

**SCIENCE & CHRISTIAN SPIRITUALITY:**  
*THE RELATIONSHIP BETWEEN CHRISTIAN SPIRITUALITY AND  
BIOLOGICAL EVOLUTION*

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**Abstract:** Many different aspects of science intersect with Christian spirituality. Some of these points of intersection are apparent in astronomy, cosmology, quantum physics, genetics, neuroscience, organic evolution, chemical evolution, technological advances, and environmental science. The purpose of this paper is to examine what the relationship between organic evolution and Christian spirituality. It is important to note that Christian spirituality has varying significances throughout Christendom. For the purpose of this paper I will treat Christian spirituality as the study of the experience of Christian faith and discipleship. This definition will be helpful because it is specific enough to make direct correlations with how one can understand science from a Christian spiritual (faith) perspective.

**Keywords:** evolution; biological evolution; Christian spirituality; Howard van Till; Ian Barbour; John Haught; Michael Denton; science and theology; spirituality

**INTRODUCTION**

Many different aspects of science intersect with Christian spirituality. Some of these points of intersection are apparent in astronomy, cosmology, quantum physics, genetics, neuroscience, organic evolution, chemical evolution, technological advances, and environmental science. The purpose of this paper is to examine what the relationship between organic evolution and Christian spirituality. It is important to note that Christian spirituality has varying significances throughout Christendom. For the purpose of this paper I will treat Christian spirituality as the study of the experience of Christian faith and discipleship. This definition will be helpful because it is specific enough to make direct correlations with how one can understand science from a Christian spiritual (faith) perspective. It is also important to define what organic evolution is since

there are several different meanings associated with it. Organic evolution can simply refer to change over time – changes we can currently observe today in nature such as progressive change in gene frequency.<sup>1</sup> Another important meaning of organic evolution would be that of universal common descent, i.e., that all organisms on Earth are related to one or several common ancestors,<sup>2</sup> i.e. that all living organisms are modified descendants of previous organisms.<sup>3</sup> The theory of organic evolution refers to the mechanisms of how organisms were modified through descent or rather how organic evolution occurred. The main mechanisms proposed for the current paradigm of biology – Neo-Darwinism - is that of natural selection acting on random mutations.<sup>4</sup> Biologists often dispute and are concerned about whether there are other mechanisms and possibilities as to how organic evolution occurred.<sup>5</sup> Throughout the paper when I refer to organic evolution, I am referring to the Neo-Darwinian model. I will specify when this is not the case.

I have adopted three segments of a fourfold typology proposed by theologian and nuclear physicist Ian G. Barbour. Ian Barbour's fourfold typology appeared in his book: *When Science Meets Religion* (2000), which include: conflict, independence, dialogue and integration. I have omitted the relationship of dialogue for several reasons, some of which include; adhering to a reasonable/manageable length for the paper, interest and also relevance. I believe that the three other relationships I

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<sup>1</sup> George B. Johnson and Peter H. Raven, *Biology* (St. Louis: Mosby College Publishing, 1989), 367.

<sup>2</sup> The prevailing view is that there is only one universal common ancestor but some biologists have questioned the viability of such a position. J. Craig Venter, for instance, has challenged the one common ancestor view which famous evolutionary biology popularizer, Richard Dawkins has defended without end. To see an interesting exchange between the two, see *The Great Debate – What is Life?* February 2, 2011, accessed October 20, 2017, <http://thesciencenetwork.org/programs/the-great-debate-what-is-life/what-is-life-panel>

<sup>3</sup> Michael Ruse, *Taking Darwin Seriously: A Naturalistic Approach to Philosophy* (New York: Prometheus Books, 1998), 1.

<sup>4</sup> Ruse, *Taking Darwin Seriously*, 18.

<sup>5</sup> There a number of other mechanisms which biologists are examining, as found with the Extended Synthesis, but for the purposes of this paper we will not examine this, as I have in other works of mine.

have selected are the most relevant in the contemporary discussion of the relationship between Christian spirituality and biological evolution.

