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CREATION, DESIGN AND EVOLUTION: CAN SCIENCE DISCOVER OR ELIMINATE GOD?

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“The heavens declare the glory of God, and the firmament shows forth his handiwork.”

Psalms 19:1

INTRODUCTION: THE PLAYING OUT OF THE DESIGN ARGUMENT IN THE WEST

Every culture has its views about the universe, about the human person, and about the great metaphysical questions that confront us. How ought we to think about the relationship between cosmology, anthropology, and theology? This may be a challenge for us in our increasingly secular post-modern culture, but for most of human history it was not an issue. In the Judeo-Christian tradition these areas of human reflection were naturally bound up together, as in the Hebrew psalmist’s proto-statement of the argument from design: “the heavens declare the glory of God, and the firmament shows forth his handiwork.”¹ The scholastic university culture of the High Middle Ages held as its ideal the “unity of knowledge,” or *unitas scientiae*, approaching the study of the universe as a coherent and knowable whole. The philosophical foundation of this unified vision was the recently absorbed Aristotelian worldview that served as the interpretive matrix for questions in both natural history and theology.²

During the fourteenth century, cracks developed in the Aristotelian-Ptolemaic world view, opening avenues of speculation that would lead to the ideas of Copernicus, Kepler, Galileo, and Newton, which issued in the

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1. *Psalms 19:1*.

2. JOHN E. MURDOCH, *From Social into Intellectual Factors: An Aspect of the Unitary Character of Medieval Learning*, in *THE CULTURAL CONTEXT OF MEDIEVAL LEARNING 308* (John E. Murdoch & Edith Sylla eds., 1975).

modern era. An eventual result of this redirection of the sciences would be the substitution of more practical objectives for the “*unitas scientiae*” that had propelled medieval natural philosophy. Nevertheless, the conviction that knowledge is one endured well into modernity, underpinning the revolutions in astronomy and physics, and in the sciences of matter and life, until this sense of unity was lost with the increasing fragmentation and professionalization of scholarship.³

A central dimension of this “*unitas scientiae*” was the conviction that God is the creator and guarantor of order. The medieval teleological argument expressed by St. Thomas Aquinas found its most extensive elaboration in the seventeenth century.⁴ The English natural theology tradition flourished just as the Scientific Revolution was gathering strength; in fact, the two complemented each other quite nicely. English theologians and naturalists – such as Richard Bentley, John Ray, William Derham, and William Whiston – brought to bear on the argument from design every kind of information pouring forth from the sciences of astronomy, physics, chemistry, and natural history. This English “physico-theology” movement would constitute the closest partnership religion and natural history would ever enjoy, and was given a public forum in the Boyle Lectures, founded in 1692. Cambridge natural historian and divine, John Ray (1627–1705), perceived clear evidence of supernatural order in the intricate adaptations of plants and animals to their environments.⁵ One of the most famous American colonial thinkers to develop this was Cotton Mather, who argued in *The Christian Philosopher* (1668):

If so much wisdom and penetration be requisite to observe the wonderful order and design in the structure of the world, how much more were necessary to *form* it!’ If men so much admire philosophers, because they *discover* a small part of the *Wisdom* that made all things, they must be stark blind, who do not admire that *Wisdom* itself.⁶

In both England and America, the argument from design persevered even as forces gathered to undermine it. George Cuvier’s discovery of the fossils of extinct animals cast the first shadow over the confident assumption of the immutability of God’s creation.⁷ Geologists began to

3. PETER M. J. HESS & PAUL L. ALLEN, CATHOLICISM AND SCIENCE 23 (2008).

4. THOMAS AQUINAS, SUMMA THEOLOGICA pt. 1, §2(3) (Fathers of the English Dominican Province trans., Christian Classics 1948).

5. Ray restated the design argument in THE WISDOM OF GOD MANIFESTED IN THE WORKS OF THE CREATION (1691). See also DERHAM, WILLIAM, PHYSICO-THEOLOGY, OR, A DEMONSTRATION OF THE BEING AND ATTRIBUTES OF GOD FROM THE WORKS OF CREATION (1716).

