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# TO STUDY THE CONTRIBUTION OF EASTERN SCIENTISTS TO WORLD CIVILIZATION

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**Annotation:**
This article illustrates the use of scientific legacies of Central Asian scientists in the natural sciences in teaching physics is widely used in Central Asia since ancient **times** in the field of physics, astronomy, mathematics, medicine, chemistry, textile and architecture.

**Key words**: Medieval scientists, physics, astronomy, mathematics, implementation in the learning process.

# ИЗУЧИТЬ ВКЛАД ВОСТОЧНЫХ УЧЕНЫХ В МИРОВУЮ ЦИВИЛИЗАЦИЮ

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**Аннотация:**
В этой статье использованы научные наследия центрально азиатских ученых в области естественных наук при преподавании физики широко используется в Центральной Азии с древних времен в области физики, астрономии, математики, медицины, химии, текстиля и архитектуры.

**Ключевые слова**: Средневековые ученые, физика, астрономия, математика, внедрение в учебный процесс.

"At the meeting of the President of the Republic of Uzbekistan Shavkat Mirziyoyev dedicated to Teachers and Coaches Day and his address to the Supreme Assembly's we have set ourselves the great goal of building Third Renaissance in our country, for this we need to create an environment and conditions for the upbringing of new Khorezmians, Beruni, IbnSina, Ulugbeks, Navai and Baburs, so 2021 has been indicated as The Year of Youth Support and Health Promotion. Renaissance is a French word meaning "rebirth" and "awakening". [1]. The meaning of it is broad: the revival of science, culture, art, education, upbringing and increasing the science and development of the people. The first Renaissance in the IX-XII centuries and during the second Renaissance in the XIV-XV centuries science, culture, literature and art reached its peak in Central Asia. To build the foundation of the Third Renaissance today, presidential schools that specialized in science and secondary schools are being established in our country.

The Center of Islamic Civilization is being built in Tashkent. To know how to build the foundation of The Third Renaissance we quote the following words of our President.

Without any doubt, confidence in our own strengths and capabilities unites us in the path of such an important aim as the foundation of The Third Renaissance and it is making us stronger and more solid. These aspirations are becoming huge practical works and the great people's movement is expanding.[1].

It is a great happiness and honor to being in such a powerful line. Physics, astronomy, mathematics, medicine, chemistry, textiles, architecture, mining, ceramics, philosophy, music, linguistics and literature have been developed in Central Asia.

Particularly, it is worth mentioning such great scholars as Muhammad Ibn Muso al-Xorazmiy (780-850), Abu Nasr al-Farobiy (873-950), Abu-Rayhon Beruniy(973-1050), Abu Bakr Ar-Roziy (865-925), Ahmad Fargoniy (790-865), Abu Ali Husaynn Ibn Sino (980-1037), Umar Xayyom(1048-1123), Mirzo Ulugbek (1394-1449) are immortal scholars for us in the field of exact and fundamental sciences.[3].

The scientific work of Muhammad Ibn Ahmad Abu Rayhon Beruniy is plays asignificantly pivotal role in the field of physics. He created the first globe and wrote more than 150 books and pamphlets.

It is known from historical sources that in Beruniy's works, his ideas about the gravity of heavy and light physiques were scientifically proved five centuries ago

before the creation of the " law of gravity of the whole universe". Beruniy's ideas about the heliocentric system made a great contribution to the development of science. He scientifically proved the ideas that the Earth is stationary and motionless at the center of the universe, that other celestial physiques revolve around the Earth and the earth is not the center, it revolves around the Sun. The discoveries of N. Copernicus, J. Bruno, G. Galilei and others affirm Beruniy's opinion.[4].

Abu Ali Ibn Sina is an encyclopedic scientist, intellectual, philosopher and the number of his works is more than 280.

More than 40 of them are devoted to medicine, about 30 pamphlets on various natural sciences, 3 pamphlets on music and 185 pamphlets on philosophy, logic, ethics, theology and socio-political issues. But only about 160 works have come down to us.

