JOURNAL OF MULTIDISCIPLINARY SCIENCES AND INNOVATIONS
GERMAN INTERNATIONAL JOURNALS COMPANY
ISSN: 2751-4390
IMPACT FACTOR ( RESEARCH BIB ) : 9,08. Academic reserach index

# GREAT CENTRAL ASIAN SCIENTISTS WHO LIVED AND CREATED IN THE 9TH-12TH CENTURIES AND THEIR CONTRIBUTIONS TO THE DEVELOPMENT OF WORLD CIVILIZATION.

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**Abstract:** The period of the 9th-12th centuries played an incomparable role in the development of our scientific culture. Following the example of the scientific academy in Baghdad, the Mamun Academy was established in Khorezm in the 10th century.
**Keywords:** Al-Khwarizmi, Beruni, Ibn Sina, Ibn al-Hammar, Abu Sahl Masihi, Ibn Iraq, Ahmad Ferghani.

In the 9th century, scholars from Transoxiana, at the initiative of Caliph Harun al-Rashid, established a scientific center-academy ("Bayt ul-Hikma") in Baghdad, which gathered scholars and scholars from all Muslim countries, including Central Asia. In this center, scholars such as Musa al-Khwarizmi, Ahmad Ferghani, Marvazi, Marwarudi, and Jawhari, who came from Transoxiana and Khorasan, made a great contribution to the world fame of the Baghdad Academy. One of the positive aspects of the establishment of the rule of the Arab Caliphate in Transoxiana and the widespread spread of Islam is that, following the example of the scientific academy in Baghdad, the Academy of Mamun was established in Khorezm in the 10th century, and its members, scholars of their time, spread the wisdom of Transoxiana to the world with their works. Our country has also produced some of the most influential figures and hadith scholars in the Islamic world, whose names remain at the top of both secular and mystical knowledge to this day.

As is known, the history of the development of the peoples of Central Asia, which has a long past, has experienced various events, periods of rise and decline. Undoubtedly, all of these periods left their mark on history. In particular, the role of the period of the 9th-12th centuries in the development of our scientific culture is incomparable. It is worth noting that at the end of the 10th century, Mamun ibn Muhammad united Khorezm, which was divided into southern and northern parts, into a single center. Mamun, in particular, turned the capital Gurganch into one of the largest scientific and cultural centers of the East. Mamun founded the "Baytul Hikma" (House of Wisdom) in Gurganch. It was also called the Mamun Academy. The great thinkers Al-Khwarizmi, Beruni, Ibn Sina, Ibn al-Hammar, Abu Sahl Masihi, Ibn Iraq, Ahmad Ferghani worked in this place. Among them were also great scholars from many countries of the East.

Abu Abdullah Muhammad Ibn Musa al-Khwarizmi. (783-850) The great thinker and scientist al-Khwarizmi's work on arithmetic and algebra "Kitab al-jabr wal muqabala" (Book on Addition and Contrast) not only opened a new era in mathematics, but also became a great foundation for its development in subsequent centuries. Thanks to the work "Book on Indian Arithmetic", first the peoples of the East, and then the peoples of Europe, became acquainted with the great achievement of Ancient India - the decimal positional counting system. (Translated into Latin in the 12th century). Al-Khwarizmi's work "Kitab surat al-arz" (The Picture of the Earth) is about geography, and "Astronomical Tables" is about astronomy, which spread the author's name throughout the world. Also, such wonderful works as "Treatise on Sundials", "Treatise on

History", "Treatise on Algebra", "Treatise on Music" brought great fame to the scientist and immortalized his name. Al-Khwarizmi's work "Al-jabr wal muqabala" later became known as "Algebra" in Europe. His work on astronomy played a major role in the development of astronomy not only in the East, but also in the West.

Abul Abbas Ahmad ibn Muhammad Al-Farghani. Little information about Al-Farghani's biography has been preserved in history. He died in 861. Considered an expert in astronomy, mathematics, geodesy, and hydrology, he actively participated in the construction of observatories in Baghdad and Damascus, where he conducted verification of the data in Ptolemy's "Star Table". Al-Farghani organized knowledge of astronomy in his work "Fundamentals of Astronomy" and enriched it with his new results. In accordance with the tradition of that time, he divided countries into seven climates. He gave a description of sundials, created astronomical instruments. This work of Ferghani was used as the main guide to astronomy in Europe until the time of N. Copernicus.

