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GEOCENTRISM AND HELIOCENTRISM AS OPPOSED PARADIGMATIC CONCEPTIONS

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Abstract

In this paper the author considers the dilemma between geocentrism and heliocentrism approaching from the viewpoint of biblical tradition. Conceived in this way, the conception of geocentrism is not inconsistent with heliocentrism, but appears rather as its complement on a more profound metaphysical plan. It will be seen further on that even the heliocentric system is dependent on this metaphysical framework, whereas the converse is not the case and, therefore, it may be said that the geocentric system appears as elder in an ontological sense as it also preceded in history. Eventually the author proves the assertion that the postmodern science can be considered as a return to conceptions of traditional Cosmology.

Keywords: traditional cosmology, postmodern science, mechanicism, paradigmatic shift

1. Introduction

Discussing about geocentric and heliocentric systems author`s aim is not to consider them as coordinate frames in the sense of modern Astronomy but as opposed paradigmatic conceptions of traditional and modern Cosmology. The first one represents the viewpoint of biblical tradition contemplating Cosmos in the light of divine creation due to uncreated energies revealing divinization of matter. The second one is based on logical and metaphysical constructs investigating Cosmos through reduction onto ideal conceptions.

In this paper the author supports the traditional cosmology viewpoint symbolized by the Cross of Jesus Christ as the secret of Heaven and Earth unification. Such an approach does not imply that the man is the centre of spiritual universe in the sense of New Age humanism, also not christocentrism in the sense of Roman Catholic theological doctrine *filioque*. It can be explained as triadocentrism in the sense of Orthodox mystical theology imaging divine omnipresence in the world through uncreated energies. In that respect, the earth core signifies the incarnation of the energies and unification of created world with its origin. So taken, dilemma between geocentrism and heliocentrism

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becomes an existential question permeating all aspects of knowledge from epistemological to dogmatic ones.

2. Copernican revolution

The worldview which is in the fundament of modern science and culture formed its main traits in the XVI and XVII centuries. In that time a dramatic change took place of the way in which the world was seen by the people and also in the entire system of thinking. The new way of thinking and the new conception of cosmos gave the Western civilization the features characterizing the modern era [1].

In 1543 a Roman Catholic monk of the Polish origin whose name is Nicolaus Copernicus published his classical work *De Revolutionibus Orbium Coelestium* where, for reasons of simplicity concerning the geometric description, Ptolemy's geocentric system was replaced by the heliocentric system of modern astronomy. This episode in the history of Renaissance thought has been generally accepted as an epochal reversal in the development of Western civilization with which its modern era started. The essence of this reversal corresponds to the transition from the traditional medieval science towards its modern variant which, from the viewpoint of nowadays, appears as something completely opposite. The medieval science paradigm was based equally on reason and faith and its main objective was the understanding of meaning and importance of things rather than prediction and surveillance. Medieval devotees, in search of the purpose of various natural phenomena, considered the questions concerning God and soul salvation of the utmost importance. The abrupt change being the present topic and referred to as the scientific revolution shifted the consciousness focus towards external events postulating as the main science objective the determinativity of prediction. The Copernican revolution in astronomy was the cornerstone for a whole sequence of later events hitherward.

On the other hand, the work of Copernicus can be regarded as a crown of a long developing thread for which the germs overlap towards the very roots of Western civilization. No matter how unusual it seemed, the Copernican revolution appears to be but a consistent realization of the basic principle of Greek planetary astronomy upon which Ptolemy's *Almagest* is also based: "All planetary appearances must be accounted for by the uniform motion of the planet in a circle with or without the uniform motion of this circle's centre on another circle, called its deferent, and so on to any required complication" [2]. In a somewhat more concise form this principle was also used by Copernicus who applied it consistently in his heliocentric model where this perfection of geometrico-kinematical description becomes complete.

Ptolemy's justifying of the geocentric position appears as the only place where he uses physico-dynamical arguments unlike the rest of *Almagest* which is completely of a geometrico-kinematical character. This place seems to be quite different from the rest of the work so that Ptolemy might be able to undertake

the critical pace, but he did not, just because of that to which the Copernican revolution led in its ultimate consequence. At this place it is useful to remember the words of Archimedes: "Give me a long enough lever and a place to stand, and I will move the Earth". One can say that this lever was just heliocentrism.

