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Christianity and Darwinism

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Since the publication of *On the Origin of Species* in 1859, some have viewed Christianity and Darwinism as bitter enemies, and others as useful partners in the process of understanding the nature of reality. Current scholarship suggests that Christianity has much to gain from a serious dialogue with Darwinism, particularly in relation to the doctrines of Creation, the Sabbath, Death and Suffering, Christology, and Eschatology. Given the fact that the year 2009 is the 200th anniversary of the birth of Charles Darwin and the 150th anniversary of the publication of *On the Origin of Species*, it is rather fitting to examine Darwinism from the perspectives of both the nature of science and theology. This paper suggests that there may be a case for a more open encounter with the claims of Darwinism, even if Darwinism still fits uncomfortably within a conservative Christian framework.

Introduction

Given Darwinism's central place in modern science, my deep respect for both scientific methodology and Christian faith, and the significance of the year 2009 on the science calendar, it is an opportune time to assess the contribution of Darwinism and Christianity to our understanding of reality. In this paper, the term *Christianity* is taken to refer broadly to those belief systems which regard the historical Jesus of Nazareth (4 BC - AD 29), known as the Christ, the Messiah, and the Son of God, as central to their faith. The term *Darwinism* is taken to refer to that scientific account of the origin of living organisms, proposed by Charles Darwin (1809-1882) and others, which views organisms as having descended with modification from a common ancestor over a very long period of time by processes, one of which is known as natural selection, a view commonly referred to as organic evolution. There are extreme and moderate versions of both Christianity and Darwinism and, in this regard, Ruse (2001, p. 48) suggests that "discussion…of real value" and progress in understanding is more likely to occur between those holding moderate rather than extreme views.

From the late 19th century Darwinism began to split Christianity into two groups: (a) those who concluded that it was impossible to believe in Darwin's theory of evolution and remain a Bible-believing Christian, and (b) those who regarded evolution as offering a deeper understanding of how God went about doing things. It would appear that the two Christian groups who differ in their relationship to Darwinism probably do so on the basis of their understanding of Scripture. While this is too exhaustive a topic to deal with here in any coherent fashion, it is interesting to observe that from the time of Augustine (AD 354-430) there has been debate about the use of biblical texts, often written in an obscure ancient form, for guidance in matters of contemporary knowledge, whether that knowledge be in relation to matters of natural philosophy, history, or some other branch of learning.

In relation to the book of Genesis, Augustine (Collins, 2006) cautioned:

> In matters that are so obscure and far beyond our vision, we find in Holy Scripture passages which can be interpreted in very different ways without prejudice to the faith we have received. In such cases, we should not rush in headlong and so firmly take our stand on one side that, if further progress in the search for truth justly undermines this position, we too fall with it. (p. 83)

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Boyle (1674) noted: "Scripture is designed to teach us about nobler and better truths (divinity), than those in (natural) philosophy" (p.11). One could argue that up until the 17th and 18th centuries, one did not need to take these counsels seriously since, according to Borg (2001), "Theology and science alike took it for granted that the universe was relatively young and the earth and its continents, mountains, oceans, and varieties of life were created in very much the same form in which we now find them" (p.59). Borg goes on to describe the impact of Darwinism on the reading of Genesis as follows:

> The challenge to the factual reading of the Genesis stories of creation was intensified by Charles Darwin's argument for evolution in *On the Origin of Species*, published in 1859. Suddenly the issue was not simply the age of the earth but the development of present life forms from much earlier life forms through natural processes....Some intellectuals and village atheists delighted in using science to debunk the Bible and Christianity. Among Christians, some adjusted quickly to the new scientific claims and integrated them into a non-literal reading of Genesis. Others felt that the truth of the Bible and Christianity were under attack. The controversy continues to this day. (p. 59)

Outspoken atheists, such as Richard Dawkins (1986, 2006), believe that it is impossible to take the Bible seriously in light of Darwinist thinking. In fact, theology, the discipline of the study of God, is a non-event and should be, according to Dawkins, removed from the curriculum of our universities given that God is a delusion. In this regard, Dawkins (2006) takes the side of the Biblical Fundamentalist (a term here used for Christians adhering to a literal reading of the Genesis creation story as a factual account of origins) because it is a literal reading that is most at odds with modern science, and hence he argues that one cannot be a Bible-believing Christian and a Darwinian at the same time. Consequently, he has no time for contemporary biblical scholarship (which does not read the Genesis stories as historically factual accounts), because such scholarship interprets the Genesis stories in such a way that there is no conflict with the methodological naturalism of Darwinism. However, contemporary Bible scholars such as Alister McGrath (2007), do recognize a conflict with Darwinism as metaphysical materialism, a view espoused by Dawkins (1995), which claims that at a fundamental level there is no ultimate meaning to life beyond the marvellous interactions between the particles of matter: "The universe we observe had precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil and no good, nothing but blind pitiless indifference" (p. 133).