Ian Barbour was the recipient of the “1999 Templeton Prize for Progress in Religion for his pioneering role in advancing the study of religion and science.”<sup>6</sup> Although Barbour’s fourfold typology was proposed to delineate the varying positions between science and religion, as a whole enterprise, it still provides extremely valuable insight for the relationship between science and Christian spirituality. Ted Peters, Willem Drees, and John Haught have also proposed several other typologies.<sup>7</sup> For the purposes of this paper, Barbour’s typology is the most concise and useful. The discussion of each type of relation will include sub-sections. For the relation of conflict, the sub-sections include biblical literalism and scientific materialism. For independence the sub-sections include contrasting domains and methods, and primary and secondary causes. For the final relational typology of integration, the sub-section is evolutionary design. A detailed analysis of each of the three positions will be provided through the differing views of scientists, philosophers and theologians.

The relationship between science and spirituality is important because of a shift in our Western worldviews. Before the age of enlightenment, the relationship between science and Christian spirituality seemed much more clearer than it is now. In many instances, science does the work of science and has nothing to say about Christian spirituality. This is especially true when science deals with somewhat metaphysically neutral questions such as the number of elements in the periodic table or how nature behaves under a set of given parameters. However, when dealing with questions of origins such, as cosmological or biological origins, the relationship is not so clear. Over 150 years ago, according to the majority of scientists, God’s creation seemed to have a strong affinity with biblical interpretations. However, for the majority of scientists, such appropriations are either not apparent or are even non-existent in our current contemporary view of the world.

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<sup>6</sup> Ian G. Barbour, *When Science Meets Religion: Enemies, Strangers, or Partners?* (New York: Harper Collins, 2000), back cover.

<sup>7</sup> Barbour, *When Science Meets Religion*, 4.

## BARBOUR'S FIRST TYPOLOGY: CONFLICT

### *Biblical Literalism*

There are a group of scientists around the world, which expound an idea known as Scientific Creationism. A large group of these scientists, that are often labeled, Young Earth Creationists (YEC), belong to affiliations such as the *Institute for Creation Research* and *Answers in Genesis*.

Richard Dawkins, a Zoologist and one of the world's most famous living atheists has at times attacked proponents of creationism. He has stated before that: "A few so called "creation scientists" are much touted as possessing PhDs, but it does not do to look too carefully where they got their PhDs from nor the subjects they got them in. They are, I think, never in relevant subjects."<sup>8</sup> Despite Richard Dawkins' claim and the media's dishonest portrayal of YEC scientists, many of them have respectable credentials with doctorates from reputable universities and a number in relevant subjects such as biology.<sup>9</sup>

Aside from their respectable credentials in the relevant scientific discipline, they are in conflict with the findings of modern science. Young Earth Creationists hold to the presupposition that the biblical account of Genesis is literally true, as hydraulic engineer, Henry M. Morris states:

Rather than outmoded folklore, as most critics allege, the creation chapters of Genesis are marvelous and accurate accounts of the actual events of the primeval history of the universe. They give data and information far beyond those that science can determine.<sup>10</sup>

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<sup>8</sup> Richard Dawkins "The 'Alabama Insert' " in *Charles Darwin: a Celebration of His Life and Legacy* ed. James Bradley and Jay Lamar (Montgomery, AL: NewSouth Books, 2013), 6.

<sup>9</sup> See Denyse O'Leary, *By Design or by Chance?* (Kitchener: Castle Quay Books, 2004), 137-140; Ed. John F. Ashton, *In Six Days: Why fifty scientists choose to believe in creation* (Green Forest: Master Books, 2001); *Scientists in Biological Sciences: Online: Institute for Creation Research*, accessed August 10, 2015, [http://www.icr.org/research/index/research\\_biosci](http://www.icr.org/research/index/research_biosci)

<sup>10</sup> Henry M. Morris, *Scientific Creationism* (Green Forest: Master Books, 1974), 203.

By holding such a presupposition they automatically reject the findings of modern biology and geology if they conflict with scripture. In the book that put modern creationism on the map in 1961, *The Genesis Flood: The Biblical Record and Its Scientific Implications*, written by Henry M. Morris and theologian, John C. Whitcomb, who both explicitly state, their work was influenced by their presupposed interpretation of scripture: “We realize of course, that modern scholarship will be impatient with such an approach. Our conclusions must unavoidably be colored by our Biblical presuppositions, and this we plainly acknowledge.”<sup>11</sup> Their rejection of both the principle of uniformitarianism in geology and the theory of evolution in biology is geared around their understanding of scripture. For the young earth creationist, their interpretation of scripture is what dominates their understanding of the natural world. Consequently, it pins their notion of Christian spirituality at odds with the accepted modern view of science.

