (see Yusupova, 1996).

This letter is noteworthy for its detailed information about the scientific activities of Mīrzā Ulūgh Beg, Qāḍizāda Rūmī, Ghiyāth al-Dīn al-Kāshī himself, and other scholars of the Samarkand school, as well as for its comprehensive account of the construction of Ulūgh Beg's Observatory.

In his letter, Ghiyāth al-Dīn portrays Mīrzā Ulūgh Beg not only as a prominent statesman and ruler but also as a great scholar. He had mastered the Arabic language to a high degree and was well-versed in logic, Islamic law, literature, mathematics, and astronomy. The author of the letter highlights Ulūgh Beg's extraordinary abilities in the field of astronomy, noting that he had given lectures on the *Memoirs of Nāsir al-Dīn* (*Tadhkira* and *Tuhfa-i shāhī* (Yusupova, 1979: 46). As evident from the letter, Mīrzā Ulūgh Beg was engaged in specific scientific problems, with his teacher Qāḍizāda Rūmī and Ghiyāth al-Dīn al-Kāshī consistently remaining by Ulūgh Beg's side (Yusupova, 1979: 47). It should also be noted that, according to Ghiyāth al-Dīn, none of the scientists around Ulūgh Beg could even imagine the function of the instrument called the 'Honorary Sextant' in the Observatory in Marāgha city, and supposedly Ulūgh Beg ordered the construction of an observatory building based on Ghiyāth al-Dīn's explanation (Yusupova, 1979: 49).

The letter also notes that Mīrzā Ulūgh Beg possessed a strong memory. One day, while riding on horseback, Mīrzā Ulūgh Beg wanted to determine which day of the seasonal year corresponded to the Monday falling between the tenth and fifteenth days of the month of Rajab in the Hijri year 818 (15–20 September 1415 AD). Accordingly, while riding he mentally calculated the Solar calendar down to degrees and minutes using an imaginary method, and after dismounting, he asked Ghiyāth al-Dīn himself about the accuracy of the calculation (Yusupova, 1979: 46). Praising the remarkable accuracy of the calculations, Ghiyāth al-Dīn emphasized that none of his contemporaries possessed such memory and computational abilities (*ibid.*).

Ghiyāth al-Dīn wrote to his father that Mīrzā Ulūgh Beg had memorized the entire Quran, reciting two suras from memory to a scholar

every day without making a single mistake. Moreover, Ulūgh Beg was well-versed in the Arabic language and grammar, and could write skillfully in Arabic. From Ghiyāth al-Dīn's letter, we can also see that Ulūgh Beg had a solid grasp of the fundamentals of logic, literature and music theory (*ibid.*). It should also be remembered that these descriptions of Ulūgh Beg are not mere praise, but rather sincere thoughts sent by a son to his father. This letter, unlike some historical works, was not commissioned by rulers or other officials.

Mīrzā Ulūgh Beg also possessed profound knowledge of Islamic law. This is evident from the fact that in 1447 Alā' al-Dīn al-Bukhārī wrote a commentary on Abū Hanīfa Nu'mān ibn Thābit's (699–767) work *Al-fiqh al-akbar* (Yusupova, 1979: 48) and presented it as a gift to Mīrzā Ulūgh Beg. From this we can infer that Ulūgh Beg was well-versed in this field and had meticulously studied related works. The letter also reveals that Abu Rayhan Beruni's (973–1048) work *Qānūn-i Mas'ūdī* was considered an indispensable book by Mīrzā Ulūgh Beg and the scholars in his circle, including Qāḍizāda Rūmī and Ghiyāth al-Dīn al-Kāshī themselves, as well as others (Yusupova, 1979: 50). This information attests to the direct connection between the Samarkand School of Astronomy and the scientific legacy of the great scholar Abū Rayhān Bīrūnī.

The letter also provides information about a sundial installed on the wall of the Observatory (*ibid.*). However, there is no direct information about the existence of such a clock in Ulūgh Beg's works. But Ghiyāth al-Dīn's information supports Kari-Niyazov's (1950: 149) hypothesis that such a clock existed. Thus, Ghiyāth al-Dīn al-Kāshī's letter can be considered a rich source of information about the instruments and equipment used in Ulūgh Beg's Observatory. Additionally, these facts serve to some extent as documentary evidence confirming the assumptions made based on archaeological excavations about the existence of such instruments.

In particular, the abundance of specialized astronomical information in the letter brings it closer to an original scientific treatise. The detailed accounts of Mīrzā Ulūgh Beg and the scholars surrounding him dispel any doubts about the authenticity of the document.