Copernicus himself was deeply aware of the consequences which could result from his work and did his best to remove the responsibility from himself wanting to remain on the safe side of the Aristotelian physics and sphere cosmology. For reasons of this unpleasant position he hesitated a long time to publish his discoveries, which he did on the eve of his death in 1543, after having been persuaded by Pope Paul III. His positive intellectual caution appears as completely opposite in comparison with the modern trend in science where new and new cosmological models are announced without any awareness of ontological assumptions embedded in them. The scientific revolution initiated with Copernicus was completed in the XVII century in the works of Sir Isaac Newton. In this way the paradigmatic conception known as mechanicism was established, which has chiefly dominated till nowadays in cosmology, as well as in the socio-economical and psychological areas.

The Aristotelian physics recognized natural coordinate systems only. Newton's mechanics, however, was satisfied by no natural coordinate system. The use of natural coordinate systems resulted in serious difficulties. For the purpose of better understanding of these difficulties it is enough to take into account one of the most simple problems in mechanics – that of free fall. If the earth is seen as immovable and a coordinate system is tied to it, the trajectory of a falling body is a straight line. If the rotation is also taken into account, as the first approximation one infers that there is a deflection in the motion of the falling body to the east (northern hemisphere) so that the approximate trajectory is a semi-cube parabola. Furthermore, if the coordinate system is tied to the sun, taking into account the earth's own rotation, as well as its revolution around the sun, the trajectory in the new system of reference becomes a fairly complicated curve; it becomes especially complicated if the reference system is tied to the so-called immovable stars. This example helps us in understanding the entire scientific revolution which followed. As long as in describing the motion we use first of all the lines of the trajectories travelled by bodies, even if we take into consideration the tangents, which means the concept of velocity, we are in an insurveyable chaos, something offering no possibility to reduce the facts and laws into universal principles. The principles can be reached here only after introducing the acceleration or, in other words the variation of the variation – a notion completely unknown in Aristotle's physics. But, here, it was necessary to solve another important problem – the system of reference where the acceleration is defined. In this way special systems of reference – inertial systems – were introduced, in other words the concept of absolute space. "The absolute space in its very essence is absolute to whatever external and remains always the same and immovable" [3] – to Newton this was an abstract mathematical space. Without regard that it was referred to as a divine attribute and sensorium, and accepted as an actuality per se, it is a fact that such a space

in praxis appears as a mathematical stage of world events, an ideal continuum acting as a bound and framework for Newton's theory. To express more simply in the Newtonian mechanics point, a straight line, plane and space are neither psychical nor physical objects, here they become symbols of abstract relations. And the ultimate consequence of such reasoning is that we in the abstract mathematical space do not deal with the verity of things, but, first of all, with the verity of reasons and propositions. The whole superiority of Newton's method is namely contained in this separation of the mathematical space from the physical reality. So to the tyranny of self-evident Newton opposed a priori first principles, having changed in this way the standards of scientific proofs and the concept of knowledge itself indeed [3]. The heliocentric system of Copernicus in the Newtonian mechanics becomes an abstract inertial system, even not tied to the sun, but to the barycentre of the solar system.

In history and philosophy of science the great rebound which took place in Europe in the late XVI century is usually overlooked. It is manifested in the emergence of abstract geometric space taking place simultaneously with the algebrisation of geometry. The Euclidean geometry did not know any mature concept of space; in it we find notions such as body (x^3), area (x^2), line (x^1) and point (x^0), but without any possibility and desire to interpret things like n-dimensional objects (x^n). Without algebra, analytical geometry and mathematical continuum it is certainly impossible to envisage the phenomenon of mathematical space, as well as the emergence of the general notion of figure obtained by introducing rules, so that the ancient geometric figure is firstly transferred into sets of points and then reunited by using a single function, a single common rule. The concept of function made it possible to relate numerically quantities which had been previously considered incomparable, for example, distance, time, speed, etc. The functional relating of space and time in the differential quotient, done by Newton in his fluxional calculus, led to a usable proportion which would become the basic notion in his kinematical way of thinking. This made it possible particular figures of the Euclidean geometry to be initiated [3, p. 26].

