XI CENTURY – BIRUNI AGE

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ABSTRACT

This article provides information about the life and work of the encyclopedist Abu Rayhan Beruni, one of the great representatives of the First Oriental Renaissance. Also, the role of the rich spiritual heritage left by him in today's world society and in Uzbekistan was discussed in detail. In addition, the works being carried out to perpetuate the scientist's memory, study Beruni's personality and pass it on to future generations are described.

History is our yesterday, today and tomorrow. There were times when there were people like that, and without them, some point of it would seem flawed. There are many geniuses who are recognized by the world and even named after him for a whole century. In particular, one of them is Abu Rayhan Beruni. About him the famous American scientist, participant of the International Conference "Historical Heritage of Medieval Oriental Scholars and Thinkers, Their Role and Importance in the Development of Modern Civilization" held in Samarkand on May 15-16, 2014, Sarton says: "Beruni's work in human civilization is so great that the 11th century can rightly be called the Beruni century." In addition, the following words of Sarton about Beruni are a conclusion that he is a truly encyclopedic scientist: "Astronomy and mathematics, astrology and geography, anthropology and ethnography, archeology and philosophy, botany and mineralogy would be impoverished without his great name. were".

The great astronomer, mathematician, physicist, botanist, linguist, literary critic, theologian, historian, geographer, ethnographer Abu Rayhan Muhammad ibn Ahmad Beruni was born on September 4, 973 AD (362 AH 3 Zul Hijjah) in the ancient Kot of Khorezm (in some sources He was born in Kat). In the 10th century, Kat was the capital of the Khorezmshah-Afrighy dynasty, as well as one of the major trade centers. The reason why he was called by Beruni nisab is that he was born in the outskirts of the city. Because "birun" in Arabic means "outside the city", "edge of the city". The famous scientist Abdulkarim al-Sam'ani writes in his book "Kitab al-Ansab" ("The Book of Genealogies"): "The nisba Beruni

refers to the outer part of Khorezm. A person who was born outside the city is called a so-and-so Beruni. Astrologer Abu Rayhan is famous for such ratio. There are different opinions about the name "Abu Rayhan". Of these, it is difficult to give a clear opinion about the concept of "Rayhon's father" or "a person with basil". I. Y. Krachkovskiy approves the opinion that the meaning of the second option is closer to the truth. Because it is not a name. Perhaps, because of Beruni's interest in natural sciences, especially botany, and his work in this field, it confirms that he was given such a ratio.

Beruni had a thirst for knowledge since childhood. However, we do not have enough information about who and where he received his primary education. During this period, many famous scientists in various fields of science lived in Khorezm. It is very likely that Beruni learned from them.

Around 1005, Beruni was brought to Urganch, the new capital of the country, at the suggestion of Abul Abbas Ma'mun II. According to Yakut Hamawi, he worked together with leading scholars such as Abu Ali Ibn Sina, Abu Nasr Ibn Iraq, Abu Sahl Mashihi, Abul Hasan Ibn Hammar, Ibn Miskawayh in the newly established "Majlis ul-Ulama" which is Ma'mun Academy and acted as the main advisor of the king and the head of this center of knowledge. This institution could easily compete with scientific institutions such as "Sivan ul-Hikma" established by the Samanids in Bukhara or "Majlis ul-ulama" of the Buwaykhs in Rai. It can be understood from the sources about the Ma'mun Academy that "the members of this academy conducted research in the direction studied by the scholars of Plato's Academy in Athens and "Bayt ul-Hikma" in Baghdad. Many sources were collected here, translations were made, the works of Musa Khorezmi and other scholars were studied, and the ambiguities in Aristotle's works were corrected."

Here he corresponded with Ibn Sina on various issues and 18 of them have come down to us. However, the activity of this institution did not last long. In 1017, Mahmud of Ghaznavi conquered Khorezm and was taken to Ghazna along with many scholars.

Life in Ghazna was a very fruitful period for Beruni. Because, during the sultan's military campaigns, some scholars were taken along with the sultan in order to study many aspects, such as the population, customs, culture and art, and natural resources of the area to be conquered. And this helped scientists to master new sciences, their wide interpretation and application. A vivid example of this can be seen in Beruni's life and work.

Here he finished writing "Famous People of Khorezm" and "Geodesia" (1025). The work "Geodesia" was published in 1966 in Tashkent in Russian. Beruni's "Primary Concepts of the Art of Astrology" (1029) was also written in Ghazna.

The scientist's work "India" ("The Book of Determining the Reasonable and Inconceivable Doctrines of the Indians") was written in 1030. The scientist wrote most of the work in the Nanda fort in northern India. Academician V. R. Rosen gives a high assessment to the work, saying that "Among the entire scientific literature of the East and the West in the ancient and middle ages, there is no equivalent work."

