Review and Analysis of *Theistic Evolution: A Scientific, Philosophical, and Theological Critique*

by Daniel H. Chew

Book: J.P. Moreland, Stephen C. Meyer, Christopher Shaw, Ann K. Gauger, and Wayne Grudem, eds., *Theistic Evolution: A Scientific, Philosophical, and Theological Critique* (Wheaton, IL: Crossway, 2017)

Introduction

How does Christianity interact with science, especially in the contested areas of cosmic and especially human origins? Some scientists, especially those linked to the organization known as Biologos, have claimed compatibility between Christianity and the findings of science, or specifically the theory of evolution. Their brand of theistic evolution is the result of their particular synthesis of what they believe to be the indisputable findings of evolutionary science, and what they believe the Bible teaches. This particular version of theistic evolution can be defined as:

> God created matter and after that did not guide or intervene or act directly to cause any empirically detectable change in the natural behavior of matter until all living things had evolved by purely natural processes.[1]

In an effort to refute such teaching, a group of scientists and theologians have come together to write a book to that effect, entitled *Theistic Evolution: A Scientific, Philosophical and Theological Critique*. This book stands at a massive size of 972 pages excluding indices. It is comprised of three separate sections: a scientific critique, a philosophical critique, and a theological critique, with the first section taking up about half of the entire book. The scientific critique argues for the inadequacy of evolution by itself to actually give rise to the origin of the species. The philosophical critique argues against naturalism as a governing philosophy in thinking about origins, with an especial focus on methodological naturalism, the philosophical position that only naturalistic causes and processes can be considered as legitimate in one's method of doing science. The theological critique has only one goal, which is to prove that theistic evolution contradicts the teachings of Scripture, and this is done both by looking at the Old Testament, the New Testament, Systematic Theology, and Church History. Capping off each individual section stands a unique chapter on something of interest to those in the field. Capping off the scientific critique section is a chapter on bias in science, with a short criticism of the peer review process and a demolition of the portrayal of scientists as dispassionate truth-

[1] Wayne Grudem, "Biblical and Theological Introduction: The Incompatibility of Theistic Evolution with the Biblical Account of Creation and with Important Christian Doctrines," in Moreland et al., *Theistic Evolution*, 67

seekers.[2] Capping off the philosophical critique section is a chapter on C.S. Lewis and evolution.[3] And capping off the theological critique section is a chapter on B.B. Warfield and evolution.[4]

Looking at the authors, it is discerned that this book seems to be a massive project by the *Discovery Institute*, which promotes the alternate scientific theory of Intelligent Design, and a couple of conservative Christian theologians.[5] This book seems to be aiming for a comprehensive refutation primarily of the Biologos initiative, as can be seen by how the phrase "theistic evolution" is defined, and who the writers are writing against.[6]

As someone trained in the biological sciences and also in theology, I have the ability to read all three sections with understanding. As such, I will review all three sections, and evaluate them accordingly. I will however change the order of my review, reviewing the philosophical critique section first, the scientific critique section second, and the theological critique section third.

Philosophical Critique

The second section of the book begins with a plea by philosopher J.P. Moreland for why science needs philosophy.[7] This chapter I guess is meant to be an apologetic against the naiveté of many who are steeped in the scientific outlook, who are however ignorant of just how much philosophy they have been indoctrinated already in their induction into the scientific worldview. Moreland's argument here is a defense for the necessity of philosophy especially as it regards the nature and limits of science.[8] It is an argument that philosophy as a discipline is necessary in the origins debate, and its arguments should be listened to, not immediately discounted because 'it is not science.'

Moreland's argument is sound. However, his argument and the entire chapter is weak. Why are we on the defensive when it comes to the issue of origins? One does not have to wax polemical against the empiricist materialist "scientific" mindset, but surely one can do better than just arguing that philosophy is relevant. If the goal is to make the strongest possible assault against theistic evolution, however one wants to define it, then surely the strongest arguments against the scientific mindset should be deployed, not the weakest. Instead of being on the defensive, we should point out that the scientific mindset is itself

[2] Christopher Shaw, "Pressure to Conform Leads to Bias in Science," in *ibid.*, 523-43
[3] John G. West, "Darwin in the Dock: C.S. Lewis on Evolution," in *ibid.*, 755-79
[4] Fred G. Zaspel, "Additional Note: B.B. Warfield Did Not Endorse Theistic Evolution as It is Understood Today," in *ibid.*, 953-72
[5] One of the editors, who is also the author of the scientific and philosophical introduction, and a writer of many chapters of the book is Stephen C. Meyer, who is with the Discovery Institute. Another editor, Ann K. Gauger, is also with the Discovery Institute.
[6] See the two introductions to the book. The primary opponents the writers of this book wrote against are Francis Collins, Karl Giberson, Denis Alexander, and John Walton.
[7] J.P. Moreland, "Why Science Needs Philosophy," in *ibid.*, 547--59
[8] Moreland, "Why Science Needs," in *ibid.*, 557

based on a certain type of philosophy: materialism and empiricism, and therefore philosophy is necessary for the origins debate. Then, we can perhaps argue further that these two philosophies are inadequate for the knowledge of truth, but this latter argument will require more in-depth discussions concerning the philosophy of science, which is totally skipped in this section.[9]

I mentioned this critique here because the philosophical underpinnings of scientism are never addressed in this entire volume. 972 pages, and not even one voice pointing out the main philosophical underpinnings of scientism?! Sure, there are voices against methodological naturalism, which will be addressed soon, but addressing methodological naturalism is not the same as addressing scientism. Methodological naturalism (the theory that one should only seek natural causes and natural processes when practicing the scientific method), if it is a problem at all, is merely a symptom of a much bigger problem — the acceptance that empiricism can be a vehicle for gaining knowledge of truth by itself.[10] But perhaps the philosophers in this volume do accept empiricism as a vehicle for truth, and thus their critique of scientism in this section would be rather muted.