In this way Newton connected the notions of law and function, also the notions of causality and continuity. The most general physical laws became axioms, mostly given by means of mathematical functions with operational contents. Physical theories finally became operational and their predictions significantly reliable. However, in glorifying such mathematical physics, the cost at which its operationalism was achieved is usually not mentioned. The Aristotelian science, based on observations, on common-sense experience, appeared to be – though in accordance with many empirical facts – sterile and useless. The Newtonian science, however, owe its efficacy, above all, to abandoning this common-sense experience which it avoided by having presupposed an idealized nature as a prescientific observed nature. This new paradigm of science, unlike the Aristotelian one, established a completely new relationship between the basic assertions and theory; now theory begins to dominate over observations, it even – contrary to what is usually thought when

one mentions Newton's name and his scientific method – dominates over experimental work from its initial planning till its final steps in the laboratory. With Newton's mechanics theories became nets to cast to catch what we call the world, all with the objective of its rationalization. Newton's principles themselves, very often so incorrectly referred to as laws of nature, do not now describe the nature directly, but instead they describe the behaviour of idealized systems; they are used only afterwards in feedback for the purpose of predicting real events in nature. Newton's paradigm, since not focused on *physis*, simply does not correspond to the syntagm law of nature, but corresponds to syntagm causal principle (or simply principle i. e. axiom). The principles, i. e. causal laws, were no longer directly connected to observations. The task of the principles is not to speak about nature straightforwardly; their function is quite different; they are to establish the abstract calculus which appears as a logical skeleton of theory and to define the principal notions implicitly. The causal principles, in addition to stating certain rules, i. e. constant relationships between principal notions, and appearing as a grammar to theory, have another important function – to stipulate the conditions under which a given rule is valid. Namely this stipulation is the best testimony that in the new science *physis* was abandoned. The construction of causally possible physical systems was nothing but rejecting to deal with nature straightforwardly; in this way the credo of this paradigm became related to the question of what the phenomena would have to be if certain idealizing conditions operated [3, p. 28-30].

Good predictions in the behaviour of mechanical systems achieved by the Newtonian mechanics brought physics to a mechanistic ontology to which a universal validity was attributed and which was expected to be capable of unifying all physical theories. The conclusion that all physical theories should be reduced to mechanics, as well as Laplace's position that in the universe there was nothing which could not agree with the general theoretical scheme based on Newton's laws of motion, does not follow from mechanics, but from the unlimited extrapolation of this scientific branch towards all possible conditions and all possible domains of phenomena. Such an extrapolation was not first of all based on scientific knowledge. It was to a great extent a consequence of philosophical conception of world nature which later became known as mechanicistic one [3, p. 80].

The Newtonian paradigm and belief in the rational approach to human problems spread so fast in the XVIII century so that the whole epoch was named Enlightenment. The leading person in this development was philosopher John Locke whose best known writings were published in the late XVII century. Following the Newtonian physics Locke developed the atomistic concept of society describing it on the basis of his main constituent, human being. Locke's analysis of human nature was based on the analysis of an earlier philosopher, Thomas Hobbs who stated that any knowledge was based on sensory experience. Locke accepted this theory of knowledge and by means of the known metaphor compared the human spirit at the birth to a blank slate on which the knowledge attained through sensory experience is written. This view would have a

significant influence on the two main schools of classical psychology – behaviourism and psychoanalysis, as well as on political philosophy [1, p. 73].

When Locke applied his theory of human nature to social phenomena, he was led by belief that there were laws governing the human society which were similar to those governing in mechanics. Like atoms, which tend towards an equilibrium state within a gas, human beings as individuals will settle down within society in its state of nature. So the role of government was not to give the people its laws, but instead to discover and impose laws of nature which had existed before any government was created. According to Locke these laws involve equality of all human beings, as well as the right to possess everything acquired as a result of someone's own activity. Locke's ideas became the basis of the Enlightenment value system and they had a strong influence on the development of the modern economics and political thought. The ideals of individualism, right of property, free market and representative democracy, the germs which can be found in Locke's works, had a significant influence on the thought of Thomas Jefferson and they are reflected in the *Declaration of Independence* and *Constitution of the United States* [1, p. 73].

If we come again to the Copernican revolution as seed of all later events, it seems that for this cosmological reversal it was enough to extract Ptolemy's astronomy from the context of organic Aristotelian physics, i. e. the Euclidean geometry from the context of physical space so that the geometrical space became a special abstract entity. This reviving of the Euclidean geometry in a new light discovers more profound spiritual roots of these events.

