International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 09, 2020
ISSN: 1475-7192

The Natural-Scientific Heritage of The Khwarezm Ma'mun Academy and Its Socio-Philosophical Views

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Abstract. *The rich natural-scientific heritage and socio-philosophical views of the scholars of Khwarezm Ma'mun academy are scientifically analyzed in the article. The rich scientific researches of the Muhammad ibn Musa al-Khwarezmi, Abu Raykhan Beruni, Abu Nasr ibn Iraq and Abu Ali ibn Sina over the precise disciplines and their socio-political views are studied on the basis of the miscellaneous sources.*

Keywords: *precise sciences, mathematics, astronomy, philosophy, philosophical views, world, human, values, social relations, Renaissance science, foundamental researchs.*

I. INTRODUCTION.

The peoples of Central Asia have an ancient history. In the early Middle Ages, Central Asia consisted of Sughd, Khwarezm, Fergana, Shash, Ustrushana, Chaghaniyan, Khuttalan, and was a culturally developed region located in the center of the Silk Road, which connected the West and the East[37, 5]. As the President of the Republic of Uzbekistan Shavkat Mirziyoyev noted: "It is difficult to imagine the development of our country and society at the level of modern requirements without science. Fundamental research plays an important role in the development of science. It is through them that new knowledge and theories are formed, a solid foundation is created for future applied research and innovation"[32]. From this point of view, one of the urgent problems is the analysis of works of world importance as the great heritage, great discoveries of the Middle Ages, created by scientists of the Khwarezm Ma'mun Academy. Also, in the 10-12th centuries in Khwarezm with the development of philosophical sciences many problems were solved, but so far it has not been studied as a separate object of study. The scientific research of scientists of the Khwaresm Ma'mun Academy in the field of philosophical sciences and the analysis of the impact of their work on the work of other foreign scientists is extremely relevant today. The first mathematical and physical views were explained from a philosophical point of view in science.

II. MAIN BODY.

Philosophers have always been interested in which philosophical problem is the main, the leading problem. Some philosophers considered it to be the knowledge of Allah, others the knowledge of man, the third the knowledge of the primordial being, the fourth the knowledge of the precious dimension of the world, and so on. Are there major problems of philosophy, and if so, what are they?

All philosophical problems can be divided into three main groups and expressed by the following questions:

1. What is the world?

2. What is a person?

3. What is the relationship between the world and man?

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If we take any philosophical problem, it is certainly relevant to one of these three philosophical issues. Hence, man's attitude to the world, which is the central issue of philosophy, stems from its subject and the worldview that exists in human nature. Here, when talking about the "world-man" system, it should be borne in mind that "world" and "man" are very broad philosophical concepts that record their opposite sides. Therefore, in this context, they are "I" and "I am not", "subject" and "object", "macrocosmos" and "microcosmos", "inner world" and "outer world", "spirit" and "nature", "In different epochs and different philosophical systems", such as "consciousness" and "matter", "thinking" and "being", "ideological" and "material", man's views of the world are reflected, which are equivalent to binary oppositions.

The content of the problem of "world" - Man "as a central philosophical problem is related to the content of the leading directions (trends) of this or that historical period. When priority issues in society change, the emphasis on the content of the problem also changes. These accents are an expression of what the philosophers of this or that historical period focused on. In other words, the problem of the "world-man" has its own historical forms that represent the direction (paradigm) of philosophical thinking of this or that period. It must be said that such a process has not been developed in one way or another.

In today's world, there is a growing desire to rule over nations through evil, tolerance, and the assimilation of one's own selfish ideas to others. That is why it is much more difficult to prevent such negative developments in human development, to balance the interests of the parties and to achieve sustainable development. In particular, we see that the development of human potential has its impact on the increase in its material and spiritual needs, the formation and development of tolerance, which is the most enlightening factor for the consideration of mutual interests in the minds of people.

It is well known that "humanity" is a broad notion that includes all people on the planet, regardless of their nationality, religion, language, customs, traditions and values. However, no matter how "unique" they are, they differ from each other not only in their distinctive features, but also in their manifestation as human, nation and people. These "differences" in turn mean the diversity of interests. This situation is clearly manifested at the level of the factor of their nationality. Because the nation manifests itself with its specific language, tradition, value and mentality, if necessary, it tries to preserve and further develop its "identity". At the same time, it should be noted that, "... The nation is represented by real people. It is a set of individuals with a common language, customs, traditions, values, and a common sense of identity" [46, 62].