The next chapter in the section, "Should Theistic Evolution Depend on Methodological Naturalism?," by Stephen C. Meyer and Paul A. Nelson, and the chapter after that by Stephen Dilley address the issue of methodological naturalism.[11] Meyer and Nelson argue against the postulation of criteria that have been used to discount intelligent design and creationism as being "unscientific," stating that these criteria would make materialistic evolutionary theories unscientific as well.[12] Therefore, they argue, since science should be about seeking the truth, intelligent design should be allowed as a true scientific endeavor. [13] Along the same lines but taking a slightly different route, Dilley argues that those making the case for evolution and against intelligent design are utilizing "God-talk," which should however be disallowed in a consistent application of methodological naturalism.[14] Dilley also notes the strange specter of scientists talking in the subjunctive case about what God **would** have done were he to create X, and he is correct to call these scientists out on their sub-par theology as it were.[15] Lastly, Dilley calls out the inconsistency in claiming that rivals to evolutionary theory are unscientific, while also

[9] I have attempted to address this somewhat in my paper, *Science as Paradigmatic: A Critical Analysis of Thomas S. Kuhn's View of Normal Science*.

[10] Saying this does not imply that science is a worthless enterprise. Rather, claiming that science is not about capital "T" Truth allows it to continue serving in an instrumental manner as an adequate tool for understanding the workings of the world, within a paradigm of thought. It however does mean that "science" is not absolute and does not have the first and last say on any topic, and disallows science to shut down any discussion by claiming that "science" has said X and thus X is definitely true.

[11] Stephen C. Meyer and Paul A. Nelson, "Should Theistic Evolution Depend on Methodological Naturalism?," in Moreland et al., 561-92. Stephen Dilley, "How to Lose a Battleship: Why Methodological Naturalism Sinks Theistic Evolution," in *ibid.*, 593-631

[12] Meyer and Nelson, "Should Theistic Evolution," in *ibid.*, 579

[13] Meyer and Nelson, "Should Theistic Evolution," in *ibid.*, 592

[14] Dilley, "How to Lose," in *ibid.*, 609

[15] Dilley, "How to Lose," in *ibid.*, 612-3

stating that these rivals failed the scientific tests for a viable theory.[16] But how can something be simultaneously unscientific and thus cannot be tested, and also failing all tests at the same time, Dilley asks. Therefore, methodological naturalism is to be taken as an unsound principle for doing science, and should not be adopted against theories such as Intelligent Design.

These two chapters are interesting in their own right, and they do point out the problems of adopting methodological naturalism *en toto*. The authors are helpful also in pointing out the inconsistency of their critics and of those who have striven to disallow Intelligent Design and all forms of creationism out of science classes by claiming that those theories are "not science" or "pseudoscience." But, as we return back again to the philosophy of science, what IS science? If science is all about seeking the truth regardless of what or where it is, then the authors are perfectly right in calling for the rejection of methodological naturalism. However, is there a reason for methodological naturalism to be present in science at all? And if science is all about seeking the truth regardless of what the outcome is, then should we stop making separations between diverse disciplines of knowledge such as theology and philosophy and science, since such demarcations seem to indicate the necessity of a divide between them?

Here, we come to C. John Collins's chapter in the book entitled "How to Think about God's Action in the World."[17] Collins here focuses on the doctrine of providence as it relates to how we ought to deal with the origins controversy. All of that is standard biblical doctrine, but it is the later part of his chapter where things get interesting, as Collins takes on the issue of the "God-of-the-gaps" argument. Collins' way of dealing with the argument is to differentiate between two different gaps: *gaps due to ignorance* (Latin: *lacunae ignorantiae causā*), and *gaps due to the nature* of things (*lacunae naturae causā*).[18] If the gap is due to ignorance, then the "God-of-the-gaps" argument holds true. However, if the gap is due to the nature of things, then the "God-of-the-gaps" argument is illegitimate. Collins then uses this distinction to argue for the plausibility of design in the origins debate.

What is interesting about this chapter, and how it segue into the discussion over methodological naturalism, is the fact that the "God-of-the-gaps" argument has not actually been addressed. Yes, Collins' differentiation between the two different types of "gaps" is theoretically true, and it does create a conceptual space for design, but how does that actually work out in scientific practice? It does not! It helps the theologian and the philosopher, but not the scientist, and that is a pity. It does not help the scientist because there is no criteria given for when to perceive that something is a gap due to ignorance, rather than a gap due to the nature of things. So one can give lip service to design, but in practice one can continue to reject it, for how can one tell the difference between the two gaps?

[16] Dilley, "How to Lose," in *ibid.*, 629
[17] C. John Collins, "How to Think about God's Action in the World," in *ibid.*, 659-81
[18] Collins, "How to Think," in *ibid.*, 669

The reason the “God-of-the-gaps” argument is convincing, and the embrace of methodological naturalism becomes part of the method of science by default, is due to the history of how science has evolved over time, into a field that deals with empirical results. After all, “science” has discovered many things that were previously thought to be supernatural occurrences. As the story of scientific progress goes, where science progresses, the “gaps” that have been attributed to God decrease in number. Whether as philosopher or scientist or theologian, we have to acknowledge this fact, and acknowledge that superstitious man have thought of perfectly natural occurrence like for example lightning strikes as being supernatural acts. Since that had been the case, what is the way we should think about science and demarcate what science is and what it can address, so that we do not think of scientific progress in terms of the phenomenon of the ever-decreasing “gaps” that science has patched up?

The quest for demarcation criteria to determine what science is and what science isn’t in my opinion is most likely doomed to failure, because we are trying to describe so many things by the one word: “science.” It is probably better to split the various sciences and each of them have different demarcation criteria. And here is where I think differentiating the sciences would be helpful in dealing with the question of methodological naturalism, by differentiating between the historical and operational sciences. By historical sciences, I mean the study of natural history through science. By operational sciences, I mean the study of ongoing phenomena through science. In the operational sciences, methodological naturalism is perfectly acceptable, because we are dealing with natural phenomena most of the time. Miracles of course are an exception, but miracles by definition are outside the purview of science. However, when it comes to natural history, then by definition science is inadequate, because we cannot know of discontinuities in history (like the Noahic Flood), from scientific experimentation, that will give the illusion of age. This is so not because God is trying to deceive, but because for example the sediments were never meant to tell us how old they were by our simplistic adoption of uniformitarianism as a governing axiom of scientific investigation, among other such assumptions. History is not necessarily repetitive in nature, unlike in the laboratory where experiments can (normally) be repeated over and over again.

