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## ANCIENT AND MEDIEVAL COSMOLOGY IN ARMENIAN HIGHLAND

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### ABSTRACT

Humankind has always sought to recognize the nature of various sky related phenomena and tried to give them explanations. It is especially vivid in ancient cultures, many of which are related to the Middle East. The purpose of this study is to identify ancient Armenian's pantheistic and cosmological perceptions, world view, notions and beliefs. By this study we answer the question "How did the Universe work in Ancient Armenian Highland?" The paper focuses on the structure of the Universe and many phenomena of nature that have always had major influence on ancient Armenians thinking. Here we weave together astronomy, anthropology and mythology of Armenia, and scientific thinking revealed in local astronomy traditions. The initial review of the study covers Moses of Khoren, Yeznik of Koghb, Anania Shirakatsi and other 5<sup>th</sup>-7<sup>th</sup> centuries historians' and scientists' records about the Universe related superstitious beliefs and cosmological understanding. By discussing and comparing Universe structure in various regional traditions, myths, folk songs and phraseological units we very often came across "seven worlds", "seven earths" and "seven layers" concepts. We draw parallels between scientific and mythological Earth and Heaven and thus find similar number of layers on both of the ancient and modern thinking. In the article we also give some details about the tripartite structure of the Universe and how these parts are connected with axis. This axis is either a column or a Cosmic Tree (*Kenatz Tsar*). In Armenian culture the preliminary meanings of the *Kenatz Tsar* are more vivid in folk songs (*Jan gyulums*), plays, epic, and so on, which was subsequently mixed with religious and spiritual views. We conclude that the perception of the Universe structure and celestial objects had a significant impact on culture and worldview of the people of the Armenian Highland; particularly it was one of the bases of the regional cultural diversity.

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**KEYWORDS:** Cultural Astronomy, Ancient Cosmology, Universe, Earth, Heaven, Cosmic Tree.

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## 1. INTRODUCTION

The roots of Armenian astronomy go back to several thousands of years. Still ancient Armenians were quite far from the scientific recognition of the nature: that is why they attributed their birth and death, strength and power, fortune and misfortune mostly to planets and constellations. There are ancient Armenian names of planets, stars and constellations, mostly related to the mythological origin. Before the creation of the Armenian alphabet, Armenians expressed their astronomical knowledge through the carvings on rocks and stone structures. Since the ancient times, astronomical notions contributed and formed the development of natural philosophical thought, through the frame of the mythological perceptions (Danielyan, 1987). The initial review covers Moses Khorenatsi, Eghishe, Eznik Koghbatsi, Davit Anahaght, Anania Shirakatsi and other 5<sup>th</sup>-7<sup>th</sup> centuries historians' and scientists' records about sky related superstitious beliefs and cosmological understanding. The above-mentioned authors had recorded not only the celestial perceptions of their time, but also transferred the cosmic views of Pagan Armenians. By drawing parallels between Pagan and Christian cosmic views, they proved that astronomy of the time was heavily tied to the religious and spiritual outlook of the humankind. However, some of the Armenian Christian historians very often avoided giving many details of exact sciences, and they concentrated on theological works. Still we can see these historians' scientific perceptions in the interpretations of the Bible.

It is noteworthy to mention about the 7<sup>th</sup> century famous Armenian historian, philosopher, mathematician, astronomer and geographer Anania Shirakatsi's thoughts that sometimes is not far even from modern astronomical knowledge. Shirakatsi was the first Armenian author who distinguished the branches of sciences, and considered that those branches should be developed separately, thus Shirakatsi became the founder of the natural sciences in Armenia. Shirakatsi authored several works related to the calendar and Cosmography, a 48-chapter work that discusses astronomy, meteorology, and physical geography (Anania Shirakatsi, 1962; Hewsen, 2001). Shirakatsi's basic astronomical views are presented in this work, which is based on the ideas of ancient Greek astronomers and philosophers, and his further modifications based on his own observations. He described the world as *"being like an egg with a spherical yolk (the globe) surrounded by a layer of white (the atmosphere) and covered with a hard shell (the sky)."* He also believed *"that the Milky Way is a mass of dense but faintly luminous stars and agreed with earlier philosophers that the moon was a dark body by nature*

