

# Evolution, Creation, Natural Selection From an Eco-theological Perspective<sup>1</sup>

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**Abstract**—Creation cannot be discussed solely in the context of human scientific theories. Physicality cannot be seen as separated from mystery. God is the ultimate context and reality where the cosmos exists: infinity including finitude; time/space within its Creator. A perichoretic relationship between God and creation cannot be based on only phenomenology, politics of liberation, natural selection, or other such theories. In God's perichoresis towards creation, we find the possibility for a free, dialogic interpenetration of the relationships between divinity and creation. Perichoresis transcends the scientific idea of interrelatedness and knows the relations of God and the world as extending towards the entire creation. Perichoresis goes beyond all boundaries. The entire creation exists within its creator, sustainer, and recreator.<sup>2</sup>

**Key-words**—Interrelatedness, *creatio ex nihilo*, Big Bang, perichoresis

## Introduction

So far, the evolutionary story has been so far told as a physical process. However, we need a holistic approach to reality that needs to be discussed from within the ultimate context-God. Seeing the interrelatedness of all beings in the cosmos not just as a scientific knowing, I propose the idea of life as perichoresis<sup>3</sup> that can become a starting point for the reconsideration of all relationships and an ecological doctrine of creation as well.<sup>4</sup> It does not suffice to view the material and the spiritual realms of reality as complementary opposites, rather than as antagonistic, hierarchical dualisms.<sup>5</sup> The dualism of material and spiritual realms of reality is maintained. Perichoresis refers to a God, free from any material or non material form, creating out of God's uncreated fathomless possibilities and entering the created 'web of life' in Christ in whom 'all the fullness of the Deity lives.'<sup>6</sup> Such a theology deconstructs and subverts the dualism of both a spiritual and a material cosmos and of all *dualisms*.

## Evolution

Usually, 'evolution' refers to the study of life forms developing through a process of change from simple to more complex forms. Metaphors, models, and theories provide an ever-widening context of explanation, where phenomena within or across fields are linked in networks. They are not pictures of reality but paradigm-dependent, needing alternative or complementary models and care against literalization

and loss of metaphorical tension.<sup>7</sup> Nikolaos Copernicus challenged the idea that the earth was the centre of the cosmos. Galileo Galilei (1564-1642) established that the force of gravity activates flow in the cosmos. Isaac Newton proposed that the cosmos worked as a clock under God, who is the clock maker. The idea of evolution culminated in the work of Charles Darwin's *The Origin of Species* (1859). Darwin described it in terms of inheritance, randomness, natural selection and the survival of the fittest species, yet not knowing how the traits arise in living beings or how certain traits passed on from one generation to the next. Between 1856 and 1871, the geneticist Gregor Mendel found that inheritable factors, now known as genes, pass on organic information that is stored, transmitted and expressed by DNA molecules to subsequent offspring. According to the current neo-Darwinism, the genes are the living stream of heredity; they are the essence of life. Palaeontologist Teilhard de Chardin (1881-1955) infuriated both the scientific and theological communities, by saying that matter was sacred, characterized by a process of becoming: geogenesis, biogenesis, and christogenesis as the omega point of the final unification of the entire creation under God. According to Sri Aurobindo (1872-1950), the process is one of spiritual unfolding, with each stage transcending, but including its predecessor. Both Teilhard and Aurobindo aimed at knowing the key element in a spiritual knowing of the evolutionary processes. I trace in their views a separation between scientific and spiritual knowing, regarding the existence of the cosmos. Some scientists and theologians like Anne Primavesi, considering the biological cosmic processes, know theology as an earth science while other theologians develop a theory emphasizing that the cosmic process is one of spiritual unfolding. In my view, all of them maintain the dualism between a spiritual and a scientific realm of reality.