### ***Scientific Materialism***

According to Barbour, “[m]aterialism is the assertion [and belief] that matter is the fundamental reality in the universe.”<sup>12</sup> Moreover, materialism is a formulation of metaphysics – “a set of claims concerning the most general characteristics and constituents of reality.”<sup>13</sup> According to Ian Barbour, scientific materialism makes a second claim that “the scientific method is the only reliable path to knowledge.”<sup>14</sup> Such assertions make Christian spirituality into an unacceptable, unwarranted, superfluous and superstitious type of belief because according to such a view there is no empirical evidence to support it. Furthermore, according to Barbour, this makes “science alone objective, open-minded, universal, cumulative and progressive.”<sup>15</sup> Socio-biologist, Edward O. Wilson has dedicated his career to reducing all human

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<sup>11</sup>Henry M. Morris and John C. Whitcomb, *The Genesis Flood: The Biblical Record and Its Scientific Implications* (New Jersey: Presbyterian and Reformed Publishing Co., 1961), xii.

<sup>12</sup> Barbour, *When Science Meets Religion*, 11.

<sup>13</sup> Barbour, *When Science Meets Religion*, 11.

<sup>14</sup> Barbour, *When Science Meets Religion*, 11.

<sup>15</sup> Barbour, *When Science Meets Religion*, 12.

behavior as being explicable by “its biological origins and present genetic structure.”<sup>16</sup> Wilson states that “It may not be too much to say that sociology and the other social sciences, as well as the humanities, are the last branches of biology”, that should be included into evolutionary theory.<sup>17</sup> Such reductionist views, uphold that all scientific theories and laws are reducible to the “laws of physics and chemistry.”<sup>18</sup> This view is promulgated vociferously by scientific materialists and pits Christian spirituality in direct conflict with such a view of evolutionary theory. Daniel C. Dennett in his book, *Breaking The Spell* (2006) applies such a reductionist view in an attempt to explain religion and spirituality as a natural phenomenon: “I might mean that religion is natural as opposed to supernatural, that it is a human phenomenon composed of events, organisms, objects, structures, patterns, and the like that all obey the laws of physics or biology, and hence do not involve miracles. And that is what I mean.”<sup>19</sup>

Richard Dawkins elucidates the notion of scientific materialism as being directly opposed to any form of Christian spirituality. In his book, *The Blindwatchmaker: Why The Evidence of Evolution Reveals a Universe Without Design* (1986), he writes quite eloquently on the power of natural selection acting on random mutations for creating all the organisms and structures of organisms that have ever existed on the earth. The book is a treatise against the argument of design, notably as a response to William Paley’s highly influential book, *Natural Theology: or, Evidences of the Existence and Attributes of the Deity* (1802) where he expounds the argument of design for living entities with the example of a watch, as an analogy to the observable integrated complexity of living organisms:

But suppose I had found a watch upon the ground, and it should be inquired how the watch happened to be in that place; I should hardly think of the answer which I had before given, that, for

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<sup>16</sup> Barbour, *When Science Meets Religion*, 13.

<sup>17</sup> Edward O. Wilson, *On Human Nature: The New Synthesis* (Cambridge: Cambridge University Press, 1978), 4.

<sup>18</sup> Barbour, *When Science Meets Religion*, 11

<sup>19</sup> Daniel C. Dennett, *Breaking The Spell: Religion As A Natural Phenomenon* (New York: Penguin Group Inc., 2006), 25.

anything I knew, the watch might have always been there...the inference, we think, is inevitable, that the watch must have had a maker; that there must have existed at some time, and at some place or other, an artificer, or artificers, who formed it for the purpose which we find it to actually answer...and designed its use.<sup>20</sup>

Charles Darwin himself was heavily persuaded by this argument early on in his life but subsequently substituted the process of natural selection for a divine designer due to his years of researching the natural world; a view that Richard Dawkins unceasingly defends. Dawkins refers to the design or complexity of biological organisms as being an apparent design, a mere illusion and thus ultimately propels him to reject theism:

An atheist before Darwin could have said, following Hume: "I have no explanation for complex biological design. All I know is that God isn't a good explanation, so we must wait and hope that somebody comes up with a better one." I can't help feeling that such a position, though logically sound, would have left one feeling pretty unsatisfied, and that although atheism might have been *logically* tenable before Darwin, Darwin made it possible to be an intellectually fulfilled atheist.<sup>21</sup>

