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THE WORLD ABOVE THE MOON IN THE AL-FARABI'S COSMOLOGY

This article provides a general analysis of the cosmological system of al-Farabi. The aim is to describe the peculiar methodological approach of al-Farabi to the system of the universe. The cosmology of al-Farabi is an important part of his philosophy. In his cosmological system, al-Farabi follows the Aristotelian and Ptolemaic interpretations. However, he added a lot from the Neoplatonic worldview. In this regard, al-Farabi is a universal interpreter who synthesized the view of peripatetics and Neoplatonists into a single cosmological system. He also developed their cosmology by adding the doctrine of celestial intelligence to the celestial spheres of the supra-moon world. Speaking about the very structure of the cosmological system, al-Farabi notes that each primary element has its own place. At the center of the world is the element of earth that forms our planet. Earth is the center of the universe; it is motionless and has a spherical shape. The principle of the central and fixed position of the Earth in the Universe is the cornerstone in Aristotelism and for many centuries determined the dominance of the geocentric system in astronomy. Above the moon, there is superlunary world which is fundamentally different from the sublunary world. The superlunary world acts according to its own laws. In this world, all bodies are composed of ether. The ether is unchanged; it does not turn into other elements.

Key words: the Prime Cause, cosmology, divine world, celestial spheres.

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Әл-Фараби космологиясындағы ай үсті әлемі

Бұл мақалада әл-Фарабидің космологиялық жүйесіне жалпы талдау берілген. Мақалада әл-Фарабидің космологиялық жүйесіне өзіндік әдіснамалық көзқарасын сипаттау мақсаты қойылды. Әл-Фарабидің космологиясы – оның философиясының маңызды бөлігі болып табылады. Өзінің космологиялық жүйесінде әл-Фараби Аристотельдің және Птолемейдің түсіндірулеріне сүйенеді. Алайда, ол неоплатониктер ілімдеріне ерекше көңіл бөлді. Осыған байланысты әл-Фараби перипатетиктер мен неоплатонистердің көзқарастарын біртұтас космологиялық жүйеге біріктірген жан-жақты ғалым болды. Ол сондай-ақ аспан әлеміне интеллект туралы ілім қосу арқылы олардың космологиясын дамытты. Космологиялық жүйенің құрылымы туралы айта кететін болсақ, әл-Фараби әр бастапқы элементтің өзіндік орны бар екенін айтады. Әлемнің орталығында біздің планетамызды құрайтын Жердің элементі орналасқан. Жер – ғаламның орталығы, ол сфералық пішінді және қозғалмайды. Әлемдегі Жердің орталық және тұрақты орналасу принципі аристотелизмде маңызды орнын алып, көптеген ғасырлар бойы астрономияда геоцентрлік жүйенің үстемдігін айқындады. Айдың үстінде – бұл ай әлемінен түбегейлі ерекшеленетін құдай әлемі орналасқан. Бұл әлемде барлық денелер эфирден қалыптасқан. Эфир өзгермейді, ол басқа элементтерге айналмайды.

Түйін сөздер: алғашқы себеп, космология, құдай әлемі, аспан сфералары.

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Надлунный мир в космологии аль-Фараби

В данной статье дается общий анализ космологической системы аль-Фараби. Целью выступает описание своеобразного методологического подхода аль-Фараби к системе мироздания. Космология аль-Фараби является важной частью его философии. В своей космологической

системе аль-Фараби следует аристотелевской и птолемеевской интерпретации. Однако многое он добавил из мировоззрения неоплатоников. В этом отношении аль-Фараби является универсальным интерпретатором, который синтезировал взгляд перипатетиков и неоплатоников в единую космологическую систему. Также он развил их космологию, добавив учение о небесном интеллекте в сферы надлунного мира. Говоря о самой структуре космологической системы, аль-Фараби отмечает, что каждый первоэлемент имеет свое место. В центре мира находится элемент Земли, который образует нашу планету. Земля является центром Вселенной, она неподвижна и имеет сферическую форму. Принцип центрального и неподвижного положения Земли во Вселенной является важным в аристотелизме и намного столетий определил господство геоцентрической системы в астрономии. Выше Луны – надлунный, божественный мир, который принципиально отличен от мира подлунного. В этом мире все тела состоят из эфира. Эфир неизменен, он не превращается в остальные элементы.