## Creation from 'non-being' into being, pan-en-theistically

The Eastern Church Fathers offer a cosmology, where *creatio ex nihilo* does not mean the privation of any quality or a negative category, but a positive category that denotes the absence of all space, time, matter and things. Creation out of non-being (ἐξ οὐκ ὄντων) refers to what in God is free of form and identity, beyond our capacity to grasp it, envisaged as the fathomless, incomprehensible depths of God's uncreated possibilities, the prior to creation divine realms, the pre-ontological 'nihil' from which all proceed.<sup>8</sup> Creation (ἐξ οὐκ ὄντων) as perichoresis of

God in the act of creation from the undifferentiated unknowable ground of the divinity deconstructs and subverts the dualism of both a spiritual and a materialistic cosmos.

All that exist was created and exist in God pan-en-theistically. The model of God as creation's home OIKOS (ΟΙΚΟΣ) opens up an ecological, panentheistic view of creation. God (εἰς) in whom the cosmos unfolds, the divinity that unfolds (εἰς) all echoes the trinitarian insight of relationality, immanent to God; personalized in the economy of creation.<sup>9</sup> In (εἰς) shows duration and dimensionality in space/ time and builds up the panentheistic view. The word (εἰς) is met in biblical passages like: (εἰς) in [Christ] all things were created' Col 1:16. The bedrock of the cosmos can be applied to God. "Everything that is, is in God and God is in all things and yet God is not identical to the cosmos, for the cosmos is dependent on God while God is not dependent on the cosmos."<sup>10</sup> The Apostle Paul declares<sup>11</sup> that God does not depend on anything; God has given life and breath to all; it is in God that we live and move and have our being.<sup>12</sup>

### Ecosystems

An ecosystem refers to the collection of components and processes that comprise the behaviour of some defined subset of the biosphere. The term refers to all components and their interactions with each other in a certain area with no conceptual restrictions on how large that area may be. An ecological system can be an assemblage of organisms (plant, animal, living organisms) that is a biotic community, living together in their environment, and functioning as a dynamic and complex whole, while interacting as an ecological unit. Early conceptions of the unit showed a structured functioning of energy and matter -in equilibrium- that flows among its elements. An ecological system can be known as a phase of an ecological system's process when the organisms are balanced with each other in their environment. This balance is achieved through interactions, such as predation, parasitism, competition; mutualism. Mutualism means symbiosis, cooperation, collaboration, interrelatedness, interdependence, factors that Darwin did not consider when discussing natural selection and the survival of the fittest. The notion of ecological health attempts to measure the robustness and recovery capacity for an ecosystem, or how far it is from a balanced state.<sup>13</sup>

### Co-evolution

Contrary to the Darwinian idea of various species competing to adapt against alien environments, according to Lynn Margulis, nature operates on a cooperative endeavour, engaging the creativity of the life-forms in space/time. Co-evolution is a term adapted by some theorists and theologians as well. The story of co-evolution and symbiosis is one of collaboration and cooperation. The story of the cosmos and our human way of experiencing it as mortal beings is limited by what we humans know as reality. The creative adventure is too mysterious to be

captured both literally and holistically.<sup>14</sup> Adopting a literal exegesis of the Genesis account, the church in many cases saw creation as an event keeping its structure unchanged until the end of time. Now we must engage with the story of evolution not only in earthy and cosmic significance, but in ultimate significance. In the place of the prevailing paradigms, -ranging from 'dead inert matter,' 'survival of the fittest,' -and from 'strict anthropocentrism,' to 'gradualism,' and 'intelligent design,' we need to move to paradigms showing interrelatedness and interdependence of the earthy and cosmic beings, thus starting to know both earth and cosmos as alive and God as source of all life.