In his speech in Khiva on October 20, 1997, the First President of the Republic of Uzbekistan Islam Karimov singled out the following: "It is gratifying that Khwarezm is a place of literature and poetry, one of the centers of secular science, full of unique culture, fine arts, high enlightenment, wise philosophy of life and humanistic ideas. Thousands of years ago, one of the first academies in the history of mankind, the Ma'mun Academy was founded on the same sacred ground"[33]. On November 11, 1997, the Decree "On reorganization of the Khwarezm Mamun Academy" was issued[34]. From this point of view, "It should be noted with pride that the exemplary life and activity of our great scientists, thinkers and ancestors, who lived on our planet, and their incomparable scientific and creative discoveries still amaze the people of the world today"[35, 40-41]. For example, we are all well aware of the great importance in the development of universal progress that Muhammad ibn Musa al-Khwarizmi (783-850) introduced the concept of decimal counting system, algorithm and "Al-Jabr" to the field of science as the first in the world and on this basis established a solid foundation for the development of precise Sciences. In addition to Al-Khwarizmi, Abu Nasr ibn Iraq (958-1034), Abu Rayhan Beruni (973-1048), Abu Ali ibn Sina (980-1037), Abu Ali al-Hasan ibn Haris al-Hububiy (10-11th centuries) and Mahmud ibn Muhammad ibn Umar al-Chaghmini (d. 1220) and others contributed greatly to the establishment of a scientific school of mathematics and physics in the region. The original concepts of mathematics and physics were explained from a philosophical point of view.

The 10-12 centuries are a unique period in the history of Khwarezm's cultural life. Large schools of religious and secular sciences were established in it, and the fame of their representatives spread all over the world. Although the Khorezm Ma'mun Academy operated for a short period of time, from 1004 to 1017, natural sciences such as astronomy, mathematics, medicine, chemistry, geography, mineralogy, history, philosophy, language, law and other social sciences were developed here.

Among the social problems of ancient Eastern and Western philosophy, the theme of morality is dominated. The wise words and phrases created at that time still make people think today. For example, Plato's "Dialogues" define concepts such as destiny, old age, virtues, wisdom, justice, patience, coolness, conscience, freedom, humility, nobility, peace, lightness, friendship, kindness, faith, deep thinking. Aristotle believed that having spiritual-moral qualities, such as kindness, anxiety, love for the family, honesty, kindness, not betraying someone else's right, kindness to parents, vigilance, prudence, justice, is one of the greatest sources of wealth, power and power of any society, state and people. According to Aristotle, the purpose of owning something is to use it. A person with an eye can not live without closing his eyes, but use it to see the universe, you can also say the same opinion about the ear, etc. Aristotle raises the question of whether it is important for a person to have or use something, and believes that the most important thing is to use, because in order to use and function, he wants to have something [14, 85].

The heritage of the scholars who worked at the Khwarezm Ma'mun Academy has been studied by many of our scientists. In particular, a small article co-authored by H.Tllashev and S.A.Ramazanova(1977) analyzes Abu Nasr ibn Iraq's treatises on astrolabe. The article states that the works of Abu Nasr ibn Iraq were very important for his time in terms of theoretical and practical astronomy, and in the field of spherical trigonometry he made conclusions based on a critical analysis of existing ancient and contemporary sciences[56, 89-97]. It is also noted that the working principle of astrolabe is based on mathematical methods, which are widely analyzed in the works of Ibn Iraq, and four of Ibn Iraq's treatises are devoted to the astronomical instrument - astrolabe.

As for the study of the scientific heritage of Abu Raykhan Beruni, the scope of research in this area is quite wide, and it also covers the exact sciences to some extent. It should be noted that a significant part of the study of the scientific heritage of Abu Rayhan Beruni in world science is the publication and translation of scholarly works or translations of some of his works into other languages. Naturally, these translations also included material on specific sciences.