The irony of the often hostile relationship between Christianity and Darwinism is that, according to Ruse (2006): "We could not have had the theory (evolution) had not we been living in a Judeo-Christian type of society, asking about origins and about humans and so forth" (p. 212). Given this irony and relatively brief background, I wish to explore (a) what appear to be similarities between the origins of Christianity and Darwinism, (b) the place of Darwinism in modern science, and (c) some recent claims that Darwinism has much to offer Christian theology. Given this agenda, the question of whether there might be an argument for the need of Christians from backgrounds typically hostile to Darwinism to begin to dialogue with it, will be addressed. The study outlined here takes seriously the view of Francis Bacon, Galileo, Robert Boyle, and Michael Faraday, that God speaks to his children through the Book of Scripture and the Book of Nature (see Poole 2007, Chapter 1).

Christian and Darwinist Origins: Some Similarities

In this brief section I would like to suggest a similarity according to the level of acceptability of Christian and Darwinist doctrines during the lifetime of their original expositors (Jesus of Nazareth & Charles Darwin), and the nature of the truth of their expositions in the light of what was publicly believable at the time.

Both Jesus and Darwin gained widespread acceptance of their teachings posthumously (e.g., for Christianity, see Bornkamm, 1973; Frankforter, 1978; for Darwinism, see Bryson, 2003; Schwartz, 1999). As to the matter of the truth of Jesus' and Darwin's expositions, it is reasonable to argue that they often were counter to the common sense of the day. In fact, the very centre of Jesus' message was to overthrow then current views on life, salvation, and religious practice (e.g., Matthew 5:3; Mark 10:14-15; Luke 17:33). When Darwin (1859, p. 148) began to think about the origin of a complex organ like the eye, he agreed that it did not appear to make sense that such an organ could have developed from a primitive eye spot. It made more sense to suggest, like William Paley and his watch, that a designer had orchestrated the manufacture of the eye in one step since, like a watch, the eye could not function efficiently, it was understood, with missing parts. However, Darwin (1859) reasoned that it was perfectly legitimate for the eye to form by a process of natural selection (p. 148). While some of Darwin's contemporaries thought he was being a little optimistic in his assessment, Francis Collins (2006, p. 191), director of the Human Genome project and practising Christian, agrees with Darwin's assessment. The point to be made here is that scientific knowledge, whether in geology, biology, chemistry, or physics, is often counterintuitive. This leads us now to consider the place of Darwinism in modern science.

Darwinism and Modern Science

Biology's theory of evolution by Darwin's natural selection is recognised as one of the biggest ideas in modern science (Atkins, 2003; Wynn & Wiggins, 1997). Daniel Dennett, quoted by Ruse (2006), suggests:

> If I were to give an award for the single best idea anyone has ever had, I'd give it to Darwin, ahead of Newton and Einstein and everyone else. In a single stroke, the idea of evolution by natural selection unifies the realm of life, meaning, and purpose with the realm of space and time, cause and effect, mechanism and physical law. (p. 1)

This is all the more remarkable given the fact that Darwin knew nothing about DNA and genetics, knew nothing about isotopes and radioactive dating techniques, faced a very scant fossil record, and received significant criticism from scientific colleagues of his day. As Poole (2007, p. 97) notes, it is mere folklore that Darwin's theory was welcomed by scientists and opposed by the religions, the truth being that a few theologians and many scientists dismissed Darwinism and evolution. Another part of the folklore concerned the view that Samuel Wilberforce, Bishop of Oxford and Vice President of the British Association for the Advancement of Science and debater of Darwin's theory with Thomas Huxley, was an obscurantist clergyman who opposed science. He, in fact, wrote a review of Darwin's *Origin* which Darwin called "uncommonly clever; it picks out with skill all the most conjectural parts, and brings forward well all the difficulties" (quoted by Poole, 2007, p. 97).