### Autopoiesis

*Autopoiesis* refers to the dynamic, self-producing, self-maintaining network of production processes within organisms. We may know ourselves as metabolic systems, networks of chemical and energetic transformations. To qualify as an autopoietic, metabolizing entity, the entity must be bounded by membranes made by its own metabolism. Anne Primavesi describes organisms as bounded by membranes or skin. She refers to the scientific markings that in our cells provide the oxidative energy, enabling us to do anything to live, the mitochondria, beings with their own DNA and RNA that form alliances with us.<sup>15</sup> According to her, if this knowing is pursued to its conclusions, it can subvert the accepted order of things, reverse subject-object relations and question subjectivity. Interrelatedness makes membranes and skin today, to be known as channels of unity, not of separation within the world. Interrelatedness surpasses the idea of natural selection and the idea of the survival of the fittest. Theologically perichoresis transcends the scientific idea of interrelatedness and knows the relations of God and the world as extending towards the entire creation. Perichoresis overcomes all boundaries. The entire creation exists within its creator, sustainer, and recreator.<sup>16</sup>

### Creation and Evolution in the Bible

In the biblical text, the concepts of creation and evolution do not contradict each other 'evolution' is included in the course of 'creation.' In the creation of the plants the addressed subject is the earth, empowered to maternal participation in the creative act. The life of the plants has its immediacy to the earth and her creative power: it springs from her and returns to her.<sup>17</sup> God offers the earth the capacity to bring forth plants by itself.<sup>18</sup> The voice of God and God's command offered to the earth is the capability to generate plants and fructify in the future.<sup>19</sup> In the same way God lets the water to teem with living creatures. (Gen 1.20). The aperture for truth yields a different view from that of scientific skepticism that views evolution as random, blind, devoid of purpose, or ultimate meaning.<sup>20</sup> In our cultures, still influenced by dualistic fragmentation, we must grasp that we

intimately belong to the cosmic story which is unfolding *within God*, the creator of the cosmos.

### Towards a Holistic Worldview

Sciences do not offer a safe method to show the reality of nature or the nature of reality, but they offer metaphors to discuss it.<sup>21</sup> Emphasis on the parts of the old paradigm is called mechanistic, atomistic, reductionistic. In the new paradigm the emphasis is on holistic, organismic, ecological approaches.<sup>22</sup> Mechanism's analytical thinking pulls something apart to study it; holism always puts everything into a wider context.

Biology stressed the view of living organisms as integrated wholes, and is now enriched by the new science of ecology that studies the ecosystems.<sup>23</sup> Some features of systems thinking emerged from the insights of organismic biologists, such as: connectedness, relationships; context.<sup>24</sup> Ecology backed up by 'holism' provided a systemic case. Nature is active and alive; no link of an interrelated chain can be removed, without damaging the whole chain. Any part takes its meaning and depends on the entire context.<sup>25</sup> In the 1920s the Newtonian motion-rules of particles were found to be wrong in the sub atomic level; neither the wave nor the particle view was correct.<sup>26</sup> The continuum between particles/waves and matter/energy was challenging the view of a particle as separate from wave. The electron, thought to behave like a particle in cases, behaved like a wave or neither.<sup>27</sup>

### Relativity Theory

Relativity theory describes space/time/matter as interconnected and integrated. It puts an end to the idea of absolute time and Newton's laws of motion for the idea of place in space.<sup>28</sup> Now open-space is known as the relation of past and future where this mutual relation brings about the now.<sup>29</sup> Any being realizes its any *now* in space/time as different from any other *now* of its life; from any *now* of any other being's life.<sup>30</sup> This theory helps us know the ecosystems as always moving, being open to the new. Church Father Basil the Great discusses time as follows: Is not this, the nature of time, where the past is no more, the future has not yet appeared, and the present flees before being identified? Such is the nature of things happening within time, growing or perishing without stability. Animals and plants bound up with the flow, captured by the motion that leads them to birth or death, were included in the nature of time, similar to always changing beings.<sup>31</sup> The flow of energy plays a unifying role within an ecosystem; it depends on the food cycles and is the power for their functioning. The energy-source for the biosphere is the light of the solar radiation. The plants reserve solar energy for the planet's organisms.<sup>32</sup> Life depends on light: Light through plants sustains life on earth and the photosynthesis-cycle.<sup>33</sup> Both light as energy and quantum theory opened the way in physics for humans to enter the quantum world.