Zoran Stokić claims that in the ancient Greece the domination of space over time was never violated [3, p. 48]. "The cyclical conception of time gave rise, both here and in India, to a psychological impression that there was no irreversible change since any single event can be repeated infinitely many times. Such a psychological factor which abolished time led the Greek logos to building theoretical absolute timeless forms; the best examples are orphic life and Euclidean Elements. The orphic theogony and anthropology had the same effect in the Greek world as the Upanishads in India; it developed the belief in indestructibility of soul condemned to transmigration until final release. Even more than that: the orphic theogony made an effort of converting the cosmocratic god into the creator of the world ruled by him. This monotheistic idea of the orphic theogonies combined with the basic ideas of Orphism – idea of immortality, dualism idea and, especially, that of divine presence within a human being – is a common point with the ideas of Christian theology."

However, although the influence of Greek inheritance on the Christianity is undisputable, especially during the Middle Ages, it is correct to claim that the idea of immortality of soul has nothing to do with the belief in resurrection, as well as the cyclical conception of time has nothing to do with the Christian time of redemption [4]. This conflict between two spiritual centres concerning the concept of eternity and, consequently, the understanding of life and world in general appears to be the basis of the revolution represented by Copernicus. The scientific revolution is just a spiritual reversal and can be thought of as (the

cause or) the consequence of the Renaissance renewal of the antique paganism in the European West of late Middle Ages. Nevertheless, extracted from its context and far from the historical source this paganism has manifested itself as an abstract atheism carrying the Western civilization far away from the revealed traditions towards the domain of metaphysical and logical constructs.

Therefore it is not strange that the most violent reactions to the work of Copernicus came from the clericals and concerned his attitude towards the biblical tradition. In the disapproving of the position of Copernicus one mainly used statements from the book of *Genesis*, also *Psalms* 73.16, 95.10 and *Joshua the son of Nun* 10.12-3. The last one is of special importance so that the present author's attention will be at first concentrated to it

3. Joshua's long day miracle

Saint Dionysus in 'Letter to Polykarpos' appeals to the verses (Joshua 10.12-3) viewing it as a testimony for unutterable divine power. He claims that there the lower cosmic spheres stopped, whereas the upper ones continued to move emphasizing in that way the restrictions of the solar and lunar motions with respect to terrestrial events since the earth was created on the first day of *Genesis*, unlike the sun and moon created on the fourth day only. Created to be for signs and for marking the changes (Genesis 1.14), the sun, the moon and stellar worlds do this both by their motion and by rest state. Therefore, their cyclical motion is neither autonomous nor absolute. Further on he compares this event with an eclipse which occurred at the time of crucifixion and was observed by him and Appolophanos as eyewitnesses from Heliopolis [5]. "We were both of us in Heliopolis we both saw the Moon coming suddenly to be in front of the Sun (because this was not the epoch of its conjunction) and that then from the ninth hour till the evening it came back admirably in direct opposition with the Sun. We still remember this: it is known that the moon entered the conjunction from the east and reached the western limb of the sun and then instead of extending it in order to find an exit, it suddenly came back not stopping till the last point of the body which it eclipsed at first. Such are the miracles which occurred at that moment and it is possible to attribute them to only one universal cause, Jesus Christ who produces a lot of great and admirable acts."

The biblical tradition in both cases emphasizes the geocentrism of the moment when everything stopped. The Earth is a centre because there the battle on the eternal metaphysical plan takes place, a battle which in its size exceeds the time spheres. Their restrictions are seen in the way that they are subordinated by the event, taking place on the Earth, which their further functioning profoundly depends on. So time appears to be the axis of the eschatological drama of the word created, through which it tends to achieve eternity and release itself from the chains of its own nature.

In explaining the first verses of the book of *Genesis* in his *Confessions* Saint Augustine chooses a problem approach to the concept of time from the viewpoint of relationship between human and divine. Firstly he indicates that

about time it is meaningful to speak in the context of creation only, because beyond the creation there is the permanent divine eternity which is superior to time. So time has only restricted existence, as also all the world created from nothing, which is reflected in its halving to two times, past and future, where the former one no longer exists, whereas the latter does not exist yet [6].