Therefore, the call for the rejection of methodological naturalism by Meyer, Nelson, and Dilley calls for too much to be sacrificed. Methodological naturalism is not always bad, and it is actually necessary for operational science to work. But, in agreement with Meyer, Nelson and Dilley, I agree that methodological naturalism is not suited for the historical sciences. However, I would go one step further, and claim that the historical sciences are applied sciences — in this case science applied to history. In other words, they are not pure sciences at all, and as an applied science other disciplines (like philosophy and theology) may have something to add to the discussion as well. Thus, by differentiating the sciences between the operational and the historical sciences, a better case could be made for limiting methodological naturalism without discarding it totally, and opening the topic of origins to the input from other disciplines.

The God-of-the-gaps argument is thereby answered by differentiating the nature of the sciences and the question asked of the sciences. If the question is one of normal natural workings, then we should not posit "God" to fill in the gaps. This is especially so since Christians believe in the workings of providence and the lawful ordering of creation by God. However, in the historical sciences, "God' can be posited only because the main focus is history, not science per se, and therefore the God-of-the-gaps argument is invalid in discussions of history.

In the other chapters in this section, philosopher J.P. Moreland wrote a chapter on the issue of plausibility structures, arguing that the theory of theistic evolution removes Christianity out of the plausibility structure of society.[19] Christianity is transformed into a privatized and noncognitive religion that has little to do with Truth.[20] Christianity is not thereby rendered false and could still be true, but it is true only in the same way "I feel good" is true — subjectively, noncognitively true. Christianity can at best be called true in the same way as the placebo effect is true, in that it is objectively helpful to all people, but, as its loci is the subjective aspect of a person, the truths of Christianity do not rise to the level of absolute truth with as much imposing value as for example the law of gravity. Put simply, Christianity in this view is moral therapeutic deism, not hard truth. Since Christianity is however about hard truth, theistic evolution actually works to undermine the plausibility of the Christian view of reality and truth, and that is a major problem.

Garrett J. DeWeese in his chapter argues for a free-process indeterministic approach to the problem of natural evil.[21] Here, DeWeese notes correctly that theistic evolution must hold to the view that natural evil is not due to sin, and in fact natural evil is part of creation, since "evolution demands natural evils occur."[22] Since DeWeese argues from an Old-Earth Creationist approach, he must reckon with natural evil prior to the Fall of Man, and he does that by arguing that creation while good has an inbuilt instability that over time results in natural evil, such that natural evil was not part of creation from the beginning but neither was it due to the Fall. In response, I agree with DeWeese that natural evil is a problem of Christians who want to hold to some variation of macroevolution, while I disagree with DeWeese's solution as I see it as being fully inadequate. As a Calvinist, I do not believe in any indeterminism on God's part, so therefore chaos theory does not apply to God. God can create a free world without natural evil, in the same way that God can create free moral agents who do not sin (i.e. Adam and Eve prior to the Fall).

The next chapter by Colin Reeves argues that the interaction of Science and Scripture today is one where "Science" always trumps Scripture, and nowhere more so than in theistic evolution.[23] This is unacceptable for Christians, and we must return science to its

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[19] J.P. Moreland, "How Theistic Evolution Kicks Christianity Out of the Plausibility Structure and Robs Christians of Confidence that the Bible Is a Source of Knowledge," in *ibid.*, 633-58
[20] Moreland, "How Theistic Evolution Kicks," in *ibid.*, 648
[21] Garrett J. DeWeese, "Theistic Evolution and the Problem of Natural Evil," in *ibid.*, 683-703
[22] DeWeese, "Theistic Evolution and the Problem of Natural Evil," in *ibid.*, 687-8
[23] Colin R. Reeves, "Bringing Home the Bacon: The Interaction of Science and Scripture Today," in *ibid.*, 705-29

proper place. Reeves unfortunately does not tell us how this can be accomplished, while I had outlined a manner above in my discussion of the relation of science and methodological naturalism.

The second to last chapter of this section by Tapio Puolimatka, on the issue of moral conscience, takes issues with the origin of the conscience, which under evolutionary theory should not really exist, at least not as what we would call moral conscience.[24] Through evolutionary processes, there should be no difference in kind between animal instincts and human moral conscience, for the latter is supposed to have evolved from the former.[25] Theistic evolutionists therefore cannot adequately account for the origin of human moral conscience as something qualitatively different from animal instincts, and thus theistic evolution undermines the foundations of Christian ethics.

The last chapter on C.S. Lewis is interesting only because many evangelicals for some strange reason love C.S. Lewis. I for one am not a fan of Lewis, except for the Narnia series. Be that as it may, John G. West has written an interesting analysis of Lewis' view on evolution.[26] According to West, Lewis while embracing evolution also embraced a historical fall of a literal Adam and Eve.[27] Lewis was also skeptical of Darwinism and its creative power, increasingly so in his later life, although he did not reject evolution itself.[28] As such, West argues that theistic evolutionists will find no succor from C.S. Lewis, despite the fact that Lewis embraced evolution in some form.

In looking at the various chapters that make up this philosophical critique section, it seems to me that the loci of the essays are all over the place. While good points are made here and there in criticism of the theistic evolutionary enterprise, the points of criticism focus more on pointing out the philosophical problems of theistic evolution, without actually dealing with the nature of science itself and how science ought to work in relation to philosophy and theology. One will come out of the section more convinced of the failure of theistic evolution, but unable to articulate a positive philosophy of science as it relates to the origins controversy. Thus, the philosophical critique section in my opinion fails to adequately deal with the problem of theistic evolution and the origins controversy, and this section is probably the weakest section of the entire book.