## 2.2 *Rūznāma-i ghazāwāt-i Hindustān* (The Daily Account of Amīr Timūr's Campaign to India)

The author is Ghiyāth al-Dīn 'Alī. The work, written in 1399, extensively covers Amir Timur's battles, including his campaign to India in 1398

and 1399. According to the author, when Amīr Tīmūr set out on his journey to India, he took into account the extremely hot climate of the region. Halfway through the journey, he decided to send his wife Sarāymul-khānim and his favorite grandson Mīrzā Ulūgh Beg back to Samarkand ('Alī, 1958: 67). Of course, Amīr Tīmūr well understood that taking a princess and a very young prince on such a dangerous campaign when they were both unfamiliar with the climate would be inappropriate. Returning from the victorious campaign in India, Mīrzā Ulūgh Beg and his grandmother, Sarāymul-khānim, along with other palace attendants, set out for Termez (an ancient city situated along the Amu Darya river) to welcome Amir Timur. On 29 March 1399, Amīr Tīmūr crossed the Amu Darya and was greeted with gifts by Saray Mulk Khanum and Mīrzā Ulūgh Beg ('Alī, 1958: 184).

### 2.3 'Ajā'ib al-maqdūr fī akhbār al-Taymūr (The Marvels of Fate in the History of Tīmūr)

The author of the work is Ibn 'Arabshāh, an Arab historian who lived and worked in the fourteenth and fifteenth centuries. The work was written in 1436, with some additions made after 1437. It is considered one of the important sources on the history of Central Asia and the Middle East from the late fourteenth century to the first half of the fifteenth century. The reliability of the work is evidenced by the fact that the author lived in Samarkand from 1401 to 1408, then left Transoxiana and traveled through numerous cities and countries previously conquered by Amir Timur. The work is based on accurate information gathered from the author's personal observations and experiences during his travels, as well as accounts from his contemporaries.

Although most of the historical information presented in his work consists of political events, there is also abundant accurate information about other spheres of life of that period. For example, Ibn 'Arabshāh's work provides insight into the feasts and celebrations of that era. The descriptions of Mīrzā Ulūgh Beg's wedding serve as a vivid example of this. Naturally, Ibn 'Arabshāh was in Samarkand at this time, where he witnessed this celebration and vividly and colorfully described what he saw. The information provided by the author clearly testifies to the luxurious lifestyle of the rulers of that time. In essence, these events were, on the one hand, aimed at demonstrating the power and glory of the ruling circles, and on the other hand, they took on a public character with the participation of the working population. In September 1404, along with Mīrzā Ulūgh Beg's

wedding, the weddings of several other princes also took place.

According to Ibn 'Arabshāh, Amīr Tīmūr ordered the city's inhabitants to adorn themselves, be liberated from oppression and tyranny, have their taxes and debts forgiven, and be provided with an environment of peace and tranquility (Ibn 'Arabshāh, 1936: 214). On the occasion of Temur Ulūgh Beg's wedding, he ordered magnificent attire to be given to all people, exempted them from taxes and fees, and commanded them to go to Kānigīl to attend the wedding (Ibn 'Arabshāh, 1936: 214). Despite being close to Samarkand, the Kānigīl area was a picturesque place with clean air.

In his work, Ibn 'Arabshāh repeatedly emphasizes that the ruler of Samarkand, Ulūgh Beg, was the most intelligent among Timur's other grandsons. At that time, Ibrahīm Sultān, Mīranshāh's son Ijāl, and 'Umarshaykh's sons Ahmad, Seydī Ahmad, and Bāyqarā also had their weddings alongside Ulūgh Beg. However, Ibn 'Arabshāh's mention of only Mīrzā Ulūgh Beg indicates that he was the most favored in Amir Timur's presence, and we can see that the wedding ceremony was predominantly dedicated to Ulūgh Beg.

### 2.4 Mujmal-i Faṣīḥī (Fasih Collections)

The author, Faṣīḥ Ahmad ibn Jalāl al-Dīn Muḥammad al-Khwāfī, was born in Herāt. In 1405 he was recruited into state affairs and sent to Samarkand. Until 1415, he served under the esteemed Amīr Ala' al-Dīn 'Alī Tarkhān (who died in 1417), then entered the service of Shāhrukh. He spent the final years of his life in the palace of Shāhrukh's son, Bāysunghūr Bahādir, and in 1425 was appointed head of the *divan*. After some time, he was dismissed from service in the Timurid court. It was during this period that he began writing his work *Mujmal-i Faṣīḥī*. Considering that the date of the last events recorded in the work corresponds to 1442, the work was likely completed after that year.

The final part of this work is unique in its content, presenting significant historical, economic, and cultural events that occurred in Central and Middle Asia from a historian's perspective, organized chronologically. This approach allows us to evaluate it as a reliable source. Specifically, it provides information about Ulūgh Beg's birth, the territories assigned to him for governance, his military campaigns and battles, his siblings, children, meetings with his father in Samarkand and Herāt, events relating to his mother, and his work at the Observatory (including the compilation of astronomical tables).