*whose light was only that, which it reflected from the sun."* Let us mention that in Shirakatsi's era the Greek science was in decline, and the Arabic science (particularly famous for its highly developed astronomy in 9<sup>th</sup>-12<sup>th</sup> centuries) had not been formed yet, so to maintain and in some cases even to develop this astronomical valuable knowledge was quite a difficult task. Shirakatsi's "Cosmography" has both scientific and literary significance. Shirakatsi used artistic descriptions and illustrations. At the current stage of the development of Astronomy and Astrophysics, Shirakatsi's ideas still remain relevant (Harutyunian & Mickaelian, 2014). Benik Tumanyan summarized Shirakatsi's cosmological views in his book *"From the History of Armenian Astronomy"* (Tumanyan, 1985) that leads to the following two main conclusions:

1. His geocentric system about the Sun's position and fiery arch are unique and different from those known at that time.
2. Shirakatsi diligently studied the works of his time and before him, he expressed critical approach, combined it with his own research and gave probable and natural conclusions.

Shirakatsi's works have historical, astronomical, geographical, religious, literary and terminological significance.

When discussing and comparing Universe structure in various regional traditions, myths, folk songs and phraseological units, one comes across "seven worlds", "seven earths" and "seven layers" concepts. By drawing parallels between scientific and mythological Earth and Heaven, one finds similar number of layers on both of the ancient and modern thinking. It is necessary to consider the details about the tripartite structure of the Universe and their interconnection with axis, which is either a column or a Cosmic Tree (Arm. *Kenatz Tsar*). We study the perception of the Universe structure and celestial objects and its significant impact on culture and worldview of the people of the Armenian Highland.

## 2. STRUCTURED UNIVERSE

Celestial bodies and phenomena had greatly influenced the ancient humans' consciousness; it has found its reflection in the language, folklore, religious beliefs and different arts. From the early beginning of humankind's existence, the civilizations founded their religious beliefs, which heavily included the World Creation. Throughout the history World creation myths can be found almost in all cultures. Numerous civilizations based their new religious beliefs on the past cultures; thus showing the significant evolution of Cosmic views throughout the centuries. By studying ancient Armenian's pantheistic and cosmological perceptions, world views,

notions and beliefs we see that according to different parts of the country, the Universe was created differently and had diverse structures from one region to another.

Shirakatsi shared the ideology of Armenian Apostolic church that the creation of the Universe and everything that existed in the Universe and on the Earth was created by God. "God has no beginning, he is immortal and perfect, he is the beginning and the creator of all visible and conceivable essences" (Hakobyan, 1956). According to Sassun's people imagination the World is on the back of the fish, and the fish is on the surface of the sea and the earthquakes are caused by fish movements (Petoyan, 2014). Fish-like stone monuments are discovered in Geghama mountains and elsewhere in the Armenian Highland. These monuments are covered with numerous images of animals (ox or bull's head, a pair of storks or other birds), plants (Cosmic Tree) and water (drop of water from top to bottom) carved on the belly of the fish. These carvings symbolize the ancient Armenians or even pre-Armenians cosmological worldview (Petri, 1964). The further answers concerning the cosmological worldviews are reflected on the folk songs; there the Cosmos is on the back of Leiatan-Leko fish and on the horns of an ox. These perceptions are identified with the Muslim's views of Cosmos, since in surah 68:1 it is written that Allah created the Fish Nun, he lifted up the water vapour, and the Heaven was split off from it, and the Earth was spread out upon the back of the fish. The fish became agitated, and as a result, the Earth was shaken up. It was steadied by means of the mountains, he continued, which were proudly located over the Earth like towers.