Ключевые слова: первопричина, космология, божественный мир, небесные сферы.

Introduction

Along with general metaphysics cosmological ideas occupy important place in philosophy of al-Farabi. This chapter is devoted to cosmology, which al-Farabi proposes to analyze after the metaphysical part on the First One in his *On the Perfect State*. Here, he explains a definite structure of the universe in form of celestial intellects each of which, by the way, are less self-sufficient than the First One. "It is here that al-Farabi, in accordance the order of topics established in the late Greek schools of philosophy – as presented, for example, by the commentaries of Themistius, Simplicius and John Philoponus on the respective works of Aristotle – embarks on a more detailed account of physical aspects of the higher and lower world" (Al-Farabi, 1998: 363). The quote refers to the cosmological treatise of Aristotle *On the Heavens* (*Περὶ οὐρανοῦ, De Caelo*, or *De Caelo et Mundo*). According to this Aristotelian treatise, celestial existents are the most perfect substances, whose motions are arranges by such laws that are fundamentally different from the motions of bodies of the sublunary sphere. According to Aristotle, the sublunary sphere consists of the four most common elements (earth, fire, water, air) and they also are perishable. However, Aristotle notes that celestial matter is imperishable ether, therefore the celestial matter is not generated by anything and does not disappear anywhere, and that is, it does not perish unlike terrestrial matter of the sublunary sphere. This paper also draws a parallel of al-Farabi's cosmological ideas with the idea of perfection of the First One, from the essence of which all existents of a structurally arranged universe are emanated.

Main part

From the very start, al-Farabi describes a hierarchy of emanations of existents which can also be considered as emanations of cosmic intellects, which are based on the active and self-sufficient First Cause. This First Cause does not need any additional definition, for it itself is a determining Cause. Also, the First Cause is the cause for itself and the rest of the universe. Much has been said about this in the previous chapter, but here we must note, first of all, the First's ontic self-sufficiency and a fact that the First Cause (as the First One) is the very beginning, which is so infinite in its definition that the very act of determining it does not make sense. In this regard, the First Cause, according to al-Farabi, expresses fundamental perfection, while all other emanations in their forms of subsequent existents must be necessarily determined by the perfection of the First Cause.

"From the First emanates the existence of the Second. This Second is, again, utterly incorporeal substance, and is not in matter," writes al-Farabi (Al-Farabi, 1998: 101). Being the First Cause, the First One contributes to the emanation of the first stage of its own substance, that is, the existence of the Second. The second is the most fundamental existence, which organically emanates from the First One, just as it is not its own emanation, but only contributes to the emanation itself in the form of all existences. In this regard, the Second is the first consequence of the First One itself as the First Cause. Since the Second is a pure emanation of the essence of the First Cause, it is incorporeal and thinks of the First Cause in the process of pure intelligizing; thus it refers to the perfect essence of the First One. So, the Second is pure emanation in the form of existence, which expresses the First Cause itself.

At the same time, throughout all subsequent emanations of all existents in the universe, we need to take into account that al-Farabi says that all these emanating existents ultimately reduce down to the perfect essence of the First One. There is an expression of the First One absolutely in every existent; it doesn't matter what degree of presence of

the First One it is in them. As you already specified in the previous chapter, the farther presence of the First One in an emanated existent, the more it is mediated by previous superior existents; that is, the more stuff next inferior existent contains from a superior existent which emanated from the First One earlier. Influence of previous superior existents on inferior ones is equally applicable to both corporeal and incorporeal existents. Thus, each inferior existent, firstly, intelligizes the very essence of the First Cause and the essence of superior existents; and only after both them it thinks of itself.

