



## ORIENTAL THINKERS' VIEWS ON THE METHODOLOGY OF TEACHING NATURAL SCIENCES

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### ABSTRACT

*Scientists who lived in Central Asia and contributed to the development of natural sciences with their works, Ibn Sina's teacher, naturalist Abu Abdullah Natili (X-XI centuries), botanist Abu Hanifa Dinavari (815-896), Hatam Razi, Abu Bakr ar-Razi, Naabulisi, Mirzo Ulugbek, Zahiriddin Muhammad Babur and others.*

### INTRODUCTION

*We have always been rightly proud of the fact that our country has always been a land of geniuses. Our great scholars, such as Imam Bukhari, Ibn Sino, Beruni, Mirzo Ulugbek, Alisher Navoi, Mirzo Babur, are known all over the world for their brilliant talents, which we must pass on to future generations. Let's take a brief look at the views of world-renowned thinkers on the relationship between man and nature<sup>1</sup>.*

### MATERIALS AND METHODS

*AL KHOREZMIY. Abu Abdullah Muhammad ibn Musa al-Khwarizmi is one of the founders of world mathematics and one of the Central Asian scientists. In the early ninth century, al-Khwarizmi began to run the Ma'mun Academy (Bayt ul Hikmat) in Baghdad with the Central Asian scholars Al Ahmad Ibn Kathir al-Farghani and Abbas ibn Jawhari. The Caliph of Baghdad, Mamun al-Khwarizmi, has been tasked with overseeing the creation of the Earth and Sky Map. Scientists have been researching the map for 84 years. Summarizing these researches, Khorezmi wrote the work "Image of the Earth" and laid the foundation of geography. This work covers the whole world, continents, oceans, poles, equator, deserts, lakes, forests of all countries, countries, their flora and fauna, other natural raw materials, population, their distribution characteristics, customs, trades, density. Khorezmi made a significant contribution to the creation of the world's first geographical atlas (set of maps). He also did a lot of work in the field of Khorezmi astronomy. On the basis of his observations, he made a comprehensive analysis of the astronomical tables of the Indians and compiled new astronomical tables. Under his leadership,*

<sup>1</sup> Akvalieva G.N. Natural history in a small-scale school.-M., 2018.

*one degree of the Earth's meridian was measured to determine the size of the Earth. Khorezmi's work on astronomy, his views on the size of the Yeming, made a great contribution to the development of astronomy in the Middle East and Europe. The famous Uzbek mathematician Musa al-Khwarizmi is the "father" of modern algebra and the field of algorithms. Algebra is derived from Al Jabr, and Algorithm is named after al-Khwarizmi<sup>2</sup>.*

### **RESULTS AND DISCUSSION**

**ABU JAYHANIY.** Abu Abdullah Muhammad ibn Ahmad ibn Nasr Jaihani was born in 870 in Bukhara. Not only was he a great statesman of his time, but he was also a highly educated and knowledgeable scholar. He used his position as a minister to send travelers to different countries of the world. They thoroughly analyzed the scientific material they collected and wrote works based on this research. He has written many books on secular sciences, which have been used by scholars such as Maqsudi, Beruni, and Ibn Rustam al-Bakri. Jaihani's *Kitab-al-masolik wal mamolik* (The Book of Years and Countries) was written in 911-922. In his *Mineralogy*, Beruni made extensive use of the minerals and information about them in his works. In his works, Jaihani gave detailed information about the mineral resources and natural resources of Central Asia, India, China, Sanardei (Ceylon), Iran. Jayhani's works cover the geographical boundaries of the peoples of the Khorasan region, their social and administrative activities, crafts, and natural resources. Information is given on the role of local medicinal plants and animals in nature. He was not only a statesman, but also a famous doctor. He knew that domestic animals, such as cats and dogs, worms that live in the human body, and worms were carriers of infectious diseases and took measures to combat them. The rich scientific heritage of the world has been studied in the history of nature, flora and fauna, natural resources, agriculture and medicine of Central Asia and neighboring countries; of particular importance<sup>3</sup>.