6. COTTON MATHER, THE CHRISTIAN PHILOSOPHER 13 (Winton U. Solberg ed., University of Illinois Press 1994) (1721).

7. Georges Cuvier, *Recherches sur les ossements fossiles, où l'on rétablit les caractères de*

deepen the timeline of Earth's history, and Erasmus Darwin and Jean Baptiste Lamarck proposed competing theories that life itself has a history.⁸ When William Paley offered a strong restatement of teleology,⁹ interpreting the evidence of each species' special adaptation to its unique environment in terms of divine providential ordering, he was swimming against the tide. Although his anthropomorphic approach to natural history influenced a generation of students, including the young Charles Darwin, powerful forces were gathering against a simple version of the design argument. The *Bridgewater Treatises* of the 1830s reflect the thematic depletion of the natural theology genre, albeit with some creative innovations. Charles Babbage put forth a valiant modification of the basic thesis, arguing that an omnipotent God had the foresight to create laws permitting the development of new species under appropriate circumstances, rather than their creation through interference with the laws of nature themselves.¹⁰

Since the publication of *On the Origin of Species* in 1859,¹¹ in which Darwin laid out a meticulously substantiated case for his theory of evolution, the debate about design has taken some fascinating turns. The reception of *On the Origin of Species* was not as the "warfare myth" portrayed it, with godless evolutionary scientists ranged against biblical literalist theologians and bishops. Darwin's theory met a mixed reception, with some theologians enthusiastically endorsing it as compatible with religious belief, and some scientists vigorously opposing it on scientific grounds.¹² Darwin himself gradually abandoned Christianity as he found its teleological presuppositions to be incompatible with empirical evidence supporting natural selection, although John Brooke has inferred that Darwin's loss of traditional faith had more to do with his emotional response to the tragic death of his daughter Annie.¹³ Although the theory of evolution was in some respects consonant with Darwin's agnosticism, it was not necessarily the cause of Darwin's beliefs.

This paper is not the place to recount the century of consolidation of the

plusieurs animaux dont les revolutions du globe ont détruit les espèces (Paris, 1812); excerpts in MARTIN J. S. RUDWICK, GEORGES CUVIER, FOSSIL BONES, AND GEOLOGICAL CATASTROPHES 165-172 (1997).

8. JEAN BAPTISTE LAMARCK, PHILISOPHIE ZOOLOGIQUE, OU EXPOSITION DES CONSIDERATIONS RELATIVES À L'HISTOIRE NATURELLE DES ANIMAUX, *passim* (1809).

9. See generally WILLIAM PALEY, NATURAL THEOLOGY (Oxford University Press 2006) (1802).

10. See generally CHARLES BABBAGE, NINTH BRIDGEWATER TREATISE (Cambridge University Press 2009) (1837).

11. See generally CHARLES DARWIN, ON THE ORIGIN OF SPECIES (David Quammen ed., Sterling Books 2008) (1859).

12. A. HUNTER DUPREE, ASA GRAY: AMERICAN BOTANIST, FRIEND OF DARWIN 355-362 (1988).

13. The International Society for Science and Religion, Charles Darwin on Religion, <http://www.issr.org.uk/darwin-religion.asp> (last visited Jan. 20, 2010).

theory of evolution between Darwin's first proposal of it and the discovery of DNA by Franklin, Watson, and Crick in the early 1950s. It is suffice to say that the study of population genetics showed that Mendelian laws of inheritance could consistently be integrated with Darwin's idea of natural selection, leading to the modern evolutionary synthesis of the 1940s. During the same period, many Protestant, Catholic, and Jewish groups arrived at an accommodation of the basic idea of evolution and began the critical work of integrating it into their theological perspective. Not all religious groups have made this accommodation, of course, as the history of so-called young earth creationism testifies.¹⁴ Much time and energy in recent decades has gone into the public discussion of evolution, creation, and the idea of "intelligent design." I believe that much of this discussion has been at cross purposes due to linguistic confusion. That confusing scientific and metaphysical discourse is philosophically improper and destructive of the integrity of both. While the argument for God's existence from apparent biological design was essentially played out a century ago, the theological interpretation of an ancient, dynamic, and evolving universe is alive and well.

"CREATION OR EVOLUTION?" A CATEGORY MISTAKE

Let us begin with a look at linguistic confusion. I am often asked by students whether I believe in God or in evolution, or more specifically, whether I believe in creation (or intelligent design) or in evolution. When the issue is framed in this fallacious way, we are forced to choose between an apparently atheistic evolutionary worldview and a scientifically naïve "creationism." Unfortunately, much of the public has accepted this framing. According to a recent international survey, twenty-seven percent of American adults believe that it is impossible to "believe in a god and still hold the view that life on earth, including human life, evolved over time as a result of natural selection." Another nineteen percent expressed uncertainty on the issue.¹⁵ Nonetheless, according to a 1997 survey by Edward J. Larson and Larry Witham, roughly forty percent of American scientists are theistic evolutionists themselves.¹⁶ A 2009 survey by the Pew Research Center confirmed this finding, with half of the responding

14. RONALD L. NUMBERS, *THE CREATIONISTS: FROM SCIENTIFIC CREATIONISM TO INTELLIGENT DESIGN* (2006).

15. British Council, *Darwin Survey Shows International Consensus on Acceptance of Evolution*, <http://www.britishcouncil.org/new/press-office/press-releases/Darwin-survey-shows-international-consensus-on-acceptance-of-evolution/> (last visited Jan. 20, 2010).