In the face of such strong 19th century criticism of Darwin's theory, how did Darwinism come to be recognized as a unified picture over space and time? To answer this question, we need to present how modern science places Darwin's ideas in the total scheme of things. The development of living organisms across geological space and time, according to modern science, is shown in Table 1, represented by the views of Atkins (2003, p. 29) and Falk (2004, p. 85).

The simplest organisms appear in the oldest rocks and the more complex in the younger rocks. While Darwin could only make a reasonable guess at the age of the earth (far in excess of 300 million years based on erosion rates and suggested in Darwin, 1859, p. 227), the advent of radioactive and cosmological dating techniques in the 20th century affirmed a very old age for the earth (4.6 billion years), and an age within the cosmic timescale (14.5 billion years). If our dating techniques could have proved a relatively young earth or young cosmos, Darwin's theory would have been dismissed immediately. The fact that Darwin's idea of descent with small modifications over a very long time coheres with science's modern timescale, and was proposed without an intimate knowledge of the atom, molecule, and reproductive processes, suggests to some observers (e.g., Polkinghorne, 2005) that Darwin was a genius.

Table 1
Geological, Cosmological, and Biological Space and Time

Millions of years ago	Era	Period	Epoch	Event
0.01	Cenozoic	Neogene	Holocene	
0.15	Cenozoic	Neogene	Holocene	First Homo Sapiens
2	Cenozoic	Neogene	Pleistocene	Ice ages, extinction of large animals
5	Cenozoic	Neogene	Pliocene	Early hominids
25	Cenozoic	Neogene	Miocene	
35	Cenozoic	Palaeogene	Oligocene	
55	Cenozoic	Palaeogene	Eocene	
65	Cenozoic	Palaeogene	Palaeocene	Early mammals
145	Mesozoic	Cretaceous		
205	Mesozoic	Jurassic		First birds and mammals
250	Mesozoic	Triassic		First dinosaurs
290	Mesozoic	Permian		Extinction of invertebrates
350	Mesozoic	Carboniferous		First reptiles
400	Palaeozoic	Devonian		First amphibians, first forests
440	Palaeozoic	Silurian		First air-breathing animals, insects, land plants
500	Palaeozoic	Ordovician		Fish emerge
540	Palaeozoic	Cambrian		First invertebrates
700	Precambrian			First animals
3400	Precambrian			First organisms
4600	Precambrian			Formation of the Earth
14500				Formation of the Universe

What about the advent of modern genetics? Does it give any insight into descent with modification according to Darwin? Falk (2004) summarizes the impact of modern genetics as follows:

> Today geneticists, molecular biologists and computer scientists have read the genetic instructions for dozens of species, and the number will soon climb into the hundreds. Because of this recently acquired ability to read the instruction books of a host of species, we are in a new and exciting era. It allows us to compare the instruction books of similar organisms. In so doing we see things that bring us deep into the past, and the things that we see fit extremely well with what biologists have long predicted about the history of life on this planet. (p. 194)

Collins (2006) suggests that Genomic Studies across organisms:

> provides powerful support for Darwin's theory of evolution, that is, descent from a common ancestor with natural selection operating on randomly occurring variations. At the level of the genome as a whole a computer can construct a tree of life based solely upon the similarities of the DNA sequences of multiple organisms .... Bear in mind that this analysis does not utilize any information from the fossil record, or from anatomical observations of current life forms. Yet its similarity to conclusions drawn from studies of comparative anatomy, both of existent organisms and of fossilized remains, is striking. (pp. 127-128)

On our chromosomes the genes, which are made up of long sequences of DNA bases (A, G, C, & T), code for important proteins. Often there is a segment within coding genes which is made up of a sequence of DNA bases which do not appear to code for anything, a section sometimes referred to as an *intron* or part of junk DNA. This is illustrated in Figure 1(a). Sometimes other non-coding segments, known as *retroposons*, can be inserted into an existing non-coding segment (*intron*) in such a way that, as Falk (2004, p. 191) notes, "there is no mechanism to remove retroposons once they have been inserted, so they are passed faithfully through generation after generation down through the millennia" (see Figure 1b).

(a) ATGGTGCACCTGAC ***ggacttgcatcc*** TCCTGA.....

(b) ATGGTGCACCTGAC***ggacccaaccaaccaaccaattgcatcc*** TCCTGA.....

