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THE STUDY OF "BAYT UL-HIKMA" IN RESEARCH.

Teacher of the Department of General History,

Jizzakh State Pedagogical University,

Uralov Khaitboy Abdujabborovich.
Uralovkhaitboy857@.gmail.com
Tel: 99899-476-26-93

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Abstract: The content of this article is about the period of the scientific institution Bayt ul-Hikma, which was active in the Eastern world in the Middle Ages, when it was active in Baghdad, the contribution of Central Asian scientists who worked there to science, the development of exact and natural sciences in this scientific institution, etc. Brief information is provided about the scientific activities of the following scientists who worked in this academy: Ahmad al-Farghani, Muhammad al-Khwarizmi, Abdulhamid ibn Turk al-Khuttali, Ahmad al-Marwazi, Yahya ibn Abu Mansur, Abbas al-Jawhari. Al-Farghani. Despite the fact that information about the life of the scholar is very scarce, his name was famous in the East in the Middle Ages. Eastern mathematicians such as Ibn al-Nadim (10th century), Ibn al-Qifti (12th-13th centuries), Abul Faraj Bar Ebray (13th century), Haji Khalifa (17th century) mention him in their works. Al-Ma'mun also traveled to Egypt several times in order to suppress the rebellions and disorders that were taking place. In particular, information has been preserved that he spent several months in Egypt in 217/832. Ahmad ibn Abdullah al-Marwazi. Another of the great astronomers and mathematicians who worked at the Baghdad scientific school was Ahmad ibn Abdullah al-Marwazi, who was known by the nickname "Habash al-Hasib" ("Abyssin the Accountant"). The title al-Marwazi in his name indicates that the author was from Merv, near the city of Bayram Ali in modern Turkmenistan. The author cites the works and treatises of Ahmad al-Marwazi in his work. It provides information about the basis of these works and the reasons for their writing. Ahmad ibn Abdullah al-Marwazi is the author of the works “Damascus Ziji” (“az-Zij al-ma’ruf bi-d-Dimashqi”), also known as “Zij” (“Astronomical Tables”), “Zij” (this Ziji was compiled for the city of Baghdad), and “Al-Ma’mun’s verified Ziji” (“az-Zij al-Ma’muni al-mumtahan”)

Al-Farghani. Despite the fact that information about the life of the scholar is very scarce, his name was famous in the East in the Middle Ages. Such Eastern theologians as Ibn al-Nadim (10th century), Ibn al-Qifti (12th-13th centuries), Abul Faraj Bar Ebray (13th century), and Haji Khalifa (17th century) mention him in their works. Al-Ma'mun also traveled to Egypt several times in order to suppress the uprisings and riots that were taking place. In particular, information has been preserved that he spent several months in Egypt in 217/832. Interestingly, some of this information notes that the caliph participated in the work of reforming the nilometer in Fustat (ancient Cairo). Scientific literature states that Ahmad al-Farghani carried out these reforms. Thus, Ahmad al-Farghani may have come to Egypt with al-Ma'mun. However, the problem with this assumption is that al-Farghani is known to have reformed the nilometer in 247/861, while the caliph died in 218/833. This suggests that Ahmad al-Farghani reformed the