16. Larry Witham, *Many Scientists See God's Hand in Evolution*, WASHINGTON TIMES, p. A8.

scientists identifying as religious and only two percent rejecting evolution.¹⁷ The “creation or evolution” dichotomy is in fact false and unnecessary, based upon a category mistake. For example, if I held up a grapefruit and asked my students, “Is this fruit yellow or is it spherical?” almost always one of them will point out that the sentence makes no sense: “yellow” and “spherical” are not contradictory, but complementary descriptions of the fruit. The question, “Do you believe in creation or evolution?” has the same problem. Like color and shape, “creation” and “evolution” do not occupy competing categories, but rather, are complementary ways of looking at the universe. “Creation” is a philosophical concept: it is the belief that the universe depends for its existence upon something or some being outside itself. As a philosophical term, “creation” is an empirically untestable belief. It makes no claims about how or when the world came to be, or even whether creation was a determinate “act” or an event in time. It is a philosophical tenet compatible with the theological doctrines of Judaism, Christianity, Islam, and other monotheistic religions.¹⁸

By contrast, “evolution” is in the scientific category. It is a statement about physical reality, not a metaphysics. Evolution, in its most general sense, is the inference that the universe has changed over time – that stars, galaxies, planets, and living things on Earth are different now than they were in the past. In biology, evolution is the principle that all life is related through descent with modification from common ancestors. Science is the process of explaining phenomena by testing explanations against the natural world. The important element is testing, rather than accepting an explanation based on authority or personal preference. Science also restricts itself to explaining things through natural, rather than supernatural, mechanisms. Biologists cannot explain how the modern horse descended from a *Hyracotherium*-like ancestor by saying “God did it.” They can, however, examine evidence from living and fossil horses, and devise testable hypotheses about the relationship between them. To date, the hypotheses best supported by evidence are invariably those which agree with evolutionary theory.

Of course, religious claims that are empirically testable can come into conflict with scientific theories. Claims of young earth creationism, that the earth was created in its present form between six and ten thousand years ago, or that the entire globe was covered by a massive deluge in the days of Noah, and that these claims are supported by empirical evidence such as the fossil record or carbon dating, are falsifiable. These fact claims are clearly

17. The Pew Research Center, Public Praises Science; Scientists Fault Public, Media, <http://people-press.org/reports/pdf/528.pdf> (last visited Jan. 20, 2010).

18. A contrary and equally untestable philosophical assertion would be that the universe is uncreated, or self-subsistent.

contradicted by mainstream paleontology, cosmology, geology, and biogeography. Intelligent Design Creationists argue that the eye or DNA or the bacterial flagellum is irreducibly complex, and that this claim is supported by empirical evidence. In fact, these claims are clearly contradicted by mainstream organic chemistry, genetics, and allied sciences.

However, the theological aspect of various brands of creationism – the assertions about the nature of God, and the reasons why God should have created the universe and permitted it to develop in a particular way – cannot be addressed by science. By their nature, such claims can only be addressed – and, in fact, have been extensively so – by philosophers and theologians. The theory of evolution does not make claims about God’s existence or non-existence, any more than do other scientific theories such as gravitation, atomic structure, or plate tectonics. Just like gravity, the theory of evolution is compatible with theism, atheism, and agnosticism. It is certainly possible to accept evolution as the most compelling explanation for biological diversity, and also accept the idea that God works through evolution.

INTELLIGENT DESIGN CREATIONISM: PSEUDO-SCIENCE, PSEUDO-THEOLOGY

Intelligent design” or “ID” developed in the late 1980s, after the Supreme Court decision *Edwards v. Aguillard* (1987)¹⁹ outlawed the contemporary teaching of biblical creationism. The emphasis of some of its proponents shifted from championing “creation science” to promoting scientific-sounding theories, like “irreducible complexity” and “complex specified information.”²⁰ After the 2005 judgment in Dover, Pennsylvania ruling that “intelligent design” is not science,²¹ ID advocates switched tactics yet again, utilizing slogans such as “teach the controversy” and “analyze strengths and weaknesses of evolution,” and pushing “academic fairness” legislation in various states.²²

Statements rejecting intelligent design as science have been issued by more than a hundred scientific organizations, and by dozens of religious denominations.²³ As representative of these, I will quote from the statement

19. *Edwards v. Aguillard*, 482 U.S. 578 (1987).