According to *Mujmal-i Faṣṣḥī*, the construction of the Ulūgh Beg *Madrasah* and a *khan-aqah* (Sufi lodge) opposite it began in Samarkand in 1420 (al-Khwāfī, 1980: 188). This *madrasah* has been preserved in good condition to this day and is considered an integral part of the Registan ensemble in Samarkand. However, the *khānaqāh* has not survived. In the seventeenth century, Yalangtāsh-bī Bahādir, the Governor of Samarkand, built the Shīrdār *Madrasah* on the site of the *khānaqāh*. The appearance of the *khānaqāh*, which stood opposite the Ulūgh Beg *Madrasah*, was most likely identical to the *madrasah*, creating a remarkable symmetry. The Shīrdār *Madrasah*, built on the site of the *khānaqāh*, may have been constructed in the shape of the original *khānaqāh*. Mīrzā Ulūgh Beg endowed the *madrasah* with numerous lands, arable fields, and several villages as part of its *waqf* (endowment) (al-Khwāfī, 1980: 188). The endowment of such large territories to the *madrasa* is considered crucial for the effective conduct of scholarly activities, the salaries of teachers and students' stipends, as well as the continuous strengthening of educational literature and the material-technical base.

Faṣṣḥ al-Khwāfī noted that Mirza Ulūgh Beg had also begun compiling his astronomical tables in 1420 (al-Khwāfī, 1980: 188). It is noteworthy that these very years coincide with the most stable and peaceful period of the Timurid Dynasty in Transoxiana and Khorasan. Furthermore, during this time, Mīrzā Ulūgh Beg himself had developed into a mature scholar and began gathering prominent intellectuals around him to make an even greater contribution to the advancement of science and knowledge.

## 2.5 *Matla' al-sa'dayn wa majma' al-bahrayn* (The Rising of Two Stars The Merging of Two Seas)

The author is Kamāl al-Dīn 'Abd al-Razzāq ibn Jalāl al-Dīn Iṣḥāq Samarqandī (1413–1482). Although he was actually born in Herat he became known by the epithet 'Samarqandī' due to his long-term residence in Samarkand.

The work was written between 1467 and 1470. It primarily narrates political events and socio-economic occurrences that took place during the reigns of Shāhrukh and Sultān Abū Sa'īd (1451–1469).

The work provides valuable information about events that occurred in Central Asia, Iran, and Afghanistan. Notably, it offers details about the political and creative life of Mīrzā Ulūgh Beg. This work is particularly significant because the author was a direct witness to the events during Mīrzā Ulūgh Beg's time. Specifically, 'Abd al-Razzāq Samarqandī, while residing perman-

ently in Samarkand, documented his first-hand observations of Mīrzā Ulūgh Beg's patronage of science. He wrote about witnessing with his own eyes how Mīrzā Ulūgh Beg supported and promoted scientific endeavors ('Abd al-Razzāq, 2008: 632). In this work, 'Abd al-Razzāq Samarqandī provided information about the most renowned scholars gathered around Mīrzā Ulūgh Beg, namely Qāzīzāda Rumī, 'Alā' al-Dīn 'Alī Qūshchī, Ghiyāth al-Dīn Jamshīd al-Kāshī, and Mawlānā Mu'īn al-Dīn. During that period, Qāzīzāda Rumī was revered as the 'Plato of the age', while 'Alī Qūshchī was exalted as the 'Ptolemy of the era' (ibid.). Mīrzā Ulūgh Beg held 'Alī Qūshchī in high esteem and took him under his care from a young age. Samarqandī also noted that Mīrzā Ulūgh Beg referred to 'Alī Qūshchī as 'my son' ('Abd al-Razzāq, 2008: 379). The construction of Ulūgh Beg Observatory in Samarkand and the compilation of astronomical tables there were considered extraordinary events. 'Abd al-Razzāq Samarqandī also emphasized this point specifically. As a result of gathering scholars from various fields of science around Mīrzā Ulūgh Beg, a significant scientific center was established, and as a natural continuation of this the construction of the Observatory began. *Matla' al-sa'dayn wa majma' al-bahrayn* further states that during the construction of the building, astronomical calculations, stars, minutes, seconds, and various numbers related to the science of arithmetic were drawn on the walls of the rooms (ibid.). Although Mīrzā Ulūgh Beg personally led the construction of this building, he relied on the opinions of scholars on many issues ('Abd al-Razzāq, 2008: 380). It is precisely for this reason that the scientific research conducted at this Observatory served as a foundation for developing highly accurate scientific evidence.

Mīrzā Ulūgh Beg's astronomical table was primarily created for the development of the solar calendar. However, Ulūgh Beg was not satisfied with the astronomical table in *Zīj-i jadīd-i Īlkhānī* (*Īlkhānī's New Table*), and after identifying its discrepancies he developed his own astronomical table. 'Abd al-Razzāq Samarqandī specifically notes that this work was called *Zīj-i Sultānī-i Kūragān* (*Kuragan's Sultani Tables*) (ibid.). After this work was completed, its fame spread throughout cities and countries, and this table was utilized by specialists in the field of astronomy and calendar experts for many years.