Wondering about time measuring Augustine not only rejects that time is the motion of the sun, the moon and stars, but according to him it is no motion at all. "What if the lights of heaven should cease, and a potter's wheel still turn round: would there be no time by which we might measure those rotations and say either that it turned at equal intervals, or, if it moved now more slowly and now more quickly, that some rotations were longer and others shorter? And while we were saying this, would we not also be speaking in time? Or would there not be in our words some syllables that were long and others short, because the first took a longer time to sound and the others a shorter time?" [6, p. 22]… "Let no man tell me, therefore, that the motions of the heavenly bodies constitute time. For when the sun stood still at the prayer of a certain man in order that he might gain his victory in battle, the sun stood still but time went on. For in as long a span of time as was sufficient the battle was fought and ended." [6, p. 24]

Having excluded in this way mechanical time as lifeless abstraction he refers to praxis which measures a longer time interval through a shorter one to which the former is a multiple; for instance the spaces of stanzas, by the spaces of the verses, and the spaces of the verses, by the spaces of the feet, and the spaces of the feet, by the spaces of the syllables, and the spaces of long, by the space of short syllables. Even applying this approach he reaches no reliable measure of time because a shorter verse pronounced slowly can take more time than a long one, but pronounced quickly. So he concludes that time "is nothing other than extendedness", but unable to determine what is being extended he adds: "This is a marvel to me. The extendedness may be of the mind itself." [6, p. 26] Keeping on considerations consistently in this way he concludes that the measure of time is founded on personal principle.

"It is in you, O Mind of mine, that I measure the periods of time. Do not shout me down that it exists; do not overwhelm yourself with the turbulent flood of your impressions. In you, as I have said, I measure the periods of time. I measure as time present the impression that things make on you as they pass by and what remains after they have passed by – I do not measure the things themselves which have passed by and left their impression on you. This is what I measure when I measure periods of time. Either, then, these are the periods of time or else I do not measure time at all." [6, p. 28]

If this position is regarded in connection with the crucifixion eclipse mentioned by Saint Dionysus, we can see that the notion of time in the biblical tradition is based on epitomized Logos as the divine omnipresence in the world. The Cross of Jesus Christ, which represents the redemption of the creation and the measure of all things, appears at the same time to be the fundament of the biblical geocentrism. However, it should be noticed that here one talks about the element of earth and that it is not in the central position by itself but by imaging

the divine eternity. In this way time and eternity no longer exclude each other, but instead they are unified in the secret of the cross which is a new creation – recreating of the world and means both the end of time and its beginning. This is the way of comprehending the traditional doctrine about the end of time and disambiguation of the world as we know it. In his interpretation of the *Gospel according to Matthew* Saint Cyril of Alexandria claims that on doomsday the Sun and the Moon will be eclipsed (Matthew 24.29), because the elements are mixed again by God.

4. Elements of Divine Creation

The book of *Genesis* begins with creation of heavens and Earth (Genesis 1.1-2] which specifies the entirety of everything existing. Saint Augustine reminds us that these primordial elements are substantially different from the notions known to our limited experience [6, p. 33]. *"*But where is that heaven of heavens, O Lord, of which we hear in the words of the psalm: The heaven of heavens is the Lord's, but the earth he hath given to the children of men? Where is the heaven that we cannot see, in relation to which all that we can see is earth? For this whole corporeal creation has been beautifully formed – though not everywhere in its entirety – and our earth is the lowest of these levels. Still, compared with that heaven of heavens, even the heaven of our own earth is only earth. Indeed, it is not absurd to call each of those two great bodies "earth" in comparison with that ineffable heaven which is the Lord's, and not for the sons of men." … "And truly this earth was invisible and unformed, and there was an inexpressibly profound abyss above which there was no light since it had no form. Thou didst command it written that darkness was on the face of the deep. What else is darkness except the absence of light?" [6, p. 34]

The relationship between shaped things and unformed matter [6, p. 37] is compared with the relationship between chant and sound. So matter precedes that which is derived from it, but neither as cause nor it is before by interval of time for we do not first in time utter formless sounds without singing, and subsequently adapt or fashion them into the form of a chant. Time registered acts only when things obtained their forms, whereas matter was unformed and appeared in time just with time itself [6, p. 58].

Here one operates with theological postulate known as distinction between essence and energy in God [7]. The act of divine creation remains essentially unfathomable, but it is revealed through the energies by which God appears to the world as its light and identity. Though the essence of God is not exhausted through these energies, they are, nevertheless, inseparable from the essence and are in favour of God's perfect unity and wholeness. They are presence of God's activity in the world and the possibility of direct meeting God and divinization of matter.