20. MICHAEL J. BEHE, *DARWIN'S BLACK BOX: THE BIOCHEMICAL CHALLENGE TO EVOLUTION* 39–45 (2006); WILLIAM DEMBSKI, *THE DESIGN REVOLUTION: ANSWERING THE TOUGHEST QUESTIONS ABOUT INTELLIGENT DESIGN* 81–86 (2004).

21. *Kitzmiller v. Dover Area School District* 400 F.Supp.2d 707 (M.D.Pa. 2005).

22. Eugene C. Scott, *American antievolutionism: Retrospect and prospect*, in *EVOLUTION: THE FIRST FOUR BILLION YEARS* 370–99 (Michael Ruse and Joseph Travis, eds., 2009).

23. *VOICES FOR EVOLUTION* (Carrie Sager, ed., 2008),

issued by the International Society for Science and Religion (ISSR):

We believe that intelligent design is neither sound science nor good theology. Although the boundaries of science are open to change, allowing supernatural explanations to count as science undercuts the very purpose of science, which is to explain the workings of nature without recourse to religious language. Attributing complexity to the interruption of natural law by a divine designer is, as some critics have claimed, a science stopper. Besides, ID has not yet opened up a new research program. In the opinion of the overwhelming majority of research biologists, it has not provided examples of “irreducible complexity” in biological evolution that could not be explained as well by normal scientifically understood processes. Students of nature once considered the vertebrate eye to be too complex to explain naturally, but subsequent research has led to the conclusion that this remarkable structure can be readily understood as a product of natural selection. This shows that what may appear to be “irreducibly complex” today may be explained naturalistically tomorrow.²⁴

While science does not operate according to consensus, the fact that the membership of the ISSR—which includes biologists, paleontologists, geneticists, anthropologists, theologians, philosophers, historians, and representatives of numerous other disciplines—has unanimously judged intelligent design as not passing scientific muster carries a lot of weight. “Intelligent design” has no coherent research program, and adds nothing new to the discussion of alternatives to evolution as practiced by scientists.²⁵ The ISSR statement advocates a dual caution: “We recognize that natural theology may be a legitimate enterprise in its own right, but we resist the insistence of intelligent design advocates that their enterprise be taken as genuine science—just as we oppose efforts of others to elevate science into a comprehensive world view (so-called scientism).”²⁶

Not only is intelligent design not science, but it is poor theology, if it is theology at all. Speaking only for Christianity, theology is reasoned discourse about God and about God’s relationship with creation. As such, theology is always a hermeneutical exercise: the translation of meaning from the earliest experience of Christian believers to contexts far different in time, space, and culture. As a living dialogue between scripture, tradition, and the cultures in which it is embedded, one element of a responsible approach to theology is to review doctrine periodically in light

24. International Society for Science and Religion, ISSR Statement on the Concept of ‘Intelligent Design’, <http://www.issr.org.uk/id-statement.asp> (last visited Jan. 20, 2010).

25. MARK PERAKH, UNINTELLIGENT DESIGN 138–39 (2004).

26. *ISSR Statement on the Concept of ‘Intelligent Design’*, *supra* note 24.

of contemporary science.²⁷ Evolutionary and developmental thinking—in the sense of a perspective on the world that is historical and dynamic rather than timeless and static—permeates not only our scientific, but also our literary, cultural, and religious world views. The interdisciplinary dialogue of the last quarter century has led to the integration of this new cosmological perspective into theology, reflected in the work of scholars as diverse as Francisco Ayala, Ilia Delio, Celia Deane Drummond, John Haught, Kenneth Miller, Ted Peters, Robert Russell, and Josef Zycinski.²⁸ In contrast to the “warfare model” that dominated nineteenth-century thinking—and which “intelligent design” reflects to some extent—most scholars find it more accurate to interpret the science-religion relationship historically,²⁹ and methodologically, in terms of their creative mutual interaction.³⁰

What are the central theological failings of intelligent design? First, it is blasphemous. Intelligent design constrains God to work within the limits of what its adherents can understand about nature. In so doing, it reduces God from the status of creator to that of mere designer, and a not very competent one at that, as suggested by George Levine:

What designer with any competence and with any compassion at all would construct a mode of living and survival that entails so much pain, so much awkwardness, such clumsy reuse of organs and limbs apparently adapted for other purposes? Why force aquatic birds (with wings that don't work as means to flight but are already readapted for swimming) to “march” for seventy miles from their source of food to their breeding grounds, or to walk on their heels for months in order to protect the egg from touching the ice and immediately freezing? Was it an intelligent designer, or the penguins, who figured out that this was a manageable way to do

27. Peter M. J. Hess, *Theological Problems and Promises of an Evolutionary Paradigm*, in *THE EVOLUTIONARY EPIC: SCIENCE'S STORY AND HUMANITY'S RESPONSE* (2009).