nilometer several times, or that there is some uncertainty in the dates given in the literature. One of al-Farghani's greatest achievements was that in his book The Method of Astronomy, he identified and corrected many errors in the Almagest, the main astronomical encyclopedia of the famous 1st-century Claudius Ptolemy. This work has been known under seven other names. "Collection of the Motion of Heavenly Bodies and the Science of Stars", "A Book of Astronomy in Thirty Chapters", "Thirty Chapters for the Introduction to the Almagest", "Causes of the Celestial Spheres", "Structure of the Celestial Spheres", "Almagest" ("Almajistiy"), "Science of Astronomy", and currently his manuscripts are in Baghdad (2959 in the sixth title), Dublin (Betti, 4114), Cairo (Mikat, 944, 194, 310, 311), Leiden (8418/5), St. Petersburg (3059/3), Moscow (154/2), Oxford (1, 879/1- in the second title), Paris (2504/3- in the third and fourth titles), Princeton (Garr, 967 - in the seventh title), Istanbul (Hagia Sophia, 2843/2 - in the fourth title), Tunis (National Library, 02103/1 - second title), Fes (Zawī, 56 - eighth title) are kept in a number of state and city libraries. Currently, eight works by al-Fargānī are known, all of them related to astronomy and none of them have been translated into modern languages. The other two works of Al-Farghani have not yet been studied by anyone. Undoubtedly, their study and analysis will open new facets of Al-Farghani's work and will also clarify the reasons why the scientist was so famous in the Middle Ages, and later in the East and the West. In all his translated works, Al-Farghani's name is written in Latin as "Alfraganus", and in this form it will forever enter science. During the reign of Caliph Ma'mun, the necessary funds were allocated for the "Bayt ul-hikma". Scientific research, translations and other creative works flourished here. Scientists translated many scientific works from Greek and Pahlavi (the Persian language that existed in Iran during the Sasanian period) into Arabic. Indian science was also studied in depth here.

If the works of Greek scholars influenced the astronomical studies in the "House of Wisdom", then the influence of Indian science on medicine, arithmetic and algebra was significant. Scientific works in Arabic, which were produced in Baghdad, were translated into Latin. Through them, Indian knowledge reached the Greeks and Europe. During the reign of Al-Ma'mun, in addition to Ahmad al-Farghani, Central Asian scholars such as Muhammad al-Khwarizmi, al-Abbas al-Jawhari, Ahmad al-Marwazi, Yahya ibn Abu Mansur, Abdulhamid ibn Turk al-Khuttali became famous. In general, it is worth noting that the majority of the scholars who worked in the Baghdad scientific school were Central Asian scholars, which is evidenced in a number of scientific literatures. The names of a group of scientists who worked during the time of Al-Farghani, that is, in the 9th century, were mentioned. If we take into account that each of them wrote several, even dozens of works (for example, al-Farghani 8, Muhammad ibn Musa al-Khwarizmi 17, Ahmad al-Marwazi 18, Ya'qub al-Kindi 86, etc.), then it becomes clear that at that time, science was developed to an astonishing degree from the point of view of his time. Judging from al-Farghani's scientific heritage and the inscriptions left by medieval authors, it becomes clear that he actively participated in scientific research conducted during the Baghdad Caliphate and made a significant contribution to the natural sciences in such fields as astronomy, geography, geodesy, and hydrology. Al-Farghani's first independent work is called "Introduction to Astronomy." In this work, he systematically and consistently describes the works of astronomers who lived before him, and criticizes some of the shortcomings found in them. This showed that Ferghani was an accomplished astronomer. Ferghani had already proven himself to be an accomplished astronomer before. He had predicted several solar eclipses. The names of the eight works of Al-Ferghani mentioned above are as follows: 1. “Kitab fi kharakat as-samowiyyah wa jawami ilm an-nujum” (“The Book of Celestial Movements and General Astronomy”). The work is known by this name in most of the sciences. He also has many

manuscripts. This work is mentioned in Eastern written sources under several other names: “Kitab fi usul ilm an-nujum” (Book of the Fundamentals of Astronomy); “Kitab al-hay’a al-fusul as-salosin” (Book of Astronomy in Thirty Chapters); “Al-Fusul madhal fi Majistiy wa huwa saosuna faslan” (Thirty Chapters Written as an Introduction to Ptolemy’s “Al-Magest”); “Ilal al-aflok” (Book on the Celestials); “Tarkib al-aflok” (Book on the Celestials); “Al-Majistiy” (“Almagest”) – about the famous work on astronomy by Claudius Ptolemy; this work is also called “Ilm al-hay’a” (Astronomy). 2. “Kitab al-kamil fi san’a al-asturlab” (Book on Making an Astrolabe); This work is also known as “Kitab al-kamil al-Farghani” (“The Perfect Book of Al-Farghani”).