However, falling on the creation the energies supply it with an overabundance of divinity which the world, according to its own nature, cannot accept. Since created from nothing matter cannot achieve the divinization by its

own capability. Therefore, the meeting between the creation and uncreated energies acquires the character of matter transfiguration by uncreated divine light. In this sense the Transfiguration of Jesus Christ on Mount Tabor (Matthew 17.1-3) is considered as a superhistoric event corresponding to an archetype of the divine creation.

Created according to the image of God man is manifested as a personal being. He is a personality not obliged to have been determined following his own nature, but to self-determine nature likening to God's image. According to the doctrine of Saint Maximus the Confessor the task of human personality is to unify the created nature with the uncreated one through love, presenting them as identical by acquiring mercy [7, p. 98]. However, after the falling in sin, in the sparse notions of good and evil, a personality can be determined only negatively as denying its own nature for the sake of supernatural.

If we wonder what the fall of a man consists of, we shall see that here one has namely the disintegration of personality. Misled by the material light of knowledge which is by its nature also created from nothing, just like a man himself, an individual becomes the prisoner of his own nature which is imposed to him as the objectively perceived reality. In this way he loses the ability of likening to the uncreated light of God's image since the God's will is free and unrestricted by the world created by it own. Deceived by the promise of being as gods (Genesis 3.5) man becomes less than any stuff because the material world namely in him obtains its fatal epilogue. The daemon of fall pushing him towards self-admiring and heartless hubris takes for itself the name of Light-bearer, an idol of the material light, by which it wants to hide the dark of its own impersonality. So this age becomes recognized as a dark one and time becomes something which it had not been before – time of death and destruction. The way of becoming divine for a fallen person becomes a way to salvation, being possible only if nature overcomes sin and death.

Though present in the world as Creator and Donor of uncreated energies God becomes inaccessible and remote to a man since the two natures, human and divine, are separated by an insurmountable gulf of sin. Nevertheless, anything insurmountable for a man is not insurmountable for God, because in God's will no change occurred, nor the sin violated the light of His image. His epitomization in the world making an end to the slavery to sin and death manifested in his own person the way to salvation according to the following words: "I am the light of the world; he who comes with me will not be walking in the dark but will have the light of life" (John 8.12).

Standing before the act of salvation done by Jesus Christ we meet the impossibility of its determination in the notions of the fallen human existence. According to the words of Saint Gregory of Nyssa we needed an epitomized and killed God in order to revive ourselves [7, p. 116]. This shift of consciousness called repentance (in Greek μετάνοια – changing one's mind), is most straightforwardly seen in the way used in Gospel for the purpose of light consideration. Light is consistently viewed as a synonym for a personality

lighting the world according to the following words: "The true light, which gives light to every man, was then coming into the world" (John 8.12).

Such an experience of light is also discovered in the Orthodox iconography in the form of inverse perspective emphasizing the observer's participation in the icon. Inspired by the biblical tradition the icons assume the observer to be a participant in the light of God image, according to the following words: "I came to send a fire on the Earth, and it may even now have been lighted" (Luke 12.49). This was fulfilled on the Pentecost day in the descent of the Holy Spirit on the Church in the form of thongs of fire (Acts 2.1-4) through which Christ in particular human personalities obtains his full self-determination. Though always present in the world as a life-creating force, the Holy Spirit reveals itself to the Church as a personality by making particular human personalities peace offerings of God's mercy.

From then onwards the created and restricted world bears in itself a new body which possesses an uncreated and unlimited fulfilment that cannot be placed within. This new body is the Church. The fulfilment contained by it is mercy, overabundance of divine energies by means of which and for the sake of which the world was made. Beyond the Church these energies act as outer determining causes, as divine arbitrariness, which form and take care about the creation. Only in the Church in the unique Christ's body they are communicated and transferred to human beings by the Holy Spirit [7, p. 89]. The biblical geocentrism is just the Church which through the God's mercy power contemplates the whole world united into the light of the Creator's image. We are not mere observers, but instead we become participants of the creation process and witnesses of the immense secret revealed to us.

5. Postmodern Physics

Modern science did much to destroy the traditional cosmological worldview and to this end, as said by poet John Donne in 'An Anatomy of the World', all coherence was lost. Separating the human from the natural, spirit from matter and the like, the classical mechanicistic paradigm is in fact not cosmos as for the traditional meaning of this word. The development of Physics during the XIX century made this paradigm a matter of dispute so one can say that the science of modern time is finished and that with the contemporary Physics we enter the new postmodern epoch [8].