In the 1030, Mahmud Ghaznavi died and was succeeded by his son Mas'ud Ghaznavi (1030-1041). Beruni dedicated "Masudi's law" on astronomy to him. According to Yakut Hamavi, the book "Masud's Law" erased the traces of all books written before it on mathematics and astronomy.

Beruni also studied and analyzed the religious, socio-political situation of that time

from an impartial and scientific point of view. For example, this situation is vividly expressed in his work "The book about white clothes and messages of the Qarmatians".

In addition, his work "Mineralogy" is considered the best, unrivaled work in this field for its time in Movaraunnahr and the Middle East, and even in Europe.

His last work, "The Book of Medicinal Plants", is known as "Saydana". It contains a complete description of the medicinal plants that grow throughout the East, especially in the Central Asian region. According to the information of Beruni's student, Abu-l Fadl Sarakhsi, the scholar died on December 11, 948 in Ghazna. During this period, he lost his sight, but until the last moments of his life, he said: "The mechanism of life is in a healthy soul."

Beruni wrote more than 160 works on various fields of science of his time. 28 of them have reached us. In addition to these works, he has various scientific heritage in the fields of astronomy, astrology, geometry, geography, chemistry, pharmacology, history, philology, and his work in translation is also worthy of praise.

Below we mention a number of works by Beruni: "Introduction to Astrology", "The Key to Astronomy", "The Book of the Sun that Heals the Soul", "On the Necessity of Two Kinds of Movement", "Principles of Multiplication", "Almagest of Ptolemy" Sanskrit Translation", "Useful Questions and Correct Answers", "Corrections to Ferghani's "Elements", "Caution by the Turks", "Information about the White-Clothes and Qarmats", "Book of Poems" , "Translation of information about Al-Muqanna", "Correspondence with Ibn Sina" and others.

Looking at the life and scientific and creative activities of the great encyclopedist Abu Rayhan Muhammad ibn Ahmed Beruni, the fact that his invaluable scientific heritage, which he contributed to the development of world civilization, is recognized in our national homeland, but also on a global scale, is further studied, analyzed and interpreted is due to his It is a recognition of the great work he has done in front of humanity. It is not for nothing that the famous orientalist V. R. Rosen does not emphasize that his scientific views are surprising and fully correspond to the spirit of science in the modern sense. In the words of academician A.Yu. Krachkovsky, it is no exaggeration to say that it is expressed in the phrase: "It is easier to leave the industry for those who are interested than for those who are not interested in".

About the scientist, English historian D.J. Boilot is also worth considering: He was equally proficient in mathematics, astronomy, physics, and the natural sciences, and distinguished himself as a geographer and historian, a chronologist and linguist, and an impartial observer of customs and beliefs. He is known as al-Ustad, that is, "The Master." The Russian scientist Barthold's comments about the scientist are also highly commendable: Beruni is such a brilliant scientist that the fields of science that existed in his time, he did not study less than he did. His writings are so numerous and colorful that one is surprised that one person's life was enough for it.

Abu Rayhan Beruni made a great contribution to the development of world civilization with his many scientific discoveries. In almost all modern sciences, scientific achievements of scientists are used in one way or another. For example, he was the first to make a globe, and naturally, all geographers and intellectuals use this invention.

In addition, although Beruni adheres to Ptolemy's geocentric theory of the structure of the universe, he admits that the Earth is a moving system. These thoughts are expressed in his work "India": "The rotation of the earth does not completely contradict the calculations of the science of astronomy, but the events that occur on the earth continue smoothly along with its

movement." Such an idea was put forward only by Galileo Galilei, who lived almost 600 years after Beruni.

Beruni's views on history also have a special place. A scholar well versed in Islamic sciences begins the process of historical development with the descent of the first man - Adam, mentioned in the holy sources of Islam. He calls people to obey God, His representatives, the prophets. He evaluates the rulers as invested in political powers.

Geographical discoveries and theories of the thinker are also commendable. For example, in the work "India", his views on the structure of the Earth's surface, the ratio of land and seas are described as follows: "A quarter of the earth is an administrator. Ma'mura is surrounded by the Mediterranean Ocean (Atlantic and Pacific Ocean) from the west and east. This Ocean separates the inhabited part of the Earth from the land or inhabited islands that may lie beyond the seas…" It can be seen that Beruni proposed the hypothesis of the existence of the American continent 450 years before Columbus. He also proved that the southern part of the Atlantic and Pacific oceans were connected to each other, and hypothesized that there should be an ice-covered land on the southern side of the globe.