Scientific Critique: On Neo-Darwinism in general

The scientific critique takes up the bulk of the book, and is split into two parts. Part I argues for the failure of Neo-Darwinism as a theory to explain the origins of life, while Part 2 argues against the idea of a universal common ancestor of all life (the theory of universal

[24] Tapio Puolimatka, "The Origin of Moral Conscience: Theistic Evolution versus Intelligent Design," in *ibid.*, 731-53
[25] Puolimatka, "Moral Conscience," in *ibid.*, 740-5
[26] West, "Darwin in the Docks," in *ibid.*, 755-79
[27] West, "Darwin in the Docks," in *ibid.*, 759-62
[28] West, "Darwin in the Docks," in *ibid.*, 763, 772-5

common descent), and for the hypothesis of a unique human origin. The scientific critique does not go so far as to claim that all humanity have descended from a single human couple, but it asserts that a single human couple could theoretically furnish all the genetic diversity present in the human race, which makes the biblical origin story scientifically plausible.

Douglas Axe began the first part of this section with three prima facie reasons why people should reject Darwin's explanation of life.[29] His reasons are that there is widespread confusion over who the experts on the topics are, there is too much at stake to leave it to the experts, and that leaving it to the "experts" make us skip to the question of how Darwinism should impact our faith without even the question being raised as to whether it is actually true.[30] Stephen Meyer in his second chapter gives us a couple of reasons against Neo-Darwinism.[31] He argues that new information needs to be generated to produce new life, but natural selection cannot generate new information.[32] Granting that random mutation could produce something for natural selection to select for beneficial mutations, Meyer asserts that, at least concerning proteins, based on a paper Douglas Axe had published on protein folding, such searching is next to impossible given the odds of a successful search.[33] Meyer further argues that genes controlling morphology, which are expressed in early embryonic development, are nearly always lethal when mutated.[34] Since creating mutations in these genes is the way of producing new creatures with different morphologies through mutations, this creates a problem for the theory of evolution.

Matti Leisola is next with his insights gained through his work on protein biochemistry.[35] Leisola goes through his work with microorganisms especially in his experiments in modifying and manipulating the proteins and enzymes produced by bacteria for industrial purposes. Through his work on proteins, he asserts that it is nearly impossible to change one protein structure to another even via mutations. Leisola asserts that creating a new protein from scratch is much easier than trying to change one protein structure to another via mutations.[36] Since this is what evolution is supposed to do (change proteins from one to another via random mutations followed by natural selection), evolution is left without a mechanism for protein evolution to take place.

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[29] Douglas D. Axe, "Three Good Reasons for People of Faith to Reject Darwin's Explanation of Life," in *ibid.*, 83-104
[30] Axe, "Three Good Reasons," in *ibid.*, 84-6
[31] Stephen C. Meyer, "Neo-Darwinism and the Origin of Biological Form and Information," in *ibid.*, 105-37
[32] Meyer, "Neo-Darwinism," in *ibid.*, 111-2
[33] Meyer, "Neo-Darwinism," in *ibid.*, 114-6. Meyer cites Douglas Axe, "Estimating the Prevalence of Protein Sequences Adopting Functional Enzyme Folds," *Journal of Molecular Biology* 341 (2004): 1295-131
[34] Meyer, "Neo-Darwinism," in *ibid.*, 118-21
[35] Matti Leisola, "Evolution: A Story without a Mechanism," in *ibid.*, 139-63
[36] Matti Leisola, "Evolution: A Story without a Mechanism," in *ibid.*, 157-8

James M. Tour has the 'enviable' role of stating why abiogenesis (the theory that the first life form or life forms come about from non-life) is a non-starter.[37] Tour begins with one of his projects involving the design of nanovehicles with spherical fullerene wheels,[38] and how chemical synthesis is not only a very delicate process, but also that desiring even a seemingly minor change in part of the nanovehicle might involve changing part of the synthesis process.[39] As those who have studied organic chemistry will know, adding even one more atom to or substituting one atom in an organic molecule might require alteration of the part or the whole of the synthesis process, and it is not as simple as merely erasing lines on a white board. Through his experiments with the synthesis of nanovehicles, Tour states that the *de novo* synthesis of biomolecules like DNA, RNA and amino acids out in some primordial soup is impossible, from a synthetic chemist standpoint.[40] Tour pointed out that biologists "enjoy the specificity of biological systems," which is however denied to synthetic chemists, and therefore synthetic chemists such as him can easily see that abiogenesis is fairy tale not science.[41]

Next, Winston Ewert criticizes computer simulations for evolution, which he calls "digital evolution."[42] Ewert takes on computer simulations such as Dawkin's Weasel, Ev, Steiner Trees, and Avida, showing that they are loaded with selections features that favor the end result, and if the teleology is removed from the programs, the simulations fail.

The ubiquitous Stephen Meyer argues in the following chapter that the laws of nature do not generate new information.[43] Jonathan Wells in his chapter then goes through the process of genetic expression, focusing particularly on hereditary factors that go beyond the Central Dogma (DNA translates to mRNA which is transcribed to proteins), things such as epigenetics, RNA splicing, RNA editing, protein folding that can only come about through interactions with other molecules, glycosylation of proteins, spatial information in cells, sugar codes of cells, bioelectric codes of cells, and even membrane heredity. Wells then states that many of these non-DNA factors are involved in embryo development, and therefore DNA mutations alone cannot create the type of change that Neo-Darwinian evolution requires.

Skipping to the ninth chapter first is Sheena Tyler with her chapter on embryology and developmental biology, arguing that embryology challenges evolutionary theory.[44] Tyler

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[37] James M. Tour, "Are Present Proposals on Chemical Evolutionary Mechanisms Accurately Pointing toward First Life?," in *ibid.*, 165-91. His role is "enviable" because debunking abiogenesis is in my opinion the easiest to do; the hard part is to make it interesting in the process

[38] The first fullerene is the Buckminsterfullerene, a C-60 spherical molecule

[39] Tour, "Are Present Proposals," in *ibid.*, 168-71

[40] Besides the difficulties of chemical synthesis, one also has to reckon with the problem of chirality, and find a way of producing only one optical isomer or enantiomer of each molecule (E.g. D-Ribose, L-Amino Acids) instead of a racemic mixture of the two enantiomers.