Figure 1 a) DNA base sequence showing an intron (ggacttgcatcc).
b) DNA base sequence showing an insertion of a retroposon (***ccaa.....***).

Falk (2004) provides an interesting example of this phenomenon in the case of even-toed ungulates and their close relationship to whales and dolphins. It turns out that whales, dolphins and the even-toed ungulates like cows, sheep, deer, giraffes, and the hippopotamus:

> have the retroposon code-named SINE CHR-1 inserted at the same position in a specific intron within a specific gene. On the other hand, more distantly related animals, such as the camel and pig, do not .... It is clear to virtually all geneticists that many millions of years ago the SINE CHR-1 retroposon became inserted into the intron of one gene of an animal that was on the lineage to whales, dolphins, hippos and other even-toed ungulates. Camels and pigs, on the other hand, do not share that ancestral history; hence they do not have the same inserted retroposon. (pp. 191-192)

This information is consistent with the common ancestry diagram in Figure 2, generated from Murphy et al. (2001, pp. 614-618). These molecular techniques have been important in correcting data such as that which traditionally grouped hippopotamuses with pigs, as demonstrated by Shimamura et al. (1997, pp. 666-670).

The ancestry of different organisms can be studied by looking at the DNA segment between coding genes, because more mutations will accumulate in the non-coding DNA segments than in the coding segments over long periods of time. The further apart organisms are in the tree of life, according to Darwin's theory, the more different the DNA segment between coding genes should therefore be. This seems to be borne out in data presented by Collins (2006, p. 127) and shown in Table 2. The kind of evidence presented here suggested to Ruse (2006) that:

> Darwinian biology gains objective status - it is no mere epiphenomenon of culture-because it is epistemically successful. It does what is needed to tell us in a disinterested fashion about the world of experience. It works, and that in the end is why it deserves our attention and support. Until and unless a more powerful rival appears on the scene, that is why we should be Darwinian. (p. 213)

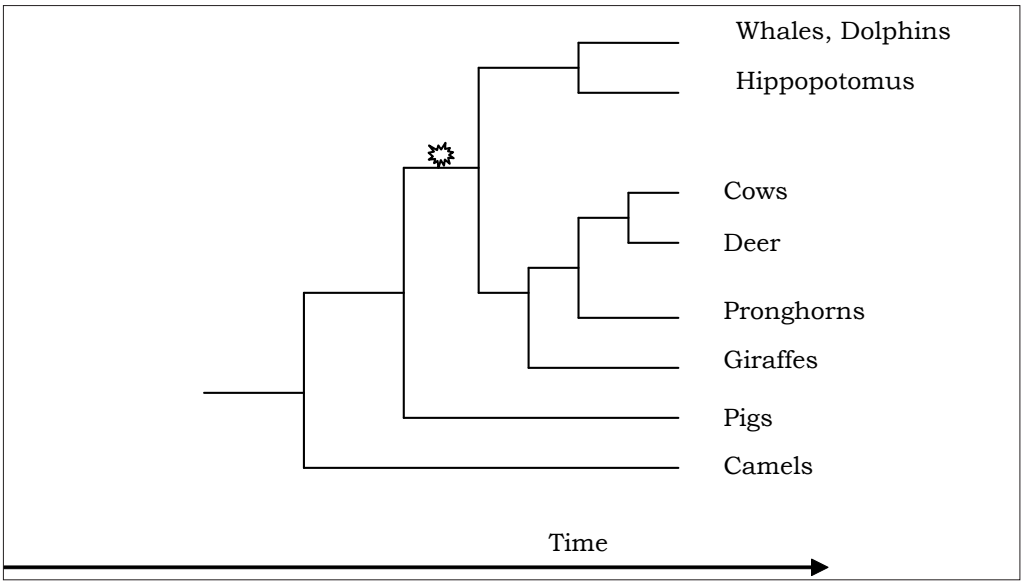

Figure 2 Ancestry of the Cetartiodactyla.
Note. ✵ Approximate time of Ancestral Retroposon Insertion.

When Ruse uses the term *epistemically successful*, he is referring to epistemic desirables such as "coherence, consistency, unifactory power, predictive ability and fertility, and simplicity" (p. 242), and epistemic consilience whereby a theory or model is supported by evidence from reasonably independent sources.

