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Evolution of the views on the Moon in Arab-speaking Medieval society

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Abstract. For decades, some branches of medieval Muslim cosmology, including astrology, were considered insufficiently academic, and commonly they received less attention than they worth, as a result, entire scientific layers turned out to be not much studied. Within the framework of this study, the authors attempted to highlight one of the aspects of the cosmological system — the approaches of scientists of the Arab-Muslim world to the Moon — covering various traditions, regions, eras (within the “classical” period of development of Islamic medieval science). On the basis of seven treatises and comparative typological methods, the features of both the “academic” (astronomy) and “mystical” (astrology) schools were revealed, and an attempt was made to combine the features of both of them within a single system. Despite the fact that, as seems, astrology should involve a wide variety of approaches and solutions, the authors managed to show that the Moon is found only among astronomers as an independent and valuable object of research. At the same time, aspects of its consideration and methods of scientific description vary widely. Astrological science assumed the use of the Moon only as a tool in the construction of tables and systems, and over the centuries has undergone little change. Of particular interest in the study was the appeal to the work of Abu al-Abbas al-Farghani (IX cent.) and Abdul-Hasan al-Isfahani (XIV cent.), little known to the Russian reader.

Keywords: the Moon, lunar calendar, astrology, astronomy, Arabic Medieval literature, philosophy, evolution

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Эволюция воззрений на Луну в арабоязычной средневековой культуре

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Аннотация. В течение десятилетий многие отрасли средневековой мусульманской космологии, включая астрологию, считались недостаточно академическими и получали гораздо меньше внимания, чем заслуживали, в результате чего недостаточно хорошо изучены оказались целые научные пласты. В рамках данного исследования авторы освещают один из аспектов космологической системы — подходы ученых арабо-мусульманского мира к Луне, — охватив различные традиции, регионы, эпохи (в пределах «классического» периода развития исламской средневековой науки). На базе семи трактатов и с опорой на сравнительно-типологический методы были раскрыты особенности как «академической» (астрономия), так и «мистической» (астрология) школы, а также изучена попытка объединить особенности их обеих в рамках единой системы. Несмотря на то, что, казалось бы, астрология должна предполагать широкое разнообразие подходов и решений, авторам удалось показать, что в качестве самостоятельного и самоценного объекта исследований Луна встречается только у астрономов. При этом, аспекты ее рассмотрения и методы научного описания широко варьируются. Астрологическая наука предполагала использования Луны лишь в качестве инструмента при построении таблиц и систем и с течением веков претерпела мало изменений. Особый интерес при проведении исследования представляло обращение к творчеству Абу-ль-Аббаса аль-Фергани (IX в.) и Абд аль-Хасана аль-Исфাহани (XIV в.), мало знакомых российскому читателю.

Ключевые слова: Луна, лунный календарь, астрология, астрономия, арабская средневековая литература, философия, эволюция

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Информация о финансировании. Статья подготовлена в Государственном академическом университете гуманитарных наук в рамках государственного задания Министерства науки и высшего образования Российской Федерации (тема № FZNF-2020-0001 «Историко-культурные традиции и ценности в контексте глобальной истории»).

Introduction

From nation to nation, from civilization to civilization the celestial bodies played a huge role in human life. In many ways, the whole routine life of a person — the daily and night routine, seasons, weather phenomena — depended on these distant objects, and it is not astonishing that they began to attribute the most amazing properties, up to the possibility of knowing and telling people the future. Also, it is not surprising that in the course of the formation of a rational science about the surrounding world, the celestial bodies turned out to be one of the central objects of study.

Among them, the Moon had a special spot. What properties were not attributed to this celestial body! The moon managed to be both a malicious night antipode of the Sun, and a guardian spirit of water bodies. It could be perceived as an independent character, and as directly tied to the solar system or, for instance, dependent on the Sun.

In the ancient tradition — as a consequence, among the Arabs in the Middle Ages — there was a perception of the Moon as an element of a single celestial system, which included seven luminaries orbiting the Earth. At the same time, approaches to the perception of the Moon remained very diverse and directly depended on approaches to the cosmos as a whole. Two scientific directions began to form — astronomical and astrological — within which the functions of the Moon, the main aspects of its existence were studied and described in completely different ways.