According to the people of Javakhk (Northern Armenia) the Earth is a circular valley, like a cart wheel and its opposite sides are alike. Both the Earth's apparent surface and the opposite side are covered with mountains, valleys, fields, seas and rivers, however, in the opposite side seas are on the mountains and the mountains are under the sea. The flat land is bread-like, somewhere convex; somewhere concave and is placed on the horns of a huge ox. And when the naughty flies sit on the huge ox eyes and begin to bite, suck his blood, calf pain starts to shake and shake his head, from which the Earth was rocked by earthquakes and come forth (Harutiunian, 2000). Here the bread can be associated not only with the Earth, but also with the Sun. In Armenia the bread is used to be cooked in *tonir* which is a type of underground oven, having round shape and inside is the fire. Hence, since the ancient times *tonir* was worshipped as a symbol of the Sun in the ground.

## 2.1. Tripartite Universe

The early Armenians' vision of the Universe structure is preserved in the ancient "Vahagn's Birth" folk-song, recorded by the 5<sup>th</sup> century historian Moses of Khoren. Vahagn or Vahagn Vishapakagh (Vahagn the Dragon Reaper) was a god of fire and war worshiped anciently and historically in Armenia. Sometime during Ancient history, he formed a "triad" with Aramazd and Anahit. Vahagn is identified with the Greek deity Heracles. All the gods, according to the Euhemerist belief, had been living men; Vahagn likewise, was introduced within the ranks of the Armenian kings, as a son of the Orontid Dynasty (or Yervanduni dynasty, 6<sup>th</sup>-4<sup>th</sup> century B.C.). According to "Vahagn's Birth" song the Universe has tripartite structure: Sky-Earth-Sea.

*"In travail were heaven and earth,  
In travail, too, the purple sea!  
The travail held in the sea the small red reed."  
(Khorenatsi, 5<sup>th</sup> c.)*

Moreover, the Sea is perceived as an image of underworld with chaotic waters that surround and limit the Universe from all sides (Ter-Poghosyan, 1911). The chaotic waters or the Space Ocean images are also reflected in Armenian folk traditions recorded in the 19<sup>th</sup> century. In Alashkert Province (Western Armenia) people believed that between the heavens and the Earth there was a deep ocean "Black water", which was set for Earth punishment, and once it could spout out from its shores and destroy the Earth as it was in the time of flood (Figure 1).



Figure 1. An illustration of tripartite structure of the Universe: Sky-Earth-Sea (Black Waters)

In such cases the Earth and the heavens are torn down and Black water rinse the entire world (Njdehyan, 1902). And if heavens is torn down, the world would be destroyed (Petoyan, 2014). Underworld's apocalyptic chaotic Black waters' visions are also reflected in Armenian heroic poem Daredevils of Sassun (Arm. *Sasna Tzrer*). Interestingly, Mesopota-

mian and Egyptian sources also illustrate the land surrounding chaotic waters and the depth of the sea is often associated with the graves. All Egyptian Universe creation myths have common element that world was derived from chaotic waters, called Nu.

The vision of tripartite structured Universe (or World) is also preserved in the late oral folk traditions. Again according to people from Alashkert, the world consists of three main parts or floors and the difference of the floors is hidden in the belts (Njdehyan, 1902). The first floor is the underground world, the second floor is surface world, and the third one is the floor of heaven. All of the floors are inhabited, and all floors are populated with people, the only difference is in their belts. Inhabitants of underground world tie the belt on their legs, the second floor inhabitants tie the belt on their stomachs, and people from the third floor tie it on their breasts (Njdehyan, 1902). The ideas of tripartite structured Universe confirmed among Armenians by the adoption of Christianity as they related it with Holy Trinity.