Since the Second intelligizes the First Cause (due to one of the hypostases of the First Cause is expression of itself in a set of emanations), the Second necessarily contributes to emanation of the Third. Emanation itself, as the ontological possibility of the existence of everything in the universe (as well as the universe itself), is the foundation of the First One, therefore each subsequent existent performs the emanation process of necessary existence, coming from the First One. It also happens to the Third, which, like the Second, is incorporeal. The Third is an emanation of the First Cause through the Second; therefore, pure intellect is laid in it, thanks to which the Third also intelligizes its own essence and the perfection of the First Cause. From the Third, the being of the First Heaven (that is, the sphere of fixed stars) also necessarily proceeds. Since the Third "is thinking of the First, a fourth existence follows necessarily" (Al-Farabi, 1998: 103).

The next existence, that is, the Fourth, in cosmology al-Farabi is an incorporeal intellect that intelligizes its own essence and the perfection of the First Cause through previous incorporeal existents. However, the Fourth is an emanation we observe its specific substantification, namely, the existence of the sphere of Saturn.

In its thinking of the perfection of the First One, the Fourth (that is, the fourth stage of emanation of the perfect reality of the First Cause) contributes to the emanation of the Fifth existence of the perfection of the First Cause. At the same time, during its own substantification the Fifth thinks of its specific essence and perfection of the First Cause; as well, the Fifth forms the existence of the sphere of Jupiter which comes from it necessarily. Being an incorporeal existent, the Fifth also forms an opportunity for the emanation of the Sixth.

Just like previous celestial emanations of intellect within the framework of the perfect reality of the First Cause, the Sixth is incorporeal. "As a result of its substantification the existence of the sphere of Mars follows necessarily" (Al-Farabi, 1998: 103). The sixth (it is a comprehending intellect like the previous emanating intellects) substantively intelligizes perfection of the First One and its own essence as emanating intellect. It, in turn, contributes to the emanation of the Seventh, which (like previous emanating intellects) being incorporeal, expresses the existence of the sphere of the Sun. thinking of the perfection of the First One, the Seventh in its substantification makes emanation of the Eighth possible, which is the existence of the sphere of Venus which follows necessarily from it. The Eighth in its substantification also has an incorporeal nature. From the Ninth (which emanates from the Eighth) "as a result of its substantification the existence of the sphere of Mercury follows necessarily" (Al-Farabi, 1998: 105). As well, the incorporeal Ninth comprehends the perfection of the First Cause, its essence and contributes to the emanation of the Tenth, which "is also not in matter". It thinking of its essence and comprehends the First Cause. The tenth is the emanationally coming intellect from which the existence of the sphere of the Moon necessarily follows. The incorporeal Tenth, on which al-Farabi finishes listing of the emanations of celestial intellect, in comprehending the perfection of the First Cause and its own substantification opens up the possibility for emanation of the Eleventh.

Further, the Eleventh Intellect, the emanation of which precedes the sublunary world, still retains its incorporeal nature, but it is followed by the material sublunary world. All of the above ten celestial intellects (except the First Being whose being is entirely outside any circulation) produce a cyclic movement in their emanation process. Al-Farabi mentions that these intellects separate from one another in their emanations and are intelligibles.

Thus, here al-Farabi defends the idea, according to which celestial incorporeal intellectual entities arise before the formation of the celestial spheres. "Each of these celestial intellects is in turn less self-sufficient than the First, and hence cannot realize itself by thinking, like the First, of its own essence only but has, in addition, to think of the Supreme Being as well: by making itself the object of its own thought, each of them gives rise to an inferior intellect; by applying its own thought to the First, each of them produces a celestial body" (Al-Farabi, 1998: 363). In this regard, al-Farabi connects the formation of celestial objects with the intellectual basis of each of them. In total, he lists seven celestial intellects and, accordingly, seven celestial bodies: the sphere of Saturn necessarily follows the Fourth Intellect; the sphere of Jupiter necessarily follows the Fifth Intellect; the sphere of Mars necessarily fol-

lows the Sixth Intellect; the sphere of the Sun necessarily follows the Seventh Intellect; the sphere of Venus necessarily follows the Eighth Intellect; the sphere of Mercury necessarily follows the Ninth Intellect; the sphere of the Moon necessarily follows the Tenth Intellect. As already noted, these celestial intellects acquire their self-sufficiency only when they turn to the perfect intellect of the First One in their thoughts and, thereby, get the opportunity to create conditions for the emanation of celestial bodies within their substantification.