Ar-Razi, Beruniy and Abu Ali Ibn Sino studied and developed the opinions of Greek scientists on the atom and discovered that the atom could split and there were emptiness and interaction forces between the splited particles and that the particles move.

In their scientific hypotheses about thermal phenomena Farobiy and Ibn Sino believe that the heated physiques decrease in density as they expand and move upwards, while cooling they fall in size and rise in density as they cool down. Beruni observes that the water does not shrink, otherwise it expands as a result of freezing. If the jug was broken inwards then these sayings would be true. However, it is clear that the truth is opposite to it. I watched the container that breaks outwards. Beruniy scientifically explains that because of the expansion of the volume when the water freezes, the density decreases and therefore, the lightening relative to the weight of the water equal to its volume and it is the reason why the ice is on the surface of the water.

Beruniy experimentally measures the density of water in 5 different states: spring water -1, boiling water -0.959, melting water -0.965, sea water -1.14.

These brilliant scientific researches of Beruniy were proved again 600 years later in the experiments of the famous Italian scientist G.Galile. Beruniy and Ibn Sino explain the reason for the difference in the weather in different climates of the Earth as the fact that at the shape of the earth is round which is spherical that's why sunlight falls vertically or horizontally.

In his Physics book Ibn Sino concluded that water vapor rising from the ground turns into clouds due to the cold, and as a result of low temperatures in the mountain tops it thickens(condenses) into snow, rain and hail which depends on high and low temperatures. Ibn Sino mentions that hail is more common in spring and autumn. [2].

Regarding the phenomena of lightening and thunder, Ibn Sino said: " In fact, lightening and thunder occur at the same time" but we see lightening first and then hear thunder. It is like we hear the sound that someone cracking wood in the distance. It is clear that the sound is produced as soon as the ax is being hit first and then hear the sound " he said. Ibn Sino's words about sound are much more significant. When it comes to hearing, undoubtedly none of the physiques can make a sound on its own. The sound can be heard through the ear. When two objects touch each other, air moves and a sound is produced by vibration. Sound waves propagate very quickly. When they reach the ear, the auditory nerve tendons are affected.

Another great representative of the scholars of the East is Abu Abdulloh Muhammad Ibn Musa al- Xorazimiy. He created works inthe field of mathematics, astronomy and geography. He founded the science of "Al-jabr"(algebra) and the concept of algorithm. His works named "Hisab al-Hindi" and "Astronomical Tables" were translated into Latin as early as the twelfth century, which led to the spread of the conceptualization of decimal number systems and algorithms, which was widespread in Europe.[4].

Abdul Abbas Ahmad Ibn Muhammad Ibn Kashr al-Fargoniy is a person who studied astronomy, geography and mathematics. He wrote more than 160 works. Fargoniy predicated the solar eclipse. He scientifically proved that the earth was spherical, calculated the length of meridian, made an instrument to measure the flow of the Nile and wrote pamphlets related to it. His encyclopedic work " A collection on Astronomy and Celestrial Motion" was translated into many languages.

Mirzo Ulugbek founded the Samarkand Academy in the 15th century and founded the world's largest school of astronomy. The Samarkand Academy had a well-equipped observatory, a rich library and education place- madrasah.

Muhammad Taragay Ulugbek left a great scientific and cultural heritage. One of them is "Ziji Table Koragoniy". The book consists of an " Introduction" and four sections, which two different methods of predicting solar and lunar eclipses, as well as the location of 1018 stars in the constellations of the stellar catalog section. The

fourth part of the book is devoted to “Ilminujum”, in which the fortunes and destinies of people are predicated depending on the location of the planets. He compiled a list of more than a thousand stars with his disciples.[2].

Conveying to students and pupils the invaluable contribution of our great ancestors in the development of natural sciences increases the feeling of love in their hearts for our great ancestors as well as encourages them to become worthy generations, also plays an important role in educating them in the spirit of high patriotism.

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