According to the Armenian mythology, the Universe has triptych vertical structure. The sky is on the upper floor, the Earth or the ground is on the middle floor and on the lower floor is the abyss, which is often symbolized with the bottomless sea. The space trinity is opposing to each other, but it is actually a whole. Moreover, the bottomless sea or ocean that has the meaning of lower floor, with its contents, surrounds the Universe from all sides. The Earth is situated in the world's great ocean and is surrounded by chaotic waters, which is separated from the Leiatan fish with encircled body or back. The Sky too is often imagined as a Sea (purple sea), which is a part of the chaotic water that limits the Universe from all sides, and in that sense it is equivalent to the lower world. In another myth, Heaven and Earth are described as husband and wife and between them is the purple Sea. As S. Harutyunian mentioned in his book "In the World of Armenian Ancient Myths" (Harutyunian, 2000), the Heaven is also a city, which is sometimes called Priceless City. It is surrounded by high stoned walls and copper gates. This Priceless City is the temple of the light, or opal-built, highly arched shining palace. Here everything is wonderful; there is no darkness, no cold. This is the home of immortality. The outside of the city is the paradise, here come honest people, who angels and sit on the sunny chairs (Abeghyan, 1971). Three-levelled cosmology also exists at ancient Israelites ideas, they thought that the Universe was made-up of a flat-disc that moves on the water: above is Heaven and underworld is below. Mesopotamian cultures believed that the underworld was morally neutral (Del Olmo Lete, 2008). We can assume that Armenians most possibly

expressed the ideas of three-levelled Universe by the influence of Hellenistic philosophers. According to ancient Armenians vision, the three zones of the Universe; the Heaven, the Earth and the underworld are connected with the axis. This axis is either a column or a tree (Eliade, 1998). The center of the Universe is located at the crown of the tree or the column, which is the closest to the sky.

### 2.1.1. *Cosmic Tree or Kenatz Tzar*

Trees are noteworthy in many of the world's mythologies and religions, and have been associated with profound and sacred meanings throughout the ages. The early cosmologies recount that Cosmic Tree is grown in the centre of the Universe and includes all the spheres of human and Earth existence. Cosmic Tree is a universal image and is also known as World Tree, Life Tree, Sacred Tree, Tree of Knowledge and are portrayed in various religions and philosophies (Mettinger, 2007). These terms cross cultures and are widespread motif in various mythologies, folklores and religions. It alludes to the interconnection of all life on our planet and can be considered as a metaphor for common descent in the evolutionary sense (Giovino, 2007). In most of the cultures, Cosmic Tree has a holy meaning and symbolizes the link between Earth, Heaven and Underworld. Nearly in every culture, branches of the tree reach the sky, the tree itself is on the Earth, and roots are deep into the Earth, so it draws links between three worlds: Heaven, Earth, and Underworld. Cosmic Tree is also metaphor for awareness and enlightenment. It is an evergreen tree, therefore, we can say that it has the same symbol as the colour green: it symbolises fertility, vitality, abundance, growth, rebirth and renewal.

In numerous myths, tree is a fundamental part of the Universe structure. Gods and Divine beings make a trip from world to world by climbing the tree. Particular world trees include *világfa* in Hungarian mythology, *Ağaç Ana* in Turkish mythology, *Modun* in Mongolian mythology, *Yggdrasil* in Norse mythology, the *Oak* in Slavic and Finnish mythology, *Kien-Mu* or *Jian-Mu* in Chinese mythology, and *Asvattha* in Hindu mythology. The world tree is widespread in Lithuanian folk painting, and is frequently found carved into household furniture such as cupboards, towel holders, and laundry beaters (Straižys, 1990).

According to ancient Armenian's mythological notions, the Universe has three zones, Sky, Ground, and the Underworld, and these three zones are interconnected with an axis. This axis is either a column or the Cosmic Tree. In Armenian culture, the basic meanings of the Kenatz Tzar (Cosmic Tree) are

more vivid in Jan gyulums (folk songs), plays, epic, and so on, which was subsequently mixed with religious and spiritual views. Kenatz Tzar is known as a religious symbol and was drawn on walls of fortresses and carved on the armor of warriors. The branches of the tree were equally divided on the right and left sides of the stem, with each branch having one leaf, and one leaf on the apex of the tree (see Figure 2).