The Indian statesman and public figure Jawaharlal Nehru expressed the following opinion about this work in the book "The Discovery of India":"Beruni studied Greek philosophy. In order to study Indian philosophy, he began to study Sanskrit. He compared Hindu and Greek philosophies and was amazed to see the commonality between them. Even when Arani was in a selfish mood, he tried to correctly explain the situation of the people of this country, being an outsider.

The scientist's contribution to the development of the field of mathematics is also commendable. He was the first to analyze trigonometry as an independent science. He described flat and spherical trigonometry in the work "Masud's law" and created the linear and quadratic interpolation rule of trigonometric functions.

Beruni also developed the theories of the geological origin of rocks, the transformation of land into seas, and seas into land. He also put forward ideas about the structural structure of minerals, the phenomenon of crystallization, and the nature of the melting of crystals under the influence of light. Beruni was the first to put forward the idea of the force of attraction of bodies towards the center of the earth.

Even today, great attention is paid to the study of scientific and creative activities of scientists not only in our country, but also on a global scale. For example, "Abu Raihon Beruni" (1974), consisting of 2 parts, was created by the creators of the "Uzbektelefilm" studio about the scientist. The play "Abu Rayhan Beruni" by the writer Uygun was written in 1973. In 1956, a district in the Republic of Karakalpakstan and his hometown were named after the scientist. The Institute of Oriental Studies of the RFA, a metro station, many streets, squares and various institutions in different regions of the republic are named after him. Also, the mineral found in Uzbekistan for the first time in the world is called Beruni. In addition, a statue of him was erected in the cities of Tashkent, Khiva and Beruni.

The 1000th anniversary of Beruni's birth in 1973 was widely celebrated at the international level in order to perpetuate the memory of the scientist, to research his works that are still unknown to us or not well studied, and to bring them to the general public. The best works of the thinker ("Monuments left by ancient peoples", "India", "Masud's law", "Geodesia", "Saydana") were collected and "Selected works" in 5 volumes were published in

Uzbek and Russian languages.

After the independence of Uzbekistan, the study of Beruni's scientific and creative activity reached a new level. During the former USSR, his scientific heritage was approached from a materialistic point of view. At present, the scholar's attitude to the holy Qur'an and hadith, his study of religious sects, is widely studied by many of our scholars. In 2006, the 1000th anniversary of Khorezm Mamun Academy, one of Beruni's leaders, was widely celebrated internationally. Various research results, some of the scientist's works have been published. In addition, a special expedition was organized and the grave of the thinker in Ghazna was beautified. In addition, the State Prize named after Beruni was established in the field of science.

Today, many scientific institutions are operating in many countries of the world for the purpose of extensive study, analysis and interpretation of scientific and creative activities of scientists. There are a number of devotees of science working in them who are determined to deeply study the life and work of the scientist. Their views on Beruni and their conclusions about his work deserve special attention. For example, in response to the English orientalist Sarton's opinion that "Beruni is the Leonardo da Vinci of the 11th century", Academician S. Tolstov writes: Comparing Beruni with Leonardo da Vinci, he is called the Leonardo da Vinci of the 11th century. This is a false comparison. After all, they don't call Ptolemy "Beruniysi of the 2nd century"! In fact, it would be logical to call Leonardo da Vinci "Beruni of the 16th century."

In order to perpetuate the scientist's memory, in June 2009, four statues were placed on the international memorial square in Vienna by the government of Iran. One of the four statues of the great scientist in this pavilion belongs to Abu Rayhan Beruni. Also, one of the volcanoes on the moon and the asteroid number 9936 are named after him.

European scholars of Beruni have noted that Beruni alone managed to do things that even the entire scientific research institutes could not do.

In order to perpetuate the memory of the scholar in 2023, thoroughly study his scientific heritage, introduce the young generation to Beruni's personality, and take a bold step towards the emergence of the Third Renaissance, "Widely celebrating the 1050th anniversary of the birth of the great thinker and encyclopedist Abu Rayhan Beruni at the international level on" (PQ-361, 25.08.2022.) was adopted.

According to him, in 2022-2023, the 1050th anniversary of the birth of the great thinker and encyclopedist Abu Rayhan Beruni will be widely celebrated at the international level under the auspices of UNESCO.