[41] Tour, "Are Present Proposals," in *ibid.*, 184

[42] Winston Ewert, "Digital Evolution: Predictions of Design," in *ibid.*, 193-216

[43] Stephen C. Meyer, "The Difference It Doesn't Make: Why the 'Front-End Loaded' Concept of Design Fails to Explain the Origin of Biological Information," in *ibid.*, 217-36

[44] Sheena Tyler, "Evidence from Embryology Challenges Evolutionary Theory," in ibid., 289-327

focuses on morphology and states that the relatively new field of evolutionary developmental biology ("evo-devo") fails to actually provide the mechanisms for evolution of developmental forms, noting that experiments on for example Gene Regulatory Networks (GRNs) fail to provide evidence of evolution.[45] Through looking at the development of major organs such as the skeleton, the nervous system, the tooth, and even the heart and blood circulatory system, Tyler shows the complexity of their development and then dispute the assertions in evo-devo of evidence of common ancestry through a "common expression pattern in various animals [of patterns of genes including the *Hox* gene –DHC], and that plasticity in such genes, particularly at the phylotypic stage (when members of a phylum might show maximum similarity) could generate evolutionary new body plans."[46] However such similarity is a mirage and there is no single phylotypic stage either. Evolution therefore fails to address the problems of developmental biology in showing how one life form can evolve into another with a different morphology.

Back to the eighth chapter, Stephen Meyer, Ann Gauger, and Paul Nelson come together to address the Extended Evolutionary Synthesis (EES).[47] Evidently, adherents of Neo-Darwinism have come to recognize that the standard evolutionary theory (SET) has failed to adequately address the problems in their respective fields and they have come up with an alternative theory to address what they perceive to be the shortcomings of SET. Thus, standard Neo-Darwinism is supplemented with evo-devo, a theory of morphological self-organization, a neutral theory of evolution, a Neo-Lamarckian theory of epigenetic inheritance, and even natural genetic engineering. Meyer, Gauger and Nelson together point out the flaws in each approach, and show that none of them could actually produce the new information required for evolution to actually proceed.

In concluding part 1 of this section, the overall argument put forward by these scientists is cogent: There is no viable mechanism for Neo-Darwinian macroevolution to actually take place. In fact, the nature of the scientific facts and arguments put forward by these scientists makes it even doubtful whether any version of macroevolution can even take place. Unless one wants to posit multiple episodes of divine intervention at regular intervals of the supposed evolutionary process, macroevolution as a theory is stillborn. And which is more believable: that God supernaturally created all life according to the narrative of Genesis 1, or that God intervened frequently in an evolutionary process such that evolution does occur but God was actually behind it all? But if the macroevolutionary process is so flawed that only God's supernatural intervention can save it, then there is no reason why macroevolution should even be taken to be a viable theory for the origin of life. Thus, by attacking naturalistic Neo-Darwinism, any form of macroevolution is

[45] Tyler, "Evidence from Embryology," in *ibid.*, 294
[46] Tyler, "Evidence from Embryology," in *ibid.*, 318
[47] Stephen C. Meyer, Ann K. Gauger and Paul A. Nelson, "Theistic Evolution and the Extended Evolutionary Synthesis: Does it Work?," in *ibid.*, 257-87

simultaneously discredited, regardless of the intent of the authors of the chapters in this book.

Scientific Critique: Universal Common Descent and Human Evolution

Chapters 10, 11 and 12 deal with the issue of universal common descent. Chapter 10 focuses on the gaps in the fossil record, and how there is no good explanation for the Archean Genetic Expansion, the Avalon Explosion and the Cambrian Explosion, among others.[48] Günter Bechly and Stephen Meyer also point out the incongruence of phylogenetic trees "based on comparative anatomy" to "one based on comparisons of DNA, RNA, and proteins."[49] In chapter 11, Casey Luskin points out that evidences from biogeography, the fossil record, the conflicting molecular and morphological phylogenetic trees, and embryology argue against universal common descent.[50] Luskin points out also the ad-hoc nature of the hypotheses used to prop up the theory of universal common descent, and the problem "convergent evolution" poses to this theory, pointing us to the untestable nature of that theory of common ancestry.[51] Finally, in chapter 12, Paul Nelson focuses in the principle of continuity, the theory that asserts that "every point in any hypothesized pathway of evolutionary transformation must be biologically possible."[52] If there is indeed universal common descent, then the pathway of biological transformation must be able to be elucidated. However, Nelson argues that this is impossible to hold to, citing a paper by Carl Wose to that effect, as there is just too much difference between for example the bacterial genome replication mechanism that is common in the archeabacteria and the mechanism common in the eukaryotes.[53] Since the principle of continuity is violated between different life forms, the proof for universal common descent is found wanting.

These arguments show major problems with the theory of universal common descent, and they are unlikely to be resolved anytime soon. They do not necessarily falsify universal common descent, but they pose enough problems to the theory that we can safely say the theory can be plausibly rejected on a scientific basis. Coupled with the failure of Neo-Darwinism to provide for a mechanism for macroevolution, the theory of universal common descent can be seen to be a hypothesis in want of proof.