### Big Bang

A holistic worldview has its limits, just as any new scientific finding is not final or absolute. Stephen Hawking<sup>34</sup> considers any physical theory as a working hypothesis. In its context, knowledge seeking transforms other elements, such as education, economic/legal systems, state projects, etc., and in turn is transformed by them.<sup>35</sup> Joining microcosmic quantum physics with macrocosmic general relativity, space/time together might form a finite space without boundaries. 'Even if there is one possible unified theory, it will be just a set of rules and equations. The scientific approaches of making a mathematical model cannot answer the questions of why a universe should go to all the bother of existing or what it is that breathes fire into the equations that makes a cosmos capable of being described.'<sup>36</sup> Hawking reaches the scientific limits leaving space for theology to seek the Creator who breathes fire into the cosmos.

Scientists speak of the Big Bang and its impact in the first minutes of the existence of the cosmos. The model suggests that at some moment all of space was contained in a single point, considered as the beginning of the cosmos. Originating power brought forth a universe. "All the energy that would ever exist in the course of time erupted in a single quantum existence. Future actions would be powered by the same energy that flared forth at the dawn of time." I add here, my own questions: Where the single point that contained all space was found? Where was originating power that brought forth a universe found? Where was the energy that flared forth at the dawn of time, found?

### Epilogue

We exist within an open cosmic system, where all beings depend on and exist in complex systems of interrelationships, energies and fields. We live in an open system also because we are all interrelated with and depend on our creator, origin and source of all life, who sustains and recreates creation. Christological perichoresis is seen as trinitarian manifestation extending to include all created beings in a coinherence with God and each other. Usually the Fathers as Christological perichoresis place both the latent and spoken Logos who creates, and also the incarnated Logos, who saves and recreates creation, in the context of trinitarian perichoresis.<sup>37</sup>

The model of the scheme of things that ecologists and cosmologists propose is that of the interrelatedness of all the beings and of the natural phenomena in the world. The scientific approach of constructing a mathematical cosmic model cannot answer the question of why the cosmos exists, nor if it needs a creator. Christological perichoresis goes further than the scientific model of interrelatedness by not discussing sets of rules and equations. It speaks of the creator of the cosmos who breathes fire into the equations,<sup>38</sup> sustains and recreates life.

Thus the study of the cosmos in the context of the science-religion dialogue can uncover the cosmic features that manifest the creator and can mean the praising of the creator. The effects of the hypostatic union in Christ between creator and creation extend through the cosmos.<sup>39</sup> God created all that exist, making them tunable among themselves and with God as the relation of origin.<sup>40</sup> An ecological, panentheistic, perichoretic view of creation brings hope for humans as co-members of the cosmos.

In a unitary approach to knowledge, there is no separation between knowledge of the metaphysical, uncreated world on the one hand and knowledge of the natural, created world on the other. The two worlds constitute one, single form of knowledge, for the natural world is perceived as the visible prolongation of realities that are metaphysical. In no way can we possess true knowledge of the physical world without an understanding of the metaphysical, divine world. This is because, divorced from its inner dimension and identity, nothing belonging to the visible world of phenomena can possess any reality at all. "So that what is seen was not made out of what was visible."<sup>41</sup> Perichoresis speaks of all the beings as dependent and interrelated among themselves and with the 'mystery', as source of all life. We cannot survive as self-existent beings, cut off from the creator and the other beings.