At the end of the XIX century: Italian orientalist I.Fiorini(cartographic projections of Abu Raykhan Beruni); In the early twentieth century, the German scientist G. Zuter in his work on the history of the exact sciences in the East briefly mentioned the work of Abu Rayhan Beruni in this field and translated his treatises on chords(1910–1911) and flattening celestial bodies(1922). In 1908, the Libyan philologist L.Sheikh published the Arabic text of Abu Raykhan Berunis treatise "Fakhriy sekstanti"("Honorary Sextant"). In his research (1911), the Italian scientist K.Nallino analyzed issues such as cosmogony, astronomy in the works of Abu Raykhan Beruni, the concept of this science in the Indians, the determination of the size of the Earth.

In his work on the history of mathematics, the German scientist K.Shoy studied the data on geodesy, trigonometry and chords in the work of Abu Raykhan Beruni "Qanuni Masudi"(1923). Famous scientist in the history of world science J.Sarton described Abu Raykhan Beruni as the world's largest scientist of his time [68, 707; 16, 376].

In the first quarter of the twentieth century, the great European scientist E.Videman published a number of articles studying the exact sciences in the works of Abu Raykhan Beruni. For example, determining the size of the Earth, trigonometry problems, astrolabe construction, determining the specific gravity of matter, mathematical data in "al-Tafhim", and so on.

Foreign research continued in later years: in the collection published in Calcutta in 1951, the work of Abu Raykhan Beruni(S.H.Barani) in the history of geodesy [62, 381], Abu Rayhan Beruni's trigonometry(M.A.Kozim)[64], His methods for determining geographical lengths(I.Kramers) [65]. His method of determining the meridian (E. Kennedy, 1959)[66], mathematical analysis of books III and IV of the work "Masudi's Law"(II.Ahmad, Cairo, 1959)[60], determination of chords(A.S.Damardash, 1965; Arabic text of Abu Raykhan Beruni's treatise, with extensive scientific commentary) [16, 387], the Egyptian scholar Qadri Hafiz Tuqan, in his major study on the history of mathematics and astronomy(1963), focused on the exact sciences in the scientific heritage of Abu Rayhan Beruni [16, 387]; E.Kennedy, S.Injl, and J.Wamsted published a study on his data on the Indian calendar(1960) [16].

The scientific heritage of Eastern scientists, including the scientists of the Khwarezm Ma'mun Academy in the field of

astronomy, has been covered in the form of scientific research and translations in the pages of the collection "Istoriko-astronomichiskiye issledovaniya" published regularly in Russian since the 50s of the XX century. The materials published in the collection can be divided into four groups in terms of content:

1) problems of Oriental Muslim astronomy;

2) scientific heritage of Central Asian scientists;

3) Research on activities of Khwarezm Ma'mun Academy;

4) Translations from the works of Eastern scientists in the field of astronomy.

In research on the scientific heritage of Central Asian scholars, Muhammad ibn Musa al-Khwarizmi's treatises "Zij" and "Astrolabiya bilan ishlash" were briefly described, and the next book was the first to describe the sinus quadrant as a separate astronomical instrument [49, 201-218]; Much more complete information has been provided about Ahmad Al-Ferghani's astronomical treatises. [50, 191-210]; several articles are devoted to Ulughbek, his Samarkand Observatory and the work of scientists in it, which Ulughbek achieved in the field of astronomy [22, 7-140] and the structure of the observatory he built [15, 199-216], the life and work of observatory's scientists (Qazizada Rumi, Ali Qushchi) [31, 36] [23, 381-386], the astronomical instrument built in Tashkent in the 9th century [57, 56-60] are described in scientific considerations.

In one of the translations in these collections, Abu Raykhan Beruni's star catalog was translated from Arabic into Russian and provided with the necessary scientific commentaries [27, 83-194]. The next translation consists of excerpts from Abu Raykhan al-Biruni's Qanuni Mas'udi and Ibn al-Haytham's treatises on astronomy[52, 290-292; 28, 305-338]. The research published in these collections by Uzbek scientists focuses on issues related to the scientific activity of Abu Raykhan Beruni, including scientific works based on research and direct observations of scientists in the field of astronomy[24, 195-220], Ulughbek Observatory and others, the scholars who created it [15, 199-216], the scientific legacy of Ibn Iraq and the great representative of the astrology of the Muslim East, Abdurrahman as-Sufi [38, 219-234].