Chapter 13 is an introduction to the chapters on human evolution (chapters 14-16). In chapter 14, Luskin deals with the problem of human evolution, showing through

[48] Günter Bechly and Stephen C. Meyer, "The Fossil Record and Universal Common Ancestry," in *ibid.*, 339-44
[49] Bechly and Meyer, "The Fossil Record," in *ibid.*, 359. Phylogenetic trees are lineages ("trees") of ancestry and descent that are supposed to indicate evolutionary relationships of one organism to another.
[50] Casey Luskin, "Universal Common Descent: A Comprehensive Critique," in *ibid.*, 368-84, 393-9
[51] Luskin, "Universal Common Descent," in *ibid.*, 384-93
[52] Paul A. Nelson, "Five Questions Everyone Should Ask about Common Descent," in *ibid.*, 415
[53] Nelson, "Five Questions," in *ibid.*, 420. Citing Carl Wose, "On the Evolution of Cells," *Proceedings of the National Academy of Science USA* 99 (2002): 8743

paleoanthropology that the transition fossils between ancient apes and humans remain missing.[54] Australopithecines are to be considered true apes, while so-called transitional fossils like *Homo habilis* and *Homo naledi* fail to qualify.[55] In chapter 15, Gauger, Ola Hössjer and Colin Reeves put forward evidences for human genetic uniqueness.[56] The supposed figure of 'one-percent difference' between humans and apes is gotten by comparing the genomes of humans and chimpanzees through the lining up of similar sequences of human and chimpanzee DNA and comparing their sequences. However, such a comparison ignores the order of the sequences in the whole genome (since DNA sequencing is done by chopping up DNA for Real-time PCR, and the order between the various chopped-up DNA molecules is not taken into account). Also, it omits inserts and deletions, comparison of the Y-chromosome, difference in repetitive genetic elements unique to humans (e.g. SINEs, LINEs and lncRNAs),[57] copy number variations of genes, and human-specific genes.[58] Furthermore, it ignores differential gene expression altogether. All of these differences show human uniqueness, as opposed to the impression one may get from glancing at the figure of a mere one percent difference between human and apes DNA when compared side-by-side with each other. Gauger, Hössjer and Reeves further argue that, based upon all these differences, there is not enough time in the evolutionary framework to make that many mutations and have it fixed in the population, such that ancient apes would be able to evolve into modern man.[59]

In Chapter 16, Hössjer, Gauger and Reeves bring up the topic of population genetics.[60] They put forward four models for comparison: (1) an out-of-Africa common descent replacement model, where modern humans evolved in African and displaced ancient hominids around the world, (2) a multiregional evolution model, where modern humans evolved in parallel in several parts of the world, (3) a unique origin African ancestry model, where a unique origin (first couple) of humanity came out of Africa., (4) a unique origin Middle East ancestry model, where all humanity came out of the Middle East and have a unique origin (first couple). In their evaluation, the out-of-Africa replacement model requires a severe bottleneck for a long period of time before a group of modern humans branches out, and this would have led in the meantime to inbreeding depression and genetic entropy.[61] Therefore, this model is less plausible. The common descent models predict a split between humans and archaic hominids, but in order to explain the

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[54] Casey Luskin, "Missing Transitions: Human Origins and the Fossil Record," in *ibid.*, 437-73
[55] Luskin, "Missing Transitions," in *ibid.*, 450-62
[56] Ann K Gauger, Ola Hössjer and Colin R. Reeves, "Evidence for Human Uniqueness," in *ibid.*, 475-502
[57] Short Interspersed Nuclear Elements (SINEs), Long Interspersed Nuclear Elements (LINEs), and long noncoding RNA (lncRNA)
[58] Gauger, Hössjer and Reeves, "Evidence for Human Uniqueness," in *ibid.*, 479-89
[59] Gauger, Hössjer and Reeves, "Evidence for Human Uniqueness," in *ibid.*, 495
[60] Hössjer, Gauger and Reeves, "An Alternative Population Genetics Model," in *ibid.*, 503-21
[61] Hössjer, Gauger and Reeves, "An Alternative Population Genetics Model," in *ibid.*, 516-7. Inbreeding depression refers to the phenomenon that inbreeding within a population results in increased frequency of recessive disorders and the reduced viability of the population. Genetic entropy describes the phenomenon of a loss of healthy genes and an increase in harmful mutations within a population. A "genetic bottleneck" refers to a population that lies stagnant in its relatively small population, thus limiting genetic variability and encouraging inbreeding within the small population, bringing with it its associated disorders.

"significant fragments of Neanderthal and Denisovan DNA" in modern humans, archaic hominids are supposed to interbreed with modern humans.[62] However, the authors state that being able to interbreed, after a long time of separation, with archaic humans who likely have accumulated many harmful mutations in their genomes, would be unlikely and probably produce less fit offspring.[63] Therefore, such common descent models are less plausible as an account for the preservation of these supposed archaic DNA fragments.

As opposed to the common descent models, the unique origin models do not have to deal with these problems. The authors note that if the first human couple had maximum genetic variability (4 variants in autosomal DNA, 3 variants on the X-linked chromosome), with the possibility of later mutations resulting in the creation of even more variation, all current genetic variations in the worldwide human population can be explained.[64] Of the two unique origin models, the Middle East ancestry model will give a younger age of origins for humans, as it replaces the need for a bottleneck with created variation in the founding couple.[65]

Throughout the second part of this section, the authors have shown the uniqueness of the human genome and the lack of evidence for human evolution. Furthermore, they have shown that a unique origins model is a plausible explanation for current human genetic variability. The Middle East unique origin model in particular fits very well with the biblical view of the postdiluvian population re-populating the earth from the mountains of Ararat (Gen. 8:4).

Christians therefore do not have to be concerned that the findings of science disprove the biblical account of the origins of mankind. Human evolution remains a theory without real proof, and population genetics does not disprove of the biblical account of human origins.

The last chapter of the scientific critique is a stand-alone chapter on the practical realities scientists face, in dealing with the choice of research projects, the need to seek out research grants, working towards tenure, and publishing in journals with its attendant peer-review process.[66] The goal of this chapter is not to discount the work of scientists as being fully subjective in nature, but to recognize that scientists are human too, and the all too human frailties do affect how science is done in real life. The goal is to remove the air of mystery and authority surrounding "science" and recognize that scientists are not necessarily unbiased truth-seekers, even if that was their original intention in specializing in science in the first place. Science is therefore biased, not with an intention to deceive, but because of practical exigencies, and therefore there is no need to treat the findings of science as fully authoritative absolute truth to be accepted without question.