A cosmology of the creator creating out of non-being into being and perichorizing towards creation, goes beyond a cosmology where physicality-mystery, phenomenology-metaphysics, body-soul are seen complementarily, yet dualistically. If we see God as ultimate reality within which creation exists and know humanity as one member of the cosmos, we can meet God as mystery. Creation and life itself cannot be discussed just by human scientific theories. Physicality cannot be seen as separated from mystery. God is the ultimate context and reality where the cosmos exists: infinity including finitude; time/space within its creator; God in everything-everything in God. A perichoretic relationship between God and creation cannot be based on only phenomenology, politics of liberation, natural selection, the Gaia or other theories. In God's perichoresis towards creation, which may be extended to include the entire creation, we find the possibility for a free, dialogic interpenetration of the relationships between the divinity and the creation.

## References

<sup>1</sup> This paper concerning evolution, creation and natural selection draws from my doctoral dissertation: I. Sahinidou, What Hope for the Suffering Ecosystems of our Planet? The Contextualization of Christological Perichoresis for the Contemporary Ecocrisis. Frankfurt: Peter Lang, 2014.

<sup>2</sup> A. Primavesi, Sacred Gaia, London and New York: Routledge, 2000, pp.34-6.

<sup>3</sup> The noun Περιχώρησις etymologically is derived from the Greek verb περιχωρέω. Liddell and Scott define περιχωρέω as 'to make room for another' and περί as 'round about.' The Eastern Church Fathers derive both the verb and the noun from Anaxagoras where it means 'rotation, revolution'.<sup>3</sup> The noun περιχώρησις names the dynamic process of making room for another around oneself, or to extend one's self round about. Perichoresis was contextualized from an ancient Greek cosmological context into the Christian, Christological Trinitarian contexts by the Eastern Church Fathers. They used the term for both intra divine relations and those between Christ's two natures.

<sup>4</sup> J. Moltmann, God in Creation. London: SCM Press, 1985, pp.15-7.

<sup>5</sup> N. C. Habel, Readings from the Perspective of Earth. England: Sheffield Academic Press, 2000, p.42.

<sup>6</sup> Colossians, 2. 9.

<sup>7</sup> S. McFague, "Models in Science" in: Metaphorical Theology, Models of God in Religious Language, Philadelphia: Fortress, 1982, pp.102, 194.

<sup>8</sup> Ibid., pp.229-39.

<sup>9</sup> C. Keller, Face of the Deep. London and New York: Routledge, 2003, p.219.

<sup>10</sup> S. McFague, The Body of God. USA: Fortress Press, 1993, pp.149,50.

<sup>11</sup> In Paul's speech to the Athenians in the Areopagus, Acts 17.26-28.

<sup>12</sup> Acts 17.28.

<sup>13</sup> J.C. Emberlin, *Εισαγωγή στην Οικολογία*, (Introduction to Ecology) translation from English into Greek: A. Μελιάδου (Αθήνα: Τυπωθήτω, 1996), σελ.15-38.

<sup>14</sup> B. Swimme, - T. Berry, The Universe Story. New York: HarperSanFrancisco, 1992, p.5.

<sup>15</sup> Cited in A. Primavesi, Sacred Gaia. London, New York: Routledge, 2000, p.17.

<sup>16</sup> A. Primavesi, Sacred Gaia. pp.34-6.

<sup>17</sup> Von Rad, Genesis: a Commentary. Philadelphia: Westminster Press, 1961, p.53.

<sup>18</sup> C. Westermann, The Genesis Accounts of Creation, Biblical Series 7. Philadelphia: Fortress Press, 1964, p.17.

<sup>19</sup> Μ. Βασιλείου Έργα, Basil the Great Works 4 *Εξαήμερος Hexaëmeros*, "Six Days of Creation". Θεσσαλονίκη: Πατερικά Εκδόσεις «Γρηγόριος ο Παλαμάς», 1973, σελ.173-4.

<sup>20</sup> Ibid., pp.14-5.

<sup>21</sup> B. Martin, Chain Reaction, No. 68, (February 1993), pp. 38-39; reprinted in The Raven, vol. 6, no. 4 (October-December 1993), pp.353-356.