**ABU NASR FAROBIY.** Abu Nasr ibn Uslug ibn Tarkhar Farobi was born in 873 in the family of Farobd \*, a servant located in the north-west of Tashkent, later known in history as O'tror. Farobi was one of the greatest medical theorists of his time. He has authored dozens of scientific works in the field, with a total of more than 160 works in the fields of astronomy, philosophy, history, logic, psychology, music, natural sciences, medicine, and chemistry. Farobi's works on natural science are of particular importance; They cover the human and animal body parts, their similarities, and a number of other scientific aspects. According to Farobi, the human body is a complete and integral system, and diseases are mainly associated with eating disorders. Farobi European scientists, in particular, the Russian physiologist IM Sechenov, laid the scientific foundation for the development of the primary and secondary signaling systems, which are the fundamental basis of the science of physiology, 1000 years ago. In his works, Faroobi was the first in the world to describe the natural (without human intervention) emergence of plant and animal species, as well as the creation of artificial (with the help of human) species, and to address this issue 1,000 years before Darwin.

**BERUNIY.** Abu Rayhan Muhammad ibn Ahmad al-Berunn is a great Uzbek encyclopedic scholar, a leading thinker of the Middle Ages and beyond. Beruni was born in 973 in Kiyot (now Beruni), Khorezm. In 1004, Beruni wrote a work dedicated to Qaboos ibn Vushmagir, entitled "Monuments of ancient peoples." Beruni's works contain a lot of information about

<sup>2</sup> Belskaya Y.M., Grigoryans A.G. *Tabiatshunoslikni o'qitish*. -T.,2016

<sup>3</sup> Boltaev B.M. *Abu Ali ibn Sino is a great thinker,scientist, encyclopedist of the medieval East*. —T., 2010.

nature. For example, information on the mineral resources (medicinal plants, animals) in Central Asia, India and Afghanistan, and their useful properties. Beruni's scientific views are widely covered in such works as Mineralogy, India, Ancient Monuments, Geodesy, and Masud's Law. In Ancient Monuments, Beruni describes the tropical flora and fauna of northern Iran. Beruni's Kitab as-Saydana-fit-Medical (Medicine in Nature) was found in 1927 in one of your libraries in Bursa, Turkey. The book contains information about more than 250 doctors, pharmacists, chemists, naturalists, historians, philosophers and tourists. Beruni's views on natural and man-made selection are also noteworthy. If the same tree or the same animal completely covers the Earth, then there will be no room for animals and trees to multiply and grow, "he said. Beruni's Medicine in Nature also provides a classification of medicinal plants. Beruni laid the foundation for the history of natural science with his works.

**ZAHIRIDDIN MUHAMMAD BOBUR.** Zahiriddin Muhammad Babur was born in 1483 in the family of Umarshaikh, the governor of Fergana. He was a descendant of Amur Temur and was appointed king at the age of 12 after the death of his father (1494). Not only was Babur an enterprising king but he was also a highly educated scholar. His work "Boburnoma" is of great importance in the development of natural science. Boburnoma is also a biographical work on the natural geography, flora and fauna of Central Asia, Afghanistan and India. In the play, Babur describes valuable material about the characteristics of each place, the peculiarities of the plant and the animals that live there. The natural places and events in Babur's works, the geographical information about the region, the images serve as a program for young naturalists and local historians in the study of nature.

**MIRZO ULUGBEK.** With the great scientist of Central Asia; they were not only brilliant thinkers who thought correctly about the structure of the world, but also famous observers. In the 15th century, the scientific work of Samarkand astronomers led by Ulugbek in the field of observing celestial bodies was especially famous. The governor of Samarkand Mirzo Ulugbek was an astronomer, scientist and enlightened statesman. He has always cared about the development of science in his country. Ulugbek brought scientists to Samarkand from different places and created conditions for their work. He built a huge observatory in Samarkand. The majesty of the observatory on the hill amazed his contemporaries. The observatory was equipped with the best equipment of the time. The data obtained at the Ulugbek Observatory are the most accurate and have served scientists around the world for a century and a half.

### CONCLUSION

Ali ibn Sina (980-?), Like Beruni, created in various fields of natural science. Abu Ali ibn Sina's world-famous "Laws of Medicine"; is the author. This work consists of 5 books<sup>4</sup>. They provide information on the structure and function of the human body, various diseases, their causes, simple and complex drugs, their preparation and the effects of these drugs on the body. The scientist admits that some human diseases (smallpox, plague, tuberculosis) are caused by invisible organisms. He says that proper nutrition and exercise are important in improving human health. According to him, the Earth will gradually change, and in time the seas and rivers will give way to land.

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