

KHOREZM MA'MUN ACADEMY - AT THE CROSSROADS OF WORLD CIVILIZATION

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ABSTRACT

The article provides a scientific analysis of scientific research, scientific directions and great discoveries of the Middle Ages of international importance, the Khorezm Ma'mun Academy and the scientists who worked in it.

Keywords: *precise sciences, mathematics, astronomy, philosophy, philosophical views, world, human, values, social relations, Renaissance science.*

1. INTRODUCTION

As you know, the ancient and rich cultural heritage of our region is of global importance. As the President of the Republic of Uzbekistan Shavkat Mirziyoyev noted at the 75th session of the UN High Tribune on September 23, 2020, "we are ready to hold an international forum in ancient Khiva in 2021 on the theme "Central Asia at the crossroads of world civilizations" [1]. Because Khorezm has long been a land of genius, a place of knowledge and enlightenment. In particular, one of the pressing problems is the analysis of scientists and scientific directions of the Khorezm Academy of Ma'mun. Studies in history were widely deployed at the Ma'mun Academy in Khorezm.

2. MAIN BODY

To continue the academic traditions Beruni wrote a book - "Famous Personalities of Khorezm" or "History of Khorezm". Unfortunately, the book has not survived and the main part of the book was described in the book of Abu Fazl Baykhatiy "The History of Masudi", which was dedicated to Sultan Masud Ghaznaviy. In addition, we were able to find information about history in other books of Beruni, such as "Monuments", "Knowledge" (At-Tafhim) and "India". Judging by the books of al-Saolibi "Amazing Information" ("Latoif al-Maorif", X-XI centuries), as-Samoni "Book of the Ancestors" ("Kitob al-Ansob" XII century), Yokut al-Hamawiy "Encyclopedia of Writers" (To the men of al-udabo) and others, the Ma'mun Academy enjoyed the fame of the center of literature and art. Many poets and writers, such as Ahmad bin Muhammad bin Sahriy, Abdulloh bin Hamid, Abu Sayyid bin Shabib, Abu Hasan bin Ma'mun, Abu Abdulloh at-Tohir, Ibrohim Rakkoniy, worked at the Ma'mun Academy. Advisor to Khorezshah as-Sakhliy wrote poetry and regularly organized literature competitions at the Ma'mun Academy in Khorezm. During this era, linguistic scholars at the Ma'mun Academy developed the Arabic grammar and vocabulary, which was an important tool for scientific communication. Political stability, economic and social development of Khorezm in the late 10th and early 12th centuries, as well as fruitful relations between the peoples of the region, created favorable conditions for the creation of a scientific school in Gurganch (present-day Urganch). The tradition of Khorezmshah's rule was continued, and favorable conditions were created by his son Abu Hasan Ali ibn Mamun (999-1009) and Abu Abbos Mamun bin Mamun. The chief adviser, Abu Husain Ahmad bin Muhammad al-Sakhliy, who was very interested in science, literature and poetry, decided to create an institute for scientific research in the form of the Mamun Academy in Khorezm [6, p. 478].

Research in mathematics was carried out by Abu Mansour bin Iraq wrote about 30 scientific books on mathematics and astronomy. Beruni himself, in his 150 books, wrote articles on mathematics and astronomy. The theorem on the qualities of an isosceles triangle was proved by Abu Khair Hammor and is widely known as the "Theorem of Hammori" (Ash-Shakl al-Hammori). Abu Nasr ibn Iraq belongs to the galaxy of Khorezm scholars, external huge contributions to medieval oriental science. He was born in Khorezm, apparently around 961-965. [2, p. 110] and spent most of his life there. As a representative of the Khorezmshah dynasty of the Iraqids. Abu Nasr ibn Iraq was known throughout the world for his discoveries in the field of astronomy and mathematics. Abu Nasr receives his initial knowledge in Khorezm. From childhood, he was very interested in such natural sciences as mathematics and astronomy, was familiar with the works of such great Greek scientists as Euclid, Ptolemy, Menelaus, Theodosius, Archimedes. According to many studies, the first proof of the sine theorem for spherical triangles was carried out by the Khorezm scientist Abu Nasr. This was confirmed by Abu Raikhan Beruni and Nasiriddin Tusi (1201-1274). Based on this, Abu Nasr is called the founder of spherical trigonometry.