This article is devoted to determining, based on a number of sources, which were the main features of approaches to the Moon among Arabic-speaking authors who lived in different eras and parts of the Islamic world. Taking into consideration the fact that many factors of the formation of the mentality of Muslim peoples and the sphere of knowledge are still considered somewhat marginal and are described insufficiently in academic works — including magic, physiognomy, alchemy and, finally, astrology — the collected material seems quite interesting for a wide range of readers.

Couple of words about Islamic cosmology

The cosmological system, as the Arabs imagined it a thousand years ago, was based on three bases — pre-Islamic ideas about the world, sacred Muslim texts (the Koran and Hadith) and the heritage of more ancient cultures — ancient, Persian, Indian.

As for the first basis, we know almost nothing about how the Arabs saw the world. It is unequivocal that astronomy had to be developed due to the objective need to navigate in the desert at night. The second and third ones are well studied and described, and the most important thing to keep in mind is the

synthesis of Quranic dogmatics and the achievements of “foreign” thought, which formed the basis of almost all Muslim sciences. Despite the limitations of the dogmatics of Islam, the Arabs not only accepted other people’s traditions, but also were able to give them a new impetus, develop them, transfer them to a new stage [1. P. 11].

Many of the inhabitants of the cities of Syria, Iraq, Egypt were Persians or Greeks, descendants of former subjects of Byzantium and Sasanian Iran. If we consider that the Koran itself encouraged intercultural communication (“... We created you from a man and a woman and made you peoples and tribes so that you would know each other” (Quran, 49:12)), all these factors early and easily led to the fact that Muslim thinkers began to deal with the heritage of other civilizations, and a deep cultural and intellectual contact took place between the Muslim-Arab community and others peoples.

The bright ideas that formed the basis of the “material” (astronomical, geographical) aspect of cosmology were drawn from the ancient classics — together with medicine, alchemy, etc. Among other things, the esoteric factors of this base were perceived; in particular, not only meteorological phenomena, but also the will of Allah began to be determined by the movements of the stars. Despite the strict Quranic postulate about the incomprehensibility of the Creator’s will and plan, the Arabs, who were fond of astrology, began to actively use the night sky for practical purposes. Their activity was complemented by various aspects of Plato’s philosophy, coupled with the ideas of Aristotle, which were mixed with Islamic norms, forming a very bizarre picture of the world [2. Pp. 408–410].

Some elements were borrowed from Persian science, in particular, the principles of constructing Zij tables, which allowed solving a number of important astronomical problems [3. P. 1]. These included the tasks of measuring time (from making calendars to determining the duration of the day and the time of prayer), finding the geographical coordinates of the place and azimuth of the Qibla, the tasks of calculating the position of the luminaries of the celestial sphere, their connections and oppositions, the moments of sunrise and sunset, as well as the moments of lunar and solar eclipses.

Through the Persians, the Arabs also reached the achievements of Indian science, in particular, the ideas about lunar sites, which will be discussed later.

If we now briefly try to outline the picture of the world as an educated Arabic-speaking Muslim saw it a thousand years ago, we will get something like the following.

Allah created the universe in six nights, after which He ascended to his throne (Quran, 10:3). For two nights, in particular, the sky was created out of smoke, filled with the spheres of seven celestial moving luminaries — the Moon, Mercury, Venus, the Sun, Mars, Jupiter, Saturn, and the sphere of “fixed” (that is, all the other) stars was placed there (Quran, 2:29). The sky turned out to be divided into the upper one, on which the throne of Allah is located, and the lower one [4. P. 19]. The idea of the creation of heaven corresponded to the principle of creating the best environment for man in which he could flourish and develop.

The seven luminaries, in particular, each in its own way affects the Earth, divided into seven zones-climates, the idea of which was borrowed from the ancient tradition. Although all the luminaries, without exception, have their influence on the whole earth, each of the seven climates is under the direct control of one of them. The first, the southernmost, was under the jurisdiction of Saturn, the second — Jupiter, and so on, until the seventh, lunar, climate in the far north [5. Pp. 178–182].