28. FRANCISCO J AYALA, *DARWIN'S GIFT TO SCIENCE AND RELIGION* (2007); CELIA DEANE-DRUMMOND, *CHRIST AND EVOLUTION: WONDER AND WISDOM* (2009); ILIA DELIO, *CHRIST IN EVOLUTION* (2008); JOHN F. HAUGHT, *DEEPER THAN DARWIN: THE PROSPECT FOR RELIGION IN THE AGE OF EVOLUTION* (2003); KENNETH R. MILLER, *FINDING DARWIN'S GOD: A SCIENTIST'S SEARCH FOR COMMON GROUND BETWEEN GOD AND EVOLUTION* (1999); TED PETERS, AND HEWLETT MARTINEZ, *EVOLUTION FROM CREATION TO NEW CREATION: CONFLICT, CONVERSATION, AND CONVERGENCE* (2003); ROBERT J. RUSSELL, *COSMOLOGY FROM ALPHA TO OMEGA* (2008); JÓZEF ZYCINSKI, *GOD AND EVOLUTION: FUNDAMENTAL QUESTIONS OF CHRISTIAN EVOLUTIONISM*, (Kenneth W. Kemp and Zuzanna Maslanka trans., 2006).

29. See generally *GOD AND NATURE: HISTORICAL ESSAYS ON THE ENCOUNTER BETWEEN CHRISTIANITY AND SCIENCE* (David C. Lindberg & Ronald L. Numbers eds., 1984); GARY B. FERNGREN, *SCIENCE AND RELIGION: AN HISTORICAL INTRODUCTION* (2002).

30. Nancey Murphy, 'Creative mutual interaction': *Robert J. Russell's Contribution to Theology and Science Methodology*, in *GOD'S ACTION IN NATURE'S WORLD* 39–50 (Ted Peters, ed., 2006).

things, and then did it?³¹

Intelligent design cannot allow that evolution is the process chosen by God for the unfolding of the universe, entrusting to it its own integrity. ID seems incapable of recognizing the possibility that God remains hidden, indiscernible behind the veil of nature. If we accept the idea of creation, we should also accept the idea of the integrity and autonomy of what is created.

Second, however seductive an argument it is that intelligent design can be consonant with both religion and science, sooner or later it founders on the shoals of natural evil. The evolutionary history of life on earth implies vast eons of suffering, and theologians have spilled much ink either by attempting to justify it, explaining it away, or somehow integrating it into a theological system. Insisting on God as a cosmic designer—who intervenes periodically to propel evolution in propitious directions—inevitably lays the responsibility for the concomitant suffering squarely at the feet of the designer. Examples of “design” the result in gratuitous suffering abound in nature, from praying mantis species, in which the male cannot fully ejaculate his sperm until the female has chewed his head completely off; to the ichneumon wasp, laying its eggs in the bodies of caterpillars upon which the larvae feed; to the human heart, which seems better designed for cardiologists to operate upon than to pump blood efficiently;³² to genetic diseases, like *fibrodysplasia ossificans progressiva* that gradually turns a child’s muscles into a second skeleton, rigidly imprisoning her before it kills her prematurely.³³

If intelligent design theory is correct, it is understandable why Richard Dawkins should describe God as being (among other things) a “sodomachochistic, capriciously malevolent bully.”³⁴ To a theist, of course, such a description of God constitutes blasphemy, but this is the logical descriptor of the God of “intelligent design,” who ultimately is directly responsible for all the suffering built into a universe with which God interminably tinkers. In his discussion of what he perceives as the theological depth of the cosmos, John Haught ties these two dimensions of blasphemy together: “one refusal to see depth is Intelligent Design, which refuses to look beneath the veneer of design to the tortuous history of evolution.”³⁵ In other words, intelligent design, by insisting upon discovering traces of a wise and intervening God, refuses to take seriously

31. GEORGE LEVINE, *DARWIN LOVES YOU: NATURAL SELECTION AND THE REENCHANTMENT OF THE WORLD* 256–57 (2006).

32. FLOCK OF DODOS: THE EVOLUTION-INTELLIGENT DESIGN CIRCUS (New Video; Documentary Educational Resources 2006).

33. Richard B. Steele, *Unremitting compassion: The Moral Psychology of Parenting Children with Genetic Disorders*, 57 *THEOLOGY TODAY* 161–74 (July 2000).