## 2.6 *Tadhkirat al-shu'arā* (Anthology of Poets)

The author Dawlatshāh Samarqandī lived from 1436 to 1495. His father, 'Alā' al-Dawla ibn Bakhtshāh al-Ghāzī, was one of the renowned

emirs of Shāhrukh Mīrzā.

*Tadhkirat al-shu'arā* was written in 1486 and provides information about the works of 150 poets and writers who lived and created over a period of five centuries. Dawlatshāh Samarqandī notes that Khwāja Ismat Allāh Bukhārī (died 1426), one of the renowned poets of the fourteenth and fifteenth centuries, composed several *qasidas* in honor of Ulūgh Beg (Dawlatshāh, 1981: 147). Dawlatshāh Samarqandī, emphasizing Ulūgh Beg's talent in astronomy, writes that from the time of Alexander until his own era, no scholar and ruler like Ulūgh Beg had ascended the Royal Throne. He also highlights Ulūgh Beg's talent in mathematics and notes that he constructed an Observatory in collaboration with the eminent scientists Qāzīzāda Rumī and Ghiyāth al-Dīn Al-Kāshī. Dawlatshāh further states that the Observatory remained unfinished even after the passing of two great scientists of that time. Ulūgh Beg devoted all his energy to completing the construction, and he created the *Zīj-i Sultānī* and named it after himself (Dawlatshāh, 1981: 148). Some scholars have rated it higher than the *Zīj-i Nāsir-i Ilkhānī*, an astronomical work written in 1271 as a result of twelve years of observations conducted at Marāgha Observatory in Azerbaijan by the great encyclopedic scholar Nāsir al-Dīn al-Tūsī (1201–1274).

Dawlatshāh Samarqandī writes that Ulūgh Beg had an unparalleled *madrasa* constructed in Samarkand, where more than a hundred students resided and received education during his era (*ibid.*). It should be noted that classrooms for students and dormitories for their accommodation were also built at the Ulūgh Beg *Madrasa*. This was very convenient for students who came from distant places, and the issue of students' social welfare was sufficiently addressed.

In Dawlatshāh Samarqandī's work, we can see that Ulūgh Beg's effective governance also enhanced the state's financial condition. During his reign, a tax for livestock and a tribute of four *dānaks* of *fulūs* (*dānak fulus*: *dānak* is one-sixth of something (for example, a *dinar*); it also refers to a plot of land measuring one *tanob* in size. *Fulūs* is a small copper coin) were collected from one *jarīb* (is a unit of land measurement approximately equal to one *tanāb* in size) of land that yielded four *kharwārs* (an ancient unit of weight measurement. One *kharwār* was equivalent to the weight that could be loaded onto a single donkey) of harvest (Dawlatshāh, 1981: 149). This seed was equivalent to one silver dirham.

Dawlatshāh Samarqandī recounts a story about Ulūgh Beg's extraordinary memory:

everywhere he went, including during hunts, he would record in a separate notebook when and where specific events occurred and which animals were hunted. This notebook was accidentally lost, causing distress among the policemen. Ulūgh Beg reassured them, saying that he remembered all the details. He then summoned the scribes and dictated the information while they wrote it down. After some time, the original notebook was found. When they compared the two notebooks, everything matched except for four or five discrepancies (*ibid.*).

Dawlatshāh presents several such stories relating to Ulūgh Beg's life. One of them narrates the friendly relationship between his teacher Sheikh Āzariy and Mīrzā Ulūgh Beg (Dawlatshāh, 1981: 149–150).

One of the most valuable pieces of information provided by Davlatshah Samarkandi is that Abdullatif won a conflict against his father in 1449, and that Ulūgh Beg was killed by Abdullatif in the same year. In October of that year, Ulūgh Beg was executed on the orders of his son Abdullatif near the Obi Sabuh canal in the vicinity of Samarkand (Dawlatshāh, 1981: 151). Of course, the tragic demise of Ulūgh Beg, a great scholar and just ruler, is remembered with deep regret in the sources of that era, particularly in *Tadhkirat al-shu'arā*.

## 2.7 Majmū'a-i murāsālāt (Collection of Letters)

This collection contains 337 handwritten letters by the famous poet and thinker 'Abd al-Rahmān Jāmī (who died in 1492). Three of these letters pertain to the life of 'Alī Qūshchī, a loyal disciple of Ulūgh Beg (Jāmī, 1982: 94, 106, 128).