Of course, the fourth climate was the most favorable for people — the idea of the middle, the golden mean, and Quranic moderation found their embodiment here, combining ancient and Islamic principles. Inhabitants of other climates, depending on their distance from the middle, found themselves in less and less prosperous conditions, which directly affected their nature and character, and gave wide scope for geographical determinism in the characteristics of various peoples [6. Pp. 3–4].

In addition to the “sevens”, the “fours” played a huge role in describing the world. For example, in the basic form, the elements-elements were considered to be the four, and in cosmological terms, their largest embodiment was the Earth itself — a clot of firmament washed by a ring of the World Ocean, which was surrounded by a ring of air (atmosphere), or even a ring of fire.

The “composition” of living beings, in turn, was based on four humora juices, borrowed from the Greeks after the climates [7. Pp. 601–605]. Blood, black bile, red bile and phlegm determine the nature and temperament of a being, and their balance in turn depends on the influence of the seven heavenly bodies, climate features, the ratio of the four elements, etc. Moreover, this system correlates with four main properties (hotness and coldness, dryness and humidity), four seasons (winter, spring, summer, autumn), four degrees of aging (childhood, youth, maturity, old age).

In fact, all the elements of the universe turned out to be interconnected by a system of “sevens” and “fours”, which ensured constant interaction between them and the integrity of the world, subordinated in its unity to the will of Allah.

Before proceeding further, one noteworthy phenomenon of Islamic cosmology should be mentioned, based partly on Indian concepts, partly on their own pre-Islamic observations. We are talking about lunar sites, as the 28 different positions of the Moon in the firmament were called in relation to other luminaries. Despite the seemingly obvious analogy, parking lots are not associated with the month of the lunar calendar, although the number 28 (7+6+5+4+3+2+1) it is common and carries a sacred load ([8. P. 162]), on which not only these two astronomical phenomena are based, but also, for example, *hurufiyya* — the magic of letters: there are also 28 of them in the Arabic alphabet.

Until recently, it was assumed that Muslim lunar sites are direct borrowings from Indian, Ancient Babylonian or Chinese traditions [9. P. 7]. However, Vladimir A. Rozov proves that despite many borrowings from other cultures, lunar sites in Islam have an autochthonous character [10. P. 15]. In the pre-Islamic era, some prototypes of lunar sites can be considered the idea of the existence of “*anwa*”, which were a “set” of weather and climatic signs associated “with the period of sunrise and sunset of bright stars visible in the predawn twilight” [10. P. 12]. This determined the main purpose of developing a system of lunar stations — not to observe the movements of the Moon as such (as with the Indians; [9. Pp. 703–704]), but to calculate the time of sunrise or sunset of a star in relation to sunrise.

All 28 sites have “original” Arabic names found in pre-Islamic folklore; when they are classified, they are divided into two groups — tied to the northern constellations and to the southern ones — and start counting from the northern ones.

Astronomy and Astrology in Islamic culture

For several centuries, astronomy and astrology were actually one whole, acting as two aspects of a large cosmology, and only by the XVth century. their paths finally diverged due to the difference in goals, methods, approaches. Moreover, astronomy as a science was also divided into “scientific” and “folk”, where the main task of the first was the study of the Universe and its components — stars, spheres, etc., and the second was the calculation of the holy month of Ramadan and other actions related to the compilation of an hourly schedule and an annual calendar [11. P. 185]. In many ways, “folk” astronomy relied on pre-Islamic meteorological and prognostic practices, and it became one of the pillars of astrology.

The second source of astrology, as mentioned above, was the “foreign” (ancient, Persian, Indian) tradition. In principle, the goals of ancient and pre-

Islamic practices coincided: determining the fate of a person or predicting a phenomenon so that it would be possible to change something for the benefit or harm, to control the future. From the point of view of dogmatic Islam, this, of course, falls into the category of Haram, since it (more precisely, attempts to predict the future and manage it) questions the absolute superiority of Allah and puts His creations above Himself. Only “he has the keys of the hidden; no one knows them except Him” (Quran, 6:59). The Prophet Muhammad also said that whoever borrows knowledge from the stars borrows part of witchcraft (3905th hadith from Abu Dawud).