Abu Nasr al-Farabi (873-950). Born in Utrar, received his primary education in Shash, Bukhara, and Samarkand, and then lived in Baghdad for a long time, interacting with the scientists of his time. He wrote more than 160 treatises on various fields of science. His famous work on music theory, "The Great Book of Music," is one of the earliest historical sources on the history of this field. He was a versatile and encyclopedic scholar.

Abu Raykhan Beruni (973-1048). This thinker, born in Khorezm, created about 150 works on astronomy, history, medicine, mathematics, geography, geodesy, meteorology, ethnography, philosophy, and philology. These works spread the name of Beruni throughout the world. It is also known that he wrote stories and poems. Al-Biruni was the first to create a globe in the Middle Ages. He was fluent in Arabic, Persian, Indian, and Turkish. His works "Pharmocanazia", "Geodesy", "India", "Minerology", "The Law of Masud", "Monuments of Ancient Peoples" were translated into Uzbek and Russian. Mahmud Ghaznavi also served in the palace. He was a contemporary of Ibn Sina.

Abu Ali Ibn Sina (980-1037). He created hundreds of works on philosophy, logic, spiritualism, literary studies, poetry, music, geology, mineralogy, physics, mathematics, medicine, astronomy. The scope of Ibn Sina's scientific interests was so wide that it is known that he created more than 40 works on medicine, about 30 on astronomy and natural sciences, and 185 works on philosophy, logic, and theology.

Literature, architecture, and religion flourished in the 9th-12th centuries. The Ismail Samanid Mausoleum in Bukhara is a beautiful mausoleum built of baked bricks and covered with a dome. The shape of the square is changed to an octagonal shape with the help of lancet arches. At the same time, this building has four facades. All four sides are the same, decorated like the front. Simply put, the building has no front, side, or back. All sides are decorated in the same way. In the construction and decoration of the Ismail Samanid mausoleum, many architectural features typical of that period were also used. The preservation of the development paths of the architecture of the 9th-10th centuries can also be observed in the example of many mosques. According to written sources, many mosques during the Samanid era were built on the basis of adapting pre-Arab temples to mosques. They were one-room, and the roofs of the mosques rested on pillars. The roofs of the mosques were usually dome-shaped. In mosques, especially the mihrabs were decorated with shaped and inscribed bricks, carved ganches, and even gold water. Speaking about the mosques of this period, one can mention the Magoki Attoron in Bukhara, the Poykand mosque, the Chorustun in Termez, and the Childukhtaron mosque in Shahriston. These monuments made it possible to trace the development of religious architecture in Central Asia. According to Narshahi, the emir Nasr ibn Ahmad built a large palace for himself in the Bukhara Registan and spent a lot of money on its construction. This palace was extremely beautiful. In front of the palace, buildings were built for the divans. The palaces of the emirs and governors were also in Nishapur, Merv, Samarkand and other cities. These palaces were distinguished by their size and beauty. In most cases, such palaces were built in picturesque places, in gardens.

Yusuf Khos Hajib (11th century) The famous work "Kutadgu Bilig" (Knowledge that Leads to Happiness) by the great writer Yusuf Khos Hajib, who was born in Bolasog'un, is also valuable because it is the first literary work of the Turkic peoples that has reached us. The author embodied in this work, through 6407 verses, the ways of administering a centralized feudal state, politics, as well as the customs and moral laws of the peoples. In "Kutadgu Bilig" there are also many verses on health care, medicine, and medicine in general.

Ahmad Yugnakiy (second half of the 12th century - early 13th century) was born in the village of Yugnakiy near Samarkand. Yugnakiy's work "Khibbat ul-haqoyiq" (Hadith of Truths) was especially popular and brought fame to the author. The work mainly describes the qualities inherent in man.

Abu Abdullo Rudakiy (884-954) is a great master of Persian Tajik literature. He was born in the village of Rudek near Samarkand. His poetic heritage is extremely rich and colorful. Fragments of such poems as "Kalila and Dimna", "Davroni aftob", "Sindbodnama" have been preserved.

Abu Mansur Muhammad Daqiqi (935-977) is one of the most famous poets of the 10th century after Rudaki, according to sources, he was born in Samarkand. He lived in the Samanid court. He was the first to begin writing the "Shakhnama". But he managed to write only a certain part and died in an accidental event. 1209 verses have been preserved from it. There are also sources that Daqiqi made a great contribution to the development of music science.