Several issues of the collection "Historical and astronomical research" also reflect the activities of the Khorezm Mamun Academy in the field of astronomy. The main part of the materials published in them is devoted to the analysis of the catastrophic legacy of Abu Raykhan Beruni. For example, the catalog of the stars of Abu Raykhan Beruni was first translated into Russian and named after Umar Khayyam (1040-1123) and The catalogs of Nasiruddin Tusi (1201-1274) were also first translated into Russian and attached; three works in scientific commentaries and compared with the data of the Greek scientist Claudius Ptolemy [27, 83-194].

Abu Raykhan Beruni's catalog of stars was first published in India as part of the "Qanuni Masudi" [61, 1014-1126]. B.A.Rosenfeld, who wrote the introduction to the Russian edition, suggested that the catalog of Abu Raykhan Beruni was based on the catalogs of Ptolemy "Almagest" and Abulhussein Abdurahman ibn Umar as-Sufi (903-983) who lived in Rey. This translation can be called the first serious study in Russian of the heritage of scientists of the Khorezm Mamun Academy in the field of precise sciences.

In the article of P.G.Bulgakov [17, 181-190] Abu Raykhan Beruni's work "Geodesy" is mentioned as an important written source on astronomy and concludes that it deals with practical (geodetic) issues of astronomy (Determining the latitude of the place, astronomical instruments made by Abu Raykhan Beruni, determining the inclination of the ecliptic plane to the equator, the description of the Honorary Sextant Abu Raykhan Beruni, determining the longitude and size of the Earth, etc.).

In the research of A.K.Tagi-Zadeh [55, 183-200] the quadrants present in the Middle East were described; in this regard, al-Khwarizmi (in his book "Working with Astrolabe") wrote about the sine quadrant, and Abu Rayhan Beruni gave detailed information about the quadrant in his books "at-Tafhim", "Qanuni Masudi", "Geodesy", "Honorary Sextant".

In several other articles, Abu Rayhan Beruni's research on Indian astronomy [24, 195-220], his work on zodiacal light in "Qanuni Masudi"[52, 290-292], the treatise of the Honorary Sextant [18, 211-220], on the motion of the Sun opinions written about[25, 227-236].

In B.A.Rosenfeld's study "Astrology in Islamic countries" there is a brief account of the astronomical research of the scientists of the Khwarezm Ma'mun Academy (Ibn Iraq, Abu Rayhan Beruni, Mahmud Chagmini); For the kingdom of Ghaznavid, the work of Abu Raykhan Beruni is cited as an example [48, 67-122].

In the 13th issue of "Istoriko-astronomicheskie issledovaniya" G.P.Matvievskaya, H.Tllashev published an article [38, 219-234] about the life and scientific heritage of Abu Nasr Ibn Iraq, a great representative of the Khwarezm Ma'mun Academy. Articles on the development of mathematics in the East have also been published in various volumes of the collection of "Historical and Mathematical Studies", which has been regularly published in Russian since the second half of the twentieth century. A significant part of them is the scientific heritage of scientists from Central Asia and the Khwarezm Ma'mun Academy. In particular, there are many articles on the mathematical work of Abu Raykhan Beruni. Among them are Abu Raykhan Beruni's methods of forming an ellipse, parabola and hyperbola in a plane from a circle by means of astrolabe, more precisely, the depiction of the horizon and almukantarat in ellipse, parabola, hyperbola forms (Vakhabov S.A.) [21, 339-344], Abu Raykhan Comparative analysis of the methods mentioned in the works of Beruni, Makhmud Chaghmini and Kamoliddin Turkmani (14th century) (Atagarriev M.N.) [2, 44-47], Abu Raykhan Beruni's "Perfect skills of preparing astrolabe" ("Isti'ob al-vujuh al-mumkina fi san'a al-asturlob") of Leiden Analysis based on the manuscript of the University Library (Or.591/4) (Vakhabov S.) [20, 328-335], Abu Raykhan Beruni's "Separate words on the issue of shadows" ("Ifrod al-maqal fi amr al-azlol") [51,226-231] and the application of quadratic interpolation (Rosenfeld B.A.) [48, 421-430].

In two volumes of the collection mathematical knowledge in the history of the peoples of Central Asia in the 9 – 15th centuries (Yushkevich AP) [58, 455-489] and the study of the history of mathematics in Central Asia (S.Kh. Sirojiddinov, G.P.Matvievskaya)[54, 51 -61] published articles on the development of mathematics in Khorezm.