For the scientific materialist, biological evolution and Christian spirituality are in obvious conflict - ultimately undirected natural processes seemingly make God unnecessary. This is made abundantly clear by one of the father's of the Neo-Darwinian synthesis, George Gaylord Simpson, in his book *The Meaning of Evolution* (1967):

Although many details remain to be worked out, it is already evident that all the objective phenomena of the history of life can be explained by purely naturalistic or, in a proper sense of the

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<sup>20</sup> William Paley, *Natural Theology: or, Evidences Of The Existence And Attributes of The Deity* (London: Thomas Tegg, 1824), 1-3.

<sup>21</sup> Richard Dawkins, *The Blind Watchmaker: Why The Evidence of Evolution Reveals A Universe Without Design* (London: Norton, 1986), 6.

sometimes abused word, materialistic factors. They [the objective phenomena of the history of life] are readily explicable on the basis of differential reproduction in populations [meaning natural selection], and the mainly random interplay of the known processes of heredity [in other words random mutation]. Therefore, man is the result of a purposeless and natural process that did not have him in mind.<sup>22</sup>

Aside from having a large amount of details left to work out, where does Simpson get the authority to make such a grandiose claim? Similar metaphysical claims made by scientific materialists have penetrated the popular scientific literature. Moreover, Dawkins' notion that Darwinian Theory alone makes it possible to be an intellectually fulfilled atheist, leave the foundation for his atheism as flimsy as a deck of cards.<sup>23</sup> Michael Ruse a philosopher of science, shrewdly observed, as demonstrated by the previous quote, that Darwinian evolution for scientific materialists had become more than just a scientific theory:

Evolution is promoted by its practitioners as more than mere science. Evolution is promulgated as an ideology, a secular religion – a full-fledged alternative to Christianity, with meaning and morality. I am an ardent evolutionist an ex-Christian, but I must admit that in this one complaint – and [Dr.] Gish [a proponent of Scientific Creationism] is but one of many to make it – the literalists are absolutely right. Evolution is a religion. This was true of evolution in the beginning, and it is true of evolution still today.<sup>24</sup>

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<sup>22</sup> George Gaylord Simpson, *The Meaning of Evolution* (New Haven: Yale University Press, 1967), 345.

<sup>23</sup> For a thorough criticism of Dawkins' shallow atheism, see Scott Ventureyra, Dawkins' Unholy Trinity: Incoherency, Hypocrisy and Bigotry, *Crisis Magazine*, November 26, 2014, <http://www.crisismagazine.com/2014/dawkins-unholy-trinity-incoherency-hypocrisy-bigotry>

<sup>24</sup> Michael Ruse, "How Evolution Became A Religion," *The National Post*, B1,B3 and B7, May 13, 2000. For a further explanation of this quote, see Michael Ruse, "Is Darwinism a Religion?" *The Huffington Post*, September 20, 2011, [http://www.huffingtonpost.com/michael-ruse/is-darwinism-a-religion\\_b\\_904828.html](http://www.huffingtonpost.com/michael-ruse/is-darwinism-a-religion_b_904828.html)



There is an undeniable conflict for the scientific materialists between Christian spirituality and organic evolution. The materialists make Christian spirituality seem superfluous, almost fairytale like because of their strong metaphysical presuppositions that deny the existence of a transcendent and spiritual reality beyond the material world.

## BARBOUR'S SECOND TYPOLOGY: INDEPENDENCE

### *Contrasting Domains and Methods*

If science and Christian spirituality ultimately function for different purposes through occupying different domains of knowledge then they cannot be in conflict. In 1984 the National Academy of Science in the United States, published a pamphlet in response to the rising challenges proposed by scientific creationism.<sup>25</sup> The pamphlet that was produced explicitly stated that science and religion have absolutely nothing to do with each other: "Religion and science are separate and mutually exclusive realms of human thought whose presentation in the same context leads to misunderstanding of both scientific theory and religious belief."<sup>26</sup> This proposition was initially created as an attempt to silence religious groups from intervening in the public school teaching of evolution.

Alister E. McGrath, both a theologian and a molecular biophysicist, in his book *Dawkins' God: Genes, Memes and the Meaning of Life* (2005) - a thorough critique of Richard Dawkins' view of genetic determinism, holds the view that science leads neither to atheism nor in the direction of Christian spirituality: "the scientific method is incapable of delivering a decisive adjudication of the God question. Those who believe that it

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Dr. Ruse is a highly regarded philosopher of science who testified in the "Creation Science" statute in *McLean vs. Arkansas*.

