ISSN: 2053-3578 I.F. 12.34

SCIENTIFIC ACTIVITIES AND CREATIVITY OF ABU RAYHAN BIRUNI IN THE KHOREZM ACADEMY OF MA'MUNA

Abdurakhmanova Mohichekhra Rabbana kyzy
Tashkent Institute of Textile and Light Industry,
2nd year student, group 9a-23
Scientific supervisor: Sadykova Roza Ismailovna
Tashkent Institute of Textile and Light Industry, Department of Social Sciences and Physical Education, Senior Lecturer

Abstract. *The article scientifically substantiates the scientific activity and creativity of the great encyclopedist Abu Rayhan Beruni in the Khorezm Academy of Mamun. It is important to study the views of our ancestors on the world and man, nature, social life, spirituality of the individual, education and upbringing, to educate the younger generation as worthy successors of their ideas, corresponding to the spirit of the times.*

Keywords: *scientific heritage, world, man, universe, social life, spiritual heritage, Khorezm Academy of Mamun, teaching.*

The scientific heritage of thinkers who made a significant contribution to world civilization, including the creation of the world, the teachings about the Creator and man, the universe, nature and social life, the disclosure of the essence of the relationship between man and nature, the substantiation of the place of natural scientific views in the development of social and philosophical thinking are becoming increasingly important today.

Scientific research is carried out in a number of priority areas for the preservation and development of the spiritual heritage of the peoples of the world, including: revealing the humanistic significance of the spiritual heritage of Central Asian encyclopedists in further enriching the history of natural science teachings; creating scientific concepts to form feelings of mutual understanding, compassion and respect; enriching the resources of national and spiritual heritage; preventing a crisis of social and spiritual-moral identity; problems of culture and civilization, dialectical relationships between peoples and cultures; substantiate the influence of natural science, spiritual and philosophical views of scientists of the Khorezm Academy of Mamun, discoveries made in the Middle Ages, on world science.

ISSN: 2053-3578 I.F. 12.34

In the 9th-10th centuries, several independent states emerged on the territory of our homeland, and Khorezm had an advantage over other countries in political and economic development. The heyday of Gurganch came in the 16th century. It was surrounded by powerful walls of the White Castle six meters high. Beautiful new buildings added beauty to the city. Muqaddasi (Khasr) writes: “Gurganch is growing every day, and in all of Khorasan there is nothing that could compare with the palace gates built by Mamun in front of the gates of Khodjaj.” Ali, the son of Mamun, built a palace for him. “In front of the palace there is a square similar to the one in Bukhara” [1, p. 22].

Ali ibn Mamun built hospitals, mosques and madrassas in Gurganj. The city streets were spotlessly clean. Cleanliness was taken very seriously during this period. The laying of smooth stones on the roads and the excellent organization of city life determined the unique orderliness of the streets of the 9th-12th centuries.

Also in the 10th century, Khorezmshah Ali ibn Mamun carried out numerous improvements in Khorezm and provided direct financial assistance to scientists. There were internal rules in the cities that all residents were required to follow. According to written sources, their implementation was supervised by a special state official-specialist. In particular, his duties also included monitoring the cleanliness of the streets [2, p. 69].

Scientists of that era traveled to other countries to engage in scientific creativity and improve their knowledge. However, not all rulers liked their freethinking and truthfulness. This forced the adherents of science to leave their homeland and seek refuge with the rulers of other countries.

Sometimes the gathering of scholars in one place was much more intense. This was the case in the 9th-11th centuries, when scholars of all abilities and interests were active. When they were scattered across different regions, they gathered in the palaces of rulers who provided them with a comfortable life in exchange for their knowledge. In those turbulent times, it was not easy to find such a convenient place for creative work. In the late 10th and early 11th centuries, Gurganch was free from such unrest, and there were favorable conditions for the followers of knowledge.