Its manuscripts are kept in the book treasuries of Great Britain, Germany, France and Iran. 3. “Kitab amal bil asturlab” (“Book of Working with Astrology”) manuscript in the Rampur Library, India. 4. “Jadwal al-Farghani” (“Tables of Al-Farghani”) manuscript in the Patna Library, India. 5. “Risala fi ma’rifa al-awqat allatiy yakun al-qamar fiyha favq al-arz aw tahtho” (“On the Times of the Moon’s Staying Below and Above the Earth”)"A treatise on determining the sun"), the manuscript is in the Cairo city library. 6. "Hisab al-aqolim as-sab'a" ("Calculation of the Seven Climates"), the manuscript is in Cairo. 7. "Kitab amal ar-ruhamat" ("Book of Making a Sundial"), the manuscripts are kept in the book treasuries of Aleppo (Syria) and Cairo (Egypt). 8. "Ta'lil li zij al-Khwarizmiy" ("Substantiation of the Theoretical Views of Al-Khwarizmiy's "Zij"), the name of this work was mentioned by Abu Rayhan al-Biruni in his work entitled "The Book of Determining Chords in a Circle by Using Broken Lines in It". Of the works listed above, the first two are the most famous and widely studied in science. "Today, when we imagine the great achievements of mankind in science and modern technologies, we involuntarily recall such a high achievement in the example of our great grandfather Our hearts are filled with pride that the Uzbek people also made a worthy contribution to achieving these goals. Of course, our great ancestor - Ahmad Ferghani, as the most brilliant and powerful representative of the first Renaissance in the history of mankind, one of the founders of fundamental science of his time, had an incomparable influence on the development of the worldview and spirituality of mankind. It is well known from historical sources that his invaluable legacy served as a program for scientists of his time. The fact that the scientist's work "Book on the Fundamentals of Astronomy" was translated into Latin and Hebrew as early as the 12th century is evidence of this idea. The influence of this scientist, known in Europe as "Alfraganus", in the development of science was so high that his name was famous not only on Earth, but also in the sky. This idea is confirmed by the fact that in the 16th century one of the craters on the Moon was named after him. The famous astronomer Jan Hevelius In his book "Selenography" published in 1647, he mentioned that two of the craters on the Moon are named after two of our great compatriots - Ahmad Ferghani and Mirzo Ulugbek.

Ahmad ibn Abdullah al-Marwazi. Another of the great astronomers and mathematicians who worked at the Baghdad scientific school was Ahmad ibn Abdullah al-Marwazi, known by the nickname "Habash al-Hasib" ("Abyssin the Accountant"). The title al-Marwazi in his name indicates that the author was from Merv, near the city of Bayram Ali in modern Turkmenistan. The author cites the works and treatises of Ahmad al-Marwazi in his work.

He provides information about the basis of these works and the reasons for their writing. Ahmad ibn Abdullah al-Marwazi is the author of the works “Damascus Ziji” (“az-Zij al-ma’ruf bi-d-Dimashqi”), also known as “Zij” (“Astronomical Tables”), “Zij” (this Ziji was compiled for the city of Baghdad) and “Al-Ma’mun’s verified Ziji” (“az-Zij al-Ma’muni al-mumtahan”).

