# THE ROLE OF THE MA'MUN ACADEMY OF KHOREZM IN THE DEVELOPMENT OF SCIENCE IN MOVAROUNNAHR

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**Annotation:** This article discusses the Academy of Ma'mun, that is, Bayt ul-Hikma (House of Wisdom) - a scientific center founded in the 9th century during the Abbasid Caliphate, and its role in the development of science in Movarounnahr. A scientific institution founded in the 11th century in Khorezm, specifically in the city of Urgench. This academy was one of the scientific centers of the Islamic world at that time, where Al-Beruni, Ibn Sina and many other scientists worked. Mathematics, astronomy, medicine, philosophy and many other sciences were developed at the Academy of Ma'mun, and scientists conducted their scientific research.

**Keywords:** Innovation Center, "Medical laws", scientific institutions, cultural integration, "scientific laboratory", European Renaissance.

The name of the Academy is associated with the name of Khorezmshah Mamun, a ruler who made a great contribution to the development of science. The activities of the Mamun Academy had a significant impact on the development of Eastern science and became the basis for scientific centers in the Middle East and Central Asia in subsequent centuries. It is considered a scientific institution that made a great contribution to the development of science not only in Khorezm, but also in the entire Islamic world. This academy was one of the important scientific centers for the Islamic world during the 9th-11th centuries. The scientific knowledge accumulated at the Academy was related to the most advanced research of that time and served the development of various sciences, in particular mathematics, astronomy, geography, medicine and other natural sciences.

Many famous scientists worked at the Academy. The most famous of them are Abu Rayhan al-Biruni, Ibn Sina, and Abu Nasr al-Iraqi. They were not only engaged in scientific work, but also conveyed their knowledge to the public through written sources. Biruni's scientific legacy was formed mainly at the Academy of Ma'mun. There he created important works in the fields of astronomy, mathematics, geography, and mineralogy. His work "India" is one of the most important sources dedicated to Indian culture and science.

The scientific dialogue between Ibn Sina and Abu Rayhan al-Biruni is mentioned in historical sources. Their correspondence on science, philosophy, mathematics, and astronomy is a vivid example of the exchange of ideas between scientists. Ibn Sina and Biruni asked each other questions and held debates during their scientific research, which had a great influence on the development of scientific thought.

The connection between Ibn Sina (Avicenna) and the Academy of Ma'mun was also of great importance in the development of science and philosophy. Ibn Sina is famous for his scientific and medical works, and he collaborated with the scientists of the Academy of Ma'mun and used their scientific heritage. Although Ibn Sina received his scientific education in his youth in Bukhara and other regions, his science is associated with the scientific environment and developments created at the Academy of Ma'mun. The scientific schools formed during the Academy, especially knowledge of medicine, philosophy, mathematics and astronomy, had a great influence on Ibn Sina's works. Ibn Sina's most famous work is the "Canon of Medicine" (Qanun fil-tibb), which became one of the main sources for doctors. In this work, Ibn Sina relied on the medical traditions developed at the Academy of Ma'mun and the scientific works of scientists such as Beruni. His works influenced the development of medicine in the East and the West for many years.

The Academy of Ma'mun was not only a center of scientific, but also philosophical research. Ibn Sina conducted in-depth research in philosophy and

metaphysics, developing the ideas of Aristotle and Al-Farabi. His philosophical views were in harmony with the research of the scholars of the Academy of Ma'mun and were influenced by the schools of knowledge formed at the academy. Ibn Sina paid great attention to the widespread dissemination of science in his time and its transmission to the new generation. The Academy of Ma'mun was at the center of this process, and Ibn Sina's works were studied by the scholars of the Academy of Ma'mun and spread in the East and the West.

The scientific environment associated with the Academy of Ma'mun was one of the factors that shaped Ibn Sina's worldview and scientific approaches, and he made a significant contribution to leaving a scientific legacy to the entire Islamic world and beyond.

The scientific developments carried out at the Academy of Mamun and the works created by great scientists served as a bridge for the exchange of scientific knowledge between the West and the East. Khorezm scientists absorbed knowledge from Greek, Indian and Persian cultures, developed them and achieved new results. These works were later studied by European Renaissance scientists, opening new directions for the development of science.

The Academy of Mamun also made a great contribution to the development of astronomy, where scientists conducted scientific research such as observing the movement of stars and planets, creating calendars, and determining geographical locations. Abu Rayhan Beruni's research on the shape and size of the Earth was based on very accurate calculations and was later confirmed.

Mathematics also occupied a special place in this academy. Important works for science were created through research on algebra and geometry, the creation of calculation methods and algorithms. Beruni's works on mathematics are still of great scientific value.

The scientific schools formed at the academy played an important role in educating a new generation of scientists. These scientists spread their knowledge not only to Khorezm, but also to other regions. The Academy of Mamun played a

central role in this process. The Academy of Mamun is one of the most important scientific centers in the history of mankind, and its scientific heritage is still being studied. This academy had a great influence on the development of scientific relations between Eastern and Western scientists.

In general, the Academy of Mamun was founded in Transoxiana and was a center of culture, sharing knowledge not only in the East, but also in the West.

The Academy of Mamun played an important role in the assimilation and development of the Greek, Indian and Persian scientific heritage in Transoxiana. The scientists who worked here, including Al-Biruni and other thinkers, received knowledge from different cultures and scientific schools and combined them with each other. This synthesis served as the basis for the development of Eastern and Western science. During this period, the ties of science between different cultures and scientific schools were further strengthened, and new discoveries and theories were created.

