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HISTORICAL SOURCE STUDIES OF THE SCIENTIFIC HERITAGE OF ULUGBEK'S ACADEMY EDUCATION PROVIDERS

(Activities of Alavouddin Ali ibn Muhammad Kushchi Samarkhandi)

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Annotation:
Maulana Alauddin Ali ibn Muhammad Kushchi Samarkhandi (1403-1474) was an astronomer and mathematician, one of the famous representatives of Ulugbek's scientific school, his closest student. Ali Kushchi had a significant impact on the development of mathematics in the countries of the Near and Middle East in the 16th and 17th centuries. The work "Hisob risola" was used as a textbook in the madrasah of Central Asia. In this work, Indian arithmetic (decimal system), astronomical arithmetic (hexadecimal system) and geom. (handasa) talk about new ideas. In "Kitab ul-Muhammadiya" Ali Qushchi shows methods for deriving arbitrary natural roots from numbers and Newton's binomial formula, his methods are similar to the method currently known as the Ruffini-Horner scheme. In this work, Ali Kushchi gives formulas for the approximate calculation of the square root and the root of the first degree in general. It should be noted that the current designation of the root in the works of Turkestan scientists was not used: the root was written in words.

Keywords: Patron of science, sufism, sheikh, condition, great astrologer, lawyer, owner of arts and crafts, passion, anger, observatory, dargah, astronomical table, history of nations, historiography, source studies.

Аннотация:
Маулана Алауддин Али ибн Мухаммад Кушчи Самарханди (1403-1474) астроном и математик, один из известных представителей научной школы Улугбека, его ближайший ученик. Али Кушчи оказал значительное влияние на развитие математики в странах Ближнего и Среднего Востока в 16-17 веках. Произведение «Хисоб рисола» использовалось как учебник в медресе Средней Азии. В этой работе индийская арифметика (десятичная система), астрономическая арифметика (шестнадцатеричная система) и геом. (хандаса) говорить о новых идеях. В «Китаб уль-Мухаммадия» Али Кушчи показывает методы вывода произвольных натуральных корней из чисел и биномиальную формулу Ньютона, его методы аналогичны методу, известному в настоящее время как схема Руффини-Хорнера. В этой работе Али Кушчи приводит формулы приближенного вычисления квадратного корня и корня первой степени вообще. Следует отметить, что нынешнее обозначение корня в трудах туркестанских ученых не использовалось: корень писался словами.

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Ключевые слова: Покровитель науки, суфизм, шейх, состояние, великий астролог, законник, владелец декоративно-прикладного искусства, страсть, гнев, обсерватория, даргях, астрономическая таблица, история народов, историография, источниковедение.

INTRODUCTION

Samarkand scientists studied astronomy, mathematics, medicine and geography with great interest. In 865-866, Muhammad ibn Ahmad Samarkandi, Suleiman ibn Isma Samarkandi, Abu Muhammad Ato Samarkandi, who studied the science of stars in Movaraunnahr, as well as representatives of the astronomical school of Mirzo Ulugbek - Kazizada Rumi, Giyosuddin Jamshid Koshi, Ali Kushchi, Miram Chalabi and lived in XV-XVII centuries Among them are the mathematicians who created Sharafuddin Samarkandi and Shamsuddin Samarkandi. In 1402, a talented mathematician and astronomer Alaviddin Ali ibn Muhammad Kushchi was born in Samarkand, who left a deep mark on the history of science in Central Asia and Turkey. His father, Amir, was nicknamed the "poultry farmer" because he served as the head of the hunt in Temur's palace. A special place in the history of science is occupied by the works and worldviews of representatives of Ulugbek's school, especially Ali Kushchi. He believed that the world consists of material things, and material things are simple and complex, and they have internal contradictions.