"Damascus Ziji" is currently stored in Istanbul. Al-Marwazi wrote this work of his based on the processing of Indian astronomical tables, which were known at that time as "Sindhind". Some of the issues in it differ from the "Zij" of Ibrahim al-Fazari and Muhammad al-Khwarizmi. The second "Zij" of Ahmad al-Marwazi, written for the city of Baghdad, is stored in Berlin. Judging by the information in al-Biruni's works "Monuments of the Ancient Peoples" and "Geodesy", this book was respected by astronomers of the later period mentioned. Despite the scientist's achievements in astronomy, his main merits are considered to be in trigonometry. The essence of our idea is the concepts of tangent and cotangent, which al-Marwazi was the first to introduce into science, and their functional tables. The concepts of tangent, cotangent and cosine, described in the works of the scientist, were a great contribution to the development of trigonometry. Ibn an-Nadim in his book "al-Fikhrist" gives two more important information about al-Marwazi. One of them is that al-Marwazi had a son named Abu Ja'far ibn Ahmad ibn Abdullah ibn Habash, who was also engaged in astronomy and was the author of the book "Yassi astrolabeya" ("Kitab al-asturlab al-musattah"). The second is that Muhammad ibn Baziar, one of the famous astrologers and astronomers of the 9th century, is recognized as one of the students of al-Marwazi, whom we are talking about. This is Ahmad It is evidenced that al-Marwazi was not only a famous scientist, but also a skilled teacher who trained excellent students. Among his twenty or so works, there are treatises devoted to astronomical instruments - astrolabes, sundials and other devices. Unfortunately, most of them have not reached us. From the above information, we can see that dozens of great people who lived and worked in the 9th-11th centuries, scientists are engaged in astronomy and make a worthy contribution to the development of world science.

Al-Farabi (pseudonym; full name Abu Nasr Muhammad ibn Muhammad ibn Uzlug Tarkhan Al-Farabi) (873 Al-Farab - 950 Damascus) - a great Turkic thinker and encyclopedist of Central Asia. For his deep knowledge of Greek philosophy, his commentaries on it and his dissemination to the world, as well as his thorough mastery of the sciences of his time and his great contribution to the development of sciences, he was awarded the titles "al Mu'allim al-saniy" ("The Second Teacher", after Aristotle), "Aristotle of the East". Al-Farabi was born in a place called Farab (Otrar) on the banks of the Syrdarya River into the family of a military officer belonging to a Turkic tribe. At that time, the Samanid dynasty ruled Transoxiana.

After receiving his primary education in Otrar, the future philosopher continued his studies in Tashkent, Samarkand and Bukhara. In order to further deepen his knowledge, Farabi went to Baghdad. He breathed in the cultural environment here and got to know the scientists closely. He also took lessons in philosophy. Farabi read all of Aristotle's works without missing a single one. As a result, Farabi developed the skills to easily understand Aristotle's ideas and feel the scale of the tasks he set for himself and the problems he thought about. It is said that Farabi wrote with his own hand on Aristotle's work "On the Soul": "I have read this work 200 times." "A cultural society and a cultural city (or country) will be such that every person from among the inhabitants of this country will be free from profession, everything will be equal, there will be no difference between people, everyone will be engaged in the profession he wants or chooses. People will be truly free. One will not be the master of another. There will be no sultan (i.e. king) who will interfere with the peace and freedom of people. Various good habits and pleasures will arise among them," writes Farabi. At the same time, Farabi also reflects on cultural knowledge in his works. In his opinion, cultural knowledge is "the science that teaches such things that with its help all the qualities inherent in people, including urban and non-urban peoples, are combined." Al-Farabi was the first in his works to reflect on the origin, goals and tasks of society, first of all, he listed many aspects of a civilized society. In his socio-ethical treatises, Al-Farabi develops the

doctrine of the "virtuous city" headed by a philosopher-ruler, who simultaneously acts as an imam and religious leader. Al-Farabi contrasts the ideal socio-political structure with "ignorant cities" that embody negative moral qualities. Al-Farabi's "Great Treatise on Music" is considered the most important source of information about Eastern music and the ancient Greek musical system. Al-Farabi, Ibn Sina, Ibn Tufail, Ibn Rushd, as well as medieval Western European philosophy and science, influenced Al-Farabi's thinking about man and the ideal conditions of his existence, and based on his belief in "natural" rationality, he created the first social utopia in the Arab-Islamic world ("Treatise on the Views of the Virtuous City").In his virtuous city, people are happy because it "has everything that the population cannot live without." He organized the city, created warehouses, temples, established weights and measures, imposed fair taxes, organized court cases, held festive celebrations, developed trade, regulated money circulation, etc. A stratification was introduced in the city: "Who among the city dwellers is suitable for any craft and art. The city is governed by a legislator, called the "city organizer", and "experienced people" who have not only thought, but also knowledge. Knowledge obtained through rigorous logical arguments is not available to everyone, but only to the elite.