34. RICHARD DAWKINS, *THE GOD DELUSION* (2006).

35. JOHN F. HAUGHT, *DEEPER THAN DARWIN: THE PROSPECT FOR RELIGION IN THE AGE OF EVOLUTION* 22 (2003).

the problem of natural evil.

A third problem with intelligent design theory is illustrated by the claim of Christoph Cardinal Schönborn of Vienna: that while the cogency of evolutionary theory hangs upon the existence of transitional fossils, to date no such fossils have been found.³⁶ The claim is demonstrably false, as excellent sequences of transitional fossils exist for whales, horses, and humans, as well as for the transition from reptiles to mammals, and from dinosaurs to birds. These are well illustrated in any college level evolution textbook.³⁷ The reader of the Cardinal's book, *Chance or Purpose?* is thus left to conclude either (1) that the Cardinal was seriously misled by his science advisors, or (2) that he deliberately chose to misrepresent the scientific evidence to support his claim about the absence of fossil remains.³⁸ Unlike Young Earth Creationists who forthrightly admit that their "scientific" explanation of a phenomenon like the Grand Canyon is contradictory to and better than that offered by "establishment" science, ID proponents keenly hope to maintain credibility with their scientific peers. They will go to great lengths to misrepresent or otherwise distort the word of respected scientists, so that it will appear as though science itself is inconclusive, and that ID proponents are engaged in genuine and lively debate about what is in fact a "theory in crisis."³⁹ Their language—including phrases such as "teach the controversy" and "academic fairness"—is evidence of this. Nick Matzke and Paul Gross have shown how "critical analysis" is not really anything new, but rather merely another costume to dress up the same antievolutionism.⁴⁰

Fourth, intelligent design falsely represents itself as the primary alternative to atheistic evolution or metaphysical reductionism. This is quite untrue. Intelligent design creationism is primarily associated with Protestant Christianity of an evangelical flavor, although a few notable proponents—such as Cardinal Schönborn and Michael Behe—are Roman Catholic. What ID advocates refuse to acknowledge is that mainstream Protestant and Catholic churches, along with progressive Jewish congregations, long ago came to terms with the implications of an evolutionary perspective, and are working hard to integrate it into their theologies of creation. While ID

36. CHRISTOPH SCHÖNBORN, *CHANCE OR PURPOSE? CREATION, EVOLUTION AND A RATIONAL FAITH* 63 (Hubert Philip Weber ed., Henry Taylor trans., 2007).

37. MICHAEL J. BENTON, *VERTEBRATE PALAEOLOGY* (2005); MA MALDEN, SCIENCE BLACKWELL, CARL ZIMMER, *THE TANGLED BANK: AN INTRODUCTION TO EVOLUTION* 15–16 (2010).

38. SCHÖNBORN, *supra* note 36, at 45.

39. MICHAEL DENTON, *EVOLUTION: A THEORY IN CRISIS: NEW DEVELOPMENTS IN SCIENCE ARE CHALLENGING ORTHODOX DARWINISM* (1986).

40. Nicholas J. Matzke & Paul R. Gross, *Analyzing Critical Analysis: the Fallback Antievolutionist Strategy*, in *NOT IN OUR CLASSROOMS: WHY INTELLIGENT DESIGN IS WRONG FOR OUR SCHOOLS* 28–56 (Eugenie C. Scott & Glenn Branch eds., 2006).

remains not merely a religious but a sectarian concept steeped in pseudo-scientific jargon, the diversity of religious approaches to evolution is evidence that evolution, as viewed through religious eyes, is not a sectarian ideology. The book, *Voices for Evolution*, lists formal statements from over three dozen Christian denominations, as well from Jewish and other religious groups, in support of evolution.⁴¹ Moreover, the Clergy Letter Project, housed at Butler University in Indiana, now claims over 12,000 signatories to its simple statement, which reads in part:

We the undersigned, Christian clergy from many different traditions, believe that the timeless truths of the Bible and the discoveries of modern science may comfortably coexist. We believe that the theory of evolution is a foundational scientific truth, one that has stood up to rigorous scrutiny and upon which much of human knowledge and achievement rests. To reject this truth or to treat it as “one theory among others” is to deliberately embrace scientific ignorance and transmit such ignorance to our children. We believe that among God’s good gifts are human minds capable of critical thought and that the failure to fully employ this gift is a rejection of the will of our Creator.⁴²

