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STUDYING THE SCIENTIFIC AND CULTURAL HERITAGE OF ABU RAYHAN BERUNI

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ABSTRACT

This article discusses the scientific research of the great scholar of the East, Abu Rayhan Beruni, his work at the Ma'mun Academy, his works, and his great contribution to the world of science.

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Scholars, philosophers, jurisprudents who lived in Central Asia thousands of years ago, the researches and achievements in the field of science are still surprising and recognized by the world community. one of the scholars is Abu Rayhan Beruni. You can find out how wide the boundaries of Beruni's knowledge are through the scientific works he created. Since he studied almost all the sciences of his time perfectly, he was recorded in the history pages as "Encyclopedic Scholar".

Abu Rayhan Muhammad ibn Ahmad al-Biruni was born on September 4, 973 in the ancient city of Kot. In his genealogy, the word "berun" means "outside city", and "Beruni" means "one who lives in the outside city". He thoroughly mastered all the sciences of his time, primarily astronomy, physics, mathematics, theology, and mineralogy. With his contribution to the development of these sciences, his name took a place among the great figures of world science.

Beruni was involved in almost all fields of science. They thoroughly studied the rich science and culture of the East, got to know the Greek science in depth, and became great scientists. Beruni was also a poet and literary critic. In addition to his mother tongue, he learned Arabic, Sugdian, Persian, Syriac, Greek and ancient Jewish languages. Later, he studied Sanskrit in India. According to one of his scientific works, Beruni made important astronomical observations in the city of Kot from 990 when he lived in Khorezm. He invented astronomical instruments for these observations.[1] The last representative of the Iraqis was Abu Nasr Mansour ibn Iraq Beruni's teacher. Al-Biruni was distinguished as a historian, chronologist and linguist.

In his work "Geodesia" he writes that he determined the geographical latitude of the city of Cat in 990. It is known that in order to determine geographic latitude, it is necessary to have sufficient knowledge of geography, mathematics and astronomy. He comes to the city of Ray (near present-day Tehran). In Rai, he met the famous scientist - mathematician and astronomer al-Khojandi, physician and philosopher al-Razi. Beruni Rayda writes his treatise "Al-Fakhri sextant". 997 Beruni returned to Kat. During this period, there were changes in Khorezm, Ma'mun died and Ali ibn Ma'mun came to the throne in his place. In 997, the famous doctor Abu Ali Ibn Sina also came to Urganch.[3]

998 Beruni came to Jurjan. He lived in Jurjan until 1004. He created about fifteen of his works here. In particular, the scientist's work "Relics of Ancient Peoples" was written here around 1000. In the spring of 1004, Beruni returned to Khorezm at the invitation of Khorezmshah Ma'mun II. At that time, the capital of Khorezm was Urganch. In Urganch, he founded the "Ma'mun Academy" named after the king. Al-Masihi, Tabib al-Hammar, Ibn Iraq and others worked in the palace. [3]

In Urganch, Beruni dealt with mathematics, astronomy, as well as some problems of physics and mineralogy. It was here that the idea of using specific gravities to identify minerals and systematize them was born.

While traveling to the Indian subcontinent, he wrote a treatise on Indian culture called Tarikh al-Hind (History of India) in 1030 after studying the Hindu religion practiced

in India. He was a remarkably unbiased writer for his time. The customs and beliefs of various peoples, and his scholarly objectivity earned him the title al-Ustad ("The Master") for his brilliant portrayal of India in the early 11th century. [4]

Beruni's contributions to mathematics and other fields of science can also be seen in the more than 100 works he left behind. The largest of them are "India", "Monuments", "Kanuni Mas'udi", "Geodesy", "Mineralogy" and "Astronomy". The rest can be divided as follows: mathematics - 22; about astronomical instruments - 10; astrological ones - 21; various sciences (physics, mineralogy, literature, history, etc.) — 38; translated works from different languages - 21. Only about 30 of Beruni's works have survived to our days. Only about 30 of Beruni's works have survived to our days.[5]

After compiling the list of his works, Beruni wrote two more important books. One of them is Mineralogy. For its time, this treatise is considered the best, unparalleled work in the field of mineralogy in Central Asia and the Middle East, and even in Europe. The manuscript of Beruni's last work, "The Book of Medicinal Plants", was found in Turkey in the 30s of the 20th century. The work is known as "Saydana", in which it gives a complete description of the medicinal plants that grow in the Middle East, especially in Central Asia. For example, the work "Saydana" describes 1116 types of medicinal plants. Of these, 750 species are from plants, 101 species are from animals, and the remaining 255 species are from minerals. The main part of the work "Saydana".

One of its features is that in it Abu Raykhan Beruni emphasizes that pharmacology is a separate science, thereby establishing the science of pharmacology. [6]

According to Beruni's student Abul Fadl al-Serakhsi, he died on December 11, 1048 in Ghazna (now Afghanistan). [7]

Apart from writing scientific works, Abu Rayhan Beruni was also interested in writing poetry. The artistic wealth he wrote is also noteworthy. "Introduction to Astrology", "Key to Astronomy", "The Book of the Sun that Heals the Soul", "On the Necessity of Two Kinds of Action", "Principles of Multiplication", "Ptolemy's Sanskrit Translation of the Almagesti", "Useful Questions and Correct Answers", "Fargani Corrections to "Items"

Among them are "Caution by the Turks", "Information about the white-robed" and Karmats", "Collection of poems", "Translation of information about Al-Muqanna", "Correspondence with Ibn Sina". [8]

In conclusion, it can be said that studying the scientific and cultural heritage of our great grandfather, Abu Rayhan Beruni, and conveying it to pupils and students is one of our ancient values. Abu Rayhan Muhammad ibn Ahmad Beruni was one of the great encyclopedic scholars of the Middle Ages. His greatness is reflected in the unique scientific heritage he contributed to almost all sciences of that time.

I. Yu. Krachkovskiy, a famous orientalist, assessed Beruni's scientific potential by saying that "it is easier to list the fields of science that he is not interested in than the fields of science that he is interested in." M. Meyerhoff, one of the Western researchers, expresses the opinion that "Biruni should be the most famous of the encyclopedic scholars who

demonstrate Muslim science." High evaluations and descriptions of Beruni are given in the works of Tabrizi, Suyuti, Qazvini, Tusi, Khurasani.

Uzbekistan has decided to celebrate the 1050th anniversary of the birth of the great scholar in 2023.

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