Reconciliation between Islam and astrologers at the beginning of the XI century was actively engaged in the great Ibn Sina, who, in fact, reformulated in the Muslim context the idea of Aristotelian descending causes: each thing and phenomenon is caused by a cause, above which there is a root cause. The root cause is, of course, Allah Almighty himself, but heavenly bodies can act as “second-class” causes in such a context, at the same time determining the expediency of astrology and not questioning the omnipotence of the Creator [11. P. 187]. Further arguments of Ibn Sina, who actually incorporated the Neoplatonist idea of the emanation of God into Islam, only consolidated this thesis. And although many scientists did not agree with astrological methods (the great Ibn Khaldun will attribute astrology to the number of stupid activities that destroy society; [11. P. 186]), they still had a certain “cosmological argument”.

Astrology, unlike astronomy, identifies not only seven great luminaries, but also 12 zodiac signs as the central agents of the heavenly world. They act as direct links between heaven and man. In turn, they correlate with any of the elements, quality, time of year, temperament, planet-manager. If we briefly summarize these classifications, we get the following:

Constellation	The Governing Planet	Element	Quarters-quadrants by temperament, property, time of year
Aries	Mars	Fire	Sanguine spring wet quadrant
Taurus	Venus	Earth	
Gemini	Mercury	Air	
Cancer	The Moon	Water	Summer choleric hot quadrant
Leo	The Sun	Fire	
Virgo	Mercury	Earth	
Libra	Venus	Air	Autumn melancholic dry quadrant
Scorpio	Mars	Water	
Sagittarius	Jupiter	Fire	
Capricorn	Saturn	Earth	Winter phlegmatic cold quadrant
Aquarius	Saturn	Air	
Pisces	Jupiter	Water	

Thus, at birth, a person, depending on the day and month of his birth, is “tied” to one or another zodiac sign, which determines his character traits. Along with it, the natal chart of a person is supplemented by 12 astrological “houses”, each of which gives a detailed map describing the characteristics of a person in almost all spheres of his life. Together with the lunar sites, such a picture forms a full-fledged system for calculating the features of a person’s life.

Using the example of seven treatises of various nature, it will be described below how the role of the Moon in Arab-Muslim cosmology was analyzed from astrological and astronomical approaches.

The Moon in astrological treatises

The first of the works of interest to us is a short version of the “Introduction to the Science of the Stars” by Abu Mashar (787–886), one of the greatest astrologers of the early Abbasid era. In his work, the Moon appears in absolutely all seven parts.

For the most part, its mention implies only using it as an astrological tool when calculating the degree of location, assessing the impact of connection with other planets, etc. In addition, there is a lengthy commentary on the role of lunar sites, and without any enumeration or in-depth analysis of the phenomenon (In the same way, for example, a comment on a lunar eclipse is not provided with a description of this phenomenon) [12. Pp. 1–18].

Assessing the Moon from the point of view of favorability for man, Abu Mashar concludes that although in general it is a luminary that brings happiness, in a number of situations of connection with other celestial bodies, the Moon can influence and is far from beneficial.

In the eponymous “Introduction to the Science of the Stars” by al-Kabisi, whose goal was to bring the knowledge previously available in the Muslim world to a state of some completeness, the role of the Moon is somewhat less.

Of course, al-Kabisi’s work is more clearly structured (the first chapter is devoted to the essential and accidental states of the zodiac, the second to the nature of the seven planets, the third to the nature of their interaction, the fourth to the explanation of a number of terms, the fifth to lots). Of course, new characteristics appear, astronomical (the Moon is the fastest of the seven luminaries) and astrological (the spheres of the Moon’s “responsibility” for professions, diseases, physical qualities, plants, etc.) [13. Pp. 1–106].

However, even the above-mentioned fragments associated with lunar sites and eclipses practically disappear. The moon al-Kabisi is the most specific, point-based astrological element, the object of consideration when drawing up natal charts, and nothing more.

The “Book of Miracles” by Abd al-Hasan al-Isfahani, written probably at the very end of the XIV century, is several centuries away from the works of Abu Mashar and al-Kabisi, and during these centuries astronomy and astrology could not but make a significant step forward. The treatise, written probably by order of the court of the Jalairids, however, is based on the writings of Abu Mashar (however, there were no astrologers at that time who did not start from his work), and on the ancient classics — Ptolemy, Dorotheus of Sidon, etc.