Here we need to make a digression and clarify in more detail how the cosmology of al-Farabi follows the cosmology of Plato, the Neoplatonists and further the Aristotle's doctrine of the heavenly bodies. First of all, Plato and the Neoplatonists define the First Cause as the One (Ancient Greek: *τὸ Ἕν*), not only in the philosophical, but also in the astronomical sense. The One in the teachings of Plotinus is neither the mind, as such, nor the subject of comprehension by the mind. The One in this vein, as Plotinus understands it, seems to be a fundamental entity, which encompasses a possibility for the subsequent entities of the whole universe in the form of a hierarchy of emanations coming from the One itself. At the same time, the first emanation of the One (that is the Second in al-Farabi's hierarchy) is something which contains intellect; and it is such for thinking of the essence of the One. Only thanks to the first emanation thinks of the One and itself, this first emanation of the One contributes to the next inferior emanation (or, to the next stage of self-contribution of the One). Moreover, in each next emanation, which is an entity with intellect in it, there is a decrease of perfection that originally emanated from the One into its first emanation. So, according to Plotinus, in the process of cosmic emanations from one step to another, the perfection of the One is gradually degraded until emanation reaches the lower boundary – namely, the material world. Matter is an entity that is at the farthest distance from the perfect One.

Emanations of the One in the superlunary world compose a dynamic cosmos in which emanating and intelligent entities are in constant change of emanation of the spheres and are in constant rotation of those spheres. Thus, Plotinus's cosmos is a 'living creature'. He borrows this idea directly from Plato, while in general the neo-Platonic universe always exists statically, since it includes the One. The One cannot stop its existence in the process of constantly changing states of entities that come from it. In other words, the One never diminishes its essence. Speaking about Plato and his understanding of the cosmos, it is worth noting that he does not insist that his theory of space is finally true. In his *Timaeus*, Plato repeatedly notes that his model of the cosmos is only an assumption, a kind of metaphysical probability, following which one can understand some aspects of cosmic dynamism. In *Timaeus*, Plato puts the following words into the mouth of the Pythagorean astronomer Timaeus: "Wherefore, using the language of probability, we may say that the world became a living creature truly endowed with soul and intelligence by the providence of God" (Plato, 1925). Thus, al-Farabi borrows the Platonic and Neoplatonist understanding of the One, which (like in Plotinus) proceeds as a whole in the amount of nine main emanations; some of them give existence to of spheres. However, all of them, without exception, have an internal intellect that thinks of the One and their own essences as a result of substantification.

Realizing all complexity of the explanation of cosmic metaphysics, Plato suggests considering the movement of spheres in circular orbits. However, seeing a clear contradiction in the movement of spheres (i.e., planets: in the ancient Greek *πλάνητες ἀστέρες* means 'wandering stars', or *πλανῆται* simply means 'wanderers'; thus the meaning of the term 'planet' indicates to how the ancients represented contradictory movement of these celestial bodies), ancient Greek astronomers began to create models that would correspond to the cosmological teachings of Plato. As a result, two of them – Eudoxus of Cnidus and Callippus – proposed their theory of homocentric (or, concentric) spheres. According to them, celestial bodies were strictly tied to a combination of spheres, each of which followed one after another. All spheres had one common center. In *Metaphysics*, Aristotle mentions these astronomers with refinement of some details in their mechanical cosmology: "Callippus made the position of the spheres the same as Eudoxus did, but while he assigned the same number as Eudoxus did to Jupiter and to Saturn, he thought two more spheres should be added to the sun and two to the moon, if we were to explain the phenomena; and one more to each of the other planets" (Aristotle, 1984: 1697). At the same time, Aristotle was critical of the Pythagorean and Platonic versions of the structure of cosmos and abandoned the idea of their Cosmic Soul; he proposed to use the Divine Mind instead of the Soul. "Al-Farabi evidently agrees with the neo-Platonists, in so far as they were not satisfied with the Aristotelian One – which, in his case, was identical with the Divine Mind – and established in addition a series of lower grades within the unchanging world of being

above the moon, in a descending order of rank" (Al-Farabi, 1998: 365).