<sup>25</sup> Barbour, *When Science Meets Religion*, 99.

<sup>26</sup> Resolution of the Council of the National Academy of Sciences (1981), cited in *Science and Creationism: A View from the National Academy of Sciences* (Washington, DC: National Academy Press, 1984), 6.

proves or disproves the existence of God press that method beyond its legitimate limits, and run the risk of abusing or discrediting it.”<sup>27</sup>

The late Stephen J. Gould, a world renowned paleontologist and professor at Harvard University, held a similar position and trumpeted the idea of non-overlapping magisteria (NOMA). Although Gould was an agnostic he had a deep respect for religion – he was brought up in a Jewish family.<sup>28</sup> In his book *Rocks of Ages* (1999), Gould states what he means by NOMA:

magisterium of science covers the empirical realm: what is the universe made of (fact) and why does it work this way (theory). The magisterium of religion extends over questions of ultimate meaning and moral value. These two magisteria do not overlap, nor do they encompass all inquiry (consider, for example, the magisterium of art and the meaning of beauty). To cite the old clichés, science gets the age of rocks, and religion the rock of ages; science studies how the heavens go, religion how to go to heaven.<sup>29</sup>

Richard Dawkins has been quite critical of Gould’s NOMA, suggesting it was not a satisfying neither respectable concession made to religious views: “Gould carried the art of bending over backwards to positively supine lengths in one of his less admired books, *Rocks of Ages*.”<sup>30</sup>

### ***Primary and Secondary Causality***

Barbour observes that: “Since the days of Thomas Aquinas, many Catholic authors have held that God as primary cause works through the secondary causes that science investigates.”<sup>31</sup> These two types of causes function at inherently different levels, the scientific method can proceed on its own terms without reference to Christian spiritual or theological

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<sup>27</sup> Alister E. McGrath, *Dawkins’ God: Genes, Memes and the Meaning of Life* (Oxford: Blackwell Publishing, 2005), 53.

<sup>28</sup> Stephen J. Gould, *Rocks of Ages: Science and Religion in the Fullness of Life* (New York: The Ballantine Publishing Group, 1999), 7.

<sup>29</sup> Gould, *Rocks of Ages*, 6.

<sup>30</sup> Richard Dawkins, *The God Delusion* (New York: Houghton, 2006), 55.

<sup>31</sup> Barbour, *When Science Meets Religion*, 102.

ideas.<sup>32</sup> What the scientist can observe in nature, as Barbour states: “is complete on its own level, with no gaps in which God sustains and makes use of the whole natural sequence.”<sup>33</sup> This is a position employed by the physicist Howard Van Till, who is part of the Reformed tradition.<sup>34</sup> Van Till holds to a form of Theistic Evolution he refers to as “Full Gifted Creation”<sup>35</sup> or “The Creationomic Perspective.”<sup>36</sup> He suggests that both views of special creation/scientific creationism – biblical literalism and scientific materialism – naturalistic evolutionism are both inadequate views. Van Till rejects scientific materialism “because it fails to see the cosmos as Creation.” Moreover, he also rejects scientific creationism because it “it fails to present the full biblical concept ... [and] it presents a created world the properties, behavior, and history of which are quite different from those that we actually observe.”<sup>37</sup> He attempts to demonstrate that there is a credible alternative to this dichotomy; one that is so often pushed by the two opposing views between scientific creationists and the scientific materialists. However, the findings of science can help provide a fuller picture for God’s creation that can enrich one’s own Christian spirituality. He sees “natural science and Christian theology functioning as mutually informative enterprises [that] lead [him] to reject the simplistic either/or format of the creation-evolution debate.”<sup>38</sup>

This allows him to regard the universe as being immersed with potentialities to allow certain evolutionary pathways to occur. God allows creation to be autonomous – having the capability for self-organization and transformational processes to produce varying complex structures without direct divine intervention. Van Till refers to this concept as “creation’s formational economy.”<sup>39</sup> By this Van Till means

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<sup>32</sup> Barbour, *When Science Meets Religion*, 102.

<sup>33</sup> Barbour, *When Science Meets Religion*, 102.