The signers of this letter include representatives from virtually every denomination, demonstrating the breadth of clerical support for evolutionary theory. One outgrowth of the Clergy Letter Project is Evolution Weekend, celebrated annually on the weekend closest to Charles Darwin’s birthday, February 12. Congregations across the spectrum incorporate into their worship services – through sermon or song, reading or catechism – some recognition of the dynamic and evolving character of life in the universe. Most of the pastors or rabbis who have signed on to the project would term themselves, “Theistic Evolutionists,” and they constitute a growing interdenominational movement.⁴³

THE EVOLUTIONARY HERMENEUTIC OF THE THEISTIC EVOLUTIONARY MODEL

Some of the many religious believers who accept the theory of evolution refer to themselves as “Theistic Evolutionists,” some as “Evolutionary Theists.” Yet others want to relinquish labels and think of themselves simply as people who look upon the evolving universe through

41. VOICES FOR EVOLUTION, *supra* note 23.

42. Evolution Weeked—Clergy Letter Project, http://www.butler.edu/clergyproject/Christian_Clergy/ChrClergy_Ltr.htm (last visited Jan. 20, 2010)

43. *Id.*

the lens of belief in God.⁴⁴ In any case, the central questions they ask are: (1) What does theology look like if it takes science seriously? and (2) What does science and its objects of study look like if we approach them with religious faith? These are questions of hermeneutics, of the translation of meaning not only across time and space, but between the cultures of religion and of science. The interpretive framework within which a Theistic Evolutionist reads the Bible, church history, doctrinal theology, and religious ethics will necessarily reflect not a young, small, static, and anthropocentric cosmos, but a unimaginatively vast, ancient, dynamic, and evolving universe.

As we have seen, a simplistic approach to scratching the surface of nature in the expectation of uncovering divine fingerprints is unconvincing. Saint Augustine and some other patristic writers—while by no means “Evolutionists” in the scientific sense that we understand that word today—nevertheless appreciated that God’s creation of organic form need not have happened in a six day framework.⁴⁵ Rather, they thought in terms of God’s conferral upon the world of the power to evolve from *logikoi spermatikoi*, or “word empowered seeds.”⁴⁶ If we accept the idea of “creation” at all, then why can we not accept the autonomy and integrity of what has been created? Why can we not accept the idea that God gave the universe the power and freedom to develop in myriad ways over 13.7 billion years, some of which include the evolution of life as we know it? Conferring autonomy on a contingent creation is an audacious enterprise in vulnerability, entailing even the possibility that life that has evolved intelligence and culture, and that moral awareness might be wiped out in an instant if a gamma ray burst were to occur within a few light years of that inhabited planet.

A theistic evolutionary perspective unflinchingly faces the fact that life in the universe is fragile, and as far as we know, rare. Most of the world’s great religious traditions—Hinduism, Judaism, Buddhism, Christianity, and Islam—were born in a brief window of fairly hospitable terrestrial conditions, a climatic stability that influenced their theologies accordingly. In the future, the earth will not be nearly so welcoming of large-scale life as it is now. In the near term, long periods of widespread and life-scouring glaciation will recur.⁴⁷ Hundreds of millions of years later, as the sun’s luminescence raises temperatures and the solar winds strip away the

44. Antje Jackelén, *A Critical View of ‘Theistic Evolution’*, 5 THEOLOGY & SCIENCE 151 (July 2007).

45. 41 ST. AUGUSTINE, VOL. 1: THE LITERAL MEANING OF GENESIS (James Taylor, ed., 1982).

46. ERNAN McMULLIN, EVOLUTION AND CREATION 11–16 (1985).

47. PETER WARD & DON BROWNLEE, THE LIFE AND DEATH OF PLANET EARTH: HOW NEW SCIENCE OF ASTROBIOLOGY CHARTS THE ULTIMATE FATE OF OUR WORLD 69–86 (2002).

atmosphere and oceans, living macro-organisms will begin to die off.⁴⁸ Large plant and animal life ultimately will have thrived for only one-twelfth of the Earth's total existence, and human life will have occupied only a minute fraction of that period.⁴⁹ Of course, this will hardly matter to us on a personal level, but it does throw into relative perspective our comfortable assumptions of cosmic stability. How can we rethink our theologies to reflect not only an ancient, dynamic, and evolving universe, but also an earth that is only temporarily hospitable to complex and intelligent life? The theological issues at stake in such a fully evolutionary understanding of the world are many and varied, ranging from creation to the problem of evil, to theological anthropology, to the eschatological vision. It is hard to imagine how intelligent design could begin to navigate through them.