After the death of Mīrzā Ulūgh Beg (1449), 'Alī Qūshchī departed for Tabriz (Iranian Azerbaijan) in 1470, and from there moved to Istanbul, where he passed away in 1474. Three letters from Abdurrahman Jāmī concern the safe departure of 'Alī Qūshchī and his family from the city. It is known that 'Alī Qūshchī and Abdurrahman Jāmī met and conversed in Herāt. Considering this, it can be said that these three letters were written between 1469 and 1470. In them, 'Abd al-Rahmān Jāmī requested that a decree be issued to ensure that people would not harm 'Alī Qūshchī, would not obstruct his family members, and would not seize their pack animals (Urunbayev, 1982: 94). Apparently, this letter was sent to the ruler of Herāt, and when no timely reply was received, a second letter was also sent to him. In this second letter, 'Alī Qūshchī mentioned that he was impatiently awaiting permission and requested a quick response (Urunbayev, 1982: 106).

After this, 'Alī Qūshchī was granted permission and left Herāt. Subsequently, his family arrived in Herāt, and 'Abd al-Rahmān Jāmī wrote a letter to the Governor requesting permission for them. In the letter, he stated that 'Alī Qūshchī's family had arrived in Herāt from Samarkand and requested permission for their safe departure, expressing their desire to reunite with 'Alī Qūshchī as soon as possible (Urunbayev, 1982: 128).

## 2.8 *Majālis al-nafā'is (Beautiful Gatherings)*

The author of the work is 'Alīshīr Navāī (1441–1501), and it was primarily written between 1490 and 1491. In 1498, 'Alīshīr Navāī made additions to the work and created a second edition. It contains information about 459 poets, writers, and scholars.

In discussing Ulūgh Beg, Navāī emphasizes his knowledge and erudition: he notes that Ulūgh Beg possessed profound knowledge of mathematics and mentions that he created the work *Zīj*. From this work, we can discern that Mīrzā Ulūgh Beg had a keen interest not only in exact sciences but also in poetry and literature.

Notably, when Navāī writes about Mīrzā Badakhshī, he highlights that he was a learned person, and that the poets of Samarkand also spoke of his abilities. Additionally, Navāī emphasizes that Mīrzā Ulūgh Beg held him in high regard (Navāī, 1997: 19).

Regarding Khwāja Khūrd, the renowned teacher at Ulūgh Beg's *madrasah* and the judge of Samarkand city, it was written that he possessed virtue, perfection, and knowledge along with piety and exemplary morals. Additionally, it is noted that he was an accomplished specialist in poetry, composition, and historical sciences (Navāī, 1997: 143).

## 2.9 *Khulāṣat al-akhbār fī bayān al-ahvāl al-akhyār (The Essence of Reports in Explaining the Conditions of the Righteous)*

The author is Ghiyāth al-Dīn ibn Humam al-Dīn Khwāndamīr (1474–1535), a historian from Herāt. His work *Khulāṣat al-akhbār* was written in 1500 and dedicated to 'Alīshīr Navāī. The work consists of an introduction, 10 chapters, and a conclusion. In Chapters 9 and 10, Khwāndamīr drew upon the works of his predecessors. For example, as he noted, the work *Tārīkh-i arba'a ulūs (The History of the Four Uluses)* was extensively utilized in chronicling the history of the Chaghatai rulers of Turkestan (in the mid-thirteenth to mid-fourteenth centuries) (Khwāndamīr, 1500: 346a). This work is

referred to as *Risāla (Treatise)* in *Khulāṣat al-akhbār*, and its author is Mīrzā Ulūgh Beg.

## 3 SIXTEENTH CENTURY SOURCES

### 3.1 *Dastūr al-wuzarā (Guide for Ministers)*

Khwāndamīr began writing this work in 906/1500–1501 at the request of Alisher Navāī. According to the chronogram provided in *Dastūr al-wuzarā*, the work was completed in 915/1510 (Yusupova, 2006: 53).

This work provides information about Nāsir al-Dīn al-Khwāfī, who served in Mīrzā Ulūgh Beg's court, and notes that he passed away due to illness in 845/1441 (Khwāndamīr, 1510: 95b).

Furthermore, this work provides information about Sayyid Imām al-Dīn and Khwāja Ni'mat Allāh, who were in the service of Mīrzā Ulug'bek (Khwāndamīr, 1938: 363).

Khwāja Ni'mat Allāh was a leading specialist in the field of financial accounting and held a temporary position in the court of Shāhrukh Mīrzā. When Mīrzā Ulūgh Beg came to Khārāsān, he took Khwāja Ni'mat Allāh with him to Māwarā al-Nahr and appointed him as the *mustawfī* (financial administrator) of Māwarā al-Nahr. Here, he worked with respect. One day, Khwāja Ni'mat Allāh organized a grand celebration. Many officials participated in the event. On the same day, Mīrzā Ulūgh Beg also organized an event (Khwāndamīr, 1938: 374).

When Mīrzā Ulūgh Beg asked if there was any grander event happening in the world, he was told that Khwāja Ni'mat Allāh had organized a larger celebration in the city that day. Upon hearing this, Mīrzā Ulūgh Beg became enraged and ordered the execution of Khwāja Ni'mat Allāh (Khwāndamīr, 1938: 375).