<sup>22</sup> Holism came from the Greek word ολο (όλο) that means totality, in L. Boff, Ecology & Liberation. New York: Orbis, 1998, p.11. South African philosopher J. C. Smuts proposed Holism as a philosophical alternative to mechanism in his book Holism and Evolution, 1926.

<sup>23</sup> Ν. Μάργαρης, *Εκο-λογικά Οικο-λογικά*, Αθήνα: Κάκτος, 1983, σελ.20.

<sup>24</sup> Κ. Χατζημπίρος, *Οικολογία, Οικοσυστήματα και Προστασία του Περιβάλλοντος*. Αθήνα: Εκδόσεις Συμμετρία, 2003, σελ.23-4.

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<sup>25</sup> C. Merchant, *The Death of Nature Women, Ecology and the Scientific Revolution*. NY: HarperSanFrancisco, 1980, p.293.

<sup>26</sup> L. S. Feynman, *The Feynman's Lectures on Physics*, volume I. San Francisco: Pearson, 2006, pp.2-6.

<sup>27</sup> L. S. Feynman, *The Feynman's Lectures on Physics*, volume III. San Francisco: Pearson, 2006, p. 1.

<sup>28</sup> C. Clarke, *Living in Connection: Theory and practise of the new World-view*. Warminster: Creation Spirituality Books, 2002, pp.98-101.

<sup>29</sup> The writer who analyzes this perspective on time is the German philosopher M. Heidegger, *On Time and Being*, (trans Joan Stambaugh). New York: Harper & Row, 1972, pp. 14, 13 cited in: Clarke, *Living in Connection*, p.101.

<sup>30</sup> L. Barnett, *The Universe & Dr Einstein*. ΝΕΕ: Mentor books, 1952, pp. 54-5,73,76-7.

<sup>31</sup> Χρήστου & Σ. Ν. Σάκκος (Επόπται), Π. Κ. Μ. Βασιλείου *Έργα 4 Έξαήμερος Α΄*, *Έλληνες Πατέρες τής Έκκλησίας*. Θεσσαλονίκη: Έκδόσεις «Γρηγόριος ο Παλαμάς», 1973, σελ.38-41.

<sup>32</sup> Χατζημπίρος, *Οικολογία, Οικοσυστήματα και Προστασία του περιβάλλοντος*, σελ. 78-79.

<sup>33</sup> Γ. Γραμματικάκης, *Αυτοβιογραφία του Φωτός*. Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης, 2006, σελ.289-93.

<sup>34</sup> S. Hawking, *A Brief History of Time*. London: Bantam Books, 1988.

<sup>35</sup> S. Harding, *Is Science Multi-Cultural Postcolonialisms? Feminisms, and Epistemologies*. Bloomington: Indiana University Press, 1998, p.4.

<sup>36</sup> Hawking, *A Brief History of Time*, pp.13,24,57,71,191-3.

<sup>37</sup> Τοῦ ἐν Ἁγίοις Πατρὸς Ἡμῶν Γρηγορίου τοῦ Θεολόγου Ἀρχιεπισκόπου Κων/πόλεως, *Έπιστολή ΡΑ΄ Β 87 C Προς Κληδόνιον πρεσβύτερον κατὰ Ἀπολλιναρίου*, PG τ. 37, 182.

<sup>38</sup> S. Hawking, *A Brief History of Time*. London: Bantam Books, 1988, pp.192, 3.

<sup>39</sup> Thunberg, *Microcosm and Mediator*, Cited in V. Harrison "Perichoresis in the Greek Fathers", *St Vladimir's Theological Quarterly*, 35(1991), pp.53-65.

<sup>40</sup> Σωτηρόπουλος, *Η Μυσταγωγία του Αγίου Μαξίμου του Ομολογητού*, σελ.150.

<sup>41</sup> Hebrews 11. 3.