Figure 2. Pomegranate Cosmic Tree with animals

Human like figures, possibly servants, stood on each side of the tree with one of their hands up as if they are taking care of the tree. According to the ancient Armenians' perceptions, Kenatz Tzar could be considered either pomegranate tree, apricot tree or apple tree. In Grigor Narekatsi's "Vardavar" and "Revelation" (Arm. Haytnutyun) plays have the same expression of the idea of the tree of life, as it is presented in the miniatures, especially in Jesse's (in the Bible the father of David, represented as the first in the genealogy of Jesus Christ) tree images. Cosmic Tree is also expressed in other plays of Narekatsi, such as "Tsovin and Navin" and "Karas Khachin". Cosmic Tree images are also found in Nerses Shnorhali's and Grigor Tatevatsi's works. From the Vedic literature, Ghevond Alishan mentioned this tree as the most common symbol of God, he pointed out that this tree is in upside-down position and life originates from here as it is Brahman itself. Later on in Armenian conundrums, we find the concept of "Cosmic tree in Hindu city" (Harutyunian, 1965).

Since the middle of the 1<sup>st</sup> millennium B.C., Solar calendar was used, which contained 365 days (12 months by 30 days and an additional month of 5 days) (Broutian, 1997). In Solar calendar, Kenatz Tzar was among worshiped Gods. Kenatz Tzar in Solar calendar is symbolized as solar year; it is especially reflected in the following conundrum:

"There is a tree, it has 12 branches,  
Each branch has 30 apples,  
One half of each apple is black, the next half is  
white" (Harutyunian, 1965).

In one of the medieval prayer, the tree is described as branchless, leafless and an eagle footless and headless is sitting on its top. This praying contains missing parts from both the free and the fowl; it shows the imperfect model of the Universe, semi chaotic condition. They believed that because of these semi chaotic conditions they have illnesses and bad fortunes.

There are some healing prayers that picture Kenatz Tzar with different stuffs and animals. They believed that the man's health condition is related to the gradual layout of stuffs and animals on the tree. They thought that man's microcosm is in disorder when he gets sick, thus he has a direct relationship with Cosmic Tree, especially with tree particularly stuffs or animals (Harutyunian, 2000). This relationship is largely accomplished through the sacrifice an animal or fowl on the tree.

### 2.1.2. Four partite Universe

The ancient Greeks believed that there were four elements from which everything was created: Earth, Water, Air, and Fire. This theory was suggested around 450 B.C., and it was later supported and developed by Aristotle. Shirakatsi in the 7<sup>th</sup> century followed the ancient Greek scholars' theory and confirmed the four elements, finding that in the Universe everything consists of these elements, he added: "*The Spirit is a divine breath it is intangible, although created.... But the Heavens and the Earth, and anything else that exists among them are made up of four elements, which are equally mixing to each other. Fire features warmness and dryness, Air - temperature and humidity, Water - humidity and coldness, Earth - coldness and dryness. And they contacted to each other for transferring their features*" (Hakobyan, 1956). Shirakatsi's considerations are similar to the modern states of matter: Earth (solid), Water (liquid), Air (gas) and Fire (plasma). Aristotle added the fifth element, *aether*, as the quintessence, reasoning that whereas fire, earth, air, and water were earthly and corruptible, since no changes had been perceived in the heavenly regions, the stars cannot be made out of any of the four elements but must be made of a different, unchangeable, heavenly substance (Lloyd, 1968). Shirakatsi separates the upper and inner skies. To his mind, the top of the sky, which Aristotel called "aether", and the Chaldeans, "mirrored fire", has no subject and no body: it is a simple fire, which did not derive of anything, and nothing had derived from it. This "air" covers all the elements. Shirakatsi also expressed his perception of the Universe layers with these four elements. At the center of our world is the Earth, as the planet we live on. Running over and around the Earth is Water, in the form of lakes,

rivers, and oceans. Water fertilizes and the Earth, giving it life. Over the spheres of Earth and Water is that of Air, the atmosphere in which we live. And finally, Fire lights up the Sun, Moon, and stars.