III. THEORETICAL BACKGROUND.

More relevant to us is the article "On the study of the history of mathematics in Central Asia"[54, 51-60], co-authored by S.Kh.Sirojiddinov and G.P.Matvievskaya[54, 51-60], a systematic study of the history of mathematics in Central Asia in the 9th century and in Uzbekistan, mainly in the second half of the twentieth century. One of the researches directly related to the study of the development of specific sciences at the Khwarezm Ma'mun Academy is the article by G.P.Matvievskaya on the history of studying the legacy of Ibn Sina in the field of physics and mathematics [39, 16-40; 155] can be shown. In it, the heritage of Ibn Sina in the field of Exact Sciences is divided into seven parts in terms of content (classification of exact moments, mathematics, astronomy, physics, mechanics, optics, music theory) and each is analyzed separately and studies in Russian and Western languages are shown.

According to the author of the article, Eastern scholars continued the ancient Greek tradition of mathematics and divided it into four areas - arithmetic, handasa, astronomy and music. However, they took a creative approach to each field and reinterpreted their practical aspects [39, 17-18, 155], introducing new classifications of sciences. For example, Ibn Sina divides the field of mathematics into four parts: 'ilm al-adad (science of numbers),' ilm al-handasa (khandasa), 'ilm al-hay'a (astronomy),' ilm al-musiqa. In other words, Ibn Sina introduced many innovations into the concepts existing in the Greeks in the field of exact sciences and enriched this direction. He mastered Indian arithmetics, mathematical concepts in the works of Greek scientists Euclid and Ptolemy, practiced regular astronomy while living in Isfahan, and built an observatory in Isfahan, where he ruled from 1024–1032, made observations and wrote several treatises in this field [39, 20]. .

In Western Europe, Ibn Sina's scientific legacy in the field of mathematics has been recorded since the late 18th century (for example, in J.E.Montyukla's "Riyozat tarikhi" (History of Mathematics) [67]. Then G. Libri (1838), F. Vyopke (1859), M.Cantor (1880), P.Tannery (1882) [39, 20-22], especially K.Brockelman (1898) [63, 452-458] and through the research of G. Zuter(1900) [69, 22-39, 155] and others, Ibn Sina's service in the field of mathematics became known to the West. If K.Brockelman gave information about the works of Ibn Sina, including works on mathematics, G.Zuter gave a list of all his works on mathematics and astronomy, and also touched on his work in this field. It can be said that by the beginning of the

twentieth century, a clear idea of the mathematical heritage of Ibn Sina was formed in modern science [39, 22-23]. These publications consisted of research and translations in form.

Research in this area has continued in recent years. For example, the mathematical problems in Ibn Sina's "Kitab ash-shifo" were studied by H.M.Muhammadiyev (part of planimetry) [45, 5-8] and M.S.Sharipova (in the form of general analysis) [59, 6-9]. B.A.Rosenfeld and N.A.Sadovsky translated parts of physics and mathematics from the "Danishnama" into Russian [30]. M.A.Akhadova [2, 3, 4], S.U.Umarov and B.A.Rozenfeld (in the introduction to the Russian translation) published the research[48-53].

Another branch of the exact sciences, astronomy, is also part of Ibn Sina's legacy, and research on this subject in Europe originally belonged to E.Videman. He translated and published in German "Kitab ash-shifa", "A treatise on the denial of the judgment of the stars", "A book on the preferred method of making astronomical instruments" [70, 121-126; 269-275].

M.Akhadova in her article on the history of mathematics in Bukhara[4, 97-112] said that Ibn Sina's works "Kitab ash-Shifo", "Kitab an-najot", "Danishnoma" contain information on mathematics, astronomy and physics.

In an article co-authored by A.Akhmedov and B.A.Rozenfeld, Abu Raykhan Beruni's full title is "Cartography", the full title is "Burjlarni tekis yuzda aks ettirish va mamlakatlarni tekis yuzda tasvirlash kitobi" ("Risola fi tastih as-suwar and tabtih al-kuwar") the work is described, it is noted that it is one of the first treatises written by the scientist, and a Russian translation of the work is also given from the only copy kept in the library of the University of Leiden[7, 127-153].