In summary, the scientific critique section as a whole shows that the theory of evolution has no clothes. While not disproving macroevolution per se, it shows that macroevolution

[62] Hössjer, Gauger and Reeves, "An Alternative Population Genetics Model," in *ibid.*, 518
[63] Hössjer, Gauger and Reeves, "An Alternative Population Genetics Model," in *ibid.*, 519
[64] Hössjer, Gauger and Reeves, "An Alternative Population Genetics Model," in *ibid.*, 511, 516
[65] Hössjer, Gauger and Reeves, "An Alternative Population Genetics Model," in *ibid.*, 515-6
[66] Shaw, "Pressure to Conform," in *ibid.*, 523-43

has no viable mechanism and no proof that it has happened in history, especially as it concerns human evolution. It also puts forward a defense for a unique origin model of human origins, and thus show that the biblical teaching of human origins is scientifically plausible. There is therefore no need to reject the historicity of a literal Adam and Eve as being "unscientific," because science has not disproven a unique origins model. This opens the way to consideration of Intelligent Design and other forms of Creationism as being viable models for the origins of species, models that scientifically-minded people can actually hold to with integrity without checking their minds in at the church door.

Theological Critique

The theological critique section takes up the last part of the book, but it is no less important or heady. Wayne Grudem begins the section with a summary chapter stating how theistic evolution undermines creation events and crucial Christian doctrine.[67] John Currid continues with how theistic evolution is incompatible with the teachings of the Old Testament, while Guy Waters follows up with how theistic evolution is incompatible with the teachings of the New Testament.[68] Gregg Allison in his chapter then shows how theistic evolution is incompatible with historic Christian doctrine, while in the last chapter Fred Zaspel shows that the old Princetonian theologian B.B. Warfield did not endorse theistic evolution as it is currently understood.[69] For the last chapter, Zaspel argues that, although Warfield was willing to consider the evolutionists' scientific claims, Warfield also argued that evolution by itself cannot "explain the world as it is."[70] Warfield likewise rejected the evolutionary origin of Man, and he saw evolution at best as a process or secondary cause but not a true description of ultimate origins.[71] Therefore, while Warfield was receptive to evolution, he did not hold to what most today would consider as theistic evolution.

In Currid's chapter, Currid responds to John Walton's attempt at revising the creation account to be one of function not of being — John Walton's "functional model" of Genesis 1-3. Looking at ANE (Ancient Near East) texts, Currid argues that, based upon his reading of for example the Egyptian creation texts, there is no focus on function to the exclusion of material origins.[72] Looking at the Babylonian Epic known as *Enuma Elish*, Currid cites the words spoken in the epic by the creator god Marduk, and argues from these words that "a rift between origins (the act of creation of mankind) and function (man's place in

[67] Wayne Grudem, "Theistic Evolution Undermines Twelve Creation Events and Several Crucial Christian Doctrines," in *ibid.*, 783-837.
[68] John D. Currid, "Theistic Evolution Is Incompatible with the Teachings of the Old Testament," in *ibid.*, 839-78; Guy Prentiss Waters, "Theistic Evolution Is Incompatible with the Teachings of the New Testament," in *ibid.*, 879-926
[69] Gregg R. Allison, "Theistic Evolution is Incompatible with Historical Christian Doctrine," in *ibid.*, 927-52; Zaspel, "Warfield," in *ibid.*, 953-72
[70] Zaspel, "Warfield," in *ibid.*, 956
[71] Zaspel, "Warfield," in *ibid.*, 961-5
[72] Currid, "Theistic Evolution Incompatible with Old Testament," in *ibid.*, 845

the order of creation) is not evident here."[73] Currid further argues that Genesis 1-3 is "zealously anti-mythological," so it is false to assign them to be myth.[74] Rather, the genre of Genesis 1-3 is historical narrative, and the Genesis account therefore should be read as literal history.

Moving forward to Waters' chapter, Waters argues that the New Testament writers accepted the Genesis accounts as actual history, and that "one is not able to extract Adam's historicity, his relationship with the human race, or his historical work from Paul's teaching without destroying the fundamental integrity of that teaching."[75] Moving through passages such as Luke 3:38, Acts 17:26, Romans 5:12-21, 1 Corinthians 11:8-9, 1 Corinthians 15:20-22 and 44-49 , 2 Corinthians 11:3, 1 Timothy 2:11-14, Jude 14, which directly deal with the Genesis creation account, as well as looking at other texts such as Matthew 1:1, Matthew 19:4-6, Matthew 23:35 and Luke 11:51, Matthew 24:36-38 and Luke 17:26-27, Romans 8:18-23, Hebrew 11:1-7, Hebrews 12:24, 1 Peter 3:20, 2 Peter 2:5, 1 John 3:12, Jude 11, which deal with the broader primeval history, Waters shows that all these texts presuppose the historicity of the entire Genesis account of primeval history.

Waters next responds directly to a few challenges to the historicity of Adam from theistic evolutionists. First, Waters responds to Denis Alexander, who is stated as arguing that physical death in the Old Testament was not due to sin, but physical death is so transformed in the New Testament into an enemy that has no place in the God's future kingdom.[76] Adam and Eve were declared by divine fiat to be representative human beings, even though they were just two out of a community of other humans.[77] In response to this, Waters points out that "the distinction that Alexander presses between physical and spiritual death is alien to Paul's thought," but rather "death is not a given of human nature… [but] an intruder."[78] Adam's representation of the human race is also "predicated upon genetic descent from Adam."[79] Without genetic descent, there can be no representation.