In such situations, we can see that Mīrzā Ulūgh Beg was not just a scholar, but a true Timurid descendant. The reason is that the grandest feasts and events are undoubtedly held by rulers. When ministers under a ruler's authority organized large feasts, it was viewed as an increase in their influence and considered a form of rebellion against the ruler. Consequently, they were swiftly punished. Knowing this, Khwāja Ni'mat Allāh's enemies deliberately conveyed the aforementioned slanderous words to Mīrzā Ulūgh Beg.

However, after a short while Mīrzā Ulūgh Beg, having understood the essence of the matter and grasped the nature of the intrigue, calmed down and rescinded the execution order (Khwāndamīr, 1938: 375). Nevertheless, Khwāja Ni'mat Allāh did not wish to remain in Samarkand, and he returned to Herāt. When



Mīrzā Ulūgh Beg came to Herāt the next time, he once again took Khoja Nematullah with him. Khwāja Ni'mat Allāh worked here until the beginning of Sultān Abū Sa'īd's reign. Khwāja Ni'mat Allāh managed Sultān Sa'īd's *divan* until the end of his life in 1469 (Khwāndamīr, 1938: 376).

### 3.2 *Tārīkh-i Rashīdī (The History of Rashīdī)*

The author is Mīrzā Muḥammad Haydar Dūlatī (born in 1499 in Tashkent; died in 1551 in Kashmir). The work was written around 1546. It extensively covers the history of Central Asia, East Turkestan, Afghanistan and Northern India in the mid-sixteenth century. *Tārīkh-i Rashīdī* contains information about Mīrzā Ulūgh Beg's activities, his Observatory, and his astronomical tables.

First and foremost, Mīrzā Muḥammad Haydar Dūlatī uses the phrase "Mīrzā Ulūgh Beg, the son of Shāhrukh, who is renowned for his *"Zīj-i Kūragānī"* and observatory" (Dūlatī, 1999: 90–91). This demonstrates that Mīrzā Ulūgh Beg's astronomical tables and his observatory were still renowned even in the mid-sixteenth century, and had not lost their significance. Furthermore, Mīrzā Muḥammad Haydar notes that he utilized Mīrzā Ulūgh Beg's *Ulūs-i arba'a* in composing the second part of his work (Dūlatī, 1999: 181). Undoubtedly, this refers to *Tārīkh-i arba'a ulūs*.

In *Tārīkh-i Rashīdī*, the name Mawlānā Munīr Marghinānī is mentioned, who was one of the scholars in Mīrzā Ulūgh Beg's circle. Mawlānā Munīr Marghinānī recorded Zahir al-Dīn Muḥammad Bābur's (1483–1530) birth date as *Shashi Muharram* in a chronogram (Dūlatī, 1999: 203). *Shashi Muharram* means the 6<sup>th</sup> of *Muharram*. This phrase yields the number 888 when calculated using the *abjad* system. Zahir al-Dīn Muḥammad Bābur was born on 6 *Muharram* 888 (14 February 1483).

One of the most respected scholars associated with Mīrzā Ulūgh Beg was Muḥammad 'Attār. Muḥammad 'Attār was originally from Kāshghar and had always been close to Mawlānā S'ad al-Dīn in Samarkand. Muḥammad 'Attār himself mentioned this:

In Samarkand, since we were from the same city, we were always together with Mawlānā [S'ad al-Dīn]. We studied science and spent most of our daily activities together. (Dūlatī, 1999: 227).

This serves as a clear example of how students from various regions came to study at the academy established by Ulūgh Beg in Samarkand.

### 3.3 *Habīb al-siyar fī akhbār-i afrād-i al-bashar (The Favorite Chronicles on the History of Human Beings)*

One of Khwāndamīr's most significant works was written between 927/1520–1521 and 930/1523–1524, and is dedicated to the *vizier* Karīm al-Dān Habīb Allāh Sāvajā. The title of the work is partially connected to this *vizier*'s name. The book provides information about events that occurred in Iran, Afghanistan, Iraq, and Central Asia.

The work consists of an introduction, three volumes, and a conclusion (*ikhtimām*). The third volume is the largest part, encompassing the history of the Mongols, the Tīmūrids, and the era of Shāh Isma'īl. In writing the first part of this volume, the author extensively used the work *Tārīkh-i arba'a ulūs (History of the Four Uluses)*. The author corrects the idea presented in *Khulāṣat al-akhbār* that Ulūgh Beg was the author of *Tārīkh-i arba'a ulūs* (in *Khulāṣat al-akhbār* this work was referred to as *Risāla*), and emphasizes that this work was written under Ulūgh Beg's leadership (Khwāndamīr, 1954: 56).

