

## THE HISTORICAL HERITAGE OF CENTRAL ASIAN SCIENTISTS AND THINKERS IN THE DEVELOPMENT OF SCIENCE, ITS ROLE IN MODERN CIVILIZATION AND ITS SIGNIFICANCE

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**Abstract:** Nowadays, if our society has experienced positive changes from the scientific-technical, economic, cultural-spiritual point of view, we are witnessing the need to carry out such deep and meaningful work in the process of comprehensive scientific research of the rich and colorful science and cultural heritage. Relation to the past is to the future is to define a relationship.

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The first President of the Republic of Uzbekistan I.A. Karimov made the following comments in his speech about the historical heritage of medieval scholars and thinkers, its role and importance in the development of modern civilization at the conference held in Samarkand on May 15-16, 2014.

"The purpose of today's conference is to deeply discuss and understand the scientific legacy of the great scholars and thinkers who lived and created in the Middle Ages in the Eastern world, and evaluate its place and role in the history of modern civilization. The history of the Middle Ages in the East shows that culture, education, medicine, physics, literature, art, and architecture were directly connected with the incomparable rise and stability of development. Speaking about the great scientific discoveries made in the East in the early Middle Ages, we mention the name of Muhammad Ibn Musa Al-Khwarazmi, who made an incomparable contribution to the development of modern mathematics, trigonometry and geography, among the first. He was one of the first to establish and implement the decimal system of zero and polar coordinates. This made a sharp turn in the development of mathematics and astronomy.

Al-Khwarizmi founded the science of algebra, developed clear rules for the presentation of scientific information and treatises. He is the author of many scientific works on astronomy, geography and climate theory. Alloma's contributions to the development of world science were universally recognized, and modern scientific terms such as "algorithm" and "algebra" immortalized his name and works among Eastern scientists.

In the fundamental work "Fundamentals of Astronomy" created by Ahmad Fargani in the 11th century, there are preliminary data about the structure of the universe, the size of the earth, and evidence that our planet has a spherical shape. served as a scientific basis for the discoveries of Magellan and other travelers during the period of Columbus. One of Ahmad Farghani's practical achievements was that he developed the theory of the main astronomical instrument of the Middle Ages, and also created the famous structure in the Nile River called the "nilomer", which served as a device for measuring the water level for many centuries.

It is of great importance to study the scientific research works of scientists who lived and worked in Central Asia in the fields of physics, astronomy, medicine, and other natural sciences.

The study of the culture of the peoples of Central Asia, the history of the development of science and technology, especially in the field of specific and fundamental sciences, created:

- Ahmad Al-Farghani (798-865)
- Abu Nasir Al-Farabi (873-950)

- Abu Ali Husayn Ibn Sina (980-1037)
- Abu Raikhan Muhammad Ibn Akhmat Al-Beruni (973-1048)
- Nasreddin Al-Tusi (1201-1274)
- Mirzo Ulug'bek (1394-1449)
- Aloudin Ali Kushchi (1402-1474)

many scientists have conducted deep research in the field of natural sciences in Central Asia. In studying the course of physics, it is necessary to get acquainted with the scientific works of Central Asian scientists. For example: in studying the laws of mechanics, the following points from Ibn Sina's book "Donishnama" can be cited. He states that in any movement there is an opposite and equal condition. If the power is lost, the result created by this cause cannot last. Under the same conditions, what is small should move faster and what is large should move slowly. Such an expression of his expresses the idea that mass is a measure of inertia of a body based on Newton's tariff. Velocity and acceleration are inversely proportional to mass. The scientific legacy of Abu Raykhan Beruni is a special one among the Middle Eastern scientists. Beruni wrote more than 200 works and treatises. Despite the fact that only 31 of them have reached us, the incomplete samples of Alloma's manuscripts in our hands are proof of his rich legacy. On the subject of universal gravitation law, the following points can be mentioned in the instructions about the attraction of Bruni and Ibi Sinoni bodies to the center of the earth. Since the earth is spherical, Beruni believes that the weight of the bodies is pulled towards the center of the earth from all sides. Beruni invented the globe, measuring the radius of the earth, the circumference, the level and volume in a unique way. In the hydrostatics of liquids section, the following examples can be cited from Beruni's work on "atmospheric pressure and hydrostatics of liquids. Beruni measured the specific gravity of more than 50 substances with modern accuracy. Beruni determined the specific gravities of 18 liquids using a special container similar to a pycnometer. Beruni created a number of instruments unique to his time that measured atmospheric pressure. For example: Automatic machines are devices called geros or automatic vacuum cleaners. Beruni's automatic suction device is currently used in poultry farms and other places. Beruni explains the reasons for the water gushing up from the fountains as follows:

"If the water is taken from a reservoir higher than the ground level, it will be compressed and will rise up, if the reservoir is lower than the ground level, the water will not rise up completely. Sometimes it is said that if the reservoir has thousands of gas in the high mountains, then the water can be brought to the top of the towers and towers.

Archimedes checked the repulsive force of liquids and gases depending on the density of the liquid or gas and wrote: "The danger of rivers flowing into the sea for ships depends on the taste of the water in it. Sweet (fresh) water cannot hold heavy things like salt water. Therefore, based on the above knowledge, Archimedes' views on the repulsive force of liquids against a body immersed in it are the way to determine the relative weights of salt and fresh water. indicates that it can be played with. Umar Chagmini, after Beruni, noted the sphericity of the earth, the rotation of the earth around the sun, as well as the separate orbits of the planets around the sun. His discovery was made in the 16th century by the great polar scientist N. Re-examined by Copernicus.

In 1424-1429, Mirzo Ulug'bek built an observatory on Kokhak Hill in Samarkand. In the 17th century, this observatory, known as the "Samarkand" Academy, became a center of science. In 1437, "Zijji-Korogonyi" astronomy catalog was created.

This catalogue, known as Ulugbek's star table, calculated the accuracy of the star path showing the position of 1018 stars. 365 days 6 hours 20 minutes 8 seconds in Ulugbek. Actually 365 days 6 hours 9 minutes 6 seconds. In the special part of the introduction to the work, the theory of the movement of the sun and planets is perfectly expressed, and the fact that the day of the lunar and solar eclipses is determined in it shows the importance of this treatise.

Conveying the invaluable contribution of Central Asian scientists to the development of natural sciences plays an important role in restoring the values of our people and educating students in the spirit of patriotism.

The historical legacy of Central Asian scientists and thinkers in the development of science, its role in modern civilization and its significance.

Nowadays, if our society is experiencing positive changes from the scientific-technical, economic, cultural-spiritual point of view, we are witnessing the need to carry out such deep and meaningful work in the process of comprehensive scientific research of the rich and colorful science and cultural heritage. Relation to the past is to determine the relationship to the future.

Conveying to the young generation that the scientists of Central Asia have made invaluable contributions to the development of natural sciences plays an important role in restoring the values of our people and educating students in the spirit of patriotism.

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