As noted above: Greek culture and philosophy were of great importance in the Islamic world. The scholars of the Academy of Ma'mun studied the works of Greek philosophers and scientists such as Aristotle, Euclid, and Ptolemy and translated them into Arabic. This scientific heritage served the development of new knowledge in the fields of mathematics, astronomy, logic, and metaphysics. The discoveries of the Greeks in astronomy and geography were further developed at the Academy of Ma'mun, and scholars such as Al-Biruni and Ibn Sina improved this knowledge.

Also, the scientific achievements of India, in particular, knowledge in the fields of mathematics, astronomy, and medicine, were studied at the Academy of Ma'mun. The number system in Indian mathematics, especially the concept of zero and counting methods, aroused great interest in the academy. Al-Biruni studied Indian science during his trip to India and wrote his famous book "India" about it. This book introduced knowledge about Indian astronomy, geography, and medicine.

Persian culture and science also had a significant impact on the Islamic world. Philosophical movements such as Zoroastrianism, Manichaeism, and Mazdaism, as well as Persian medicine and astronomy, were studied in depth at the Academy of Mamun. The views of Persian scientists on the structure of the Earth and the universe, as well as their knowledge of medicine and medicinal plants, served as the basis for the scientists of the Academy. Persian medicine was widely featured in the scientific works of scientists such as Ibn Sina.

The Academy of Mamun had a huge impact on the development of science not only in Khorezm, but also in the entire East. The scientists of the Academy made discoveries that were advanced for their time in various fields of science, paving the way for the widespread dissemination of this knowledge in subsequent centuries. Personally, I consider this academy to be of decisive importance not only for regional, but also for world science. Here, scientists had a great opportunity to think freely and learn from each other.

The Academy of Mamun is the highest example of cultural harmony. The scientific heritage of Greece, India, and Persia came together in one place, and new ideas and theories were formed. This scientific convergence benefited all of humanity. The Academy's approach to intercultural scientific cooperation can be seen as an example. It should be recognized as a great symbol of modern scientific cooperation and intercultural knowledge exchange.

The Academy was the center of science and philosophy of its time, where scientists not only developed scientific knowledge, but also studied philosophical questions. Supporting this idea, it can be noted that for me the Academy took a leading place in the combination of scientific research and philosophical thought. The scientists of the Academy not only made practical scientific discoveries, but also deeply analyzed the process of human understanding of existence.

One of the main features of the Academy's activities was the constant scientific debates and discussions among scientists. This played a decisive role in the development of scientific thinking. Through debates and discussions, new

theories emerged. I think that today, the same attention to scientific and creative freedom should be paid to it as it was then. Achieving truth through debates was one of the strengths of the scientists of the Academy.

Personally, I think that the Academy of Mamun retains its significance not only in its time, but also today. The scientific heritage he created is also relevant for modern science. Today, one can draw inspiration from the legacy of this academy and open up new facets of science. The history of the academy and its successes remind us of how important scientific and cultural exchange is today.
The Mamun Academy was a real center of scientific innovation for that time. In my opinion, this academy can be called a “scientific laboratory”. There, scientists not only studied existing knowledge, but also tested it and created new scientific methods. Their discoveries in astronomy and mathematics later caused a major revolution in world science. The Academy’s approach to innovation should be seen as a source of inspiration for today’s scientific institutions.

The joint work of scientists from different nations and cultures within the Academy can be considered an ancient example of today’s global scientific cooperation. Here, people united for the development of science, regardless of nationality, religion or language. In my opinion, it is precisely such cooperation that is important and necessary for today’s time. The development of science relies on cooperation, and the Academy of Mamun is a vivid example of this. Personally, I think that the Academy of Mamun was a place where science was of great value. There, scientists not only studied the scientific achievements of their time, but also worked hard to pass on their knowledge to the new generation. Their works and research have survived to this day, which proves the continuity of the scientific heritage. I consider this process to be the basis of human progress - knowledge should not only be studied, but also passed on from generation to generation. The greatness of the Academy of Mamun is seen in the balance of science and philosophy in it. For me personally, this is very important: science can always be based on concrete knowledge, but philosophy expands the human mind and reveals

the philosophical content of knowledge. By keeping these two in harmony, the Academy of Mamun became one of the most advanced scientific centers of that time. The Academy enjoyed an unprecedented level of intellectual freedom for that time. Scientists here were not afraid of innovation, but rather encouraged it. Personally, I think this is very necessary for science. Scientists at the Academy carefully studied new scientific theories, freely expressed their thoughts and experiences without limiting themselves. I think it is important to maintain this intellectual freedom in scientific research today.

The influence and significance of the Academy have far transcended its time and place. The discoveries and scientific heritage of this center have made a huge contribution to the development of science in subsequent centuries, uniting the East and the West. For me, the Academy of Mamun is a great example of the eternity and global significance of science. It remains an example for us as a center that broke the boundaries and barriers of its time, preparing the ground for the modern global scientific network.

Scientists, through their free thinking and striving for innovation, have contributed to the expansion of scientific and philosophical concepts of the time.
In my opinion, the Academy of Mamun can be considered a symbol of true intellectual awakening and scientific cooperation, and its place remains an invaluable source of inspiration for modern science.

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