The broad masses should be encouraged to live a virtuous life through reflection, dressed in poetic, figurative and symbolic forms. In his works "Thoughts of the Virtuous City Residents", "On the Achievement of Happiness" and others, Al-Farabi tries to solve important problems of moral philosophy, including moral education. The thinker's idea of morality and its basis for the younger generation parenting ideashas not lost its relevance even today, on the contrary, it is of great importance in developing new methods and rules of moral education and improving them. Interpreting the concept of morality in a broad sense, Farabi calls on all people, regardless of their religion, beliefs, race, language, to unite and cooperate. He dreams of forming a single human community in the world and acting in the interests of all citizens. Farabi, who put forward wonderful dreams and ideas in his time, also put forward his ideas about building a single society in the world, which were later put forward by many thinkers of the world, including the German philosopher A. Kant. If we seriously consider the ideas put forward by Farabi, which were also considered appropriate by world scientists, about the formation of a "single civil society in the world", it becomes clear how important this idea is today. After all, we are calling on all of humanity to unite in the fight against unprecedented disasters that have brought unprecedented suffering to all of humanity, as we move from the 20th to the 21st century: AIDS, terrorism, religious fanaticism and other destructive actions! According to Farabi, any developing state, adhering to high moral qualities, is a powerful weapon that undoubtedly leads its citizens to the path of happiness. Only when a person is a possessor of knowledge and exemplary morality can he embody good habits and actions, he will not enter the path of any evil destructive actions, but, on the contrary, will wage a ruthless war against them. In his socio-ethical treatises, Al-Farabi develops a doctrine of an ideal society in which a philosopher-ruler endowed with spiritual leadership functions should be the ruler. Al-Farabi's works played a key role in the development of philosophical thought both in the East and in Europe. Progressive humanity looks with respect to Al-Farabi's work and deeply studies his heritage. European scholars B. M. Strenshnider, Carra de Vaux, T. U. Buur, R. Hammond, R. de Erlanger, F. Deteritzy, G. Farmer, N. Richard, G. Ley, and Oriental scholars Nafisi, Omar Farrukh, Turker, M. Mahdi, and others have made a significant contribution to the study of Al-Farabi's heritage. In recent years, a number of studies and works dedicated to his work and teachings have appeared. There are streets, schools and libraries named after Forabi in Uzbekistan and Kazakhstan. M. Khairullayev, in his work "The Renaissance and the Thinker of the East", writes that

Forabi's works are preserved and revered in large libraries, state and private manuscript collections of famous cities in different countries: St. Petersburg, Moscow, Tashkent, Baku, Kazan, Cairo, Beirut, Damascus, Istanbul, Berlin, London, Paris, Madrid, New York, Hyderabad, Isfahan, Bombay, Tehran and many other cities. Forabi's sociological, socio-philosophical, natural-scientific, educational-medical views,theoretical conclusions are wide-ranging and diverse, and in terms of their content, they are very significant not only for his time, but also for the present. In 2020, Kazakhstan and the whole world celebrated the 1150th anniversary of the birth of the great philosopher of the East, Abu Nasr Al-Farabi. This event is included in the UNESCO calendar of memorable dates and is widely celebrated in international cultural venues with the support of ISESCO, OIC, TURKSOY and other influential organizations. The celebration of the anniversary of Al-Farabi on such a scale is a powerful impetus for the wide promotion, study and understanding of the creative heritage of the great scholar among the younger generation and the world community.