Table 2
Likelihood of Finding a Similar DNA sequence in the Genome of Other Organisms, Compared with a Human DNA Sequence

Organism	Random DNA segment between genes
Chimpanzee	98%
Dog	52%
Mouse	40%
Chicken	4%
Fruit fly	0%
Roundworm	0%

Darwin, in the *Origin*, used data from Instinct Studies, Paleontology, Geographical Distribution, Classification, Morphology, and Embryology, to support his thesis even though data from any one of these sources may have been rather scant in the 19th century. It was his use of the concept of consilience that added great support to his theory. In the 20th century, we can now add data from Cosmology, Dating Techniques, and Molecular Genetics to the consilience profile.

In the attempt to bring together data from different areas of study, a scientist will often face anomalies. This is certainly the case with Darwinian Studies. A fossil record that shows sudden emergence of life forms (e.g., in the Cambrian Explosion) rather than the expected gradual emergence of life forms, still presents as an anomaly. The still reasonably limited evidence of transitional species in the fossil record is always puzzling, although there have been quite important discoveries and propositions in these anomalous areas of late (Falk, 2004). If anomalous behaviour in any branch of science is not ultimately resolved, adjustments may need to be made to a scientific model until a resolution is reached. Christians may be assured that this is true of any science, including Darwinian biology. The fact that Darwinian biology continues to provide powerful explanations for new phenomena suggests that it cannot be easily dismissed. Some Christians even claim a gain for Christian theology from a dialogue with a modest form of Darwinism. We will now consider some recent scholarship in this area.

Darwinism and Christian Theology

Haught (2008) claims that: "To a great extent theologians still think and write almost as though Darwin had never lived" (p. 2). While some theologians may have been happy to accept Darwin's theory as a scientific theory, they have been reluctant to place the Darwinian model and the biblical model alongside each other. Such a process, however, can lead to great gains for biblical theology and Darwinism particularly, according to Haught (2008), if placed in the larger context of cosmic evolution.

While Darwin's theory and contemporary cosmological theory draw upon pure materialistic explanations, there are other considerations that warrant attention. Astrophysicists have shown that one could consider the universe as having been set up for life, given the fine-tuning of the cosmological constants required for the production of carbon in the stars. According to Haught (2008):

> For life to be possible at all, the argument goes, the rate of expansion of the universe, the force of gravity, the ratio of electron to proton mass, and the cosmic birthmarks had to be fixed infinitesimally close to their now established values. Otherwise the universe could never have produced hydrogen atoms, supernovae, carbon, and other ingredients essential to the emergence of life. (p. 38)

Christians would consider that this information adds substance and strength to the biblical notion of God as creator, though it is not a proof of God's existence.

As far as biological evolution is concerned, even Darwin admitted that natural selection, although regarded by him as the most important mechanism of evolution, was not the only force operating for biological change (Darwin 1859, p. 167). Polkinghorne (2005) agrees with the basic Darwinian picture of life but takes issue, in relation to hominid development, with the claim that natural selection or simple materialistic conditions can account for such development. In the case of *Homo sapiens*, he underlines such qualities as self-consciousness, profound language development, great range of rational skills, creative endeavours in art and culture, moral thinking and actions, and God-consciousness. Specifically in relation to rational skills, he argues that if these were developed only on the basis of the need for survival, the development of simple arithmetical skills would have been all that was needed. He then adds:

> Yet when Isaac Newton recognized that the same force that makes the high cliff dangerous is also the force that holds the Moon in its orbit around the earth, and the Earth in its orbit around the Sun thereby going on to discover universal gravity, something happened that went far beyond anything needed for survival. (p. 51)

In relation to ethical behaviour, Polkinghorne (2005) acknowledges that typical Darwinian explanations for kin altruism and reciprocal altruism offer some partial insight. He then adds, "But sociobiology tells too banal a story to be able to account for radical altruism, the ethical imperative that leads a person to risk their own life in the attempt to save an unknown and unrelated stranger from the danger of death" (p. 54). One may rightly ask about the origin of these human qualities if they do not derive from naturalistic processes. Polkinghorne (2005) gives his answer as follows:

