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STUDYING THE WORKS OF GREAT SCIENTISTS OF THE FIRST RENAISSANCE IN CENTRAL ASIA

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Abstract:

The article briefly analyzes the works of the Central Asian encyclopedists Al-Khorezmi and Al-Farobi, who made a great contribution to the development of mathematics, philosophy, logic, natural science in the Middle Ages with their great discoveries.

Keywords: Khorezm, Al-Jabr, algorithm, algebra, philosophy, book, Baghdad, Aristotle, Mamun, Damascus.

A special contribution was made by the Central Asian encyclopedists, who, with their works in the field of exact and fundamental sciences, made great discoveries in the development of natural science in the Middle Ages.

Of these, we briefly analyze the works of such great scientists as Abu Abdullah Muhammad ibn Musa al-Khwarizmi (780-850), Abu Nasr al-Farabi (873-950).

Abu Abdullah Muhammad ibn Musa al-Khwarizmi (780-850) made an invaluable contribution to world science with his world-class discoveries. There is not enough information about the period of youth. Educated in his native Khorezm, he was invited to the palace of Mamun ibn Harun ar-Rashid, the ruler of Khorasan in Baghdad in the 800s, and became a renowned scholar in his 20s. In 813, Mamun rose to the caliphate and moved to Baghdad with the scholars who gathered around Marw. Muhammad al-Khwarizmi was the director of this scientific center until the end of his life. Many scientists worked here, there was a library rich in ancient manuscripts, and a specially built observatory.

Muhammad al-Khwarizmi was the first to propose general methods for solving linear and quadratic equations of algebra as an independent science, which gave the classification of equations. He was the author of many scientific works, 7 of which have survived to this day. For example, "Fi Hisab al-Hind" (Arabic for "Hindi Calculation Book") is a work that describes the decimal system, zeroes and nine numbers. Al-kitab al-muhtasar fi hisab al-jabr and al-muqabala. (A short book on arithmetic al-jabr and al-muqabala in Arabic) is the author's book entitled "Algebra", which is considered the science of algebra. Ziji al-Khwarizmi (in Arabic ("Zij") "Astronomical table") is a work consisting of small theoretical sections and tables that describe the trigonometric functions of the sines.

Kitab Surat al-Arz (Arabic: Kitab Surat al-Arz) is a geographical treatise on the Eastern Hemisphere, its countries, the Pacific Ocean (Bahr al-Muzallam) and a map of the planet, the first human-inhabited planet in the Middle Ages.

Muhammad al-Khwarizmi made great contributions to mathematics, natural sciences, astronomy and geography, the most important of which are:

1. He founded a number system that represents nine numbers with a decimal point zero.
2. Founded algebra.
3. He developed and applied in practice a new method of scientific and educational work through clear and understandable rules, which is called "Algorithm" in European literature. The term "algorithm" in Latin is based on its name - al-Khwarizmi. The term "algorithm" underlies the concept of information and computer technology.
4. The book of Muhammad al-Khwarizmi "Ziji" is dedicated to the Sun, Moon, five planets, geography, trigonometry, solar and lunar eclipses. In 1126 the book was translated into Latin, in 1914 - into German, in 1962 - into English.
5. The works of Muhammad al-Khwarizmi on geography describe the places on earth known at that time with a map of places, rivers, seas and oceans, as well as the population. It was the first geographical work in Arabic written in the Middle Ages.

Historians of science highly appreciate both the scientific and popularizing activities of al-Khwarizmi. The famous American historian of science American J. Sarton called him "the greatest mathematician of his time and, all things considered, one of the greatest of all time."

Once the great scientist in the field of mathematics al-Khorezmi, the founder of analytical geometry, was asked about a woman, to which he replied:

"If a woman possesses faith, that is = 1. And if a woman still possesses beauty, add 0, it will be 10.
If a woman also has wealth, then add another 0, you get 100.
If the woman is from a noble family, then add another 0, you get 1000.
But if the figure '1' (faith) disappears, then nothing will remain as a result, except for some zeros. "

The works of al-Khwarizmi were translated from Arabic into Latin, and then into new European languages. On their basis, various textbooks on mathematics were created. The works of al-Khwarizmi played an important role in the formation of the science of the Renaissance and had a fruitful influence on the development of medieval scientific thought in the countries of the East and West.