In the Academy of Khorezmshah Mamun ibn Mamun («Assembly of Scholars»), Abu al-Khayr Hammar (10th-11th centuries), Abu Muhammad ibn Khidr al-Khujandi (10th-11th centuries), Mamun ibn Mamun (d. 1017), Abu Rayhan al-Biruni, Abu Sahl Isa ibn Yahya al-Jurjani al-Masih (d. 1011), Abu Nasr ibn Iraq, Abu Said ibn Ahmad ibn Muhammad ibn

ISSN: 2053-3578 I.F. 12.34

Miskawayh (d. 1030), Ahmad Muhammad as-Sakhri (d. 1015), Zayn ad-Din Jurjani (10th-11th centuries), Abulkarim Zirgali (10th-11th centuries), Abu Ali ibn Sina, Abu Abdullah al-Biyan an-Naysaburi (d. 1004), Ahmad ibn Muhammad as-Sakhri al-Khwarizmi (d. 1015), Abu Mansur as-Shalibi (961-1038), Abu Abdullah Ilaqi (d. 1038) and other scholars created works. They dealt with various fields of science, such as mathematics, astronomy, psychology, alchemy, logic, medicine, philosophy, history, linguistics, pedagogy (child rearing), literature, music, geography, topography, mechanics, geodesy [3, p. 93]

Al-Ma'mun held scientific discussions with scientists in his palace. They expressed their opinions and debated on various issues in various fields. The winners of such scientific conferences were awarded valuable prizes and incentives. The scientists were led by Abu Rayhan Beruni, and Abu Mansur al-Sakhri, the prime minister of Khorezmshah and a patron of science, also made efforts to create a truly creative environment for scientists. The scientists were busy reading books in the rich library of Gurganj, deepening their knowledge and broadening the horizons of their students. Representatives of the Academy made a worthy contribution to the development of science not only in Central Asia, but also in all countries of the East and West [4, p. 158]. They contributed to the further strengthening of its influence in Transoxiana and Khorasan.

Abu Rayhan Beruni, the head of the Khorezm Academy of Mamun, studied under Abu Nasr ibn Iraq, a famous scholar of his time. This teacher wrote several works on astronomy, geometry and mathematics, 12 of which he dedicated to Abu Rayhan al-Biruni. He introduced him to Euclidean geometry and Ptolemy's theory of catastrophes [5, p. 238].

Such works as «Monuments of Ancient Peoples», «The Law of Masudi» and «Saidan» show that Abu Rayhan Beruni had an excellent knowledge of both the Sogdian and Persian-Dari languages. According to the information presented in «Saidan», he studied Greek from his youth. He began to study Sanskrit in his youth from Indian merchants in Khorezm [6, pp. 194-195].

The fact that Abu Rayhan al-Biruni was familiar with historical treatises written in these languages in his youth is reflected in his first major work (written in 1000-1003) «Relics of Ancient Peoples».

At the suggestion of Abu Rayhan Beruni, the Khorezmshah, who patronized science and education in Khorezm, began to gather many outstanding scholars of the East in Gurganj.

ISSN: 2053-3578 I.F. 12.34

Among them were famous doctors, philosophers, poets, mathematicians, astronomers, historians and linguists.

Abu Rayhan al-Biruni writes the following about one of them, Ahmad ibn Muhammad al-Sakhri: «Sakhri worked with Mamun Shah. «He was a scholar and wrote very beautiful and tastefully written books.» The breadth of the scientific field that interested the Khorezm scholars of that time is astounding. These are jurisprudence, geology, grammar, rhetoric, poetic theory, history, philosophy, logic, medicine, arithmetic, geometry, astronomy, music, mechanics, optics, chemistry, astrology, physiognomy, lexicography, geodesy, topography, measurements and scales, and they also studied the knowledge of measuring instruments, mixing water and chemistry, as well as the knowledge of magic, education, spirituality and witchcraft. All the scholars were teachers and students of each other.

Abu Nasr ibn Iraq made a great contribution to the development of mathematical sciences in the Khorezm Academy of Mamun. According to Abu Rayhan al-Biruni, it was Abu Nasr ibn Iraq who first introduced the concept of the singer in the form of the «removing» musallasat al-kurrawi.

Abu Rayhan Biruni believes that scientific truth has a certain criterion. He knew that it is possible to finally solve a complex and difficult problem by experimenting and practicing, proving that myths and unfounded statements that contradict the truth, that have not been clearly verified, that are perceived with disgust, that are perceived by deaf ears, and that cannot be understood by the mind, are unfounded. At the same time, we have every right to say that he is a great scientist who understood the importance of logical conclusions and taught us to consider the concepts of «sensory knowledge» and «rational knowledge» together. The scientific legacy of Abu Rayhan Beruni has been studied in detail by researcher G.K. Masharipova [7-15].