This work also emphasizes Mīrzā Ulūgh Beg's patronage of science and respect for scholars. Additionally, it records that Ulūgh Beg led the construction of the Observatory (Khwāndamīr, 1954: 21). According to Khwāndamīr (*ibid.*), it was in this very Observatory that Ulūgh Beg wrote *Zīj-i Jadīd-i Kūragānī*.

Ghiyāth al-Dīn Khwāndamīr (1954: 34) lists some of the most renowned scholars surrounding Mīrzā Ulūgh Beg: Mawlānā Ghiyāth al-Dīn Jamshīd al-Kāshi, an eminent expert in mathematics, geometry, and astronomy; Mawlānā Mu'in al-Dīn al-Kāshi; Mawlānā 'Alī Qūshchī; Mawlānā Salāh al-Dīn Musā Qāḍizāda Rūmī; Mawlānā 'Alā' Shāshī; and others. Interestingly, Khwāndamīr (1954: 21) refers to Ghiyāth al-Dīn Jamshīd al-Kāshi as the 'Second Ptolemy', while 'Abd al-Razzāq Samarqandī refers to 'Alī Qūshchī as 'the Ptolemy of his time'. In this case, Khwāndamīr might have been mistaken, as he does not use any title when mentioning 'Alī Qūshchī. Considering that 'Abd al-Razzāq Samarqandī lived in the same era as Mīrzā Ulūgh Beg and the scholars surrounding him, and he knew them well, 'Abd al-Razzāq Samarqandī's information appears to be more reliable than that of Khwāndamīr. However, it should not be forgotten that Ghiyāth al-Dīn al-Kāshi was no less accomplished than 'Alī Qūshchī in his deep mastery of science. Therefore, it is not entirely incorrect to consider Khwāndamīr's comparison of him to Ptolemy as appropriate.

In his aforementioned work, Ghiyāth al-Dīn Khwāndamīr dedicated a separate section to 'Alī Qūshchī, noting that 'Alī Qūshchī wrote a commentary on Khwāja Nāsir al-Dīn Tūsī's work titled *Tadrij* (Khwāndamīr, 1954: 405). It is known that 'Alī Qūshchī spent the final period of his life in Istanbul and passed away there on 17 December 1474. Khwāndamīr (*ibid.*) wrote that 'Alī Qūshchī died in the land of Rum, but he did not record the specific date.

### 3.4 Bābur-nāma (Memoirs of Bābur)

Zahir al-Dīn Muḥammad Bābur, the founder of the Mughal Dynasty in India (1526–1858), is the author of this work. The book illuminates the history of the peoples of Central Asia, Afghanistan, and India from the late fourteenth to early fifteenth centuries, and also provides a brief geographical description of Fergana and Transoxiana. Additionally, it contains information about the structures (mosques, *madrasas*, *khan-aqāhs*) erected by Ulūgh Beg in Samarkand. Bābur (1922: 78) emphasizes that Amīr Tīmūr and Mīrzā Ulūgh Beg had numerous buildings and gardens in the city of Samarkand. Bābur mentions the *madrasah* (school) and *khānaqāh* (Sufi lodge) that Mīrzā Ulūgh Beg began constructing in 1420, as one of the most famous edifices in Samarkand. He describes the dome of the *khānaqāh* as being so immense that he claims there is no other dome in the world of such magnitude (*ibid.*). There was also a famous bathhouse next to these two buildings. The construction and continuous operation of bathhouses was commonplace in medieval Muslim countries, and rulers paid great attention to the establishment of such sanitary and hygienic centers. To the south of Mīrzā Ulūgh Beg's *madrasa*, a mosque was built, which was named *Muqatta'*. Bābur (1922: 79) indicates that the reason for the mosque's name was that it was constructed from pieces of wood. These wooden structures were adorned with Islamic and Chinese patterns.

One of Bābur's most significant observations is about the Observatory built by Mīrzā Ulūgh Beg in the Pūst-i Kūhak area of Samarkand. This Observatory was three storeys high, and it was here that Mīrzā Ulūgh Beg wrote his work *Zīj-i Jadīd-i Kūragānī*. This astronomical table was still in use during Bābur's time (*ibid.*). From this, we can see that Mīrzā Ulūgh Beg's Observatory remained one of Samarkand's distinctive landmarks even after nearly fifty years.

Another important landmark is the Bāgh-i Maydān (Garden Square) constructed next to the Observatory, and the Chilsutān (Forty Pillars) Palace within it. The palace is two-storeyed, accessed through towers on all four sides,

and features columns made of stone (*ibid.*). This garden served as Mīrzā Ulūgh Beg's summer palace. The location of such a grand palace in the center of Bāgh-i Maydān (Garden Square), as well as the proximity of this garden to the Observatory, demonstrates that Mīrzā Ulūgh Beg continued the architectural traditions of the Timurid Empire while simultaneously advancing scientific endeavors and governance.