The extant manuscript, which is available in the public domain and dates back to 1390, is a large layer of astrological and magical texts, flavored with a huge amount of illustrative material, not only in the narrative of the text, but also related to abstract topics (mainly drawn from the literature of “curiosities”-*‘adja’ib*). The structure of the treatise, apart from the miniatures, assumes four parts that make up a single witchcraft concept. The first part is devoted to the entry of luminaries into the zodiac signs, the second — to the nature of the luminaries, the third — to the relationship between the luminaries. The fourth part is slightly different from the first three and is dedicated to *hurufiyya* — the magic of letters.

It is noteworthy that the text practically does not contain a theoretical basis. It is based on tables that serve as a visual guide for drawing up natal charts and allow you to calculate almost every day of a person’s life, starting from the position of the heavenly bodies.

In this context, the Moon, as in the previous two examples, practically loses its independent meaning, turning into one of the instruments. With the exception of a brief comment on the nature of lunar sites (and at the same time — on the increase and decrease of the visible part of the Moon’s surface), it serves as no more than one of the parameters in numerous tables that allow us to find out which actions are “encouraged”, “neutral” or “censured” with this or that combination of celestial bodies [14. Pp. 18–63]. For clarity, we can give an example of such a table [14. P. 120]:

Good luck when meeting with those in power, when buying real estate and farming	1/6	The Moon's connection with Saturn
It is reprehensible at this time to engage in fortune-telling or to wander [in the desert], as well as to divert the waters of rivers with channels	1/4	
It is a good time to make wheels, wear something new and hunt	1/3	
Reprehensible for doing any kind of work, a good time for eating and cheating	Opposition	
It is reprehensible that [at this time] the shelf life of unusable property ends and greatly interferes with [other] affairs.	Connection	

Interestingly, several centuries of development of the astrological tradition have led to the fact that each celestial body individually ceased to be perceived as an end in itself object of research. The strict binding of astrologers to the practical significance of their work, as it were, suppressed the specifics of each particular celestial body, to a greater extent forcing the authors of medieval treatises to focus on universal phenomena.

A completely different picture was observed in more academic astronomy.

The Moon in the treatises of astronomers and cosmography specialists

Under the Abbasids, when the astrology reached its peak, astronomy also flourished, with its more academic sense and being connected to a greater extent with the observation of celestial bodies in order to determine their characteristics and properties. One of the brightest examples of this kind of researchers can be considered Abul-Abbas al-Farghani (798–861), known in Latin-speaking Europe under the name of Alfraganus [15. pp. 142]. His “Book of Celestial Movements and the Code of Science of the Stars”, composed on the basis of Ptolemy’s “Almagest”, contains numerous observations (without excessive mathematical calculations that would make it difficult to perceive the material), including those of the Moon.

Of the 30 chapters that the work consists of, at least five are devoted to the Moon. In addition, some chapters touch it in conjunction with other celestial bodies — for example, the chapter 22, in which al-Farghani talks about the size of celestial bodies, indicating that the Moon is one of the smallest of them (only Mercury is smaller).

The chapter 20 is devoted to lunar stations, and it is noteworthy that, indicating their number (28), the astronomer lists only 26 of them, obviously omitting two by probably some inattention [16. pp. 138–141]. The fact that some sites are mixed up in places or have names that are far from canonical attracts the same interest. Obviously, this aspect of lunar existence played an important, but not a key role for al-Farghani in understanding the functioning of the cosmos.

In the chapter 25, the astronomer concentrates his attention on the lunar cycle, expanding in detail the description and explanation of the actual phases with the process of increasing or decreasing the light of the Moon and sparing the surface visible to it, as well as related processes — for example, the new moon. The chapter 27 gives an idea of the parallaxes of the Moon, that is, the

angle of its displacement is explained, relative to which the Earth's radius is visible from a certain celestial body. In the chapter 28, we are talking exclusively about the lunar eclipse, in the chapter 30 — about the calculation of the time interval that passes between the lunar and solar eclipses [16. pp. 145–191].