<sup>34</sup> Barbour, *When Science Meets Religion*, 102.

<sup>35</sup> Howard Van Till, “The Fully Gifted Creation” in *Three Views on Creation and Evolution*, eds. J.P. Moreland and John Mark Reynolds (Grand Rapids: Zondervan, 1999), 161.

<sup>36</sup> Howard Van Till, *The Fourth Day: What the Bible and the Heavens are telling us about the Creation* (Grand Rapids: Eerdmans, 1986), 250.

<sup>37</sup> Van Till, *The Fourth Day*, 249.

<sup>38</sup> Van Till, “*The Fully Gifted Creation*,” 177.

<sup>39</sup> Van Till, “*The Fully Gifted Creation*,” 184.

“a particular set of resources and capabilities with which the creation has been gifted by God, those resources and capabilities that constitute its being.”<sup>40</sup> Scientists can only study the physical attributes of creation but “a purposeful pattern can be discerned only in a context wider than science,”<sup>41</sup> namely through a Christian spiritual interpretative framework. Despite Van Till’s insistence that God’s creation is self-sustaining without the necessity for divine intervention, he does suggest that the world is open to potential divine action for the purpose of special revelation or redemptive acts.<sup>42</sup> Van Till’s view shows a great respect to the current paradigm in biology, Neo-Darwinism, while striving to maintain a biblical framework. Yet, Ian Barbour suggests that it is not a wholly satisfying position since it “does not fully represent the biblical idea that God has a more active and responsive role in nature and history.”<sup>43</sup> Within the book, *Three Views on Creation and Evolution* (1999), a couple of responses are offered to Van Till’s “Fully Gifted Creation” position. Vern S. Poythress believes Van Till is overestimating the viability of the current Neo-Darwinian model, since it heavily relies on solely naturalistic explanations in order to explain the data:

On the question of evolution, I do not endorse Van Till’s idea of simply relying on scientific specialists to determine the most viable theory. For several reasons current scientific training seriously biases people toward expecting wholly naturalistic explanations... absorption of accepted assumptions and interpretations, and the lack of an alternative that would fit within the same framework of assumptions.<sup>44</sup>

Despite some criticisms that should be given some serious thought, the notion of a “Fully Gifted Creation” provides an interesting alternative, which to many can be an intellectually satisfying outlook on the

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<sup>40</sup> Van Till, “*The Fully Gifted Creation*,” 184.

<sup>41</sup> Barbour, *When Science Meets Religion*, 103.

<sup>42</sup> Barbour, *When Science Meets Religion*, 103.

<sup>43</sup> Barbour, *When Science Meets Religion*, 103.

<sup>44</sup> Howard Van Till, “The Fully Gifted Creation” with a response by Vern S. Poythress in *Three Views on Creation and Evolution*, 239.

independent relationship of primary and secondary causal activity between the relational investigations of Christian spirituality with biological evolution.

## BARBOUR'S THIRD TYPOLOGY: INTEGRATON

### *Evolutionary Design*

Does evolution follow a particular path or direction? Is it possible that God preordained some sort of cosmic blueprint for evolution? These types of question have lingered in the minds of evolutionists even before the publication of *On the Origin of Species* (1859). Is it truly possible that in some way evolution can be directed? The pattern of the history of life does not seem to conform to a certain linear direction – it branches off at many instances and often times, many organisms die off.<sup>45</sup> However, one thing seems certain, as Barbour recognizes, is that the “overall trend toward greater complexity, responsiveness, and awareness...who can doubt that a human being represents an astonishing advance over an amoeba or a worm.”<sup>46</sup>

Despite evolutionary history's propensity to increase in complexity, chance seems to play a substantial role in the evolutionary process. Barbour explains the role of change: “Chance is pervasive in evolution, including mutations and genetic recombinations. The comet believed to be responsible for the extinction of the dinosaurs could not have been predicted from evolutionary history.”<sup>47</sup> Noble Prize winning biochemist Jacques Monod echoes the vitality of chance in the evolutionary process: “chance alone is at the root of every innovation, of all creation in the biosphere. Pure chance, absolutely free but blind, at the very root of stupendous edifice of evolution.”<sup>48</sup> Dawkins vehemently disagrees, he believes randomness or chance plays a small role in evolution, his focus is the non-random component, that of natural selection.<sup>49</sup> Of course

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<sup>45</sup> Barbour, *When Science Meets Religion*, 111.