John Walton is Waters' next interlocutor. Walton "distinguishes the *historical existence* of such a figure as Adam from his *archetypal significance* in the biblical literature."[80] Walton also claims that human evil was present prior to the Fall, but God did not hold them accountable. Rather, at the Fall, sin became truly sinful because the Fall brought accountability.[81] In response to Walton, Waters points out that in 1 Corinthians 15:20-22, 44-49, Paul shows interest "in Adam *prior to any sin*."[82] Therefore Adam must be "the first

[73] Currid, "Theistic Evolution Incompatible with Old Testament," in *ibid.*, 849
[74] Currid, "Theistic Evolution Incompatible with Old Testament," in *ibid.*, 856
[75] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 881
[76] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 911
[77] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 912
[78] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 913
[79] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 914
[80] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 916. Emphases original
[81] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 918
[82] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 918. Emphasis original

human being and the genetic ancestor of all human beings."[83] Waters also points out the problems with claiming that human evil (by the pre-Adamites) prior to the Fall would not be considered sin.[84]

Thirdly, Waters deals with Peter Enns, who denies the historical Adam by claiming that all that is necessary to be believed is the "reality of the human plight of sin and death," with the historic Adam being unnecessary.[85] However, as Waters points out, "Paul places his testimony to the historicity of Adam at the core of his gospel."[86] Quoting Richard Gaffin's critique of Enns, Waters quotes with approval Gaffin's critique that Enns made sin into a given human condition, instead of a fallen condition.[87]

In the second to last chapter, Gregg Allison goes through the teachings of the church in her history concerning the doctrine of creation and teachings concerning Adam, showing that theistic evolution is incompatible with the historic teaching of the Christian church.[88] One particular point of note here is the post-Reformation Reformed theologians' rejection of the Pre-Adamite theory, which shares many similarities with what many theistic evolutionists are currently pushing. Allison shows that the Reformed theologians, including heavyweights like Francis Turretin, universally rejected this theory and the related idea of human death before sin.[89]

Allison distilled the main points of the Protestant doctrinal standards on the topic of creation and Adam, which they taught and confessed, as follows:[90]

1. God created ex nihilo all things in heaven and earth both visible and invisible, including human beings in the divine image and angels.
2. Adam and Eve were created as the first human beings and as the progenitors of the entire human race.
3. As originally created, Adam and Eve were upright human beings governed by the Edenic command and charged with the responsibility to exercise dominion over the rest of the created order.
4. By disobeying this Edenic command, they fell into sin. Adam and Eve became guilty before God and thoroughly corrupted in nature, and their punishment included both spiritual and physical death, the first incidence of such death in the human race.
5. Because of solidarity with Adam and Eve, their progeny—each and every member of the human race—enters into life loaded down with guilty and characterized by corruption of nature. This is the state of original sin.

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[83] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 918.
[84] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 919
[85] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 922
[86] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 923
[87] Waters, "Theistic Evolution Incompatible with New Testament," in *ibid.*, 924
[88] Alison, "Theistic Evolution Incompatible with Historical Christian Doctrine," in *ibid.*, 927-52
[89] Alison, "Theistic Evolution Incompatible with Historical Christian Doctrine," in *ibid.*, 938-42
[90] Alison, "Theistic Evolution Incompatible with Historical Christian Doctrine," in *ibid.*, 943-4

6. Not only did God initially create all things in heaven and earth, both visible and invisible; he also exercises providential care and control over all created things. Such meticulous, exhaustive providence does not allow for randomness, accident, chance, fortune, luck, and fate. On the contrary, while using secondary means to accomplish his eternal purpose, God directs all created things teleologically, ruling out all notions of undirected processes at work in this world.

In concluding the theological critique section, it seems clear that theistic evolution is contrary to the teachings of Scripture and alien to historical Christian belief. Theologians who run to ANE sources or who attempt to (illegitimately) hide behind typology do not actually have anything to hold on to in defense of their theistic evolutionary views. Not only is theistic evolution contradicted by Scripture, theistic evolution results in the compromise of many important Christian doctrines, and therefore should be rejected by all Christians as error.[91]

Conclusion

This book *Theistic Evolution: A Scientific, Philosophical, and Theological Critique* is indeed a weighty book bringing together scientists, philosophers and theologians to argue against the error of theistic evolution. From the review of the various sections, it can be seen that the philosophical critique section is weak and is only helpful in pointing out the philosophical errors of theistic evolutionists, the scientific critique section is detailed and helpful in pointing out the many problems in the Neo-Darwinian edifice, while the theological critique section does a good job in pointing out the stark contradiction between theistic evolution and the teachings of Scripture and in the history of the church. The book therefore is tremendously helpful for any discussion of theistic evolution, although it is not as comprehensive as I think it could be.

Back however to the focus of this book: theistic evolution. As a repudiation of the Biologos initiative, this book is right on point. However, this book was not intended to be a rejection of all variations of macroevolution, despite the fact that the scientific critique section has made macroevolution of any form all but unlikely. Thus, the irony of this book is that the scientific critique section argues more strongly against macroevolution than the theological critique section, which in turn argues more strongly against macroevolution than the philosophical critique section. If one takes the scientific critique section seriously, one would be moved to consider more than just Intelligent Design but creationism also, and even Young Earth Creationism (YEC), if one is convinced from the discussion in chapter 16 on population genetics. Conversely, from the theological critique section, one is pushed only to consider a historical Adam and Eve as the first human couple, while

[91] Waters for example points out how Scot McKnight, who holds to theistic evolution, is most definitely at least a semi-Pelagian and arguably a Pelagian as he denies the representative nature of Adam, but makes Adam into an archetype so that we are condemned and merit death only insofar as we sin as Adam sinned. (Waters, “Theistic Evolution Incompatible with New Testament,” in *ibid.*, 915)

one is pushed only to consider a bare theory of Intelligent Design from the philosophical critique section. The irony therefore is that those more scientifically attuned, if one accepts the arguments of this book, will take a stronger position on the historicity of the entire Genesis account of primeval history than a biblical theologian!

In final conclusion, this book is indeed a great work dealing with the topic of origins. As a book that has many mainstream endorsements going for it, it will be helpful as a guide for those who are beginning to explore the topic of origins, yet a guide which is at the same time rather comprehensive in nature. May God thus use this book to aid Christians in thinking about the issue of origins. Amen.