This work is named in the list of works of Abu Raykhan Beruni in the monograph of P.G.Bulgakov: "Istiy'ob fi tastih al-kura"–"Sferani tekis yuzga tushirish bo'yicha yakuniy(to'plam)" [16, 309]. Earlier, this work was translated into Uzbek and published by A.Rasulov [13, 244-259]. J.H.Ibadov informed about the works on specific sciences (32) in the library of the Muslim Board of Uzbekistan[29, 154-160].

Although the book, co-authored by G.P. Matvievskaya and H.Tllashev, is called "Manuscripts of works of Central Asian scientists on mathematics and astronomy(9-18th centuries)", but for some reason, mainly outside the Central Asian region, that is, scholars of the Near and Middle East - Abu-l-Vafa al-Buzjani (10th century), as-Sijavandi (12th century), Imad ad-Din al-Baghdadi (13th century), Sharaf ad- Works of Din al-Mas'udi(13th century), Nasiruddin Tusi(13th century), Nizamiddin an-Nisaburi (13th century), Husaynshah as-SimnAni (13th century) were analyzed[41, 148].

Collections published in Uzbek and Russian on the occasion of the 1000th anniversary of the birth of Abu Ali ibn Sino [1, 248] also contain articles on the development of specific sciences at the Khwarezm Ma'mun Academy. A.Akhmedov is one of the scientists who conducted research in this field [9, 99-113; 8, 183-189], P.G.Bulgakov[19, 149-157], G.Jalolov[26. 122-135], B.A.Rosenfeld [52, 157-163], M.M. Rojanskaya [47, 163-183], B.V.Lunin [36, 212-243] in the articles of Ibn Sina on mathematics(including geometry), astronomy(including practical astronomy), reviews of scientific research in the field of mechanics, and information on the study of the works of Ibn Sina.

In the collection of knowledge of mathematics and astronomy in the heritage of Ibn Sina and his contemporaries(1981) [42, 155] his legacy in the field of physics and mathematics (M.A.Akhadova), his contribution to the development of mathematics(A.U.Usmanov), his works in this field study(G.P.Matvievskaya), the astronomical instrument created by Ibn Sina(Z.K.Sokolovskaya). This collection contains many articles not only on the legacy of Ibn Sina, but also on various issues of development of the exact sciences in the East in general (A.Abdurahmanov, A.Akhmedov, A.Abdukabirov, G.P.Matvievskaya, M.A.Abrorova, H.H.Tllashev, J.X.Ibadov, G.Masharipova). Research on specific sciences at the Khwarezm Ma'mun Academy in this collection consists only of articles devoted to the study of the works of Ibn Sina.

IV. RESULTS.

When talking about the sources of the development of philosophical sciences in Khwarezm in the 10-12th centuries, it should be noted that there is a tradition of succession in science, and the influence of ancient Greek science.

The achievements of ancient Greek science were introduced in Khwarezm in the 10-12th centuries in two ways:

The First is through the translation and assimilation of the works of ancient Greek scholars directly from Greek into Arabic in Khwarezm. For example, it is known that Abu Nasr Mansur ibn Iraq, the great scholar who lived and worked in

Khwarezm, the teacher of Abu Raykhan Beruni, translated the work of the ancient Greek scholar Menelaus "Spherica" from Greek into Arabic.

The second is the translation and development of the works of ancient Greek scholars into Arabic by scholars in Baghdad and their use by scholars of the Khworezm Mamun Academy, as well as this scientific succession during the reign of Anushtegini-Khwarezmshahs. Through this succession, some scientific concepts in the works of Greek scholars, including in the field of philosophical sciences, also influenced the development of science in Khwarezm in the 10-12th centuries. Examples of this can be clearly seen in the work of Abu Raykhan Beruni. In his work "Geodesy" Greek scientists Eratosthenes, Hipparchus, Ptolemy (works "Geography" and "Almagest") cite information. It can be said that in the 10-12th centuries in the scientific environment of Khwarezm the achievements of ancient Greek science were creatively used and developed with corrections and changes.

At the same time, the achievements of Indian science have a place in the scientific potential of Khorezm. When Abu Raykhan Beruni wrote his work "India", he used the works of "al-Arkand" and "Khaṇḍakhādyaka" of Brahmagupta, Vijayanand "Karana-tilaka" related to the results achieved in this area in ancient Greece and the Indians, including the Indian disaster that had not reached us before, he analyzed them critically and introduced some of the concepts of disaster into the scope of Muslim science.