Conclusion. The study of the scientific heritage of Abu Rayhan Beruni allows us to conclude that the scientist recognized observation as the first stage of scientific knowledge, and also raised observation to the level of active experiments, which he widely used in his scientific and creative activities. The natural scientific heritage of Abu Rayhan Beruni, the problems of the exact sciences he raised played an important role in creating a general picture of the world of his time, that is, in the formation of a philosophical worldview. In his astronomical table, Beruni put forward a heliocentric hypothesis, according to which the center of the Universe is not the Earth, but the Sun, and that all planets, including the Earth, revolve around the Sun. The scientist's scientific conclusion was scientifically confirmed 500 years later by the great

astronomer Copernicus in his heliocentric system. In his dispute with Abu Ali ibn Sina, al-Biruni came to the conclusion that the planets in the Universe, including the Earth, have the force of gravity. His scientific assumption was based on the law of universal gravitation discovered by the English scientist Newton in the early 18th century. Thanks to his socio-political views, Abu Rayhan Biruni developed the advanced traditions of not only Central Asian, but also ancient Indian, Greek and Iranian thinkers and became known throughout history as a public figure.

References:

1. Akromkhodjaev O. Beruniy - Leading Researcher. - Tashkent: Fan, 1976.

2. Alimjonov H. Study of active outdoor recreation. Public education. - Tashkent, 1994. - No. 1-2. - 69 p.

3. Masharipova G.K. Dissertation for the degree of Doctor of Philosophy on the topic «The Influence of the Natural Science Heritage of Scientists of the Khorezm Academy of Mamun on the Development of Social and Philosophical Thought» - Tashkent, 2021. - 302 p.

4. Sadykov H.U. Beruni and his works on astronomy and mathematical geography. - Moscow: USSR Academy of Sciences, 1953.

5. Masharipova G.K. The Influence of the Natural Science, Social, Philosophical and Spiritual Heritage of Scientists of the Khorezm Academy of Mamun on the Development of Social Thought. Monograph. – Tashkent: Navruz Publishing House, 2019. – 364 p.

6. Shamsi F. Abu ar-Rayhan al-Bayruni. - P. 194-195.

7. Masharipova G.K. Great discoveries of the Middle Ages - the contribution of Khorezm mathematicians to the development of science. Monograph. - Tashkent: Navruz Publishing House, 2021. - 210 p.

8. Masharipova G.K. External water measurement of the Earth // Russia. - Moscov: Modern humanitarian studies, 2011. - No. 4. - P.29-31.

9. Masharipova G.K. Philosophical views of the thinkers of the Khorezm Academy of Mamun // Social Thought, 2012. No. 4. - P. 37-43.

10. Masharipova G.K. Philosophical views of scientists of the Khorezm Academy of Mamun // Science. - Russia, 2014. - P. 20-23.

11. Masharipova G.K. Khorezm Academy of Mamun - a treasury of knowledge // Fan-science. - Russia, 2015. - P. 25-28.

12. Masharipova G.K. Family heritage and spiritual education. I helped the spiritual leader. Republican Center for Spiritual Propaganda. - Tashkent: Manaviyat, 2015. - 100 p.

13. Masharipova G.K. Reflection of moral ideals in the heritage of scientists of the Khorezm Academy of Mamun // Methods and means of spiritual and moral education. Materials of the Republican scientific and practical seminar. - Tashkent, 2015. - P. 167-169.

14. Masharipova G.K. Coverage of socio-political and moral problems in the works of Abu Rayhan Biruni // Tamaddun Nur. 2019. - No. 1. - P. 63-67.

15. Masharipova G.K. Natural science paradigm of Abu Rayhan Beruni and the dialectic of ontological views. // Collection of articles of the scientific seminar on the topic «The Legacy of Abu Rayhan Beruni and Modernity», dedicated to the 1048th anniversary of the birth of the great scientist Abu Rayhan Beruni. - Beruniy-Tashkent-2021. - B. 55-79.