Abu Bakr al-Razi. He was a great encyclopedist who continued the scientific and cultural traditions of Khorasan and Central Asia in Baghdad. In his treatise "Doubts about the Views of Joli Yunus," al-Razi describes how, in his youth, he conducted many experiments and studies in order to find the mistakes of the "creators of wonders." Perhaps the reasons listed above led the young scientist to deeply master the science of chemistry. Later, ar-Razi made a huge contribution to the development of medieval chemistry by creating works such as his "Book of Secrets", "Introduction to Chemistry", "The Origin of Minerals", "Book of Stones", "Book of Elixir", "The Test of Purity of Gold and Copper", "Refutation of al-Kindi, the Denier of Chemistry", "Refutation of Muhammad ibn Layth ar-Rasaili, the Denier of Alchemists", and "Book of the Secret of Secrets". Ibn al-Qifti and Abu Rayhan al-Biruni noted that ar-Razi's intense devotion to chemical experiments and constant exposure to smoke, steam, pungent odors, and fire led to damage to his eyes. After ar-Razi, who sought healing and turned to an eye doctor, was asked for five hundred dinars in exchange for treatment, the scientist began to study medicine, saying to himself, "This is real chemistry, what you are doing is not chemistry," and began to study medicine. Ar-Razi, who was around 30 years old, came to Baghdad in search of knowledge in such fields as medicine, chemistry, and philosophy. The scientist soon became a famous physician and even earned the honorary title "Joliyunus of the Arabs." Due to his high skill in treating people, various rulers began to invite ar-Razi to their capitals. Thus, he first headed a hospital in Rayy, and later in Baghdad during the reign of Adud ad-Dawla, which was named "Adudiy" after this ruler. The "Encyclopedia of Islam" notes that ar-Razi was one of the most respected scholars in the field of medicine until the 17th century. Abu Bakr al-Razi became blind in the last years of his life.

Sources attribute this to the scholar's extensive reading, experiments with chemicals, excessive consumption of large beans, and even a beating by the ruler of Khorasan, Abu Salih ibn Mansur. The scholar died in 925 at the age of 60. He died in the city of Ray. Ibn an-Nadim cites 113 books and 28 treatises by ar-Razi, and Ibn Abu Usaybi'ah cites 232 works. According to experts, the total number of works of the scientist mentioned in the sources exceeds 270. Ar-Razi had a favorite student named Muhammad ibn Yunus from Bukhara, who was deeply versed in mathematics, philosophy and other sciences. In addition, there is information that during his visit to Bukhara he cured the Samanid ruler of paralysis. This indicates that, despite his activities in the cities of Ray and Baghdad, he was in close contact with the wise men of Central Asia, in particular, Bukhara. According to some sources, Abu Bakr ar-Razi is the author of more than two hundred scientific discoveries in various fields of science, about half of which are in

medicine, twenty-one in alchemy, and the rest in philosophy, physics, astronomy, optics, mathematics and other sciences.