According to Beruni, the observer perceives the observed event where it is taking place[12]. Consequently, observation records this or that event in its specific form[12, 260]. Old data from observations can represent a significant distortion of the actual performance of an object. Beruni notes that the experiment conducted by the researcher and its results are reliable in practice. He writes, "There is no priority program other than testing, no program that can lead to success other than testing in practice"[12, 340].

Abu Raykhan al-Biruni used to say that in governing a society, the society should not serve the king, but the king should serve the society: "The essence of managing and governing is the protection of those whose rights were oppressed, to lose his peace in order to save the peace of the others",- says Beruni. Abu Raykhan Beruni's political views put forward the idea that a governor elected by the people to govern the state should be just and patriotic. He wrote this idea in his "Mineralogy" as an example of a story: "The governing officials of the country there are ruling in collegial order, when the turn is in his disposal, he rules for three months. After the timeframe he descends from the practice of ruling the country making donations as a sign of gratitude and returns back to his folk, by doing this he feels happy as if he was liberated from the chains and occupies with his tasks. This is because running a state means being deprived of pleasure. Here it means that intending to establish justice for the oppressed towards the oppressors is exhausting them. This in its turn is to torment himself in order to be protected from its subordinates, and there for the preparation of the war measures..." [11, 237]. Also, "Human dignity consists in the excellent fulfillment of one's interests, so the main task and place of man is determined by labor, man achieves his desires through labor" writes Abu Raykhan Beruni in his work "Geodesy"[11: 132].

Labor is the basis of human spiritual and moral perfection. There is no joy in a life without work, man achieves what he wants by working. This idea has a major programmatic significance in the socio-political, philosophical teachings of Abu Raykhan Beruni, in particular, in his views on spirituality and enlightenment. In the teachings of Abu Raykhan Beruni associated with spiritual and enlightenment views, labor, morality, education, profession, science, education are analyzed and interpreted in an integral and dialectical unity. Abu Raykhan Beruni's teachings on science, culture, spirituality and enlightenment, brotherhood, sincerity, equality, justice, goodness, truthfulness, humanity serve as a moral, ethical, spiritual and philosophical basis in the formation of a new national thinking.

Abu Raykhan Beruni acknowledges that social life is based on a specific "contract": "When a person realizes his needs, he begins to realize the need to live with people like him. Therefore, they start to conclude a "contract" in the form of mutual agreement. The coexistence of people does not lead to real power, to the satisfaction of his needs, for which it is necessary to work again". Continuing this idea, "human dignity consists in the excellent performance of one's duty: therefore, the most basic task and place of man is determined by labor, man achieves his desires through labor" he wrote. Beruni understood

that in the management of society, society does not serve the king, but the king must serve society. “The essence of administration and management is not only to protect the rights of those who suffer from the oppressors of the chief, but also to lose their peace in the way of the peace of others It is the exhaustion of the body in the way of protecting and guarding their family, their life and property”. The ruler, who by nature is inclined to rule, must be firm in his thoughts and decisions, and in carrying out his work he must obey the laws of the philosophers, as Alexander the Great followed the Aristotle’s philosophical wisdom: the king himself must also have a “consciousness of creativity”, especially to worry more about the peasants”. “The kingdom can not live without peasants”, Beruni said. He also states: “The main task of a just ruler is to establish equality and justice between the upper and lower classes, the strong and the weak”.

Abu Raykhan Beruni laid the foundations of true scientific naturalism in the Middle Ages, advancing in his various fields such astonishing ideas and scientific hypotheses for his time that they found their proof in European science centuries later. Beruni is one of the initiators of a clear scientific thinking based on real experience, observation, experiment in medieval conditions. Beruni also wrote in the field of philology, researched the structure of classical Arabic poetry, Indian poetry, and translated Iranian folklore into Arabic. Beruni believed that the development of the country was inextricably linked with the development of science. “Every scientist must base his discussion on practice, be clear in his research, work tirelessly, seek out and correct his mistakes, and fight against all kinds of fabrications and superstitions for the sake of truth in science”, he said. He strongly condemns wars that are destructive to humanity, the science and culture he has created, fighting for the peoples to live in friendship, solidarity and alliance. In his work “India”, the scientist wrote with regret that “there is much strife and contention among the peoples”. His extensive research work in India was aimed at strengthening friendship, mutual cooperation and cultural ties between nations. It is clear that Beruni paid great attention to cultural cooperation and the spread of knowledge[44, 245].