Al-Farghani set the main trends in the description of the Moon, within which the astronomical tradition developed, and singled out the main aspects of its existence. And since in the future in this kind of treatises there was hardly anything purely different from this approach, then it makes sense to turn to literature of a slightly wider sense, to cosmographic treatises and later encyclopedias, in which the system laid down by astronomers had to pass the test of strength, having taken its place in a single large system of description and reflection of the Universe.

The classics of Muslim cosmography are definitely the “Miracles of Creations and Curiosities of the Existing” by Zakariya al-Qazwini (1203–1283). The first part of this monumental treatise, which gives an idea of the classification and interconnection of all creatures created by Allah, is devoted to the “above-ground” world, namely, heaven. Almost immediately, after a brief introductory section that gives an idea of what the celestial spheres are (the bodies along which the luminaries move, something like the “layers” of the Universe), the author proceeds to analyze the Moon, the closest body to the Earth. Quite briefly running through the physical parameters and boundaries of the lunar sphere, al-Qazwini focuses on the interaction of the Moon with the Earth's surface and a human, by highlighting in these two spheres several main plots [17. pp. 12–18].

The first impact of the Moon, which al-Qazwini talks about, is associated with the ebb and flow in the sea. The tide in the sea continues until the Moon reaches the middle of the sky. At the moment the Moon reaches the middle, the tide stops. After the Moon crosses the middle of the sky, low tide begins, and it continues until the Moon sets below the horizon. When the Moon sets below the horizon, the tide also stops. After the Moon sets, a second, weaker, tide begins, and it continues until the Moon reaches the Pillar of the Earth, that is, it is on an axis perpendicular to the center of the Earth and opposite to the Midheaven under the Earth.

Al-Qazwini writes about the favorable and unfavorable effects of the Moon, just like astrologers, but gives justification not in terms of the conjunction of the Moon with other luminaries and their relationship in heaven, but simply by dividing the course of the Moon into “increasing” and “waning” stages, where the first answers for all the good, and the second on the contrary.

It is interesting that the effects of the Moon were noted, according to al-Qazwini, not only by scientists, but also by doctors, miners, fishermen and farmers [17. pp. 19–22].

Such a clear dualistic approach allows us to show the Moon within the framework of the cosmological system not just as an astronomical object, but as a climatic object that affects the Earth's environment and the Earth's inhabitants. However, al-Qazwini's approach cannot be compared with the approaches of astrologers, he is interested in completely different aspects of the existence of the Moon and completely different levels of its impact on surrounding objects, which, in particular, makes the "Miracles of Creations" an example of academic literature. But before completing with this literary environment, one more type of scientific literature should be mentioned, and it is definitely encyclopedias.

The treatise of An-Nuwayri Shihab ad-Din Ahmad ibn al-Wahhab al-Bakri "The Limit of Desires Regarding the Disciplines of Adab" was dedicated to the ninth Mamluk sultan of Egypt, al-Malik an-Nasir (1285–1341). The book was written in the genre of a monumental encyclopedia, its main goal was to combine all humanitarian knowledge for the education of a first-class *katib*. An-Nuwayri continued to work on this encyclopedia for twenty years until his death.

The treatise, the modern complete printed edition of which demands to be done in 33 volumes, is divided into five "arts", *funun* (*sing. fann*). Each *fann* is divided into five parts, *aqsam* (*sing. qism*), each *qism* into chapters, *fusul* (*sing. fasl*). The most extensive is the fifth *fann*, the art of knowing history, while the first four are connected with the natural sciences, namely with heaven and Earth, with human, animals, plants.

An-Nuwayri, who was not a professional astronomer, included as his sources pieces of literary works, theological writings and even folklore, so the information he gives about the Moon is very diverse. Initially, the light of the Moon was the same as that of the Sun, and that is why "it was impossible to distinguish night from day". But after "Allah commanded Jibril to pass over it, [waving] his wing, he passed over it and erased [part of] it, creating the dark part of the Moon". This refers definitely to the "dark" part of the Moon hidden from the eyes. And the plot itself is an attempt to explain the lunar phases, but it is of course not entirely astronomical [18. pp. 43].