Based on this, including:"Great Beruni Heritage" international tourist routes will be launched; By the end of 2023, the Abu Rayhan Beruni complex will be built in the Beruni district of the Republic of Karakalpakstan; manuscripts and other cultural assets belonging to the scientific and creative heritage of Alloma will be restored; A laboratory specializing in the restoration and conservation of cultural heritage objects will be established at the Karakalpakstan branch of the UzRFA and Khorezm Ma'mun Academy; the International Science Olympiad named after Abu Rayhan Beruni will be held among students in Khorezm region. Also, an international award named after Abu Rayhan Beruni will be established.

By December 2022, a special program "Beruniy and Youth" will be developed, and a mobile application will be created, which will contain information about the thinker's life and

his scientific and educational works.

In addition, it is planned to open a separate department for studying the life and scientific heritage of scholars in the newly built center of Islamic civilization. Also, special programs for the implementation of a number of large projects are being developed in this center. In particular, it is planned to create 3 HD audio and video programs on the life and work of the scientist using modern information technologies in the center museum. Also, special programs for the implementation of a number of large projects are being developed in this center.

One of them is to involve in the activities of the center the advanced local and foreign specialists of our time, who have achieved great success in researching the life and work of the scientist.

Conclusion

In conclusion, it can be said that the time when the scientist was born was the time when Islamic enlightenment was spreading to vast lands and great discoveries were being made in the field of science. At this time, a great devotee of science like Abu Rayhan Beruni made a great contribution to the development of the First Eastern Renaissance with his rich scientific heritage.

The study of Beruni's life and scientific and creative activities began during his lifetime. That is why Beruni's contemporary historians, such as Bayhaqi, Shahrizori, Qifti, Yaqut Hamavi, provide valuable information about his works, which greatly influenced the development of the culture of the Muslim East, and the life of a scientist. In addition, there are many descriptions about him in the works of historians such as Tabrizi, Suyuti, Qazvini, Tusi, Muhammad ibn Mansur al-Allami, Al-Khurasani. Christian Ioannis Bar Ebrei (1226-1286), a historian and physician who lived in Syria in the 13th century, evaluates Beruni as follows: "In those past years, Abu Rayhan Muhammad ibn Ahmad Beruni, who crossed the sea of Greek and Indian philosophy, gained fame in the sciences of the past. He is a specialist in mathematics and has written a number of important books in this field. He went to India and lived there for several years, learning from Indian philosophers their art and teaching them Greek philosophy. His works are extremely numerous, mature and extremely reliable. In a word, there was no scientist of his time, after that, and until now among his colleagues, who was so knowledgeable in the science of astronomy, and who deeply knew the basis and subtleties of this science.

Since the 19th century, interest in the scientific and creative activities of Beruni has become more widespread. His scientific heritage has been translated into Latin, French, Russian, English, German, Italian, Persian and Turkish languages. Europeans J. Reno, E. Zahau, G. Zutter, E. Wiedeman, K. Nallino, M. Meyerhoff and Americans J. Sarton, R. Wright and Asians S. H. Nasr, M. Kozim, S. Barani, M. Nizamuddin, Sh. Scholars such as Yaltikai published many books and translations dedicated to his works. His creativity and scientific activity were deeply studied by Russian scientists such as I. Y. Krachkovsky, S. P. Tolstov, A. A. Raynov, A. M. Belentsky, A. A. Semyonov, B. A. Rozinfeld, and many works dedicated to him were published.

In our country, serious attention is paid to the study, analysis and interpretation of the works of scientists. H. M. Abdullayev, I. M. Mominov, V. Y. Zohidov, Y. G'. Scientists such as Ghulomov, U. Karimov, and P. G. Bulgakov created a number of pamphlets and works on Beruni's work, and published many articles.

Important work is being done to further study, analyze and interpret the scientist's life and scientific and creative activities, to convey them to future generations, and to perpetuate his memory. Interest in Beruni's personality, getting to know him and introducing him is rising to a new level. This is confirmed by all the examples given below.

In conclusion, it can be said that, the maturity of great personalities like Abu Rayhan Biruni is not only the socio-political, economic, scientific and cultural environment of that time, but also the study of the rich scientific heritage left by the great people, the Holy Qur'an and Hadith, which are the holy sources of our religion, is directly related to analysis and interpretation. As a proof of this, it can be seen that in his biography, Biruni mentioned that his mother was a firewood carrier as a reference to Surah 111 of the Holy Qur'an.

Another reason why a scientist is the owner of encyclopedic knowledge is that he does not choose time and space in his search for knowledge and draws objective conclusions from what he has learned. For example, he did not limit himself to the study of Islamic sciences, but also diligently mastered the works of ancient Greek, Indian and other scientists, analyzed the collected data. As a result, Beruni became the owner of comprehensive knowledge. Due to this, many of his works have not lost their high importance to this day due to their accuracy, scientific evidence and objective approach.

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