Al-Farabi Abu Nasr ibn Muhammad (873-950) was an encyclopedist, naturalist, philosopher, astronomer, mathematician, physician and second teacher (after Aristotle). His major works: "Ships of Wisdom", "Brochure on the views of the inhabitants of Himmatli", pamphlet "Classification of Sciences", "Great Music Book".

Al-Farabi was born in 870 (according to other sources - in 872) near the Aris River in the Syr Darya (border of modern Kazakhstan) near the Farabi district of the city of Wasij. Al-Farabi was born in 870 (according to other sources - in 872) around the Farabinsky district of the city of Vasij, located in the depths of the Aris river in the Syrdarya (the border of modern Kazakhstan). He comes from a privileged family of Turks. His full name is Abu-Nasr Muhammad ibn Muhammad ibn Tarkhan ibn Uzlag al-Farabi at-Turki.

It is reported that in an effort to know the world, al-Farabi left his homeland, where he was born and raised in adolescence and, according to other sources, at the age of forty. Al-Farabi visited Baghdad, Horrun, Cairo, Damascus, Aleppo and other cities of the Arab Caliphate.

He spent most of his life in Baghdad, the political and cultural center of the Arab Caliphate. Here he studied the works of the masters of the House of Wisdom ("Bayt ul hikma"), translations of Greek authors, enriched his knowledge, got acquainted with famous scientists, and when the time came, with his high morality and thinking he became a leader among them. It was here that he was given the status of "Teacher Assan", that is, the second teacher (second after Aristotle).

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In fact, they are united by the breadth and diversity of their scientific interests, the desire for a philosophical understanding of being and the place in it of man, the approach to "all approved ideas" and the everyday wisdom of people. Al-Farabi's independent logical thinking, his bold philosophical worldview, his inconsistency with public opinion, his study of Greek philosophy and science and his direct opposition to some superstitions of the time led some to accuse him of heresy and apostasy. In fact, he showed complete independence in his thinking and then remained unshakable in his convictions.

Al-Farabi, before arriving in Baghdad, spoke Turkish and other languages, but not Arabic, but by the end of his life he knew about seventy languages. Al-Farabi lived in Baghdad and began to study various sciences, primarily logic, while the most famous thinker in Baghdad was Abu Bishr Matt bin Younis. Among his students was al-Farabi, who, according to Abu Bishr Matt, delved into the study of Aristotle's legacy when he wrote commentaries on Aristotle's writings on logic. Instead of the results of Al-Farabi's multifaceted scientific research, it is worth mentioning his brochure "On the Classification of Sciences", in which all the sciences of his time are listed in a strict order and the definition of each science is studied.

In Baghdad, al-Farabi deepened his knowledge, established relationships with prominent scientists and soon gained prestige among them, but fanatical scientists clashed with al-Farabi's views, forcing al-Farabi to leave Baghdad and go to Egypt through Damascus. In his book Civic Politics, he states that he began this work in Baghdad and completed it in Cairo, and in the following years, al-Farabi returned to Damascus, where he lived alone for the rest of his life.

According to their research, Allah is everyone, as always. The middle is the hierarchy of beings. A person is a cripple who understands the world and moves in it. The ultimate goal is to achieve real happiness.

Farobi constantly tried to study the structure of the world, the total number of works of the philosopher was from 80 to 130. A treatise on the prospects of the people of Himmatli, one of the most mature works of al-Farabi, was written in 948 in Egypt and is one of the earliest philosophical teachings of Himmatli. Al-Farabi said that the goal of man is happiness, which can only be achieved with the help of reason, and that society is like a healthy body in which all members help each other to save the life of a living being.

In his work, Farobi studied and generalized Arabic, Persian, Greek, Indian languages and his own Turkish culture. Turkish culture is evident in his famous Kitab al-musik al-Kabir (Great Music Book). Farobi manuscripts are found in many libraries around the world. Scientists who publish Farobi's work and study various aspects of his true encyclopedic heritage contribute to Farobi's research.

He leaves his works on separate sheets (therefore, his works are kept in separate chapters and records, some survived only in fragments, and many of them are unfinished), died at the age of eighty and was buried under the Small Wall of Damascus. ... They say that after his death near the tomb, the king himself prayed on four reeds.

Thus, we must all recognize that the great scientists of the Muslim world Al-Khwarizmi and Al-Farabi made a great contribution to the development of world science.

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