### 3.5 Zubdat al-āthār (The Essence of Chronicles)

The author is 'Abd Allāh ibn Muḥammad ibn 'Alī Nasr Allāhī. The work, composed after 1525, reflects the history of Muslim states from the creation of the world up to 1525, and consists of 11 chapters.

In parts X and XI, while narrating the history of the Turkic-Mongol peoples, the author relied on the work *Tārīkh-i Khāni*, which is associated with Ulūgh Beg. Undoubtedly, this refers to *Tārīkh-i arba'a ulūs*, more specifically, its first part (Nasr Allāhī, 1525: 396a; Yusupova, and Djalilova, 1998: 74). As we can see, the fact that several works use the information from *Tārīkh-i arba'a ulūs* as a source demonstrates how important and reliable this work is.

## 4 SEVENTEENTH TO NINETEENTH CENTURY SOURCES

### 4.1 Tārīkh-i Farīshta (The History of Farīshta)

The author Muḥammad Qāsim Hindūshāh wrote his work in 1606–1607. The work is considered an important source on the history of Muslim India, especially its minor dynasties. It contains information about Ulūgh Beg's tutor and mentor (Hindūshāh, № 612: 407b). The encounter between Mīrzā Ulūgh Beg and Sheikh Āzari depicted in this work, as well as the conversations between them, are almost identical to the information presented in Dawlatshāh Samarqandī's work *Tadhkirat al-shu'ārā*.

### 4.2 Baḥr al-asrār (The Sea of Secrets)

The author of the work is the prominent encyclopedic scholar Mahmūd ibn Walī (born in 1595–1596). The work was written between 1634 and 1641. It consists of an introduction, seven volumes, and a conclusion. Volume 6 discusses the history of the Mongol Empire and the Great Yurt, that is, Mongolia, the Golden Horde, and the Chagatai Ulus, which were established in place of the empire after the death of Chengiz Khān. It also covers the Īlkhānid state (Iran, Azerbaijan) founded by Chengiz Khān's grandson, Hulagu Khān (ibn Walī, 1977:



6). In terms of content, this work is very similar to *Tārīkh-i arba'a ulūs*. Undoubtedly, when writing *Baḥr al-asrār*, the author regarded *Tārīkh-i arba'a ulūs* as an important and reliable source.

#### 4.3 *Muḥīṭ al-tawārīkh (The Comprehensive History)*

The author is Muḥammad Amīn ibn Mīrzā Muḥammad Zamān Bukhārī Sufyānī, known by the nickname Qirāq Yarāqchī (who lived in the late seventeenth to early eighteenth centuries). The work was written in 1699. It covers universal history from ancient times to the end of the seventeenth century, and includes a brief history of Mīrzā Ulūgh Beg, mentioning the names of his five musical compositions, namely *Bulūjī*, *Shādiyāna*, *Akhlaqī*, *Usūl-i ravān* and *Usūl-i Bahriya* (Bukhārī, 1699: 834b). From this it can be concluded that even in the seventeenth century, Mīrzā Ulūgh Beg was regarded not only as a ruler and astronomer but also as a person who advanced various fields of science and contributed to cultural life. These works are among the primary sources of the Bukhara Shashmaqām, and it is only natural that the Bukhara historian mentions this fact.

#### 4.4 *Tārīkh-i jadīda-i Tāshkand (The New History of Tashkent)*

The author, Dāmullā Muḥammad Šāliḥ Khwāja, was born in Tashkent around 1830, and the work was completed in 1887. This work consists of two volumes, with the second volume comprising three chapters. The third chapter of this volume provides information about the

events related to Mīrzā Ulūgh Beg's return to Samarkand following his campaign to Moghulistan (Šāliḥ Khwāja, 1887: 200a). This is where Mīrzā Ulūgh Beg's victorious campaign to Moghulistan in 1425 is documented. From this, it is clear that even at the end of the nineteenth century, historians regarded Mīrzā Ulūgh Beg as a victorious ruler.

#### 5 CONCLUDING REMARKS

We have examined information about Mīrzā Ulūgh Beg in historical sources written from the first half of the fifteenth century to the end of the nineteenth century. While some authors of these works recorded their information based on events they directly witnessed, historians who lived after Mīrzā Ulūgh Beg's time wrote about him using the most reliable and highly regarded works available to historians. These chroniclers not only viewed Mīrzā Ulūgh Beg as a great ruler and founder of a magnificent empire but also commended him with words of praise as a patron of science and culture. The authors of the historical works cited in this paper acknowledged that Mīrzā Ulūgh Beg was not only an accomplished scholar of exact the sciences such as mathematics and astronomy but also was accomplished in the fields of music, literature, and art. Remarkably, such a memory of Mīrzā Ulūgh Beg persisted even several centuries after his death. This indicates that Mīrzā Ulūgh Beg, his works, and the research he conducted remain relevant and significant for humanity not only in the nineteenth century but also to this day.

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