Abulkasim Firdawsi (934-1030). Born in the Iranian city of Tus. He knew Arabic and Persian literature well. He spent his whole life creating the great epic work "Shakhnama" dedicated to the legendary heroes of the Iranian tribes. The work was published in many languages of the world. Firdawsi created an eternal monument to himself with his "Shakhnama" and earned the gratitude of generations. Looking at the development of Central Asian culture in the 9th-12th centuries, it can be observed that during this period the teachings of Sufism (Sufism) penetrated all aspects of culture and spirituality. Sufism is based on personal freedom, self-purification and spiritual assimilation to Allah through spiritual spirituality. In Sufism, the path to perfection of the soul and its ultimate goal - Allah - consists of 4 stages: 1) Sharia. 2) Tariqat. 3) Enlightenment. 4) Truth.

Theorists and scholars of Sufism were well-versed in the knowledge of their time, knowledgeable in the sciences, and learned thinkers. Starting from the 10th century, the ideas of Sufism began to spread in the cities of Central Asia. Below, we have considered it permissible to reflect on some thinkers who became known to the world for their works, remaining faithful to this direction.

Ahmad Yassavi (11th century - 1166) was born in the city of Yassi (Turkestan). His father, Ibrahim Say, served as a sheikh in the city of Rom for many years. Ahmad Yassavi studied under the famous Turkish mashoikh Arslanbob Toshkandi, originally from Tashkent. After his death, he studied under Yusuf Hamadani. The only legacy that has reached us from Yassavi is his "Divani Hikmat". Yassavi's rich wisdom is also reflected in the treatise "Faqrnama". Ahmad Yassavi founded the Yassaviyya order in Sufism.

Sulayman Bakirgani (died in 1186). A worthy disciple and successor of Ahmad Yassavi. Born in Bakirgan, Khorezm. He was also known among the Turkic peoples by the nickname Hakim Ata. His works, which teach lessons in religion and mysticism, love and morality, were read with great love throughout Turkestan. His major work, "The Screaming Book," has also reached Uzbek readers in recent years.

Najmiddin Kubro (1145-1221). Poet and scholar. Founder of the largest Sufi movement in Central Asia - Kubravia. Born in Khiva. It is a movement widespread in the Middle and Near East, Central Asia, India, Iran, Afghanistan. In a number of his treatises, he developed the rules of the Kubravia brotherhood. At the age of 76, Najmiddin Kubro gathered an army and led the people to attack the Mongols who attacked Urgench. The recognition of Islam as the main religion in the country, the suppression of other religious beliefs, and the worsening of the lifestyle of the working people forced Najmiddin Kubro to search for ideas that would help

alleviate such difficult situations and alleviate the suffering of the people. This idea became the idea of Sufis.

Imam Ismail al-Bukhari (810-870 AD) The great scholar of hadith, Imam Bukhari, collected 600,000 hadiths during his lifetime, including 7,275 of them in his 4-volume "Authentic Collection". The anniversary of Imam Ismail al-Bukhari, a great scholar of the Islamic world and the highest figure in hadith studies, was celebrated internationally in 1998, and a magnificent shrine was built in the city of Chelak, near Samarkand, where he died. Thousands of people from all over the world come to visit him.

Abu Isa Muhammad at-Tirmidhi (824-892 AD) Imam at-Tirmidhi, a famous hadith scholar in the Islamic world, was born in the village of Bug near Termez. From the age of 26, he began to meet famous hadith scholars in the cities of Samarkand, Bukhara, Hijaz, Iraq, and Nishapur. The mentorship of Imam Ismail al-Bukhari played a major role in his development as a great hadith scholar. At-Tirmidhi, who devoted his life to collecting hadiths, left behind a great scientific legacy, including such works as: “Kitab al-Jami’e as-Sahih”, “Kitab ul ilm”, “Kitab at-Tamayili an-Nabawi”, “Kitab az-Zuhl”, “Kitab ul ismi wal huna”. Burkhaniddin Marginani. (died in 1197). His full name is Burkhaniddin Marginani Ibn Abu Bakr al-Farghani al-Rishtani. Burkhaniddin wrote several treatises on the science of fiqh (the science of religion, Sharia), including "Bidayatul Mubtadi" (the initial foundation for entering science), "Al Mazid" (the addition), "Kitabul Faraiz" (the book on obligations), and other works. Burkhaniddin Marginani's work "Khidaya fi furu' al-fiqh" (Guide to the Fields of Fiqh) consists of 56 books, and this work is called the Sharia codex.

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