CONCLUSIONS

This essay began with the perennial question of how we might most constructively think about the relationship between cosmology, anthropology, and theology. Our views in 2009 about the universe are vastly different from those of our ancient and medieval forbears, and our understanding of the human person has changed radically over the last century in light of psychology and neuroscience. And yet the great metaphysical questions still confront us: Why does the universe exist? "What is it that breathes fire into the equations and makes a universe for them to describe?"⁵⁰ Why did reflexive consciousness evolve on planet earth? What is the origin and nature of the human spiritual impulse? Does existence have any ultimate meaning?

Personally I am deeply sympathetic with the inclination that drives intelligent design advocates. I want and hope for answers. As a member of the species *homo sapiens*, I am a pattern-seeking animal, a meaning-creating being. Humans are intensely curious to understand the world in which they live, and among terrestrial animals they seem uniquely equipped to pursue the scientific studies that make such inquiry possible. Moreover, as a Christian theologian, I am naturally committed to the metaphysical belief that there is more to reality than just what is susceptible of empirical investigation.

The mistake intelligent design makes is in asserting that this reality-greater-than-what-is-susceptible-of-empirical-investigation can in fact be discovered by empirical investigation. In fact, intelligent design forsakes

48. *Id.* at 117–48.

49. *Id.* at 101–28.

50. STEPHEN HAWKING, A BRIEF HISTORY OF TIME FROM THE BIG BANG TO BLACK HOLES 174 (1988).

both science and religion. In seeking to find in the natural objects of science, some proof of a cosmic designer who by definition transcends nature, intelligent design has abandoned the objective of science. Likewise, in seeking scientific proof of a designer, intelligent design relinquishes faith, which Saint Paul tells us is “the assurance of things hoped for, the conviction of things not seen.”⁵¹ The scientific quest for the designer behind the veil of nature ultimately fails—science can neither discover nor eliminate God.

As I mentioned above in section two, numerous scholars describe themselves as “Theistic Evolutionists,” though there is an argument for abandoning that term. Antje Jackelén claims that ID illegitimately constrains religion to the question of theism and atheism, and that it compromises the character of science by suggesting that a theory or the natural processes it describes can be theistic or atheistic, rather than simply neutral. She prefers instead to speak of a “theology of evolution”⁵² which accepts the cogency of the evolutionary synthesis for explaining both the diversity and the relatedness of all life on earth. My theology of evolution respects the integrity of science, and at the same time affirms a reality that cannot exhaustively be reduced to investigation by the methodology of science. My theology regards the case for the “fine-tuning” or the “anthropic principle” as intriguing, although inconclusive,⁵³ and my theology resonates with John Haught’s view that a universe that has evolved persons urges us to seek a creator who is “at least personal.”⁵⁴ But in a theology of evolution, no amount of scientific investigation will ever discover a designer, nor can the quest serve as a substitute for the lived experience of religious faith.

I believe only science should be taught in science classes. Neither theism nor atheism should be the default metaphysical underpinning to this science. I argue that there is no more room for the claim that evolution is an unplanned, unguided process than there is for the claim that we can identify clear signs of intelligent design. However, while I am in favor of protecting the integrity of science classes and the religion-neutral scientific process, I am also in favor of promoting the teaching of philosophy and philosophical questions among elementary and high school students. There is no reason at all why young people should not engage the great questions of meaning, purpose, and value at an early age. That is as

51. *Hebrews* 11:1.

52. Antje Jackelén, *A Critical View of 'Theistic Evolution'*, 5 *THEOLOGY & SCIENCE* 151 (2007).

53. JOHN D. BARROW & FRANK J. TIPLER, *THE ANTHROPIC COSMOLOGICAL PRINCIPLE* (1986); NANCEY MURPHY & GEORGE F. R. ELLIS, *ON THE MORAL NATURE OF THE UNIVERSE: THEOLOGY, COSMOLOGY, AND ETHICS* (1996).

54. JOHN F. HAUGHT, *GOD AFTER DARWIN: A THEOLOGY OF EVOLUTION* (2000).

important to their education as is learning what science is and how it works. There is an appropriate place for each discipline and each set of questions. Where science raises questions at the limit of its competence—questions about design, purpose, meaning, planning, directedness—let the philosophers and theologians take the lead in exploring such questions which transcend the disciplinary boundaries of the sciences. The education of our young people will be the richer for it.