Further, the author talks about the states of the Moon in more detail. The first state is the crescent moon, which appears in the west on the first day of the lunar month. The second state is literally described as the struggle of moonlight over darkness, continuing until the 7th day of the month. The third state is the state of the

full moon. In this state, she is called “beauty” (ar. *badr*), because she reaches her perfection and is filled with light. This happens during the 13th night, which is also called the “night of equality”, because the Moon reaches its middle state. The fourth state occurs on the 22nd night of the month and continues until the 27th, during which darkness overcomes light. The fifth state is the time of concealment of the Moon in the rays of the Sun.

An-Nuwayri tells in some detail about the nights of the lunar month, again going through the same cycle of phases. He gives the names of the nights in the following sequence. “... the first three of them are called the “beginning” (ar. *gurar*), the second [three] are called “[nights] of falling stars” (ar. *shuhab*), the third [three] are called “shining [nights]” (ar. *zuhr*), the fourth [three] — “dazzling [nights]” (ar. *bukhr*), the fifth [three] — by “white [nights]” (ar. *bid*), the sixth [three] — “[nights] covered with shadow” (ar. *dura*’), seventh [three] — “gloomy [nights]” (ar. *khanadis*), eighth [three] — “dark [nights]” (ar. *zulam*), ninth [three] — “gloomy [nights]” (ar. *da’ad*), the tenth two nights are the night of the end of the month (ar. *mihak*) and the secret night (ar. *sirar*). Also, the 28th night, the first night of the end of the month, is called “impenetrable” (ar. *ad-da’ja*’), the 29th is called “clear” (ar. *ad-dakhma*’). It is also called the night of liberation, because on [this night] the Moon [begins] to get rid of the Sun” [18. pp. 43–44].

The next chapter on the Moon tells of the negative influences that it causes. In particular, the light of the crescent can cause the destruction of life, the dullness of colors; animal meat exposed to its light loses its original taste and smell. If a person sleeps under the rays of moonlight, then his body becomes subject to relaxation and laziness. He also feels cold, and in extreme cases, chills and headaches [18. pp. 49–50].

The last *fasl* on the Moon is dedicated to the Moon-worshippers. They are Indians and they are called Haderbekti. The Moon according to their views is one of the angels, which rule this world, and therefore it deserves reverence and worship on their part. By its decrease and increase, they determined the time. And this is where an-Nuwayri finishes his informative part regarding the Moon [18. pp. 50–51].

Academic literature had much more directions, genres, approaches, compared to the purely astrological literature, and the way the Moon is described in the treatises of al-Farghani, al-Qawvini, and an-Nuwayri is an excellent example for that. It is noteworthy that in each of the three cases, the Moon has much more emphasis and value in itself than in astrological writings. Even Zakariyya al-Qazwini, whose approach is somewhat similar to astrological, describes the Moon much more clearly and textured.

Neither this nor that. The Moon in al-Biruni's heritage

The seventh scholar in this study is Abu Reihan Muhammad ibn Ahmad al-Biruni. He was born in the city of Kyat, the ancient capital of Khorezm, in 973, and died in Ghazni in 1048. The areas of scientific interest, in addition to astronomy, were history, philosophy, sociology, culture, mathematics, geography, medicine, mineralogy, geodesy and other. His contribution to the development of global science is impossible. Thanks to his accurate work, he collected a huge amount of material and wrote about 180 books in Arabic and Persian.

Within the framework of this study, the point of importance is his astronomical research, which he recorded in many books, first of all, in the “Book of Instructions to the Elements of the Science of Stars”. The treatise itself was a textbook for the initial study of those sciences that were mandatory for astrologers and astronomers. Its prevalence in the Middle Ages is evidenced by the fact that many medieval scholars referred to the work of al-Biruni, and that a large number of his manuscripts have been preserved. Among the sections of this book, three are of interest to us, namely “Astronomy”, “Astronomical Astrology”, “Astrology”.