The works of Ibn Iraq enjoyed wide popularity not only among his contemporaries. They were studied and cited by astronomers and mathematicians of more recent times. Among these scientists is the Khorezm astronomer of the XII-XIII centuries. Mahmud ibn Muhammad al-Chagmini, who referred to the works of Ibn Iraq and often mentioned his name [3, pp. 3686]. Ibn Iraq is repeatedly quoted by the great scholar of the 13th century. Nasir ad-Din at-Tusi in his famous "Treatise on the Complete Quadripartite" [5, pp. 13-14]. He mentions the works of Ibn Iraq and Khadji Khalifa - the author of the monumental bibliographic and encyclopedic dictionary "Disclosure of doubts about the names of books and sciences", who lived in the 17th century [4, p. 126]. Ibn Iraq's works are mainly devoted to astronomy. The main work of Ibn Iraq - "Shah Almagest" ("Al-Majisti al-Shahi"), written between 997 and 1017, enjoyed great prestige among medieval astronomers. Now, it is considered lost. This work is known only by quotations from it, which were cited by Beruni [4, p. 137] and Nasir ad-Din at-Tusi [5]. Many of Ibn Iraq's writings deal with the correction or clarification of data from the Zij compiled by his predecessors. In particular, he commented on the astronomical tables of the 9th century Central Asian astronomer. Habasha al-Hasib al-Marwazi in his "Treatise on the proof of the actions of Habash using correction tables".

Scientists Abu Sahl al-Masihiy, Abu Khair Hammor, Ibn Sino and Beruni wrote scientific works on medicine. In particular, Abu Khair Hammor was known as the Second Hippocrates for his innovative theoretical teachings in the fields of medicine such as human anatomy, the diet of the elderly, medical experimentation, food substances, and epilepsy. Abu Sahl al-Masihiy became famous for his practical teachings in medicine. Ibn Sino, despite his short 5-year stay in Khorezm (1005-1010), wrote very important articles on the treatment of wounds (Dafal-mador).

The Mamun Academy in Khorezm was also famous for its research in the social sciences. Philosophy was deeply studied during the correspondence between Beruni and Ibn Sino. Both scholars expressed their points of view on the philosophical ideas of Aristotle about the end of the world. Beruni and Ibn Sino were supporters of the existence of other worlds and other cultures. Studies in history were widely deployed at the Mamun Academy in Khorezm. To continue the academic traditions Beruni wrote a book - "Famous Personalities of Khorezm" or "History of Khorezm". Beruni's scientific activity, the main place in which was given to mathematics, physics, mineralogy, ethnography and history, was multifaceted and fruitful. His scientific works, consisting of 11 books: "The Canon of Masudi", "Geodesy", "Mineralogy", works on ethnography "Monuments of past generations", "India", etc., for many centuries served as a reference book for scientists, the main manual and have not lost their relevance in our days. It is known that Beruni was characterized by highly developed logical thinking, the ability to correctly illuminate the essence of the issue, prove and bring all this to the reader in an accessible form. These qualities of Beruni are clearly illustrated in his interpretation of the issues of the size of the Earth and the distance from the Earth to the Moon and the Sun, in discussions about the results of predecessors in this area, as well as in the interpretation of shortcomings on this problem. All this testifies to the fact that Beruni had bright abilities in the field of natural sciences.

Today the Academy has become a unique scientific center, where all conditions have been created for scientists. The specialists are assisted in their work by modern equipment. Unique devices have appeared in the new laboratory of DNA technologies. They reveal the genetic and physical properties of physiological materials, diagnose diseases of plants and animals. Thanks to active relations with foreign partners, the Academy regains the image of a world-renowned scientific school. In the fields of history, archeology, ethnography, contacts have been established with one of the oldest universities in Europe - the French Sorbonne. Strengthens cooperation with the Museum of Ostrava (Czech Republic) in the study of museum exhibits and organization of the exhibition. The Academy pays great attention to the integration processes in the "science - education" system. The traditional forms of participation of scientists of the Khorezm Academy of Mamun in the educational process are expanding, including in the preparation of textbooks and teaching aids for higher education, the organization of new departments, giving lectures and conducting classes with students on combining work in universities, supervising the practice of bachelors, preparing dissertations masters. There are agreements between the Mamun Academy and the Urgench State University, the Urgench branch of the Tashkent Medical Academy, the Karakalpak State University, the Center of Higher Technologies of the Academy of Sciences of the Republic of Uzbekistan. Currently, there are branches of 11 departments of Urgench State University.

3. CONCLUSION

I want to emphasize that today the Khorezm Academy of Mamun has become the scientific and spiritual center of the Khorezm region, especially for young people, since university students and students of many professional colleges spend their free time within the walls of the academy, visit the museum and the information resource center of the academy.

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