According to him, the change of seasons is associated with the approach of the Earth to the Sun. He gave calculations and tables about the distance to the Sun, and also explained the questions of lunar and solar eclipses very clearly, correctly and scientifically. In the Astronomical Book mentioned above, there is a map of the world compiled by Ali Kushchi. The map mainly shows the boundaries of the northern hemisphere, and the horizontal lines on it indicate the boundaries of climates. The length of the equator in the eastern hemisphere is "3332 farsangs" - about 20 thousand km. Despite the fact that the map is somewhat sketchy, there are places where it does not correspond to reality, it is important as an example of Central Asian cartography. Ali Qushchi also wrote textbooks and teaching aids in mathematics and history. Ali Kushchi continues the traditions of the Samarkand Scientific School and takes an active part in disseminating the scientific achievements of this scientific school in the countries of the Middle East and Europe.

MAIN PART

Ali Kushchi received his primary education in Samarkand, in 1414 he went to the Iranian city of Kirman to improve his education and studied there for 3 years in a madrasah, studying natural sciences, especially astronomy and mathematics, and returned to Samarkand in 1417. At this time, Ulugbek's madrasah was being built in Samarkand. Ali Kushchi continues his education in this madrasah, he comprehends the secrets of science from Rumi and Giyaziddin Koshi in Kaziz. After graduating from the madrasah, he studied astronomy and mathematics, and was engaged in scientific work. He is also

actively involved in the construction of the Ulugbek observatory. During this period, he wrote the works "Accounting Treatise" and "Astronomical Treatise" and gained great fame among people of science. In 1428, when Ulugbek's observatory was launched, he continued to make observations and write treatises under the guidance of Ulugbek. Ali Kushchi also made a great contribution to the writing of Ulugbek's work "Zizhi Jadidi Koragoniy".

Ali Kushchi was a favorite student of Mirzo Ulugbek, led him in scientific research. In 1438 he was sent to China and served as an ambassador. Returning from a trip, Ali Kushchi writes a great work on the history and geography of China. This work brings great fame to the scientist. It was translated into Turkish twice in the 16th century. Ali Kushchi also made several trips to Iran, the Caucasus and Turkey. In 1430 he met Abdurahman Jami in Herat. Ali Kushchi is a scientist-encyclopedist. In addition to mathematics and astronomy, the sources note that he was very well versed in the intricacies of philosophy, logic, fiqh (Islamic law), literary theory, and medical sciences. After the death of Ulugbek, his famous library in Samarkand will be in danger. There are suggestions that the library was preserved by Ali Kushchi, according to legend, Ali Kushchi moved most of the library's books to the village of Hazrat Bashir near Samarkand.

Soon after, Ali Kushchi was forced to leave Samarkand to avoid persecution. At first he lived in the city of Kirman and served in the palace of Hasanbek al-Kayunli, and in 1465, at the invitation of the Turkish Sultan Mohammed II, he moved to Istanbul. The Turkish Sultan Mohammed II conquered Constantinople in 1453 and made it the capital of the country, and immediately turned the Hagia Sophia into a mosque and began to build a madrasah next to the mosque. Muhammad II (1451-1481) was a progressive ruler who gathered scientists and poets around him, supported the development of science and culture, built madrasas, libraries and many mosques.

The Sultan was well versed in Persian, Greek and Arabic literature, and he himself graduated from the Faculty of Poetry under the pseudonym "Avni". Sultan Mohammed II had great respect for Ali Kushchi and appointed him as the head of the scientists. Ali Kushchi also worked as the chief mudarri in the Istanbul Madrasah. Ali Kushchi continued his scientific activity and wrote treatises on mathematics, astronomy, philosophy, logic, literature, music and other fields of science. Ali Kushchi inherited more than 20 scientific papers. He wrote commentaries on the works of many scholars. Particularly important in the history of astronomy is the work of Ali Kushchi "Commentary on Ulugbek Zygi". He interprets "Zij" using geometrical theorems.