<sup>46</sup> Barbour, *When Science Meets Religion*, 111.

<sup>47</sup> Barbour, *When Science Meets Religion*, 112.

<sup>48</sup> Jacques Monod, *Chance & Necessity*, trans. Austryn Wainhouse (New York: Alfred A. Knopf Inc., 1971), 112-113.

<sup>49</sup> Dawkins, *The Blind Watchmaker*, 49.

evolution contains both deterministic (non-random) components and stochastic (random) components. But which is more significant? Mathematician and Philosopher, David Berlinski believes that “chance lies at the beating heart of evolutionary theory.”<sup>50</sup>

Francis S. Collins, director of the Human Genome Project, in his recent book, *The Language of God* (2006), attempts to explain role of chance: “the solution is ready at hand, once one ceases to apply human limitations to God. If God is outside of nature, then He is outside of space and time... evolution could appear to us to be driven by chance, but from God’s perspective the outcome would be entirely specified.”<sup>51</sup> Therefore, according to Collins, the element of chance may just be a mere illusion – God can in a hidden way, not detectable through the scientific method, be “intimately involved in the creation of all species while from our perspective, limited as it is by the tyranny of linear time, this would appear a random and undirected process.”<sup>52</sup> Yet, this position seems rather unsatisfying for Christian spirituality. How can an all, loving God be held responsible for mutations that are harmful or lethal? What about the fact that life on Earth flourishes on the demise of other life? As Robert John Russell makes clear: “Life feeds on life: without death, the ecosystems of our world would not be possible, and without extinction, the evolution of complex life would have not occurred.”<sup>53</sup> What about free will and creation’s autonomy? There are too many extinct species and a tremendous amount of suffering that has occurred through life’s history to associate all events with God’s precise action. God does not necessarily need to be controlling every detail of the evolutionary process but can allow for certain events to transpire – giving creation an element of autonomy. Chance can be a component of an overall design, not incompatible with it.<sup>54</sup> Robert John Russell in his

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<sup>50</sup> David Berlinski, “The Deniable Darwin” in *Uncommon Dissent: Intellectuals Who Find Darwinism Unconvincing*, ed. William A. Dembski (Delaware: ISI Books, 2004), 268.

<sup>51</sup> Francis S. Collins, *The Language of God: A Scientist Presents Evidence for Belief* (New York: Free Press, 2006), 205.

<sup>52</sup> Collins, *The Language of God*, 205.

<sup>53</sup> Robert John Russell, “Natural Sciences” in *The Blackwell Companion to Christian Spirituality*, ed. Arthur Holder (Oxford: Blackwell Publishing, 2005), 336.

<sup>54</sup> Barbour, *Science*, 113.

article, “Natural Sciences” proposes an interesting outlook in addressing the question of life’s suffering in redemptive terms: “this expands the scope of Christ’s (com)passion, then our experience of the presence of God in and with the suffering of the poor and oppressed should now include all living creatures... Can we then understand the hope offered by Christ’s resurrection to include all living creatures?”<sup>55</sup>

Aside from questions of randomness and suffering, how can evolutionary design possibly occur? Some contemporary concepts associated with evolutionary design involve God designing a self-organizing system. Such a concept is closely linked with Stuart Kauffman’s idea of self-organizational processes. Kauffman has analyzed similar patterns

in the integrated behavior of systems that appear very different, such as molecules, cells, neural networks, ecosystems, and technological and economic systems. In each case feedback mechanisms and nonlinear interactions make cooperative activity possible in larger wholes.<sup>56</sup>

Observing such relations between such differing systems has provided insights on chemical evolution and the Cambrian explosion – regarding the origins and transfer of information rich systems (non-repeating and specified).<sup>57</sup> Although Kauffman’s ideas may be speculative, they can provide potentially fruitful insights. The implementation of self-organizing processes that have the potential to produce specified information brings a new outlook in the method of a sophisticated type of design in God’s creation, without direct divine intervention.

Stuart Kauffman’s notion of self-organizational processes is quite complimentary to the views of Michael Denton. Michael Denton an Australian geneticist and medical doctor, was deeply influenced by a

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<sup>55</sup> Russell, “*Natural Science*,” 337.

<sup>56</sup> Barbour, *When Science Meets Religion*, 105.