The quantum theory which first of all considers the phenomena of the atomic and subatomic worlds was developed later by a number of physicists and it is said to be the first non-classical physical theory which questioned and even completely refuted the classical mechanicistic paradigm. Trying to understand this new reality, scientists became painfully aware of inadequacy of their basic concepts, their language and of the entire thinking mechanism for the purpose of describing atomic phenomena.

Already at the very beginning of this trip it became clear that Newton's conception of matter, viewed as something consisting of particles similar to point masses, is an artistic vision, such that it even approximately does not resemble the reality. The diffraction of electrons discovered in 1927 by Davisson and Germer showed that particles have no determined trajectories and Heisenberg's uncertainty principle eliminated the notion of particle as an object to which at every instant a given position and a given velocity can be attributed. This resulted in a new view of reality which opposes the previous one not in some details only, but in the very essence. In quantum physics particle is not the main notion, this is the wave function which can be observed with no instruments. The objective reality of classical physics is in fact its collapse taking place as a consequence of interaction with observer, i. e. of observer's taking part in the system. The objective description is constructed on the subject's participation through which the observer's personality becomes the principal axis of the observed system. This is the property of, not only, the quantum theory, but of the entire postmodern physics and it is an expression of its essentially geocentric character.

According to Richard Feynman we do not have two worlds – the classical and the quantum ones – we have only one world, *that in which we live*, and it is a quantum world. If we are expected to define as briefly as possible the principle of its organization, we shall say antireductionism. Unlike the reductionism of classical physics that reduces complex systems to the behaviour of simple elements more real than the whole of the system, in the quantum theory the whole is in an unambiguous way more real than the components. The wave function of a system as a whole always offers a more adequate description of its properties than the sum of individual wave functions which concern its components, because the gathering of components into a system is followed by taking into effect of quite new laws of nature which cannot be known a priori. The basic example for this is an atom. No matter how well we know the properties of its elements taken individually, we would never be able to predict that in the atom composed by them Pauli's exclusion principle will take into effect by which the entire Mendeleev periodic table is governed. Strictly speaking, the mere statement – an atom consists of electrons and nucleons – is incorrect; it should be said – electrons and nucleons had vanished and at their place a new physical system with new properties, called atom, arose. The transition towards complex systems in other cases should be viewed in the same way. For instance, a group of atoms can vanish and convert itself into a new reality known as semiconductor or plasma where their specific properties cannot be derived from the properties of atoms [9]. The composing of a whole from its parts, where the whole is always something more than the mere set of the parts, is known as self-organizing and it is a fundamental property of forming and functioning of complex systems.

Unlike the time defined via entropy, being based on classical causality, in contemporary physics time is considered as the axis of system complexity increase i.e. of its self-organizing [10]. Here the statistical causality operates that

it is no longer a necessary chain of events, but only a probable one, whereas the self-organizing corresponds to the cases of causality violation. Such a conception of time is also present in Jung's analytical psychology in the notion of synchronicity as a principle of acausal relating. Jung defines this notion as a meaningful temporal matching without any apparent cause and according to him it is the principle of creation due to archetypal images revealing time as a spiritual order [11]. Whereas the classical physics in fact denies time considering it a geometric parameter of theory which is subject to an unambiguous measuring, the postmodern again reveals to us the notion of time in its original multiple meaning [12].