Most of the works of Ali Kushchi are stored in the library of the Hagia Sophia Madrasah in Turkey. In 1472, Ali Kushchi wrote a treatise on natural sciences and mathematics called "Kitab al-Muhammadiyya" for Sultan Mohammed II of Turkey. In 1473 Muhammad II conquers Iraq. Ali Kushchi presents him with the treatise "Fatiya" on the science of birds. Both treatises with the author's signature are now kept in the Hagia Sophia Library in Istanbul. Ali Kushchi worked as a leading madrasah in the Hagia Sophia Madrasah. The greatest merit of Ali Kushchi was the preservation of the heritage

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of the Ulugbek madrasah and the communication of his scientific achievements to the whole world. After the death of Ulugbek, due to political events, he was forced to go to Turkey. He took Zizhi Kuragony to Istanbul and copied many copies for hats. In the 17th century, a copy of the work fell into the hands of the English scientist John Greaves (1602-1652) and he published part of it in 1648, and thus this wonderful book by Samarkand scientists entered European science. Ali Kushchi writes a review of Zizhi Koragoniy and explains difficult points to readers.

Manuscripts of this work are kept in the libraries of Istanbul, Iran, India, Paris, London, Leiden and St. Petersburg. In 1470, Ali Kushchi came to Turkey and died on December 17, 1474, was buried in the Yusuf Sultan cemetery in Istanbul. His grave was repaired in 1815-1820. Ali Kushchi wrote his first book in 1417 in the city of Kermon. In this work, Nasriddin commented on Tusi's work. In 1425 he wrote "Risolai Yasab" and in 1426 "Risolai Kusur". The only manuscript of this work is currently kept at the Institute of Oriental Studies in St. Petersburg. In addition, Ali Kushchi writes the books Treatise on Geometry, Arithmetic Rules and Geometric Instructions. Treatise on Medicine "Treatise on Medicines and Medicine" is kept in the Hagia Sophia Library in Istanbul. Ali Kushchi's brochures were distributed to students as teaching aids. His books "Treatise on Fractions", "Treatise on Ilmi Khandas", "Muhammadiya" were used as teaching aids. Istanbul University was founded in 1846 on the basis of the madrasah where Ali Kushchi worked. After the establishment of the Republic of Turkey in 1923, the activities of Istanbul University were reformed and reorganized in 1927-1933. Today, this university has 16 faculties, 12 research institutes, two high schools, two vocational high schools, 2 faculties and 77 research centers scattered throughout Istanbul. 90,000 students study in these structural divisions. In total, 419,000 students study at the university, including those studying in the field of external studies and distance learning. 8200 of them are foreigners. Istanbul University has a total of 720 international cooperation agreements and carries out educational cooperation with them within the framework of the student and teacher exchange programs Erasmus, Maulano, Farobi.

CONCLUSION

In short, after the death of Mirzo Ulugbek, the observatory was not destroyed, but operated, and flourished for another 150 years, according to sources, it functioned until the beginning of the 17th century. Built in 1420 in Samarkand, the madrasah was two-story, with fifty hijras (cells), each of which consisted of a bedroom, study room and storage room. Mawlana Shamsutdin Muhammad Khavafi was appointed the first Mudarris-Rector of the Ulugbek Madrasah. The first lesson in the Ulugbek madrasah was held by Shamsutdin Muhammad Khavafi. In the madrasah various sciences were taught by such prominent scientists of the Middle Ages as Kazizade Rumi, Giyasiddin Jamshid Kashani, Mirzo Ulugbek and his student Alauddin Ali Kushchi. Ali Kushchi's manuscripts on source studies are kept in the libraries of the Tashkent Institute of Oriental Studies, Dushanba, St. Petersburg (Russia), Mashhad, Istanbul (Turkey), Oxford (England), Leiden (Netherlands) and Hagia Sophia (Turkey). Also, later, Ali

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Kushchi confirms that he received help from Abdurrahman Jami in solving the most difficult problems of astronomy, and that he appreciated his high knowledge in the field of astronomy. Ali Qushchi is also a scholar historically associated with these universities.

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