Aristotle declares that astronomers of an earlier period believed the planets to move independently without being attached to any material spherical coverings. So, Eudoxus and Callippus hardly considered the theory of spheres as a physical model of the planetary system (most likely, only as a mathematical way of calculating the positions of planets in the sky). Aristotle also explains this by the fact that the movement of large bodies should create noise. In addition, when they say that the sun, the moon, and all the stars (so large in number and size) move with such a quick speed, they make a very strong sound. Based on this argument, they argue that the sound emanating from the circular motion of the stars is musical harmony. Aristotle also refers to a version according to which people should not hear this music, since this sound has been heard in our ears from the very moment of our birth and therefore is indistinguishable from its opposite silence. «Indeed the reason why we do not hear, and show in our bodies none of the effects of violent force, is easily given: it is that there is no noise» – Aristotle writes in *On the Heavens* (Aristotle, 1984). This refutes the theory of Plato and the Pythagoreans about the cosmic harmony of sound, which is generated by the movement of celestial bodies.

While Aristotle did not agree with the Pythagoreans and Platonists regarding some details about the sound harmony of celestial bodies, he generally followed the theory of homocentric spheres in his cosmology. He assumed that the superlunary world consists of a special celestial element – aether (*αἰθήρ*) – whose property is immutability and eternity. It followed that the celestial bodies must make uniform motion in circles whose center coincides with the center of the world. Aristotle carried out the development of his physical substantiation of the theory of homocentric spheres in *Metaphysics*. In Aristotle's theory, the spheres are mechanically connected, and the movement from each external sphere is transmitted to the internal sphere. It follows that these spheres should have been solid; furthermore, as we see through them, they had to be transparent, like crystal.

As well, one of the reasons why al-Farabi follows a specific number of celestial spheres is the idea of movement itself, which he encounters in Aristotle's cosmology. According to the Stagirit's idea, everything that moves cannot exist only for the sake of movement itself. Also, it cannot exist for the sake of the movement of any accidental object. "For if a movement is to be for the sake of a movement, this latter also will have to be for the sake of something else; so that since there cannot be an infinite regress, the end of every movement will be one of the divine bodies which move through the heaven. Evidently there is but one heaven" (Aristotle, 1984: 1697). Therefore, both Aristotle and al-Farabi agree that moving objects should, in the end, be reduced to any of the celestial spheres, while the celestial spheres themselves in their movement must be ultimately reduced to the perfect First Cause. Further, al-Farabi smoothly goes on to explain some of the basic qualities of the sublunary world, but in *Chapter 7* he returns to description of celestial entities.

So, al-Farabi analyzes the celestial bodies in accurate detail. Al-Farabi places his doctrine within the framework of the 'sublunary world', although it describes celestial bodies here. He does it because celestial bodies are, first of all, material existents that can be perceived in sensitive experience. But since he discusses in this and further paragraphs on the material spheres that are located in the sky (at least not in the sublunary world), we accordingly placed here his thoughts on celestial bodies as continuation of description of the superlunary hierarchy. This does not violate at all the logic of the presentation of two worlds' cosmology – superlunary and sublunary – moreover, describing celestial bodies in the framework of matter and its forms of the sublunary world, al-Farabi emphasizes the substantial identity of the matter in earthly and celestial bodies.

Firstly, Aristotle believed that celestial bodies such as the Sun, Moon and other planets are placed in celestial spheres inside which they exist and move. Moreover, movement of each of the celestial bodies has special characteristics. Aristotle also believed that the four primary terrestrial elements (earth, fire, air, and water) are subject to change and their linear movement is the only and natural for them. But, according to Aristotle, there is one more primary element that exists in celestial spheres and bodies; and it also did not have the characteristics of earthly primary elements. Thus, the number of primary elements in Aristotle became five, so later commentators began to call it as '*fifth element*' (*quintessence*), or '*aether*' (although Aristotle himself never used the term '*aether*') (Hahm, 1982: 65). The aether naturally moves inside the celestial spheres and bodies in a circle and did not contain any contrary force in itself (Lloyd, 1968: 134). Thus, Aristotle considered the celestial spheres, which were crystalline since they consisted of aether; and these celestial spheres held the celestial bodies within themselves. His concept of crystalline spheres and the circular motion of aether allowed him to explain the orbits of vis-

ible stars and planets in perfectly circular dynamic (George Smooth III, 2016).