Ahmad as-Saghani. Ahmad as-Saghani's full name is Abu Hamid Ahmad ibn Muhammad as-Saghani al-Asturlobi, and he was born in a place called "Saghaniyan" in medieval sources and "Chaghaniyan" in Persian sources. At that time, Saghaniyan included the surroundings of the city of Denov in today's Surkhandarya region. The year of the scientist's birth is unknown. In his youth, he went to Baghdad, the largest scientific center of his time, and became one of its great astronomers. The title of "Asturlobi" attached to the name of Ahmad al-Saghani indicates that he was a skilled specialist in the manufacture and use of astronomical instruments and instruments in general. In addition to astronomy, the scholar is also the author of several works on geometry. When the results of the observations were finalized, Ahmad al-Saghani wrote down the setting of the sun in two constellations with his own hand and made some corrections. The fact that Ahmad al-Saghani's scientific legacy was respectfully remembered by scholars such as al-Biruni, Ibn Iraq, and al-Sijjizi indicates how famous his works were. In particular, al-Biruni says that he used al-Saghani's calculations in the section on determining Jewish years and periods in his work "Relics of the Ancient Peoples". In the same work, al-Biruni, speaking about the possibility of converting kurras consisting of circles and points into a plane, says: "Abu Hamid al-Saghani removed the heads of cones from both poles and placed them in or on the kurra, facing them according to the axes. Then the kurra formed straight lines, circles, and sufficient and excess pieces in the mood al-Saghani wanted. No one had worked on this wonderful plane before him." In his work "Geodesy" al-Biruni attributes the book "The Laws of Astronomy" ("Kavaniyi ilm al-haya") to Ahmad al-Saghani, and in it al-Saghani states that in 965, at a place called "Birkatu Zalazal" to the west of Baghdad, he measured the complete declination with a ring with a diameter of six fathoms and a circumference divided into five-minute sections, and found that the total deviation was 23 degrees 35 minutes and the latitude of Baghdad was 33 degrees 21 minutes. Al-Saghani's treatise "Describing the Surface of the Sky on a Plane" ("Kayfiyyat tastiyh al-kura") is kept in libraries in Patna and Istanbul. In some sources, this work is mentioned under the name "Kitab at-tas-tiyh at-tamm". The treatise consists of twelve chapters, in which the issues of depicting the celestial dome on the astrolabe plane are discussed. In addition to the above, the scholar is also the author of the works “Making the Side of Seven Right-Sided Angles Placed in a Circle” (“Risola fi'amal dil'al-mu-sabba'al-mutasavi fiad-daira”) and “On Distances and Volumes” (“Maqala fi-l-ajram”) (stored in Paris and Damascus). The Bodleian Library in Oxford contains the scholar’s treatises “On Clocks Made on Astrolabe Plates” (“Fi as-sa’at al-ma’mula ala safaih al-asturlab”) and “Finding the Meridian Line” (“Istihraj khatt nisf an-nahar”). In our opinion, the treatise “Finding the Meridian Line” (inventory number M8 in the Bodleian Library) has not yet been included in the list of the scholar’s works. The treatise "The Trisection of an Angle" ("Tasliys az-zawiyya"), which mentions al-Sijizzi, was written in the city of Ray, which has not survived to us. Ibn an-Nadim cites 113 books and 28 treatises by al-Razi, and Ibn Abu Usaybi'ah cites 232 works. According to experts, the total number of works of the scientist mentioned in the sources exceeds 270. Al-Razi had a favorite student from Bukhara named Muhammad ibn Yunus, who was deeply versed in mathematics, philosophy and other sciences. In addition, there is information that he cured the Samanid ruler of paralysis when he came to Bukhara. This indicates that, despite his activities in the cities of Ray and Baghdad, he was in close contact with the wise men of Central Asia, in particular, Bukhara. According to some sources, Abu Bakr al-Razi was a scholar in various fields of science is considered one of the works of Ahmad Usturlobi. In addition to astrology, Ahmad Usturlobi, like his uncle al-Hakim at-Termizi, was also engaged in astronomy and medicine. In his work "Ilm un-nujum",

the scholar-encyclopedist provides information about his other books - "Fazo al-asar" and "Ilm un-nujum vat-tib al-Hakimiya" ("The Science of the Stars and the Medicine of Wisdom"), about the observatory in Termez and the 36 astrologers who worked there. As-Saghani died in Baghdad in 990. Muhammad Azimov provides important information about the scholar in his book "Creators of Surkhandarya". According to him, the scientist provides information about his ancestors in his work "Ilm un-nujum" (this research is kept by the researcher Gulsum Khojamshukurova). On page 131 of the work, it is written that the great-grandfather Muhammad had two children, the son's name was Abu Isa and the daughter's name was

Tanzila. Sheikh Muhammad married his daughter to Hashim Termizi, the son of Bashir Termizi. The sons of Hashim Termizi and Tanzila were Sonur and Muhammad Abdullah al-Hakim at-Termizi. Ahmad Usturalbiy was the son of Sonur, the brother of al-Hakim at-Termizi. According to Ahmad Usturalbiy, his grandmother Tanzila was very educated and one of the righteous women of her time. Sonur died young, and Ahmad's upbringing was left in the hands of his uncle al-Hakim at-Termizi. He grew up and received his education in the city of Termiz.

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