<sup>57</sup> Stuart Kauffman, *At Home in the Universe: The Search For the Laws of Self-Organization and Complexity* (New York: Oxford University Press, 1995), 13, 14, 199-201.

book by Lawrence Henderson, *The Fitness of the Environment* (1913).<sup>58</sup> A book which, according to Denton, “examines all the properties of the key building blocks of life – water, carbon dioxide, carbon compounds, basic biochemical processes like hydrolysis and oxidation.”<sup>59</sup> In 1999, Denton wrote a book named *Nature’s Destiny: How the Laws of Biology Reveal Purpose in the Universe*, which greatly expanded and updated Henderson’s text with the aid of modern scientific knowledge. Henderson’s book was restricted to demonstrating that natural law was finely calibrated to produce an environment extremely fit for life. Denton took the concept further extending it to explain how “life’s constituent forms [that] are “lawful” rather than contingent assemblages of matter.”<sup>60</sup> He suggests that the

possibility of evolution by natural law – the idea that physical law may be a major determinant of organic order...[and that] many simple organic forms were indeed determined by natural law – the round shape of the cell and the flat shape of the cell membrane are well known examples.<sup>61</sup>

Moreover, he envisioned Kauffman’s ideas of self-organizational processes as directing evolution “[through] prearranged paths, by mechanisms which would not have necessitated any sort of specific directed mutations in the DNA sequence space.”<sup>62</sup> Denton believes his claims are quite consistent with some of Kauffman’s:<sup>63</sup> “We will have to see that we are all natural expressions of a deep order. Ultimately, we will discover in our creation myth that we are expected after all.”<sup>64</sup> The notion of natural law influencing the direction of the evolutionary

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<sup>58</sup> Michael J. Denton, *Nature’s Destiny: How the Laws of Biology Reveal Purpose in the Universe* (New York: The Free Press, 1998), xvi-xvii.

<sup>59</sup> Michael J. Denton, “An Anti-Darwinian Intellectual Journey: Biological Order as an Inherent Property of Matter” in *Uncommon Dissent: Intellectuals Who Find Darwinism Unconvincing*, ed. William A. Dembski (Delaware: ISI Books, 2004), 167.

<sup>60</sup> Denton, “An Anti-Darwinian Intellectual Journey,” 169.

<sup>61</sup> Denton, “An Anti-Darwinian Intellectual Journey,” 170.

<sup>62</sup> Denton, “An Anti-Darwinian Intellectual Journey,” 171.

<sup>63</sup> Denton, *Nature’s Destiny*, xvii.

<sup>64</sup> Kauffman, *At Home in the Universe*, 112.



process coupled with Kauffman's speculations of self-organizational processes provides an interesting alternative to the Neo-Darwinian model of evolution, a potential paradigm shift in how we view evolution. If such conceptions prove to be accurate and more scientifically fruitful then we would have a scientific view of evolution more consistent with a traditional outlook of Christian spirituality. One that is not purely mechanistic, seemingly purposeless and undirected as scientific materialists uphold with the Neo-Darwinian synthesis.

## **CONCLUSION**

Among scientists, philosophers and theologians there is a great divide as to precisely what the relationship between Christian spirituality and biological evolution is. Scientific creationists reject evolution because of a literal reading of scripture. Scientific materialists reject all forms of spirituality because they regard the scientific method as the sole begetter of objective truth. Other thinkers regard science and faith as occupying distinct domains that must be approached in different manners. While some scientists and thinkers believe that perhaps the current paradigm of biological evolution may not be the whole truth and needs to be seriously revised. If their hypothesis is correct, it may permit a new type of dialogue between faith and science. Perhaps a paradigm shift in the scientific approach, returning scientists back to a teleological outlook that was lost after the Darwinian revolution. "Science is the search for truth," remarked the chemist and pacifist Linus Pauling, winner of two Nobel prizes. If we follow Pauling's words, Christians can potentially unravel the mystery of how God brought creation into existence and our role in the great evolutionary process of the cosmos. The truth must be exploited from both the spiritual and scientific realms of life. One must use the tools that are at our disposal for uncovering the truth. Since one truth cannot be at odds with another truth. That is to say, the things we discover through science won't contradict that of Scripture. God did not tell us how creation came about in an exact, scientific and material way. Nevertheless, God gave us the capacity and responsibility to comprehend, care for and live in harmony with all elements of the created order. Both science and Christian spirituality can aid us in these endeavours.



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