Aristotle adopted that concept of aether from his teacher Plato, who, in his *Timaeus*, claimed: "so likewise of air, there is the most translucent kind which is called by the name of aether (*αίθηρ*)" (Plato, 1925: 58d). Mentioning the existence of aether, Plato, for the rest, adopted the classical system of four primary elements, proposed at the time by Empedocles. Aristotle agreed on this issue with his teacher and emphasized as well that fire is sometimes mistaken for aether.

However, the Aristotelian aether as quintessence did not bask in popularity among many philosophers. In particular, the Stoics and neo-Platonists rejected his quintessence. "The celestial matter – which is, in turn, the cause of the terrestrial prime matter and the four corporeal elements – is called 'intelligible matter', *hylē noētē*, by Plotinus" (Al-Farabi, 1998: 376). Plotinus here emphasizes, in the first place, material substantification in the celestial matter. The Greek philosopher Themistius (*Θεμίστιος*, 317-388), who wrote a series of commentaries on Aristotelian works and who did not directly adjoin any school, admits that aether and terrestrial matter can be homonyms if they are applied to material stuff in unambiguous and ontological sense. Then Walzer notes that the Aristotelian doctrine of quintessence (aether) "is not even mentioned as a possibility in al-Farabi's *ārā*" (Al-Farabi, 1998: 375-376). Al-Farabi uses *ārā* to describe celestial spheres and bodies in not Aristotelian, but in neo-Platonic sense.

Secondly, in his *On the Heavens*, Aristotle explains that the word 'heaven' has three senses for the Greeks: "(a) In one sense, then, we call 'heaven' the substance of the extreme circumference of the whole, or that natural body whose place is at the extreme circumference. We recognize habitually a special right to the name 'heaven' in the extremity or upper region, which we take to be the seat of all that is divine. (b) In another sense, we use this name for the body continuous with the extreme circumference which contains the moon, the sun, and some of the stars; these we say are 'in the heaven'. (c) In yet another sense we give the name to all body included within extreme circumference, since we habitually call the whole or totality 'the heaven'. The word, then, is used in three senses" (Aristotle, 1922). In this regard, Aristotle considers heaven as the universe, but not as any part of it. And if, on the whole, al-Farabi describes heavenly hierarchy in accordance with the Aristotelian view on astronomy, then al-Farabi do not dwell on different meanings of what the heaven is and, at the same time, provides more detailed definitions regarding the internal structures of the celestial spheres and the bodies inside them. In addition, it should be noted that the very title of Aristotle's *On the Heaven* is nowhere to be found in Aristotle himself; therefore, researchers of his heritage believe that this title was given to his treatise by the later editors of his manuscripts.

Conclusion

The question regarding how to understand the primary matter in the superlunary and sublunary worlds, in my opinion, requires to be more clarified content-wise. Richard Walzer notes that in this place al-Farabi's view of the cosmology of the celestial spheres and bodies is somewhat different from the Aristotelian tradition and "some less familiar aspects of it deserve special comment" Al-Farabi, 1998: 375). Let's take a closer look here and see what the point is. In my opinion, two differences between al-Farabi and Aristotle in their astronomical doctrines can be distinguished. There can be more differences, but here I dwell on these two differences, since they relate to the ontology of matter in process of comparing the material root cause in two – the superlunary and the sublunary – worlds. This clarification is important due to the fact that a correct understanding of the fundamental principles in al-Farabi's cosmology will make it possible, first, to understand more clearly the entire cosmological picture of al-Farabi's philosophy and, secondly, to understand its involvement in the cosmology of Aristotle and the neo-Platonists; that is, who of them – Aristotle or neo-Platonism – influenced to a greater extent on the formation of al-Farabi's cosmology.

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