### 2.1.3. Seven Layered Earth and Heaven

Seven is one of the most significant number across religions, spiritual traditions and cultures. The Bambaras, the Buddhist and the Talmud divided the Sky into seven degrees of perfection. The number seven is also widely spread in Islam: the Koran has seven esoteric senses, according to Muslim mysticisms (sometimes they talk about seven senses); there are seven consonants, called *sawakit* and there are seven towers in Mecca; during the pilgrimage to Mecca, they have to take seven turns of the Kaba and seven courses between the mounts Cafa and Marmia. In Armenian culture, the dead people's soul remains seven days beside the tomb. At the beginning of the Bible, the first use of number seven is associated with completeness; it is related to the creation week in Genesis 1. God spends six days creating the Heavens and the Earth, and then rests on the seventh day.

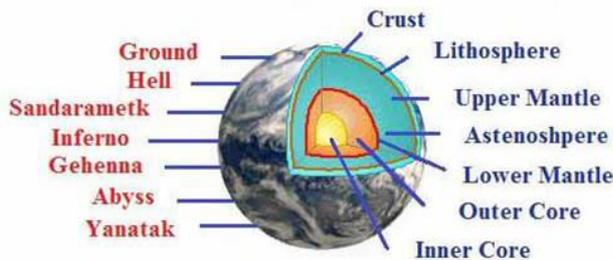


Figure 3. The left of the figure is the mythical Earth and the right is the scientific Earth.

By comparing Universe structure in various regional traditions, myths, folk songs and phraseological units, we very often come across to the concepts of "Seven Heavens" (Seven heavens is a part of religious cosmology found in many major religions such as Islam, Judaism, Hinduism and Catholicism (Davidson, 1967)) and "Seven Earths". Armenians in their turn divided the Earth and the Heavens into seven layers (Figure 3 and 4).

As Njdehyan mentioned the Armenian sky, since the ancient times, was divided into seven layers, the first layer is the Earth's Atmosphere, the Clouds are in the second layer, the third one is the Moon, the

forth is the Sun, the fifth are the stars, the sixth is the room for angels and saints, and the seventh layer is for the God. Earth layers gradually fall from the top to down, and the layers bear the following names: Ground, Hell, Sandarametk, Inferno, Gehenna, Abyss and Yanatak. Four of these seven names (Hell, Sandarametk, Inferno, Gehenna) are coming from Iranian, Greek and Jewish traditions, it is the same concept with different names. Ancient Persians also imagined Earth's seven layers and called it *ziggurat*, which is equivalent to Cosmic Mountain (Eliade, 1957). In some way, in modern science too, both the Earth and the Heaven have seven layers.

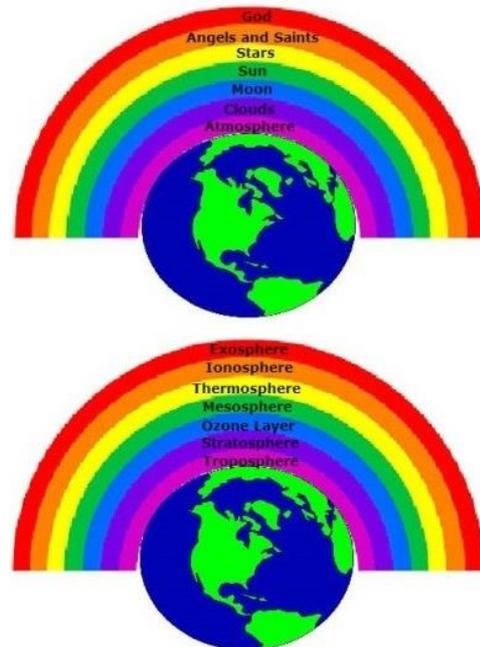


Figure 4: The left of the figure is the mythical Heaven and the right is the scientific one.

The Seven Heavens refers to the layers of our atmosphere (Troposphere, Stratosphere, Ozone Layer, Mesosphere, Thermosphere, Ionosphere and Exosphere). The Seven Earths refer to the layers of the Earth (Crust, Lithosphere, Upper Mantle, Astenosphere ("Sic"), Lower Mantle, Outer Core, and Inner Core). The seven layers of the Earth may also refer to seven continents (North America, South America, Australia, Asia, Africa, Antarctica and Europe).

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<sup>1</sup> The dedication page states: "Dedicated to Ananias of Shirak Armenia's First Scientist".