> For the religious believer, the source of these dimensions lies in the unifying will of the Creator, a fundamental insight that makes it intelligible not only that the universe is transparent to our scientific enquiry, but also that it is the arena of moral decision and the carrier of beauty. Those dimensions of reality, the understanding of whose character lies beyond the narrow explanatory horizon of natural science, are not epiphenomenal froth on the surface of a fundamentally material world, but they are gifts expressive of the nature of this world's Creator. Thus moral insights are intuitions of God's good and perfect will, and aesthetic delight is a sharing in the Creator's joy in creation, just as the wonderful cosmic order discovered by science is truly a reflection of the Mind of God. (p. 58)

Descent with modification need not naturalistically lead to more elegant, perfect, or complex structures. Darwin (1859) himself noted that, "Natural selection will not necessarily produce absolute perfection" (p. 163). What then, of the bias towards complexity? Conway Morris (2003, 2008) proposes the notion of convergence of species towards complexity, where the evidence now strongly suggests humans to be an "evolutionary inevitability" (2003, p. xiii). By convergence, Conway Morris (2003) means "the recurrent tendency of biological organization to arrive at the same solution to a particular need" (p. xii). In other words, similar solutions, such as the development of the camera-like eye, are found in response to a biological need for sight in widely divergent species. The subtle interplay between "chance" and "law" seems to have played an important part in the living world being as it is (see Poole, 2007, p. 120). Just like the fine-tuning of cosmological constants for life, so it seems that the modification of living organisms has been fine-tuned, as it were, for complexity. Conway Morris (2008, p. viii), however, cautions against premature invoking of an anthropic principle in evolutionary biology. He does suggest that, at least, convergence is a fingerpost in that direction. Again, to a Christian observer, such convergence adds to the evidence pool for a God, although not proving God's existence.

The Scientific and Biblical images of the Nature of Things could be compared as shown in Table 3. The comparisons are not designed to highlight the differences as confrontations, but as composite meanings providing increasing depth to our understanding of the way things are. Recently, Finlay (2008) paralleled biological history (the scientific image) with biblical Israelite history (the biblical image), noting that, even though both have their chaotic and tumultuous story, they will reach a special climax with the second advent of Christ. As regards Creation, a literal reading of Genesis 1 and 2 renders an image depicting an event over a relatively short space of time (six evening-morning days), and the scientific image is one of a process over a very long period of time (billions of years). The former portrays the Creator as the designer of living organisms, while the latter portrays the Creator as allowing living organisms to design themselves. Haught (2008) believes that the scientific image of creation is consistent with the notion of God as creator of order and of the "disturbing wellspring of novelty" which allows the process to provide "opportunities to participate in its own creation" (p. 6). The giving of such freedom to nature is deeply consonant with the biblical doctrine of grace, which leads to true intimacy between God and his creation. Haught (2008) envisages that, "Only a relatively independent universe, a universe allowed to 'be itself', could be intimate with God" (p. 43).

Table 3
The Nature of Things according to Biblical and Scientific Images

	Biblical Images		Scientific Images	
1	Creation as an **event** of the past	1	Creation as an ongoing **process**	
2	Creation as a **state** of being	2	Creation as a **story** of becoming	
3	Suffering caused by the **intervention** of extraterrestrial beings	3	Suffering is the **natural outcome** of a free creative process	
	Sola Scriptura		Theistic	Atheistic
4	Redemption from sin	4	Redemption from suffering and death	Redemption has no meaning
5	Sin is the transgression of the law	5	Sin is refusing to participate with God in his free creative process	Sin has no meaning
6	Redeemed for a new heaven and a new earth	6	Redeemed for a bright future	No future beyond death-eventual annihilation of our planet

The Cosmic and Darwinian picture of the universe shows how intimate human beings are with the rest of creation. While the biblical picture links human beings to the earth, the Darwinian picture links them with other organisms as well, and, through the Cosmic picture, with the elements themselves. This intimacy with the rest of creation is pictured also in the biblical model of the sabbatical year, when the cultivated earth was, as it were, again allowed to be itself and in the process recover its elements lost previously in the cultivating process. The weekly sabbath also has significance for all creation since, as Haught (1995) notes, "Sabbath, sacramentalism, and silence…provide us with the deepest roots of the ecological concern the world so desperately needs to recover today" (p. 201).