Beruni pays special attention to emotional cognition. He writes: “There are many fields of knowledge, and as human intellect joins it as it develops, its sign is that people aspire to science, crush it, respect the people of science”. Concerning the knowledge of the unknown principles of reality, he says, “There is a way of all things that must be known, through which knowledge can be attained”.

In philosophy, ways and methods of knowing the universe have been developed, and this is reflected in the methodology (the doctrine of methods). Social philosophy discusses ways and means of studying man and society[10, 5]. Abu Raykhan Beruni emphasizes that the worldview was formed as a result of an evolutionary process. “The source that governs the universe is the contradiction of “structure and destruction”, Beruni said[10: 26]. At the same time, Beruni argues that the force that leads the world to social development is not contradictions and reconciliation, but compromise and consensus at different social levels. “How can one believe in something whose contradiction is clear?”[10: 44], - the thinker points to the growing need for change in processes that are free of contradictions. Throughout his career, Beruni was interested in social issues and expressed his philosophical views in his works “India” and “Osoru-l baqiya”(Monuments of Ancient Peoples).

Abu Raykhan Beruni developed the philosophical ideas of Central Asian and Eastern thinkers. In particular, in his work “Osoru-l baqiya”(Monuments of Ancient Peoples) he tried to solve the issue of human life on a scientific basis. The importance of the geographical factor in the life of society and people has shown its impact on social phenomena. He explained the differences from the traditions of the Muslims and the Indians by the geographical conditions, and even linked the differences between the languages by geographical factors. According to Abu Raykhan Beruni, the path to philosophy passes through the natural sciences, which allow for a deeper understanding of existence. In general, Beruni’s definition of philosophy as a science that knows the essence of existence is in line with Abu Mashar al-Balkhi’s view that “Nature is stronger than anything”[43, 99. Eastern and Western scholars have made a worthy contribution to the emergence and development of world socio-philosophical doctrine. In certain periods of social development, the countries of the East took the lead. It is theoretically a mistake to exaggerate or discriminate against the role of the peoples of Asia and Europe in the development of world philosophy. Every science is universal in its essence. Every nation on earth, regardless of its size, has contributed to its development.

V. CONCLUSION

In conclusion, the great discoveries made in the natural sciences in the mid-nineteenth century (evolutionary theory, cell theory, the law of conservation and change of energy) led to a change in the philosophical worldview, the emergence of scientific theories about society. Society is a very complex and multifaceted phenomenon that is constantly changing and evolving. Since very ancient times, the great thinkers of mankind have tried to know the essence of society and determine the role and role of man in society. In different historical periods, mythological, religious, scientific and philosophical views allowed to form a certain knowledge, imagination about the origin and development of society. As the spirituality of mankind has increased, the views on society have also improved, more complex and reliable scientific and philosophical views on society have emerged than simple religious and mythological views on society. The encyclopedic knowledge of Central Asian thinkers such as Farabi, Abu Raykhan Beruni, Ibn Sina, and other great thinkers made a significant contribution to the development of consistent scientific and philosophical views on society. Their progressive views have played an important role in the improvement of social relations, the formation of a perfect human personality for many centuries and still retain their significance today. The natural and scientific heritage of Abu Raykhan Beruni, the problems he raised in the Exact Sciences, was of great importance in the creation of the general landscape of the universe in his time, that is, the formation of a philosophical worldview. Beruni in his astronomical chart promoted the geliocentric hypothesis that the center of the universe is not the Earth, but the sun, including the planets, the Earth also revolves around the sun. This scientific conclusion of Beruni was confirmed on a scientific basis in the heliocentric system of the great astronomer Copernicus after 500 years. Beruni in his dispute with the Abu Ali ibn Sina concludes that all the planets in the Universe, including the Earth have the gravity force. This scientific conclusion by him was scientifically proven based on the Universal law on gravity in the beginning of the 18th century. By the means of the socio-political views of the scholars of Khwarezm Ma'mun academy had contributed a great deal to the development of avant-garde traditions of the scholars of Central Asia, but also the Greece and India.

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