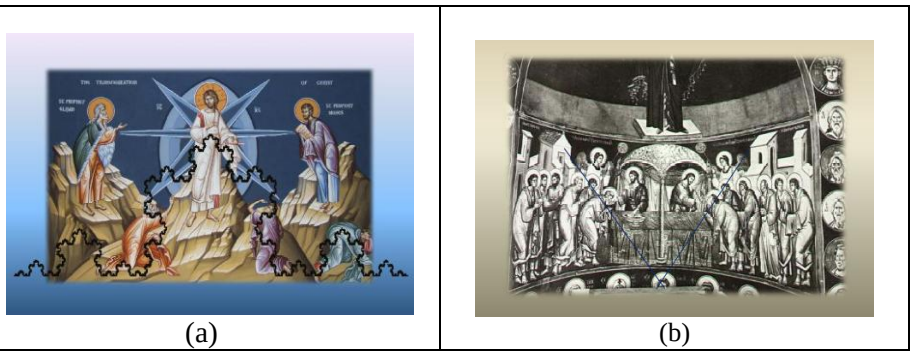
6. Conclusions

"To the true Russian the basic proposition of Darwinism is as devoid of meaning as that of Copernicus is to the true Arab" – these are the words of Oswald Spengler in *The Decline of the West.* According to him, the upspringing of heliocentric worldview which exclusively belongs to the Western Civilization is founded on the certainty that the corporeal-static, the imagined preponderance of the plastic earth, was henceforth eliminated from the Cosmos. Till the Copernican revolution, the heavens which were thought of, or at any rate felt, as a substantial quantity, like the earth, had been regarded as being in polar equilibrium with it. But now it was space that ruled the universe. World signifies space, and the stars are hardly more than mathematical points, tiny balls in the immense, that as material no longer affect the world-feeling [13]. This devoid of heliocentrism becomes even more evident from the biblical tradition viewpoint, which was clearly and concisely stated by Vladimir Lossky [7, p. 84].

On the other hand, one, nevertheless, cannot deny to the heliocentric system a practical usability in the field of reduced mechanicistic conception of cosmos, being in fact the viewpoint of egocentric idealism where the observer is viewed as a mechanical receiver deprived of any personal contents. The biblical tradition has no need at all to oppose to such a cosmology; it rather considers it as childish, and eventually worthless. Nevertheless, this is often a useful abstraction enabling us to detach a limited system of bodies from a complex net of cosmic woof that brought it to the existence. However, even in this case the heliocentric system remains essentially dependent on geocentric assumptions that make a connection between abstract geometric measures and reference physical reality. This is especially apparent if put into the context of the general relativity where physical concepts of space and time keep the real meaning only locally, whereas the global theoretical vision of space-time is a consequence of integral properties of Riemann's geometry [3, p. 109]. To the heliocentric system, thus, some restricted correctness is not denied, as well as the ontological priority cannot be denied to the geocentric one.

The personal spiritual experience, from which the biblical tradition comes, is also inseparable from the tradition because the religious tradition is the only way to confirm that our spiritual praxis is not a mere self-delusion. It is also

inseparable from the traditional cosmology, which appears to be a tradition in a full sense because within a man the entire Cosmos finds its salvation, as well as the entire Cosmos participates in the salvation. The cosmological questions are dogmatic ones in the most profound sense meaning that a different cosmological setting inevitably leads to a different spiritual experience which also results on social plan. The example of heliocentrism shows which and what consequences of one at first glance harmless and naïve cosmological hypothesis can be. Reductionism, social individualism, gender equality, liberalism over political and economic plans and democracy as a domination of quantity, all of them are products of the New Age heliocentric paradigm. Individualism has already been highlighted as an immediate consequence of heliocentrism. Detailed explanation of the remaining is far beyond the scope of the paper, but the most obvious explanation of gender equality could be briefly performed. Reading *First Epistle to Corinthians* there is no mention of gender equality in Saint Paul`s words. He addresses in terms of ecclesial coalescence (1 Corinthians 11.3) and from that viewpoint there is no equality at all because genders are equal as individuals only. Similar observations hold for other notions that essentially lose their meaning taken out of heliocentric context.



(a) (b)

Figure 1. An illustration of the relationship between postmodern science and traditional cosmology: (a) von Koch's curve, an elementary figure of fractal geometry emerged in the Icon of Transfiguration; imaging transfiguration of invisible and chaotic Earth in light of divine; (b) light cone, a notion in relativity theory emerged in the Icon of Pentecost by the directions of inverse perspective broadening; imaging Christ's simultaneous abidance within each of the peace offerings.

Contemporary Physics excludes this already historically obsolete worldview with which all of us have grown up and with which we have raised our children as one of the main reasons for all our troubles and crises. Entering a mature postmodern age science gradually, but surely, is going back to the revealed conceptions of traditional cosmology (Figure 1). But this comeback occurs on a new level, by fulfilling the general religious verities with full contents, refining and completing some things. Namely the understanding of this dynamics should help us in the correct solving of the reactualized question concerning the relationship between knowledge and faith [9]. A shift of consciousness, though inevitable, this time seems to be much more difficult to

realize because it involves increasing of complexity, unlike the Copernican one which was followed by a simple increase of entropy having shifted the focus towards the external events. It is difficult to give a reliable answer when and how it will take place, but it is evident that we are witnesses of great changes within a global plan in which we are also present, not as observers only, but, above all, through our personal active part as well.

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