According to Table 3, suffering is an outcome of allowing creation to create itself. Haught (2008) reflects the thought of Teilhard de Chardin when he says, "Evil and suffering could be thought of as the dark side of the world's ongoing creation. To say that suffering is a logical possibility in an evolving universe, however, is not to claim that it is morally tolerable" (p. 41). In this context, the biblical image of the suffering Christ has deep meaning (see Table 3, items 3, 4, & 5; Hebrews 2:18; Philippians 2:8). If Jesus is the ultimate revelation of God to the world, it would seem that the image of a suffering servant is more relevant to his creation than that of a conquering king, although this image is not completely absent. The image of the suffering servant (Isaiah 53) does begin to emerge in the Old Testament, and seems to reach a climax in the life of the Christ of the New Testament. The suffering Christ has identified himself so intimately with humanity, that every joy and every sorrow are remembered by him. According to Haught (2008), all human experience is "saved by being taken eternally into God's own feeling of the world; (etched) permanently within the everlasting empathy of God; and redeemed from absolute perishing" (pp. 46-47). But what of the future for a life of suffering and death?

Haught (2008) uses biblical images of the future to suggest that biological evolution has available to it novel informational possibilities present in an always dawning future. This is in contrast to a materialist view of evolution, which he claims depends on the "lifeless and mindless atomic constituents…(and)…the grinding onward of an algorithmic past" (pp. 94-97). One of the strongest biblical stories in regard to the importance of the future in the spiritual life is that of the patriarch Abraham, who was led from his home in Ur of the Chaldees to an unknown future. He was sustained in this journey by God's promise that he would originate a great nation, and he was also

sustained by a hope whereby he "looked for a city whose builder and maker was God" (Hebrews 11:10). Haught (2008) is emphatic when he says, "We must be able to show that the visions of hope at the heart of the Abrahamic religious traditions provide a coherent metaphysical backdrop for the important discoveries of modern science" (p. 115). These visions go "beyond the predictions of science without contradicting them" (p. 103).

Many New Testament commentators have observed how the future and the present in a sense coexist in many of Jesus' sayings. Gunther Bornkamm (1973), for example, states:

> We must not separate the statements about future and present, as is already apparent from the fact that in Jesus' preaching they are related in the closest fashion....God's future is God's call to the present, and the present is the time of decision in the light of God's future. (pp. 92-93)

In the last book of the Bible, the book of Revelation, Christian hope is based on a future beckoning us on through the blood of the Lamb, Jesus himself. The divine blood represents a guarantee of a future without suffering and death gained by Jesus' victory at the cross (Rev. 5, 12, 21).

Conclusion

A major benefit of dialogue is the opportunity it affords each party to be enlightened by the other. Some Christians, for example, see in Darwinism a clue to the age-old question: Why does God allow suffering? Some Darwinians see in Christianity a clue as to what might be responsible for the information package that could drive evolution. Another benefit is the necessity to keep abreast of the fundamental assumptions and difficulties behind Darwinism and Christianity. Encouragement of a dialogue with Darwinism is in no way meant to minimize the extent of the assumptions involved. Lennox (2009) has recently reminded us of these assumptions, one of which is the often unstated extension of demonstrable microevolutionary processes to the scale of macroevolution. Thinking of evolution in cosmic as well as macro and molecular terms, however, has brought a continuity to the explanations, though there are assumptions involved. Christian scholars have also found the concept of continuity across all scales helpful in theological reflection.

In relation to cosmic and biological evolution and Christian discipleship, Haught (2008) places God very much in the beckoning future so that, while such a God is hidden from our view in the sense that he is not analyzable like the causal events in the past, he is nonetheless intimately involved in his creation. Accordingly:

> It is the self-withdrawal of any forceful divine presence and the paradoxical hiddenness of God's power in a self-effacing persuasive love that allows creation to come about and to unfold freely and indeterminately in evolution. It is in God's self-emptying humility that the fullest effectiveness resides. (p. 104)

Ruse (2001) notes that there is agreement between Christians and some Darwinians about the uniqueness of human beings in that "our appearance was not just inexplicable chance" (p. 218). Also, the Darwinian human and the Christian human have those similar ironic qualities of selfishness and kindness.

Placing biblical images beside scientific images (e.g., Table 3) is potentially problematic, however, if one considers that the images should coincide. The vehicles in which divine truths are carried in the biblical context are very ancient ones that often seem irrelevant in the light of the vehicles used in modern science. Most of the battles we face in the issues surrounding science and faith have to do with attaching more significance to the vehicles than to the truth carried by them. Paying attention

to this fact will help us never to *choke* on God's word, whether spoken in Scripture or Nature, but to *feed* upon it to God's glory.

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