It is noteworthy that al-Biruni considered astrology a pseudoscience, not believing that heavenly bodies could influence the fate of people, and saw the contradictions of dogma and astrological predictions. He formulated his attitude to astrology in detail in the treatise “A Warning Against the Art of Deceiving the Sentences of the Stars”. However, despite his unequivocal attitude to astrology, he himself continued to make astrological predictions for people on whom he financially depended.

In the astronomical parts of the treatise, al-Biruni considers the Moon as a celestial body that is part of the “Big Seven”, but does not act as a planet, since the center of gravity of the Moon relative to the Earth is different than that of other luminaries. He describes the process of increasing and decreasing moonlight and at the same time reflects on its nature and source (whether the Sun illuminates the Moon, or does it itself have the ability to glow) [19. pp. 74–76]. He then turns his attention to the lunar stations, listing them by name and describing the ascension process of each station. Further, the author gives the physical parameters of the Moon: distance in relation to the Sun and the Earth, latitude, diameter value in relation to the diameter of the Sun and the Earth [19. pp. 96–117].

From an astrological point of view, the approach of al-Biruni differs little from the approaches of Abu Mashar and al-Kabisi. But unlike them, he, having a significant astronomical background, structures the text more carefully and raises non-trivial questions. For example, moving the description of the eclipse process with diagrams and drawings into a separate section, the author wonders how the inhabitants of different parts of the planet see the eclipse.

According to al-Biruni, the Moon is a female night celestial luminary with a cold and wet temperament, and related to favorable planets, indicating that its position in relation to other luminaries is changing rapidly due to rapid movement. Therefore, it may not be entirely favorable. It is symbolized by such tastes and smells as salinity, sourness and slight bitterness. From the point of view of color, the Moon is responsible for blue, white, or their deep shades, or mixed with reddish yellow, it is moderately shiny. Of the signs of the zodiac, she corresponds to Taurus. Of the climates, it is responsible for the Seventh, of the hours — for every fourth hour in a day [19. pp. 122–180].

It is noteworthy that there are many references in the treatise to the scientific achievements of the Indians. The very question that the Moon can act both favorable and not, perhaps, al-Biruni learned not only from Arab astrologers, but also from India. But if Abu Mashar and al-Kabisi associated this with the ratio with other planets, and the Indians associated it with the ten days of the month (the first ten days of the month the Moon is neutral, the next ten are favorable, the last ten are ominous), then al-Biruni places this as a fundamental question of speed and the intersection of certain elements of the orbit acts [19. pp. 181–182].

It is worth noting that al-Biruni provided the most information about what the “lunar” countries included in the Seventh climate are, what they symbolize. Alongside with them, there are: places and areas, metals, ores, precious stones, cereals and fruits, trees, plants, animals, birds, elements of nature and liquid, parts of the human body, internal organs of the human body, parts of the head, feelings, paired elements of the body, age, person, relatives of a person and their indications of the figure and face, morals and good manners of people, actions, motivations, shortcomings and illnesses (with an emphasis on the class of people), religions and their images, arts [19. pp. 185–197].

Conclusion

As part of the study, seven treatises, seven works, one way or another connected with the Moon, were considered. Three of them were purely astrological in nature, three belonged to the conditionally designated “serious academic” tradition, the seventh included features of both.

It’s noticeable that astrologers, who described in detail the nature of the Moon in an almost personalized form, attributed to it numerous properties, qualities, areas of responsibility, paid no more attention to it than to other luminaries. The study of the Moon and its characteristics for them was not so much an end in itself or an opportunity in itself, but a tool in the construction of natal charts and tables, all research, as it were, served the practical side of the issue.

On the contrary, the “academic” tradition gave rise to a whole galaxy of methods and approaches that made it possible to consider the Moon as an intrinsically valuable celestial body. Its close position to the Earth and the impact that it had not just on the lives of people, but on entire countries and on the planet as a whole, worried scientists in various manifestations of the scientific tradition.

Finally, it is impossible not to set apart the work of al-Biruni, who acted as if in both guises. The “astronomical” section of his treatise is rather predictable, but astrological research, based on astronomical calculations, is a completely unique example of a text in which two positions seem to merge. And on the example of al-Biruni’s work, it is quite obvious that the conditional division of the science of the heavens into theoretical astronomy and applied astrology is not as unambiguous and clumsy as it might seem before.

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